The Alaska Marine Mammal Observer Program Manual

2005

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Alaska

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Section One

The Alaska Marine Mammal Observer Program

The Marine Mammal Protection Act

Introduction

The Marine Mammal Protection Act (MMPA) was enacted in 1972 in response to growing public concern that many marine mammal populations were declining at an alarming rate. The MMPA recognizes marine mammals as integral to an ocean ecosystem, and the Act's primary goal is to restore all marine mammal stocks to optimum population levels. To assess the status of marine mammal stocks and determine if they are at or increasing to optimum population levels, scientists need to determine the current population size and distribution of the stock and to develop accurate estimates of productivity and mortality. The National Marine Fisheries Service (NMFS) is mandated by the MMPA to collect and report this information in marine mammal stock assessment reports. These reports are published annually for strategic stocks and stocks for which there is significant new information, and at least every three years for all other stocks.

The MMPA has the stated purpose of prohibiting the "taking" (killing, injuring, or importation) of marine mammals. An exemption was added to the MMPA in 1994 (under Section 1383 and 1387) for the taking of marine mammals incidentally caught in the course of commercial fishing operations. NMFS is required by the Act to publish an annual "List of Fisheries" which categorizes commercial fisheries according to their relative impact on marine mammal stocks. The categorization of a fishery can have a significant impact on participants in the fishery. The purpose of observer programs under the MMPA is to provide the data required to accurately categorize fisheries and provide other information on the fishery's interactions with marine mammals.

Section 117

Under Section 117 of the MMPA, NMFS must provide estimates of stock abundance and human caused mortalities of all marine mammal stocks in the U.S. Published annually since 1995, these reports compile current marine mammal status information and make it available as a summary document. These regional reports contain stock assessments for each marine mammal stock that occurs in the area. The report also provides the sources of human-caused mortalities and serious injuries to marine mammals and the level of those takes. The reports must also determine each stock's Potential Biological Removal (PBR) level, which is defined as the level of removal that the stock can withstand while still obtaining their Optimum Sustainable Population (OSP). Because the OSP of many stocks is not known, an approach has been developed that allows the agency to manage marine mammals based on information that can be estimated for these stock, such as their productivity levels, recovery factors, and estimated removal levels. The PBR is calculated using the estimated minimum population multiplied by 0.5 the maximum net productivity rate multiplied by a recovery factor between 0.1 and 1.0, which reflects the status of that stock. Using the best available data these reports must assess status of each marine mammal stock. A

stock is considered strategic if it is listed under the Endangered Species Act or if human-caused mortality levels exceeds a stock's PBR. The Marine Mammal Stock Assessments Reports can be found on the NMFS Alaska Region website (www.fakr.noaa.gov).

SECTION 118

Section 118 of the MMPA regulates commercial fisheries interactions with marine mammals. Section 118 requires annual publication of a list of all U.S. commercial fisheries (state and Federal), including information on each fishery such as number of participants and the marine mammal stocks affected by the fishery. All fisheries on this List of Fisheries are categorized annually according to levels of incidental serious injuries and mortalities of marine mammals. A two-tiered analysis is used to determine fishery categories by assessing the potential impacts of fisheries on each marine mammal stock by comparing serious injury and mortality levels to the stock's PBR.

Tier 1: For each stock, serious injuries and mortalities from all U.S. commercial fisheries are totaled. If the total is less than or equal to 10% of a stock's PNBR, then all fisheries interacting with this stock are placed in Category III. This process is repeated for each stock. A fishery remains in Category III unless it interacts with a stock for which PBR is exceeded by more than 10%. All fisheries that interact with a stock for which PBR is exceeded by more than 10% are subject to a Tier 2 analysis.

Tier 2: For each fishery, the annual mortality and serious injury for each marine mammal stock is evaluated relative to the PBR of that stock. The fishery is categorized accordingly:

Category I: Mortality/serious injury >= 50% PBR

Category II: 50% PBR > Mortality/serious injury > 1% PBR

Category III: Mortality/serious injury <= 1% PBR

The MMPA provides commercial fishermen in Category I and II fisheries with a certification that authorizes them to incidentally take marine mammals while fishing, but fishermen required to report ALL incidental takes to NMFS within 48 hours or the incident or return to port, even if an observer is present. Observers may be placed on Category I and II fisheries on a mandatory basis if funding resources allow. They also can be placed in Category III fisheries on a voluntary basis.

A key goal of the MMPA is to reduce marine mammal takes in all fisheries. The MMPA directs NMFS to develop Take Reduction Teams to design and implement plans to reduce marine mammal takes in Category I and Category II fisheries that interact strategic stocks. These teams are made of fishermen, scientists, agency staff, and other interested parties. They rely heavily on observer data (if it is available) to develop plans and to assess progress in reducing takes.

MMPA Observer Programs

The objectives of the MMPA observer programs are in statute:

- Obtain statistically reliable estimates of incidental mortality and serious injury
- Determine reliability of fishermen's reports of mortalities and serious injuries
- Identify changes in fishing methods or technology that may increase or decrease incidental mortalities and serious injuries.

Data provided by MMPA observer programs can support a primary goal of the Act--to decrease incidents of mortality in these fisheries to insignificant levels approaching zero. The priorities used to determine in which fisheries to implement observer programs are:

1) Fisheries that take strategic marine mammal stocks.

2) Fisheries that take species listed as endangered or threatened under the ESA.

3) Fisheries that have a take from a stock in which the level of take is uncertain.

The resources are not available to allow the agency to monitor all the fisheries the required by the MMPA. This presents the challenges of having to select which of the fisheries to observe effectively and how long to observe them given the limited resources available.

Alaska Marine Mammal Observer Program

In Alaska, there are 10 Category II fisheries, 9 of which are salmon gillnet fisheries (2004 List of Fisheries) with one salmon purse seine. The Alaska Marine Mammal Observer Program operates to obtain the necessary data needed to classify fisheries and otherwise manage marine mammal interactions and to achieve a basic understanding of the rate of mortality and serious injury occurring to marine mammals in Alaska Category II fisheries. Funded by MMPA implementation funds, the costs incurred in placing observers are not passed on to the fishing industry.

Of the Category II fisheries of Alaska, five have been observed, including the Prince William Sound drift and set net gillnet fisheries (1990-1991), the Alaska Peninsula drift gillnet fishery (1990), the Cook Inlet drift and set gill net fisheries (1999-2000), and the Kodiak set gillnet fishery (2002).

Table 1. Alaska Category II Fisheries Interactions with Marine Mammals

Fishery (area and gear type)	Observer Program	Species Recorded as Incidentally Taken* (1988 to present)	Data Type
Southeast AK drift Gillnet	never observed	Steller sea lion, harbor seal, harbor porpoise, Dall's porpoise, Pacific white-sided dolphin, humpback whale	logbook and self reports
Southeast AK Purse Seine	never observed	humpback whale	self report
Yakutat set gillnet	never observed	harbor seal, gray whale (stranded)	logbook and stranding
Prince William Sound drift gillnet	1990-1991	Steller sea lion (obs), northern fur seal, harbor seal (obs), Pacific white-sided dolphin, sea otter	observer and logbook
Cook Inlet drift gillnet	1999-2000	Steller sea lion, harbor seal, harbor porpoise, Dall's porpoise	observer and logbook
Kodiak Set gillnet	2002	harbor seal, harbor porpoise, sea otter	logbook
Alaska Peninsula /Aleutians drift gillnet	1990	northern fur seal, harbor porpoise, Dall's porpoise (obs)	observer and logbook
Alaska Peninsula /Aleutians set gillnet	never observed	Steller sea lion, harbor porpoise	logbook
Bristol Bay drift gillnet	never observed	Steller sea lion, northern fur seal, harbor seal, spotted seal, Pacific white-sided dolphin, beluga whale, gray whale	logbook
Bristol Bay set gillnet	never observed	northern fur seal, harbor seal, spotted seal, beluga whale, gray whale	logbook

*Only species with positive records of being taken incidentally in a fishery since 1988 (the first year of the MMPA Exemption Program. Many mis-identified and unidentified mammals have been reported by logbook and stranding data.

Observer Program Responsibilities

The agency-contractor relationship in Alaska MMPA observer programs is considerably different from that found in the NMFS North Pacific Groundfish Observer Program or ADF&G shellfish observer programs. In this MMPA observer program, there is a direct contractual relationship between the contractor and NMFS. The contractor is paid by and directly responsible to NMFS. The industry does not pay for observer coverage but is required to carry an observer when asked. This is not a voluntary observer program. NMFS provides the contractor directly with support and direction and the contractor supports the observers and provides the data and information they provide to NMFS.

The contractor and NMFS work co-operatively to educate fishery participants of the nature of the observer program. In order to assure the best analysis of the program; NMFS, the contractor, and the observers need to maintain open and frequent communications concerning the distribution and deployment of the observers and confer on sampling protocol, data quality issues, and other aspects of the program.

Table 2. Description of Alaska Category II & III Fisheries

Fishery (area and gear type)	Target species	# of permits issued/fished 1997	Soak time	Landings per day	Sets per day	Season duration
Southeast AK drift gillnet	salmon	477 issued 376 active	20 min - 3 hrs; day / night	1	6 - 20	June 18 to early Oct
Southeast AK purse seine	salmon	416 issued 236 active	20 min-45 min; mostly daylight fishing, except at peak	1	6 - 20	end of June to early Sept
Yakutat set gillnet	salmon	167 issued 104 active	continuous soak during opener; day / night	1	pick every 2 -4hrs/ day or continuous at peak	June 4 to mid - Oct
Prince William Sound drift gillnet	salmon	540 issued 510 active	15 min - 3 hrs; day / night	1 or 2	10 - 14	mid - May to end of Sept
Cook Inlet drift gillnet	salmon	581 issued 572 fished	15 min - 3 hrs or continuous; day only	1	6 - 18	June 25 to end of Aug
Kodiak set gillnet	salmon	184 issued 161 active	continuous during opener	1 or 2	2 or more/day	June 9 - Sept
AK Peninsula/Aleutians drift gillnet	salmon	160 issued 109 active	2 -5 hrs; day / night	1	3 - 8	mid - June to mid - Sept
AK Peninsula/Aleutians set gillnet	salmon	113 issued 86 active	continuous during opener; day / night	1	every 2 hrs	June 18 to mid Aug
Bristol Bay drift gillnet	salmon	1867 issued 1424 active	continuous soak of part of net while other parts picked day/night	2	continuous	June 17 to end of Aug or mid - Sept
Bristol Bay set gillnet	salmon	1001 issued 761 active	continuous during opener, net dry during low tide; day / night	1	2 or continuous	June 17 to end of Aug or mid - Sept

National Marine Fisheries Service

NMFS is responsible for the sample design, determining the distribution and level of observer coverage, providing observer training and certification, and for the final reports and analysis of the data. The observer training is provided by the Observer Training Center through a cooperative agreement. The Protected Resources Division of the Alaska Regional Office (Juneau) is the NMFS office directly responsible for the Alaska MMPA Observer Program.

Table 3. Summary of primary duties in relation to AMMOP.

Participant	Duties
NMFS	Determines coverage need and sampling design Completes the data analysis and final reports Provides outreach to fisheries Provides financial, support, direction, and oversight
Contractor	Provides NMFS with data Provides outreach to fisheries Provides financial and logistical support to observers
ADF&G	Provides state fishing effort data to NMFS
Fishery participants	Report Marine Mammal takes to NMFS Cooperate with NMFS and observers
Observers	Provide data to contractor, information to fishery, and feedback to NMFS
US Fish & Wildlife Service	Collect marine bird sighting data
Skiff handlers	Handle and maintain Boats Deploy observers to sites Responsible for safety of observers
Research vessel crew	Support observers Deploy observers to sites Maintain boat & skiff operations Responsible for safety of observers
U.S. Coast Guard	Provides safety examinations of commercial fishing vessels
NMFS Enforcement Division	Provides response to possible violations and determines penalties Provides safety examinations of commercial fishing vessels
NPFOTC	Provides training

The Contractor

The contractor is responsible for obtaining the required coverage levels of the fisheries; determining, reporting, and (to the extent possible) avoiding possible bias in the placement of observers; and providing NMFS with reliable quality data. The contractor is responsible for working with the fleet to achieve the coverage and project goals and exchanging information with fishermen during in-season meetings. In addition, the contractor is responsible for managing the hiring, logistics, deployment, data entry, and debriefing of observers. The contracted observers are responsible for the accurate collection of quality data and biological samples by abiding by the guidelines and protocol provided by the observer manual, during training, and in the field.

The Alaska Department of Fish and Game

ADF&G is the state agency responsible for the management of the fisheries in state waters. ADF&G biologists and managers provide fishing effort and distribution data in season to the contractor and NMFS to facilitate observer distribution and estimate observer coverage. ADF&G provides NMFS with refined estimates of fishing effort and distribution at the end of the season to be used in the final analysis.

The Commercial Fishery Permit Holders

The fishing industry is required to report any marine mammal mortalities and serious injuries caused through their fishing activities to NMFS. There is a special form for reporting such incidents–The Marine Mammal Authorization Program Mortality/Injury Reporting Form. Fishermen are required to carry an observer by law when asked by NMFS or the contractor, and cooperate with the observer in their data collection activities.

Observers

Observers collect the data and are the field representatives of the agency and program. Collection of accurate, unbiased, and representative data is the goal. Safety is the first priority in accomplishing that goal.

Vessel Operators

Contracted boats such as gillnetters, purse seiners, and skiffs may be hired to provide logistical support to observers. In most cases they will be contracted employees of the Observer Contractor. They will be guided by lead observers and the home office of the contractor in the logistical needs of the program. In the interest of safety, the operators of the boats have the ultimate say when and how their boats are used. Plans may change due to decisions made because of safety concerns.

Other Agencies and Organizations

United States Fish and Wildlife Service (FWS) or other agencies may place field staff in the fisheries to obtain specific data. They will have different duties than the fishery observers and have received specific training for those duties. For example, FWS staff will collect marine bird sighting data in the Kodiak setnet fishery in 2002. They bring with them a specialized, and sometimes local, knowledge to help with scientific data collection

Other agency and university research is supported by this program. The data and biological samples collected by observers can be requested for use in scientific studies.

Section Two

Kodiak Island Environment

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INTRODUCTION

This section is a brief introduction to the environment of Kodiak Island. The commercial salmon fishery in Kodiak is introduced, followed by a discussion about the set gillnet fishery as well as information on salmon. For more detailed information, observers are encouraged to research literature about Kodiak.

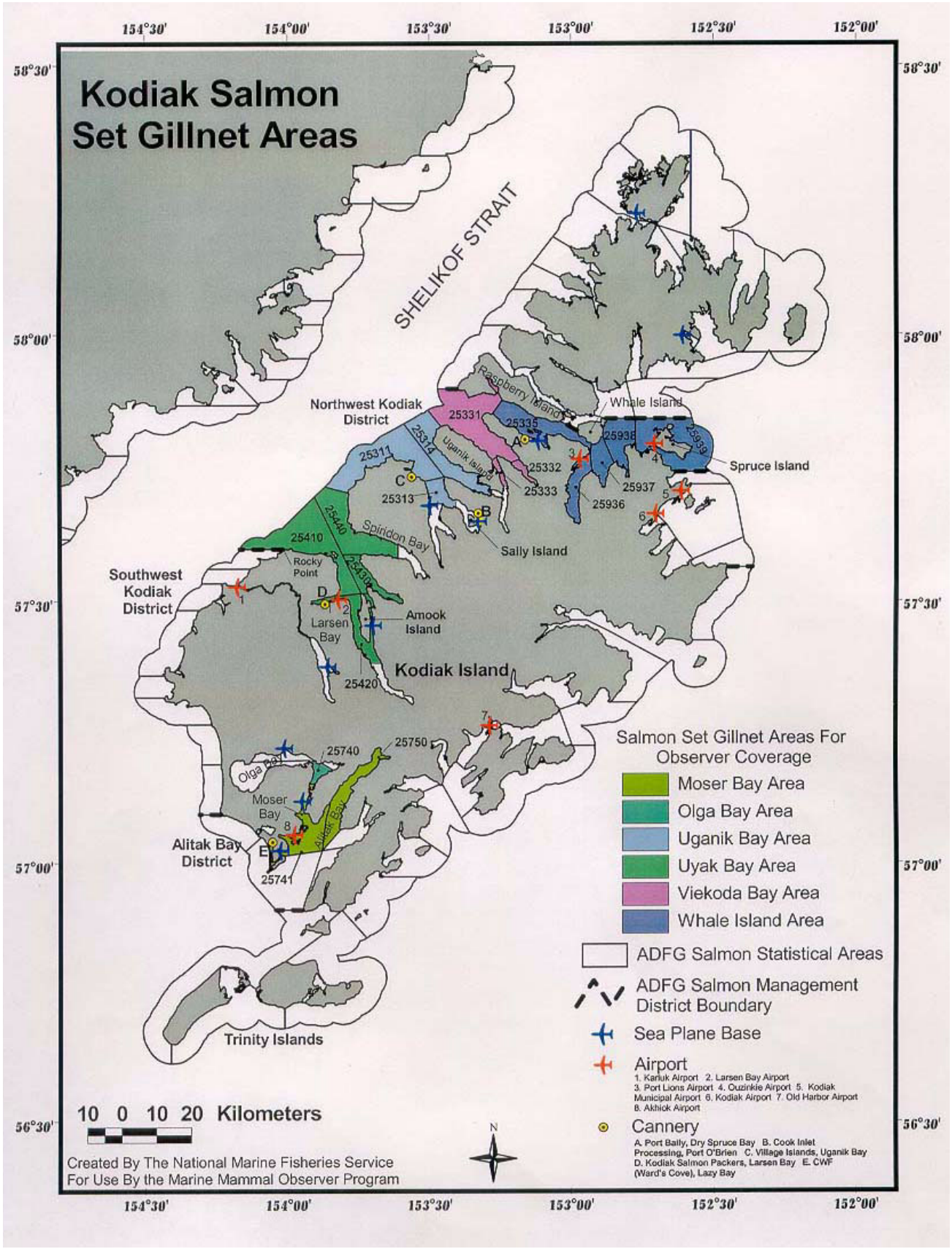
GEOGRAPHY

Kodiak Island is part of an archipelago of islands including Afognak, Shuyak, and 20 smaller islands. The archipelago is approximately 177 miles long and 67 miles across, extending from the Barren Islands in the north to Chirikof Island and the Semidi Islands group on the south. The archipelago encompasses roughly 5,000 square miles of land, no point of which is more than 15 miles from the sea. Kodiak Island, at 3,588 square miles, is the second-largest in the United States, only the big island of Hawaii is larger.

The Kodiak Island archipelago is located in the Gulf of Alaska about 30 miles across Shelikof Strait and 252 air miles southwest of Anchorage.

Kodiak Island consists primarily of mountainous terrain, with a ridge of mountains running northeast-southwest. Most peaks are between 3,000 – 4,000 feet. About 40 small cirque glaciers (none greater then 2 miles) are evident along the main divide. Numerous hanging valleys feed into the main canyons radiating from the central divide.

From Shuyak Island to Northeastern Kodiak Island, stands of Sitka spruce dominate the land from shore to the treeline. These stands extend south to a general northwest-southeast dividing line running from Kupreanof Peninsula to Cape Chiniak. Southwest Kodiak Island is relatively flat and supports extensive areas of wet and moist tundra.


Kodiak Salmon
Set Gillnet Areas
154°30'
154°00'
153°30'
153°00'
152°30'
152°00'
58°30'
58°00'
57°30'
57°00'
56°30'
SHELIKOF STRAIT
Raspberry Island
Whale Island
Northwest Kodiak
District
25331
25335
25314
25311
Uganik Island
25332
25333
25313
25938
25939
25937
25936
Spruce Island
Sally Island
25410
25440
Spiridon Bay
Rocky
Point
Southwest
Kodiak
District
25430
Larsen
Bay
Amook
Island
Kodiak Island
25420
25740
25750
Olga Bay
Moser
Bay
Alitak Bay
Alitak Bay
District
25741
Trinity Islands
10 0 10 20 Kilometers
Created By The National Marine Fisheries Service
For Use By the Marine Mammal Observer Program
N
Salmon Set Gillnet Areas For
Observer Coverage
Moser Bay Area
Olga Bay Area
Uganik Bay Area
Uyak Bay Area
Viekoda Bay Area
Whale Island Area
ADFG Salmon Statistical Areas
ADFG Salmon Management
District Boundary
Sea Plane Base
Airport
1. Karluk Airport 2. Larsen Bay Airport
3. Port Lions Airport 4. Ouzinkie Airport 5. Kodiak
Municipal Airport 6. Kodiak Airport 7. Old Harbor Airport
8. Akhiok Airport
Cannery
A. Port Bailly, Dry Spruce Bay B. Cook Inlet
Processing, Port O'Brien C. Village Islands, Uganik Bay
D. Kodiak Salmon Packers, Larsen Bay E. CWF
(Ward's Cove), Lazy Bay

Northwest Kodiak shows the effects of glaciation, with long, narrow fijords and U-shaped valleys. These lie perpendicular to the mountains and the geological fault lines. Rivers typically enter at the heads of the fjords and are backed by extensive flat lands. The east and southeast coasts of the Archipelago are characterized by shorter, wider estuarine embayments. Southwest Kodiak and the Trinity Islands tend towards long, continuous shorelines with few bays. Most of the sandy beaches occur on the west coast on Kodiak Island and the Trinity Islands.

Climate

The Gulf of Alaska regularly subjects Kodiak to rain, fog and wind. The area receives some 80" of rain per year and has an average temperature of 60 degrees during the summer.

Fauna

Terrestrial Mammals

The terrestrial mammals native to Kodiak Island are the Kodiak brown bear, red fox, short-tailed weasel, little brown bat, tundra vole, and the river otter. Introduced species include the snowshoe hare, mountain goat, Sitka black tailed deer, squirrels, Roosevelt elk, muskrat, horses and bison.

Marine Mammals

The two most common pinniped species in Kodiak waters are harbor seals and Steller sea lions. Northen fur seals, Pacific walrus, elephant seals, and bearded seals have been sighted in waters around Kodiak.

A number of cetaceans are present around Kodiak. Harbor porpoise, Dall's porpoise, killer whales and minke whales are sighted regularly. Larger whales such as humpback whales, grey whales, and fin whales have been sighted and some species of beaked whales may occasionally be sighted in the area. Sea otters are also relatively common.

Marine Birds

Over 100 species of marine birds occur regularly in the area, including 39 species of seabirds, 35 species of loons, grebes, and waterfowl, and 28 species of shore birds. Common sea birds in the area include storm petrels, glaucous winged gulls, black legged kittiwakes, common murres, auklets, murrelets, and horned and tufted puffins.

Other Marine Life

An abbreviated list of common Kodiak species includes: crabs, dogfish, flatfish, salmon, sculpin, skates, pollock, Pacific cod, and several species of flatfish such as rock sole, butter sole, starry flounder, and Pacific halibut.

The Commercial Fishery in Kodiak

Kodiak salmon have sustained commercial harvests off the island for over 150 years. The Kodiak commercial salmon fish harvest is one of the oldest in Alaska. According to ADFG estimates the commercial salmon fishery involves some 4000-5000 people, including 1,600-2000 fishermen and crew. Roughly 75% (Purse seine) to 80% (set gillnet) of permit holders are Alaska residents. The economic value of the commercial salmon fishery based solely on average price paid to permit holders has averaged about 37 million dollars annually since 1990. Of the five Pacific salmon harvested, sockeye salmon are currently the most economically important followed by pink, chum, coho, and chinook salmon. The most abundantly harvested are pink (90% of which are taken by the purse seine fleet). At the end of this section is a brief description of the five species of salmon that occur around Kodiak.

The area is fished for salmon by commercial set gillnets, purse seines, beach seines, subsistence users, and sports fishermen. There is no drift gillnet fishing in Kodiak waters. Other commercial fisheries in the area include net fisheries for herring; longline, pot fishing, and trawl fishing for groundfish, and dredging for scallops. There is a growing sports fishing industry during summer to fish for salmon and halibut.

The set gillnet fishery is a Category II fishery while the Kodiak purse seine fishery is classified as a Category III fishery. The set gillnet salmon fishery is the only salmon net fishery to be observed under the Alaska Marine Mammal Observer Program in this area at this time. Groundfish vessels over 60 feet carry North Pacific Groundfish Observer Program observers for at least 30% of their fishing days, as authorized under the Magnuson-Stevens Act.

The Alaska Department of Fish and Game (ADFG) is the state agency responsible for the management of Kodiak's salmon fisheries. ADFG manages fisheries through Management areas, Districts, and Statistical areas. The Kodiak Management Area (KMA) extends from Cape Douglas to Kilokak Rocks bordering Imuya Bay and includes Shelikof Strait and the waters of Kodiak, Afognak, and Shuyak islands. The KMA is divided into seven districts and 52 sections that include over 440 known salmon streams. The main management area office is found in the city of Kodiak. The island's salmon fisheries are limited entry fisheries, that is, a fisher must hold a permit to fish. ADFG also issues crewmember permits. Additionally, Alaska Department of Natural Resources leases shore set net sites. Although a permit holder is not obliged to hold a lease, the lease does grant a lessor their preferred site.

Salmon fishing occurs within state waters primarily from June through September. ADFG Commercial Fishing Regulations for Kodiak mandate that salmon may be taken only from June 1 though October 31. Throughout that time, the fishery is managed by emergency order and salmon may only be fished commercially during periods known as openers established by ADFG in-season. During some periods of the season fishing may be continuous with openers lasting days or even many weeks at a time. Notice of fishing openers is posted weekly at ADFG and announced on regular radio channels a few days or a few hours before each opener. Fishing periods are often extended by Emergency Order during the last 24 hours of the opener. Historic opener schedules can provide a somewhat useful guide in determining fishing effort. It is important to keep in mind that fishing effort can be dynamic and unpredictable, and dramatic changes in effort can occur due to changes in management policy, salmon run strength, price, and strikes within the industry.

The 2004 Kodiak Area Harvest and 2005 Harvest Projection

The ADFG Division of Commercial Fisheries summarized fishing effort in the Kodiak Management Area 2004 Commercial Salmon Fishery Summary. Excerpts include:

- The 2004 Kodiak Area salmon fishery began June 5 and the last landing was made September 20, 2004. Commercial fishing effort was low for the seventh consecutive year, though slightly higher than the record low participation in 2002. Of the 593 eligible Kodiak commercial salmon permit, only 305 made commercial landings

- By gear type, a total of 164 set gillnet and 141 purse seine permit holders fished. The number of permits actually fished varied during the season, with the highest participation in any single week at 123 purse seine and 133 gillnet permit holders fishing (week 3 of the season, June 21-27)

- Approximately 27.25 million salmon were harvested in the KMA by commercial gear, which is above the pervious 10-year (1994-2003) average of 20.82 million salmon. Of the total salmon harvested in 2004, ADFG commercial test fisheries took under a thousand salmon (702), and just over 3,600 salmon were retained from commercial catches for the permit holder's own use (taken but not sold).

Species	Number	10 Year Average (1994-2003)
Chinook	20,000	18,263
Coho	526,000	348,557
Sockeye	2,235,000	3,454,033
Chum	1,177,000	860,000
Pink	17,900,000	16,138,244
Total	21,858,000	20,819,000

Kodiak Management Area 2005 Salmon Harvest Projection

Kodiak Set Gillnet Gear and Operations

Set gillnets are stationary surface-hanging multi-filament nets that are staked, anchored, or otherwise fixed in place. The nets are kept afloat by corks along the top and a lead line running along the bottom of the net. The size of the mesh and length of the net are limited by regulation. Set gillnets (also known as setnets) are usually set perpendicular to the shore in the path of salmon moving toward rivers along the ocean shoreline. Set gillnets in Kodiak must be attached to shore. Setnetters are allowed to fish no more than two nets and an aggregate of 150 fathoms (900 feet). Many fishermen fish two 75-fathom nets or some other combination. Nets must be fished 900 feet apart. Gillnets may not be more than 125 meshes in depth. Set gillnets must be fished in substantially a straight line. However 25 fathoms of net may be fished as a "hook". The hook may be used in any configuration. The nets are allowed to have a thick meshed 50 to 20 fathom lead extending from the beach. Small skiffs are used to collect fish picked from the net and to reach offshore sites.

Nets can be picked in sections allowing the gillnets to effectively fish the entire period. Nets may be picked continuously or according to the tides, catch, and stamina of the crew. The crew may take shifts tending the nets with usually one to three crew per shift. Some set gillnet sites are located in remote areas far from roads or accommodations, and are often reachable only by boat, aircraft, or all-terrain vehicles (ATVs). Most fish are delivered to shore-based processors by tenders or skiffs. Fishermen often live near the setnet site for the season, many in a small cabins or wall tents.

Set gillnet fishing effort and distribution

ADFG divides Kodiak into commercial salmon management areas. Management areas are divided into ADFG districts, subdistricts or Sections and statistical areas (refer to your ADFG district map in Appendix). Purse seine fishing occurs throughout most of the islands waters however gillnet fishing is restricted to the Alitak Bay and the Northwest Districts' central section. Setnet fishing in Kodiak occurs from June to September in these two fishing districts. The Alitak Bay District includes setnet sites from the western mouth of Uyak Bay to Narrow Strait which lies south of the village of Ouzinkie on Spruce Island and just northwest of the city of Kodiak. Historically roughly a little over half of the gillnet effort occurs in the Alitak Bay District.

Alitak Bay District

Setnet sites in the Alitak Bay District occur in protected waters. There are strong currents and tidal influences in some parts of the bays however. Storms can bring in rough seas, rain and fog even in these sheltered bays during the summer. The setnet sites in this district are clustered closely together. Virtually all of the bay's shores are fished. Most permit holders fish two nets. Fishermen here often work together in cooperative groups, much like Cook Inlet permit holders do. Recently Moser Bay has averaged more permits (65 average 1982-1999) than Olga Bay (46 average 1982-1999). Purse seiners may not fish in the bays but do harvest in outside waters of the Alitak District with an average of 124 permitted vessels landing 43% of the sockeye harvest. Cannery tenders often pick up catch from fishermen twice a day. There is a landing strip in Akhiok with regular air service to the city of Kodiak. Float planes also serve the bay area, at Cannery

Cove in Olga Bay. Barges service the village of Akhiok from Seattle and other ports. Skiff runs from Akhiok to the furthest ends of Olga Bay can take three to four hours depending on the boat and weather. Harbor seals and porpoise are both reported to be taken by setnet fishermen in these districts.

Northwest District

The Northwest District includes several large bays, many inlets, and exposed outer coast lines along Shelikof and Kupreanof Straits. Gillnet fishing is restricted to the Central Section of the District. The bay fishing in the Northwest District is more protected than the outside exposed fishing along the straights. The inside waters of Uyak and Uganik Bay are more exposed to strong westerly winds and storms than the Alitak District bays are. Nonetheless, the bay fishing in the Northwest District is far more protected and preferred than the outside sites in the District. Larsen Bay in Uyak Bay is a village of about 100 residents. There is a landing strip, stores, phone and internet access, several lodges, a port, and a cannery. Many setnet sites cluster in these protected waters close to the services. Most fishermen in the bays will operate small skiffs (18'-25') to pick fish. Normally fish are picked twice a day, although more picking is done if there is a strong run. In the bays fishermen usually fish two 75 fathom nets. Uganik Bay is more remote and has fewer services available. There used to be two canneries, but one shut down. There are no canneries in Viekoda Bay. The Port Lions cannery in Kizhuyak Bay is also shut down. Nonetheless, there are setnet sites along all these areas. Tender vessels pick up fish and take the fish to processors.

Setnet sites on the outside areas tend to be more dispersed. Some sites are not fished. Outside sites often cannot be fished due to poor weather conditions such as 25 knot winds and ten foot seas, which is not unusual for Kodiak during the summer (sometimes for weeks). Several fishermen drowned in 1999 on the outside when their skiff was swamped by a wave. Setnetters have also reported that sea lion interactions (predation of the catch in the net) can be so severe that fishermen are often forced to abandon outside setnet sites. Fishermen on the outside often fish one 150 fathom net rather than two 75 fathom nets. Tenders service outside sites, usually picking up fish twice a day. Fishermen can reach these sites by vessel or float plane. Seiners fish alongside setnetters in the Northwest District. There are some gear conflicts but most fishermen report that relationship between the two groups is fairly civil. Setnet fishermen are curious why their fishery and not the seine fishery is being observed. Steller sea lion as well as small and large cetacean interactions are reported from the Northwest Districts.

Salmon Species of Kodiak

All species of Pacific salmon are anadromous: they hatch in fresh water, spend part of their life in the ocean, and then spawn and die in fresh water. The female selects the spawning site, digs a nest (redd) with her tail, and deposits eggs in the downstream portion of the redd as one or more males swim beside her and fertilize the eggs as they are extruded. After each spawning act, the female covers the eggs by dislodging gravel at the upstream end of the redd with her tail. A female usually deposits about five batches of eggs in a redd. Depending upon her size, a female produces from 2,000 to 14,000 eggs. Eggs hatch during the winter, and the young sac-fry, or alevins, remain in the gravel, living off the material stored in their yolk sacs, until early spring. At this time they emerge from the gravel as fry and move into rearing areas. Most juvenile salmon

remain in fresh water until the following spring when they migrate to the ocean. These seaward migrants are called smolts. Juveniles in fresh water feed on plankton, then later eat insects. In the ocean, they eat a variety of organisms including herring, pilchard, sandlance, squid, and crustaceans. Salmon grow rapidly in the ocean and often double their weight during a single summer season. Although range varies by species, salmon are found throughout the North Pacific and the Arctic Ocean, from California and Japan in the south to Russia and Canada in the north. Portions of Pacific salmon catches are managed under the international Pacific Salmon Treaty.

Chinook Salmon (King) (*Oncorhynchus tshawytscha*)

Kodiak has two naturally occurring chinook salmon populations in the Ayakulik and Karluk rivers. There are no directed commercial fisheries targeting these stocks. Any commercial harvest occurs incidental to fisheries targeting sockeye and pinks. The average commercial catch has been about 22,000 chinook salmon. Chinook escapements have been well above established goals and the ten year average. There is a steady sport fishery for chinook.

Chinook salmon may become sexually mature from their second through seventh year, and as a result, fish in any spawning run may vary greatly in size. For example, a mature 3-year-old will probably weigh less than 4 pounds, while a mature 7-year-old may exceed 50 pounds. Chinook is the largest of all Pacific salmon, with weights of individual fish commonly exceeding 30 pounds. Females tend to be older than males at maturity. In many spawning runs, males outnumber females in all but the 6- and 7-year age groups. Small chinooks that mature after spending only one winter in the ocean are commonly referred to as "jacks" and are usually males. Alaska streams normally receive a single run of chinook salmon in the period from May through July.

Chinook salmon often make extensive freshwater spawning migrations to reach their home streams on some of the larger river systems. Chinook salmon do not feed during the freshwater spawning migration, so their condition deteriorates gradually during the spawning run as they use stored body materials for energy and for the development of reproductive products. Unlike other salmon species, chinook salmon rear in inshore marine waters and are, therefore, available to commercial and sport fishers all year.

Sockeye Salmon (Red) (*Oncorhynchus nerka*)

There are 39 known sockeye salmon runs in the Kodiak Management Area. The largest occur in the four lake systems: Karluk, Ayakulik, Upper Station, and Frazer (Dog Salmon River). These systems provide approximately 80% of the current sockeye production in Kodiak waters. Directed fisheries on these systems are intense with commercial fishing taking place from early June to mid September. The Karluk and Upper Station systems have distinct early (May 25 through July 15) and late runs (July 16 through September 20). The Frazer is an early returning stock with most sockeye entering the rivers by July 20. The Ayakulik run starts in early June but has a protracted run timing which continues until mid August. There are twelve other sockeye systems (including the Uganik) that account for five percent of the sockeye production. Historically, this has been the "money fish" of the island's salmon species; but prices for sockeye have fallen over the last few years, and continue to fall as world markets have become supplied with farm-raised salmon.

Purse seiners take most of the Kodiak Management Area sockeye. Within the districts where set gillnets fish, they take the majority of the sockeye.

The sockeye salmon, also referred to as "red" or "blueback" salmon, ranges south to California and Japan, to as far north as far as Bathurst Inlet in the Canadian Arctic and the Anadyr River in Siberia. Today sockeye salmon support one of the most important commercial fisheries on the Pacific coast of North America, are increasingly sought after in recreational fisheries, and remain important to subsistence users.

Like all Pacific salmon, sockeye salmon die within a few weeks after spawning. Freshwater systems with lakes produce the greatest number of sockeye salmon. In systems with lakes, juveniles usually spend one to three years in fresh water before migrating to the ocean in the spring as smolts. However, in systems without lakes, many juveniles migrate to the ocean soon after emerging from the gravel. Sockeye salmon return to their natal stream to spawn after spending one to four years in the ocean. Mature sockeye salmon that have spent only one year in the ocean are called jacks and are, almost without exception, males. Once in the ocean, sockeye salmon grow quickly. While returning adults usually weigh between 4 and 8 pounds, weights in excess of 15 pounds have been reported.

In some areas, populations of sockeye salmon remain in fresh water all their lives. This landlocked form of sockeye salmon, called "kokanee," reaches a much smaller maximum size than the anadromous form and rarely grows to be over 14 inches long.

The largest harvest of sockeye salmon in the world occurs in the Bristol Bay area of southwestern Alaska where 10 million to more than 30 million sockeye salmon may be caught each year during a short, intensive fishery lasting only a few weeks. Relatively large harvests of 1 million to 6 million sockeye salmon are also taken in Cook Inlet, Prince William Sound, and Chignik Lagoon.

Sockeye salmon are the preferred species for canning due to the rich orange-red color of their flesh. Today, however, more than half of the sockeye salmon catch is sold frozen rather than canned. Canned sockeye salmon is marketed primarily in the United Kingdom and the United States while most frozen sockeye salmon is purchased by Japan. Sockeye salmon roe is also valuable. It is salted and marketed in Japan.

There is also a growing sport fishery for sockeye salmon throughout the state. Subsistence users harvest sockeye salmon in many areas of the state. The greatest subsistence harvest of sockeye salmon probably occurs in the Bristol Bay. Personal use fisheries have also been established to make use of any sockeye salmon surplus to spawning needs, subsistence uses, and commercial and sport harvests. While most sockeye salmon production in Alaska results from the spawning of wild populations, some runs have been developed or enhanced through human effort. Although artificial propagation of sockeye salmon has proven difficult, notable success has been achieved at state-maintained hatcheries located on the upper Copper River in Prince William Sound and the Kasilof River on the Kenai Peninsula. A fish ladder installed on the Fraser River on Kodiak Island has also served to enhance sockeye salmon returns.

Coho Salmon (Silver) (*Oncorhynchus kisutch*)

Coho catches in Kodiak have been relatively small (although increasing in recent years). The coho run occurs later in the summer, starting around July 17th and running into late September and early October. Coho salmon, also called silver salmon, are found in coastal waters of Alaska from Southeast to Point Hope on the Chukchi Sea and in the Yukon River to the Alaska-Yukon border.

Coho salmon enter spawning streams from July to November, usually during periods of high runoff. High seas tagging shows that maturing Southeast Alaska coho move northward throughout the spring and appear to concentrate in the central Gulf of Alaska in June. They later disperse towards shore and migrate along the shoreline until they reach their stream of origin.

The commercial catch of coho salmon has increased significantly from low catches in the 1960s. About half of the catch was taken in Southeast Alaska, primarily by the troll fishery. The coho salmon is a premier sport fish and is taken in fresh and salt water from July to September. In salt water they are taken by trolling or mooching (drifting) with herring or with flies or lures along shore. Coho are spectacular fighters and the most acrobatic of the Pacific salmon.

Chum Salmon (Dog) (*Oncorhynchus keta*)

Chum salmon generally use the same spawning systems as pinks. They enter into the bays and estuaries shortly after pinks in mid July. Management decisions on where and when to catch pinks often effect chum salmon harvest. Recently chum returns have been good in Kodiak waters. Over a million chum were harvested in 2001, about 10% of those caught by the fishery.

Chum salmon (*Oncorhynchus keta*) have the widest distribution of any of the Pacific salmon. They range south to the Sacramento River in California and the island of Kyushu in the Sea of Japan. In the north they range east in the Arctic Ocean to the Mackenzie River in Canada and west to the Lena River in Siberia. Chum salmon are the most abundant commercially harvested salmon species in arctic, northwestern, and Interior Alaska, but are of relatively less importance in other areas of the state. They are also known as "dog salmon" and are a traditional source of dried fish for winter use.

Some chum in the Yukon River travel over 2,000 miles to spawn in the Yukon Territory. These have the brightest color and possess the highest oil content of any chum salmon when they begin their upstream journey. Chum do not have a period of freshwater residence after emergence of the fry as do chinook, coho, and sockeye salmon. Chums are similar to pink salmon in this respect, except that chum fry do not move out into the ocean in the spring as quickly as pink fry. By fall they move out into the Bering Sea and Gulf of Alaska where they spend one or more of the winters of their 3- to 6-year lives. In southeastern Alaska most chum salmon mature at 4 years of age, although there is considerable variation in age at maturity between streams. There is also a higher percentage of chums in the northern areas of the state. Chum vary in size from 4 to over 30 pounds, but usually range from 7 to 18 pounds, with females usually smaller than males.

Most chum are caught by purse seines and drift gillnets, but fishwheels and set gillnets harvest a portion of the catch. In many areas they have been harvested incidental to the catch of pink salmon. The development of markets for fresh and frozen chum in Japan and northern Europe has increased their

demand, especially in the last decade. The ADFG has built several hatcheries primarily for chum salmon products.

In arctic, northwestern and Interior Alaska, chum salmon remain an important year-round source of fresh and dried fish for subsistence and personal use purposes. Sport fishers generally capture chum salmon incidental to fishing for other Pacific salmon in either fresh or salt water. Statewide sport harvest usually totals fewer than 25,000 chums. After entering fresh water, chums are most often prepared as a smoked product.

Pink Salmon (Humpy) (*Oncorhynchus gorbuscha*)

Pink salmon are the most abundant salmon in Kodiak often comprising 80% of the total annual harvest. Primarily due to the cyclic production from Ayakulik and Karluk Rivers, pink salmon runs are usually larger during the even number years. However, from 1989 through 1997, odd year production surpassed even year production. With the new record even year harvest in 1998, even year production may be returning to being the dominant harvest cycle. The pink run starts in early July and runs through early September. Fishermen are paid less for pinks than sockeye and some gillnetters don't fish for them. More than 90% of all pinks landed in Kodiak are caught by purse seines. Almost nine million pinks were landed by the seine fleet (as compared to a little over 1 million for the gillnet fleet) in 2000.

The pink salmon is also known as the "humpback" or "humpy" because of its very pronounced, laterally flattened hump which develops on the backs of adult males before spawning. It is called the "bread and butter" fish in many Alaskan coastal fishing communities because of its importance to commercial fisheries and thus to local economies. Pink salmon also contribute substantially to the catch of sport anglers and subsistence users in Alaska.

The pink salmon ranges from northern California to the Mackenzie River, Canada, and to the west from the Lena River in Siberia to Korea. High seas tag-and-recapture experiments have revealed that pink salmon originating from specific coastal areas have characteristic distributions at sea which are overlapping, nonrandom, and nearly identical from year to year. The ranges of Alaska pink salmon at sea and pink salmon from Asia, British Columbia, and Washington overlap each other.

Pink salmon mature in two years, which means that odd-year and even-year populations are essentially unrelated. Frequently in a particular stream the other odd-year or even-year cycle will predominate, although in some streams both odd- and even-year pink salmon are about equally abundant. Occasionally cycle dominance will shift, and the previously weak cycle will become most abundant. Adult pink salmon enter Alaska spawning streams between late June and mid-October. Different races or runs with differing spawning times frequently occur in adjacent streams or even within the same stream.

In the early years, fixed and floating fish traps were employed extensively to catch pink salmon; such traps were prohibited following statehood in 1959. Now most pink salmon are taken with purse seines and drift or set gillnets. Lesser numbers are taken with troll gear or beach seines. Pink salmon fisheries are important in all coastal regions of Alaska south of Kotzebue Sound.

DISTINGUISHING CHARACTERISTICS OF PACIFIC SALMON SPECIES

Chinook (King)	**Adults** are distinguished by the black irregular spotting on the back and dorsal fins and on both lobes of the caudal or tail fin and black pigment along the gum line. **Ocean** chinook are a robust, deep-bodied fish with a bluish-green coloration on the back which fades to a silvery color on the sides and white on the belly. S**pawning** chinook salmon in fresh water range from red to copper to almost black. **Males** are more deeply colored than the females and also are distinguished by their "ridgeback" condition and by their hooked nose or upper jaw. **Fresh water juveniles** are recognized by well-developed parr marks which are bisected by the lateral line.
Sockeye	Sockeye are distinguished from chinook, coho, and pink salmon by the lack of large, black spots and from chum salmon by the number and shape of gill rakers on the first gill arch. Sockeye have 28 to 40 long, slender, rough or serrated closely set rakers on the first arch. **Immature and prespawning** sockeye salmon are metallic green blue on the back and top of the head, iridescent silver on the sides, and white or silvery on the belly. Some fine black speckling may occur on the back, but large spots are absent. **Fesh water juveniles** have the same general coloration as immature sockeye salmon in the ocean, but are less iridescent. **Juveniles** also have dark, oval parr marks on their sides. These parr marks are short- less than the diameter of the eye-and rarely extend below the lateral line. **Spawning males** develop a humped back and elongated, hooked jaws filled with sharp caniniform teeth. **Both sexes** turn brilliant to dark red on the back and sides, pale to olive-green on the head and upper jaw, and white on the lower jaw.
Chum	**Ocean fresh** chum salmon are metallic greenish-blue on the dorsal surface (top) with fine black speckles. They are difficult to distinguish from sockeye and coho salmon without examining their gills or caudal fin scale patterns. Chum have fewer but larger gillrakers than other salmon. **Nearing fresh water** vertical bars of green and purple appear. **Spawning males** develop the typical hooked snout of Pacific salmon and very large teeth. **Spawning females** have a dark horizontal band along the lateral line; their green and purple vertical bars are not so obvious. Chum salmon have 19 to 26 short, stout, smooth rakers.
Coho	Adults usually weigh 8 to 12 pounds and are 24 to 30 inches long. **Fresh water adults** are bright silver with small black spots on the back and on the upper lobe of the caudal fin. They can be distinguished from chinook salmon by the gray gums and lack of black spots on the lower lobe of the tail. **Spawning adults** of both sexes have dark backs and heads with maroon to reddish sides. **Spawning males** develop a prominent hooked snout with large teeth called a kype. **Juveniles** have 8 to 12 parr marks evenly distributed above and below the lateral line with the parr marks narrower than the interspaces. The adipose fin is uniformly pigmented. The anal fin has a long leading edge usually tipped with white, and all fins are frequently tinted with orange.
Pink	Smallest Pacific salmon found; average weight- 3.5 to 4 pounds and average length- 20-25 inches. **Adult** is bright steely blue on top and silvery on the sides with many large black spots on the back and entire tail fin. Its scales are very small and the flesh is pink. **Spawning males** are brown to black above with a white belly; By the time the male enters the spawning stream, it has developed the characteristic hump and hooked jaws. **Spawning females** become olive green with dusky bars or patches above and a light-colored belly. **Juveniles** entirely silvery, without the dark vertical bars, or parr marks, of the young of other salmon species.
Steelhead Trout	The lower jaw and inside of the mouth is all white. Tail is squared off, and has small round spots throughout. Faint red lateral band. 9-12 anal fin rays.

Section Three

Kodiak 2005 - Sampling Plan and Protocols

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Section Three

Kodiak 2005-Sampling Plan and Protocols

The goal of the Alaska Marine Mammal Observer Program (AMMOP) is to observe and document interactions between commercial set gillnet gear and marine mammals during normal fishing operations. Data collected by observers will be used to extrapolate estimates of marine mammal interactions with fishing gear to assess the impact of the fishing operations on the affected marine mammal stocks. NOAA Fisheries has determined that a target coverage level of 5% of the total fishing effort is a minimum that will satisfy the statistical requirements for the reporting of bycatch numbers to be used for management purposes.

AMMOP Sampling Regions

The set gillnet fishing areas around Kodiak will be stratified by the AMMOP into regions to make distribution of observer effort more feasible and to obtain results that are statistically more accurate. Regions will be defined by geography, traditional fishing patterns and fish processor coverage. To allow observer coverage levels to be adjusted to most accurately reflect the actual fishing effort, the regions are also structured to encompass sites that will start and stop fishing at similar times. Logistically, this will allow transit between all sites within a region within a 12-hour period. The contractor is responsible for determining where and when fishing effort in this fishery occurs.

ADF&G manages the fishery in two districts: the Northwest District, which includes Uyak, Uganik, and Viekoda Bays, Kupreanof Strait and the North Cape permits; and the Southwest District, which includes Alitak, Moser, and Olga Bays. The Northwest District typically is fished by 98 to 100 permit holders and constitutes 70% of the annual fishery effort. The Alitak District averages 72 participating permit holders and represents approximately 30% of the annual fishing effort.

The **Northwest (NW) District** will be comprised of the following four regions for the AMMOP:

The Northern NW region (KI1A) will consist of the permits in the North Cape section and Kupreanof Strait, including ADF&G statistical areas ADFG 259-35 thru 259-39. This region covers a large area, however, traditionally only 15 to 20 permit holders are active in this region. These sites typically start fishing later and stop fishing earlier than sites in other areas.

The Central NW region (KI1B) will consist of Viekoda Bay. This region will be comprised of all permits north of Cape Uganik and south of Kupreanof Strait. This includes ADF&G statistical area 253-31. The region consists of 15 to 20 active permits, ranging from exposed cape sites to sheltered sites in the back of the bay. Although some permit holders leave earlier in August, the majority of the permits holders are active until late August when the processor stops buying fish.

The Southern NW region (KI1C) will consist of Uganik Bay and Uganik Passage. This region will be comprised of all permits south of Cape Uganik to Cape Kuliuk. This includes ADF&G statistical areas 253-11 thru 253-14. The region consists of about 25 active permits, ranging from exposed cape sites to sheltered sites in Uganik Passage and Northeast Arm. Although some permit holders leave earlier in August, the majority of the permits holders are active until late August when the processor stops buying fish.

The Uyak Region (KI2) will include Uyak Bay. This will be comprised of all permits south of the ADF&G line at Cape Kuliuk to Rocky and includes ADF&G statistical areas 254-10, 254-20, 254-30, and 254-40. Uyak Bay currently has 45 to 50 active permit holders, which concentrate on the southern shore of the bay and in the Larsen Bay area. A handful of permit holder operate sites on the north shore of Uyak Bay and in the back of the bay. Many of the sites in Uyak Bay are very productive and will fish as long as there is a market available, usually into September.

The Alitak District will be comprised of three regions for this AMMOP study:

Olga Bay Region (KI 3) will include the waters of ADF&G stat area 257-40 with approximately 20 regular permit holders.

Inner Moser Bay Region (KI4) will be north of a line from the southernmost point of Moser Point west to the northernmost point of Amik Island, and west to the easternmost point of the Kodiak mainland north of the Little Narrows, with roughly 22 permit holders.

Outer Moser Bay Region (KI5) will be south of this line, with 30 permit holders.

Fishing gear in Inner Moser Bay can be placed in the water 12 hours after the scheduled fishery opener in Olga Bay. In Outer Moser Bay, fishing gear can be put in the water 24 hours after the Olga Bay opening. For example, the fishery in Olga Bay typically opens at noon. If, on the 14th of June, Olga Bays opens at noon, Inner Moser Bay sites can begin fishing at midnight, and Outer Moser Bay sites can begin fishing at noon on the 15th. Some permit holders in Outer Moser Bay move their nets into Olga Bay for 24-hours to maximize their fishing effort.

In the past several seasons the Alitak District has had several poor salmon returns. The fishery was not fished in 2002 and was restricted in 2003. The fishery is open for a maximum of four out of every seven days. This district is typically closed by early to mid August.

Estimating Fishing Effort

To distribute observer coverage in a manner that accurately reflects the distribution of fishing effort over time and area, the contractor will establish gross fishing effort through determination of the total time permits can fish and the individual effort of each permit. Direct observations of sites will be the primary means of determining the beginning of fishery effort. The contractor will fly an aerial survey on the first full-length opener, June 1st, to determine which sites are participating. The contractor will then adjust pre-season estimates of coverage to actual effort. The contractor will obtain fishery opener announcements from the Alaska Department of Fish & Game

(ADF&G) Kodiak Area Management Biologists, tracking openers to plan observer deployments and calculate fishing effort on an ongoing basis.

The contractor will determine several variables of in-season effort for each Region: 1) ADF&G fishery opener hours; 2) Number of active permits; 3) Date each permit holder starts fishing for the season; and 4) Date each permit holder completes the current fishing season. Additionally, fishing effort will be determined on a daily basis during all openers. Once a permit holder begins fishing for the season, their nets typically remain in the water for every open period, until the permit holder ceases fishing operations, unless a general fishing stand down or strike is in force, a permit holder must leave the grounds for an emergency, or the net, though left in the water, is rolled up and not actively fishing. Therefore, some verification of fishing effort must be made for each permit holder. Verification of daily fishing effort at each site in each Region will be accomplished through two methods. The first method will be in real time, although will be expected to cover only about 80-90% of the sites in a region. Observers on skiffs and R/Vs transiting throughout each region will record all sites that have deployed nets, note the presence or absence of buoy sets, and indicate if weather or other circumstances have decreased effort at any sites. Identification of sites will be made from a laminated, labeled site chart of the region. The second fishing effort verification method will occur periodically when a site is sampled. The observer will ask the permit holder if he or she has had their net(s) in the water fishing every day during each opener since the last time the site was sampled.

Permit Sample Selection

One of the primary challenges of this program is to distribute observer coverage proportionately across the fishing effort as it occurs, in a way that allows logistical flexibility and provides statistically valid samples of the overall fishing effort. Under this scheme, each permit will have an equal opportunity to be sampled and bias will be reduced by not over-sampling individual permits. To achieve this, the contractor will coordinate the placement of observers at fishing sites based on a list, generated monthly, of randomly-selected permits stratified by area. A lead or assistant lead observer will direct the placement of observers in each region in the order they appear on this list.

To achieve the coverage target of 5% of overall fishing effort across the fishery, projected coverage needs in permit sampling days were developed and may be found in Tables 1. However, these numbers are merely projections and will be adjusted by NMFS and the contractor accordingly as the fishery progresses through the season and actual effort becomes known. The projected number of Permit Sample Days (395 days) is greater than the total number of permits in the fishery (~175 permits), so a permit has a good chance of being sampled more than once during the course of the fishing season.

A new permit sampling list for each Region will be generated each month. Each active permit number in a region will be written on an individual poker chip and placed in a bin. The permits will be placed on the monthly sampling list in the order they are removed from the bin. Observers will be assigned to observe permits in the order the permits appear on the monthly list. Permits holders that begin fishing after a monthly sampling list has been generated will be added to the list in a random position. As fish runs progress and fishing practices change, interactions with marine

mammals may be different. Permits may be observed more than once per month, and a monthly sampling period will allow each permit the possibility of being sampled two to four times per season. Once a permit has been observed, it will fall to the bottom of the list and may be re-sampled in that month, once the entire list of permits has been sampled that month. If a permit on the top of the list is not able to be sampled (due to weather, mechanical failure, etc.), the permit number stays at the top of the list and is the top priority for observation on the next open fishing day. Such permits will remain at the top of the list until sampled. All permits on the monthly sampling list will be sampled before the list is begun anew in a given month.

Lead observers will monitor weather reports and compile input from the field to determine weather projections in the vicinity of the sites to be observed. Based on these weather reports, lead observers will assess the probability of observations being conducted in part or total. For safety and data quality reasons, the permit will be sampled according to the weather safety protocols, outlined in the **Beaufort Scale Sampling Reduction Plan** below. Lead observers will assign coverage to the next permit on the list if observation of the permit selected cannot occur.

Joint Ventures, Leased Nets, and Co-ops

In some areas, permit holders join together to fish as a co-op or joint venture. Joint ventures, leased nets, and co-ops will require distinct sampling protocols to avoid biasing the data.

Joint Venture

Joint ventures (JVs) occur when two or more permit holders combine permits and share sites. Typically two permit holders set three 100-fathom nets made out of the two 150-fathoms of gear allotted to each permit. Both permit holders pick the nets from a single skiff, working the gear like one large permit.

During the random selection process, each permit number will be assigned a poker chip. Once the complete Monthly Sampling List for the region is selected, the second of the two JV permit numbers will be marked off and combined with the first one on the list. The JV permits will be sampled together by one observer in most cases. One set of forms will be filled out, with both permit numbers included on the Trip Form. An Operation Type of "2 – Joint Venture" will be entered on the Trip Form. Two Permit Sample Days will be considered achieved where two standard lengths of nets where observed.

Leased Nets

Another form of combining gear is the use of leased nets, which occurs when a permit holder leases a section of gillnet to another permit holder. The most common example of this practice is for Permit holder "A" (lessor) to lease permit holder "B" (lessee) a 50-fathom section of gillnet. Permit holder "A" fishes one 100-fathom net and permit holder "B" fishes two 100-fathom nets. Leased nets are often in separate bays, the original permit holder (lessor) does not manage the leased net, and the lessee often does not distinguish the leased section of their fishing nets.

The leased portion will be sampled with the lessee's nets. In the example above, when permit holder "B" (lessee) is selected for observation, the observer will watch all 200-fathoms of gear.

The permit holders are selected separately from the Monthly Sampling List, observed separately, and are counted as two Permit Sample Days for record-keeping purposes. When the "lessee" permit holder is sampled, observers will mark an Operation Type of "4 - Leased Nets" on the Trip Form and indicate the length of leased net. When a "lessor" permit holder is sampled, and less than 150 fm of net is being fished, the length of net NOT present because it is currently leased to another permit holder will be recorded on the Trip Form. The observer will also make notes in the comment section detailing the lease arrangement, including the length of the leased portion of net, location of site, and permit number of the other party involved. If the information is available, the observer will denote the leased section of gear in the notes of the Gear Characteristics Form.

CO-OPERATIVES

Some permit holders operate several sites in cooperation with other permit holders, as a "Co-op". These are family groups, friends, or business associates using one or multiple skiffs working together to pick all co-op members' nets. Skiffs may pick two to four permits before returning to camp. Difficulty in observing these operations arises when two or more skiffs pick a series of Co-op nets as a team. More than one observer platform is required to watch the multiple skiffs pick the gear.

Co-ops range from two permit holders working four 75-fathom nets to twelve permit holders fishing 20 to 24 nets of varying lengths. In most cases, the nets are clearly marked and the permit number is obvious. However, some co-ops are more lax than others.

When multiple skiffs are used, typically two skiffs begin at the middle and work towards the ends of the net. Often a team of two skiffs will pick two to four co-op permits in a day. One Co-op uses three sets of three skiffs to tend 12 permits. In that case, one set of the three skiffs go to a set of three to four permits (six to eight nets), where one skiff picks the trap (or hook), and while the other two skiffs start in the middle of the net and work out to the ends. The skiffs move on to the next net when they have finished their section of the net. The other two sets of skiffs do the same on the other 8 or 9 permits.

In a more typical example of a Co-op, three permit holders work together with permit numbers A, B, and C. In this example, each permit holder fishes two 75-fathom nets for a total of six 75-fathom nets. They use two skiffs to pick the nets, typically starting a net A1 and picking in the following order B1, C1, A2, B2, and C2. This order may change, however, due to amount of fish, gear damage, weather, etc.

The contractor will use cluster sampling to address the problems that arise due to multiple picking skiffs at Co-op sites. During the random selection process each permit number in a Co-op will be assigned a poker chip. Each permit number in a region will have an equal opportunity to be sampled. Once the Monthly Sampling List for the region is generated, observations will begin at the top of the list. When a Co-op permit comes up to the top of the list, all permits that are picked in Co-op with the selected permit will be sampled. The lead observer will mark off the additional permits sampled from the list, and they will not be sampled again that month unless the list begun again from the top during that month, and one of those permits rises to the top of the list.

Example: On the Monthly Sampling List for a region, the 4th, 17th and 30th permit numbers are fishing together in a co-op. All three would be sampled when the 4th permit is at the top of the Monthly Selection List, and all three permits would be removed from the list until the next rotation through the list or the list is re-randomized for the following month. The number of observers required to sample the three permits would be determined by the number of skiffs used by the fishermen to pick the nets. One observer skiff would be assigned to each fishing skiff for the day. A total of three Permit Sample Days would be recorded for that one trip. One Trip Form will be completed by the observer assigned to the permit actually selected from the list, and would include on it all the permits sampled with the selected permit. An Operation Type of "3 – Co-op" will be entered on the Trip Summary Form. The other observer(s) would coordinate with the primary observer in completing all required data forms.

Such cluster sampling of co-op nets will achieve: 1) *Increased program efficiency.* Multiple observation skiffs at a co-op will reduce the number of partial observations of such sites; and 2) *Improved relationships with co-op fishers*. This method would greatly reduce the number of sampling days at the larger co-ops. In 2002, observers were at the co-op with 12 permits almost every day. Under the new protocol, the effort should be concentrated into three or four sampling days in a rotation through the Monthly Sampling List.

Permit Sample Day

The Permit Sample Day is the basic unit of observation for analysis of the data, defined as the observation of all picks on a standard length of gillnet (150 fathoms) in a 24 hour period, during

Table 1. Projected permit sample totals by region 2005 .

FISHING AREA	JUNE permit samples 5%	JULY permit samples 5%	AUGUST permit samples 5%	SEPTEMBER permit samples 5%	TOTAL Permit samples
Inner Moser Bay (ADFG 257-41)	22	25	4	0	**51**
Outer Moser Bay (ADFG 257-43)	19	21	2	0	**42**
Olga Bay (ADFG 257-40)	17	19	2	0	**38**
Viekoda Bay (ADFG 253-31)	19	16	14	4	**53**
Kupreanof Strait/North Cape Section (ADFG 253-35, 259-35 thru 259-39)	13	8	10	1	**32**
Uyak Bay (ADFG 254-10 thru 254-40)	29	29	40	10	**108**
Uganik Bay (ADFG 253-11 thru 253-14)	24	20	23	4	**71**
Total Monthly Permit Samples	**143**	**138**	**95**	**19**	**395**

which the net is submerged and fishing. If all picks in the 24-hour period cannot be observed, reasons for not observing all picks will be documented in comments on the Trip Form, and a percentage of total fishing effort observed within the 24-hour period will be determined. Any permit sample that achieves less than all picks in a 24-hour period will be considered a partial Permit Sample Day.

When and how often a permit holder picks the nets at their site is highly variable between sites and at the same site at different times in the season. However, most permit holders will pick nets multiple times during the day, starting early in the morning and ending late at night. Some permit holders pick their nets six or more times a day, others pick it only once. The majority of the permit holders pick their nets three times during the day: in the morning, afternoon, and evening. Patterns are common and certain permit holders have tendencies to pick more often. The most common reason permit holders pick their net more frequently is an increased number of fish in the net. Fluctuations in salmon runs, weather and tidal action, and location all contribute to the amount of fish moving past the net.

Lead observers will contact selected permit holders the day prior to the observation to determine the estimated picking schedule for the sample day. Observers will deploy to the selected site in time to observe the initial pick. Optimal observations will achieve a "permit sample day" for each permit sampled each time the permit is selected for sampling and observed. Observers will watch the all the picks at the selected permit during the 24 hour sampling period, unless unforeseen circumstances prevent this. Observers will stay at sites as long as possible allowing for sufficient light and reasonable weather for the trip home. Observers will take breaks during the day between picks, staying on RVs, at field offices, at permit holders camps, or on the beach as circumstances allow to keep total sampling duty time to 12 hours.

In some cases observers will not be able to watch the last pick of the day at the sample site. In these cases the observer or lead observer will contact the permit holder the following day to determine the final number of picks at the sample site. If certain permit holders pick strategies are such that an observer consistently cannot observe all picks during the 24 hour sampling period, a random start time strategy will be employed by observers for observing that site as long as the pick strategy remains the same.

Beaufort Scale Sampling Reduction Plan

Weather can potentially affect all observations and could bias observer coverage of more exposed sites. Many of the sites located on capes in Shelikof Strait will receive extreme weather. The contractor will ensure that observer coverage at exposed sites is in proportion to other sites in a region based on fishing effort. Weather will also reduce the quality of observations during soak watches due to wave action and sampling platform movement. Fifteen-foot seas are not uncommon at cape sites. Moderate weather will reduce visibility and obscure interactions, while strong winds and heavy seas will cause serious safety concerns.

Lead observers will use a combination of National Weather Service forecasts, USCG weather reports, RV captains' and skiff operators' evaluations, and information provided by area radio contacts. Lead observers will attempt to establish the weather at sites before deploying observers. If the weather begins to worsen, observers will relay information to the RV, lead observer, or other appropriate parties and a determination to change sampling protocols appropriately will be made. Avoidance of placing observer/skiff operator teams in danger during severe weather conditions is paramount. For these reasons, the contractor will deploy observers based on sea-state and implement a Beaufort Scale Sampling Reduction Plan as follows:

Beaufort 0-3 (wind 0-10 kts; seas 0 – 3.5 ft): All sampling will occur as scheduled.

Beaufort 4 (wind 11 to 16 kts; seas 3.5-5 ft): All soak watches will be suspended. At Beaufort 4, frequent white caps and small waves begin to limit visibility, affecting the dependability of soak watch data. Anchoring a skiff to a buoy becomes quite dangerous in four-foot seas. Observer effort will focus on observing picks.

Beaufort 5 (wind 17-21 kts; seas 6-8 ft): Lead observers may direct observer-skiff operator teams to use alternate sites. R/V captains will restrict deployment of skiffs during Beaufort 5 weather. R/Vs that would normally deploy two skiffs at two locations will select one of the two locations and determine if a single skiff can safely be deployed during picks only. The R/V will remain in position nearby to respond in case the skiff encounters trouble. Sampling distances from the R/V in rough weather would be no greater than 30 meters.

Beaufort 6 and higher (wind 22+ kts; seas 9.5 ft +)**:** All observations will be suspended. Ten-foot white-capped waves with scattered spray will reduce visibility beyond acceptable observation levels. Some remote observations of sites from R/Vs may allow for verification of fishing effort only. R/Vs will establish if the net is fishing and try to contact the permit holder to determine if the site will be picked that day.

Soak Watches

The standard soak watch period is 60 minutes. However, observers may conduct a soak watch anytime during the trip if he or she can expect an uninterrupted period of at least 30 minutes. Therefore, soak watches should never be shorter than 30 minutes and or longer than 60 minutes. If a soak watch is less than 60 minutes, the observer should document the reason for not achieving a 60 minute duration. A new soak watch may be begun again after not less than a 15 minute break following the last soak watch.

Kodiak 2005 - Observer Role and Duties

Observer's involvement is critical to the successful development and improvement of the Marine Mammal Protection Act programs in Alaska. This is particularly true during the initial years of this program. This is why NMFS specifically required the hiring of experienced observers in the program. NMFS recognizes the value of experience and expects observers to set an important precedent in providing high quality data and useful information to further develop the MMPA.

Observers' input on various aspects of the program (such as suggestions on improving data forms and sampling protocol) can strengthen the quality of data and program design. The successful initiation and development of an observer program is dependent on the cooperation and constructive support of all participants. NMFS will encourage and rely on suggestions from observers and the contractor, as well as input from the fishing industry, ADF&G, and other participants in the program to further develop and improve all aspects of the program.

The importance of each observer's contribution to the program and their presentation of the program to the fishing community cannot be over-emphasized. Most of the fishermen have never had to cooperate with any kind of observer program and may not be fully aware of the implications of the MMPA on their fishery or the impact their fishery may have on marine mammals. The ability of the observer to understand and present the program in a professional and clear manner to the fishing community is critical to the success of this and future programs.

In order to build professional relationship of trust and respect between the observers and the fishing community, it is essential that the observers behavior is above reproach. Observers must abide by the standards of conduct and understand why these standards are so important to the success of the program. Observers in the groundfish and crab observer programs often operate independently with little interaction with each other or program staff during their deployment. In this observer program, observers will be working as a team. Observers will work together to coordinate their efforts in arranging their deployments and carrying out their duties. It is important that the observers work as a team and develop a cooperative and supportive environment in order to meet the challenges of the program.

Observer Duties

Observer duties include the collection and recording of accurate and precise data in the field. These data shall include information on fishing gear deployment and operations, marine mammal and bird presence, interaction with and entanglements in the fishing gear, deterrents used against marine mammals, fish catch information, species identification of birds, mammals, and fish, environmental conditions and other elements covered in The Alaska Marine Mammal Observer Program Observer Manual and during observer training. Observers will conduct marine mammal and marine bird watches as directed by NMFS. In addition, observers will collect biological specimens and/or tissue of marine mammals, birds, and some fish. Observers will work cooperatively and professionally with fishermen, provide information to the industry regarding the program as directed, conduct in-season data review and editing, data entry on computers, and attend in-season and final debriefings as directed by NMFS. Observers will be working from small commercial fishing boats, research vessels, skiffs, and on shore at set net sites. Observers must be prepared to operate small skiffs and all terrain vehicles (ATV), hike long distances, and be willing to travel in small aircraft to remote areas.

Lead Observer Duties

NMFS requires the contractor to provide lead observers to act as field coordinators and primary debriefers of observers. The lead observer will be the primary field contact person to cooperate with NMFS in addressing sampling, data, and deployment issues and to provide in-season reports. The lead observers will be responsible for the oversight and tracking of debriefing, final data review, data editing and data entry. In addition, lead observers may need to organize regular open meetings with the fishing industry to provide updates and consider the suggestions and concerns of fishing community. At the discretion of the contractor, many of these duties (debriefing, data entry, meeting attendance) may be shared among observers. Whenever possible, lead observers should participate as field observers in the collection of data.

Debriefing and Data Editing

One of the most critical elements in data quality control is the in-season debriefing of an observer who has collected field data. At this time, the observer will submit collected data to a debriefer, who will review the data and conduct an interview. Discrepancies or errors in collecting or recording data can be noted, methods can be discussed and documented before the data is transmitted. The in-season debriefing of the observer ensures that the data are complete and as accurate as possible before data entry. Some data will be entered into computers by observers and checked for errors in the in-season debriefing.

A final debriefing will be required for each observer at the end of the fishing season. These debriefings will take place in Anchorage or at another designated area. Because the in-season debriefings will have served to correct most problems with collecting and recording of the data, the final debriefing will consist of a review of any outstanding data problems, a review of the observer's performance throughout the fishing season, writing of any necessary affidavits or reports, turning in any biological samples, gear, and equipment to NMFS. The observer can expect the final debriefing to last one to two days. The Contractor is ultimately responsible for making any changes or corrections requested by NMFS prior to final acceptance of the data and reports from each observer for the season.

Data Entry

The contractor is not responsible for all data entry into a NMFS database, but observers will perform data entry of some information pertaining to their work. The bulk of the collected data will be scanned as a backup and the original paper forms will be sent to NMFS for data entry. The contractor will maintain a data tracking system for the observer data as they are collected and corrected. The contractor will complete quality-assurance processes of observer-collected data, and make any necessary corrections before sending data to NMFS.

NMFS has provided the computers and equipment necessary to support the data needs in each port office where observers are regularly debriefed. NMFS will develop and maintain the data entry and database system.

Role of observers

- Understand and present observer program in professional manner
- Collect and record accurate and precise data
- Collect and record biological samples
- Review and edit data
- Maintain conduct standards and safety protocols
- Care for assigned gear, including recording maintenance, problems, and disposition
- Cooperate with staff, support lead observers

Role of Lead observer

- All duties of the observer, plus:
- Act as field coordinator (responsible for implementing program in their district) and primary debriefer.
- Maintain or monitor up-to-date paperwork: safety tracking logs - float plans, skiff logs, illness/injury; and sample tracking forms.
- Cooperate with NMFS in addressing sampling, data, and deployment issues, providing reports as needed.
- Responsible for the oversight and tracking of debriefing, final data review, data editing, some operational data entry.
- Interface with fishing community to provide updates and consider suggestions/ concerns.
- Participate as field observers in collection of data when needed.

Observer Duties Checklist

Monthly Gear Maintenance Check
- Survival suit: wax zipper, record condition in maintenance log.
- PLB: test, record condition in maintenance log.

Pre-Trip
- Establish fishing times with permit holder.
- Permit Holder expects to start at:
- Permit Holder expects to end at:
- Permit Holder expects ____ hauls will be made.
- Check map
- Route will be:
- Potential hazards of route and permit site are:
- Area tides will be:
- Area weather will be:
- Check skiff:
- Safety gear available
- Sampling gear available
- Has float plan been left?
- Fuel enough?
- Ensure personal gear and sampling gear is clean, ready, and working.

During Trip
- Remain vigilant safety wise (note changes in weather or seas, fatigue)
- Follow data collection protocols as described in manual or subsequently changed as directed by lead observer.
- Follow all communication protocols established with lead observer.

Post Trip
- Ensure all data forms are clearly and completely filled out; all applicable data fields are completed appropriately and any fields where information required is unknown are clearly recorded as unknown.
- Submit all biological samples to lead observer with appropriate paperwork completed.
- Clean all gear; report any problems with gear to lead observer.

Debriefing
- Schedule debriefing with lead observer according to protocol.
- Preliminary interview reviewing sampling methods, answering questions, discussing observer concerns.
- Preliminary data review: marks in debriefer color
- Correction by the observer of any data errors noted: the data and corrections must always be in different colors.
- Review and correction of any errors in data submitted by the observer in a previous debriefing (including main office data entry questions).

Standards of Conduct

The observer must avoid any behavior which could adversely affect the confidence of the public in the integrity of the Observer Program or of the Government. Observers are thus expected to conduct themselves in a manner which will reflect favorably upon the Observer Program by maintaining high standards of honesty, integrity, impartiality, and conduct in all situations.

Observers:

i. Must diligently perform their assigned duties;

ii Must accurately record their sampling data, write complete reports, and report honestly any observed or suspected violations of fisheries, natural resource conservation, or environmental laws or regulations;

iii Must protect the confidentiality of all collected data and observations made on board vessels. Observers shall not use any data collected under this contract for purposes other than the performance of this contract nor shall observers release, reproduce, distribute, or publish any of the data without prior approval from NMFS;

iv Must refrain from engaging in any illegal actions or any other activities that would reflect negatively on their image as professional scientists, on other observers, or on the Observer Program as a whole. This would include, but is not limited to:

1. Engaging in excessive drinking of alcoholic beverages;

2. Engaging in the use or distribution of illegal drugs;

3. Becoming physically or emotionally involved with vessel personnel;

4. Engaging in criminal, dishonest, disrespectful, immoral, or disgraceful conduct which may be perceived as prejudicial to the Government.

If a vessel or set net site maintains a stricter policy for its employees, then the observer must comply with said policy;

v. Are prohibited from conducting personal research or from retaining specimens of any kind for any reason not specified in the Marine Mammal Observer Manual.

Behavior which is contrary to these standards or to the intent of these standards would be considered to be grounds for disqualifying the offending observer. **Falsification of observer data is grounds for dismissal and possibly criminal prosecution.** An observer may be discharged without warning for just cause. Just cause includes, but is not limited to: dishonesty, incompetence, insubordination, negligence with equipment, un-excused absenteeism, un-excused tardiness, disobedience of orders, unsatisfactory performance of duties, lose of data, violation of vessel or set net site owner's rules imposed on the contractor, and failure to live up to the above standards of conduct.

Conflict of Interest

Observers must maintain objectivity and the appearance of objectivity. Observers must not have direct financial interest, other than the provision of observer services, in Alaskan salmon fisheries. Observers must not have financial nor political interest in an organization that might be aided by the performance or nonperformance of their duties.

Observers:

a. May not have direct financial interest, other than the provision of observer services, in an Alaskan salmon commercial fishery, including, but not limited to, vessels or shore-side facilities involved in the catching or processing of the products of the fishery, related interests in selling supplies or services to these vessels or shore-side facilities, or related interests in purchasing raw or processed products from these vessels or shore-side facilities;

b. May not solicit or accept, directly or indirectly, any gratuity, gift, favor, entertainment, loan, or anything of monetary value from anyone who conducts activities that are regulated by NMFS, or who has interests that may be substantially affected by the performance or nonperformance of the observers' official duties;

c. May not serve as an observer on any vessel or at any shore-side facility owned or operated by a person who previously employed the observer; and

d. May not solicit or accept employment as a crew member or an employee of a vessel or shore-side facility in an Alaskan salmon commercial fishery while under contract with an observer Contractor.

Regulatory Compliance

Trip Refusals

Vessel or permit owners and operators selected for observer coverage are responsible for complying with regulations set forth by the Marine Mammal Protection Act (50 CFR § 229.7) and the Magnuson-Stevens Act (50 CFR § 600.746). The Alaska Marine Mammal Observer Program is providing mandatory observer coverage of Category I and II fisheries in Alaska under the authority of the Marine Mammal Protection Act of 1972. If asked, a fisherman must take an observer. A refusal occurs when an observer informs a fisherman that they have been selected for observer coverage and the fishermen refuses to cooperate with the observer. The observer must clearly communicate that the permit or vessel has been selected for coverage and confirm that the skipper is denying the observer. The observer notes all dialogue that occurred between the parties, including dates and times, weather conditions, fishing conditions, trip logistics, and safety issues. The notes must be complete and factual and may be used to write an affidavit if warranted. Trip refusals are documented in observer logbooks and immediately reported to the contracted Program Manager and the NMFS AMMOP Coordinator. The reasons for refusing an observer will be clearly reported and evaluated on a case by case basis. A refusal based on principle (a fixed or

predetermined policy or mode of action) or lack of insurance are not legitimate reasons to not comply with observer requirements.

The observer requirements for participants in Category I and II fisheries are [50 CFR § 229.7(c)]:

1. If requested by NMFS or by a designated contractor providing observer services to NMFS, a vessel owner/operator must take aboard an observer to accompany the vessel on fishing trips.

2. After being notified by NMFS, or by a designated contractor providing observer services to NMFS, that the vessel is required to carry an observer, the vessel owner/operator must comply with the notification by providing information requested within the specified time on scheduled or anticipated fishing trips.

3. NMFS, or a designated contractor providing observer services to NMFS, may waive the observer requirement based on a finding that the facilities for housing the observer or for carrying out observer functions are so inadequate or unsafe that the health or safety of the observer or the safe operation of the vessel would be jeopardized.

4. The vessel owner/operator and crew must cooperate with the observer in the performance of the observer's duties including:

   i. Providing, at no cost to the observer, the United States government, or the designated observer provider, food, toilet, bathing, sleeping accommodations, and other amenities that are equivalent to those provided to the crew, unless other arrangements are approved in advance by the Regional Administrator;

   ii Allowing for the embarking and debarking of the observer as specified by NMFS personnel or designated contractors. The operator of a vessel must ensure that transfers of observers at sea are accomplished in a safe manner, via small boat or raft, during daylight hours if feasible, as weather and sea conditions allow, and with the agreement of the observer involved;

   iii. Allowing the observer access to all areas of the vessel necessary to conduct observer duties;

   iv. Allowing the observer access to communications equipment and navigation equipment, when available on the vessel, as necessary to perform observer duties;

   v. Providing true vessel locations by latitude and longitude, accurate to the minute, or by loran coordinates, upon request by the observer;

   vi. Sampling, retaining, and storing of marine mammal specimens, other protected species specimens, or target or non-target catch specimens, upon request by NMFS personnel, designated contractors, or the observer, if adequate facilities are available and if feasible;

vii. Notifying the observer in a timely fashion of when all commercial fishing operations are to begin and end;

viii. Not impairing or in any way interfering with the research or observations being carried out; and

ix. Complying with other guidelines or regulations that NMFS may develop to ensure the effective deployment and use of observers.

It is unlawful to fail to take an assigned observer on a fishing trip [50 CFR § 229.7(c)(1)]. It is unlawful for any person to assault, harm, harass (including sexual harassment), oppose, impede, intimidate, impair, or in any way influence or interfere with an observer, or to attempt the same. This includes any action which has the purpose or effect of interfering with the observer's responsibilities, or which creates an intimidating, hostile, or offensive environment [50 CFR § 229.3(b)].

The general prohibitions listed under the Magnuson-Stevens Act (50 CFR § 600.746) are applicable to any fishing vessel required to carry an observer under any U.S. law and include, but are not limited to:

- Fail to submit to a USCG safety examination when required by NMFS pursuant to Sec. 600.746.
- Fish without an observer when the vessel is required to carry an observer.
- Assault, oppose, impede, intimidate, or interfere with a NMFS-approved observer aboard a vessel.
- Prohibit or bar by command, impediment, threat, coercion, or refusal of reasonable assistance, an observer from conducting his or her duties aboard a vessel.

Violations of the MMPA may result in sanctions on Authorization Certificates, civil penalties of up to $12,000 and criminal penalties. A complete list of MMPA prohibitions can be found at 50 CFR § 229.3.

Marine Mammal Authorization Certificate

All participants in Category I and II fisheries must obtain a Marine Mammal Authorization Certificate in order to lawfully participate in the fishery since the fishery. The Marine Mammal Authorization Certificate allows for lawful incidental (accidental during the course of fishing) serious injury and mortality of marine mammals. If a person is operating in one of these fisheries and has not received a certificate, they may contact Judy Roberts, National Marine Fisheries Service, Alaska Regional Office, Protected Resources, P.O. Box 21668, Juneau, Alaska 99802, at (907) 586-7236.

Injury and Mortality Reporting Requirements

Operators in all commercial fisheries must report all incidental injuries and mortalities of marine mammals that have occurred as a result of their fishing operations on a NMFS Marine Mammal

Injury/Mortality Report Form regardless of whether there was an observer present. The report must be sent by mail or fax within 48 hours of the end of the fishing trip in which the injury or mortality occurred [50 CFR § 229.6(a)]. Failure to report all injuries and mortalities within 48 hours may result in suspension, revocation, or denial of a marine mammal authorization certificate [50 CFR § 229.10(e)]. For copies of the Injury/Mortality Report Form, contact Judy Roberts, National Marine Fisheries Service, Alaska Regional Office, Protected Resources, P.O. Box 21668, Juneau, Alaska 99802, at (907) 586-7236. Observers will have these forms available for fishers if needed.

Safety Requirements

On May 18, 1998, NMFS published regulations under the Magnuson-Stevens Fishery Conservation and Management Act that address the health and safety of observers stationed aboard commercial fishing vessels. Under these regulations, observers may not depart on a fishing trip aboard a vessel which does not comply with United States Coast Guard (USCG) safety requirements or that does not display a current Commercial Fishing Vessel Safety Examination decal [50 CFR § 600.746(c)(1)].

All vessels required to carry an observer must meet USCG safety requirements and display a current safety decal (issued within the previous two years). Vessels that do not meet these requirements are deemed unsafe for purposes of carrying an observer and must correct noted deficiencies prior to departing port [50 CFR § 600.746(d)(2)].

The vessel owner operator must allow an observer, NMFS, or NMFS-appointed-contractor to visually inspect any safety or accommodation requirement if requested [50 CFR § 600.746(c)(2)]. Observers are required to complete a pre-trip safety check of the emergency equipment and are encourage to review emergency instructions with the operator prior to the vessel departing port. Fishermen can schedule a free dockside examination to obtain a current safety decal by contacting the nearest US Coast Guard Marine Safety Office Dockside Examiner.

However, AMMOP observers will not be working from fishing skiffs during the 2005 fishing season in Kodiak. Therefore, the need for fishermen to have skiffs obtain and display a current safety decal to carry an observer is unnecessary.

Procedures For Observers During Coast Guard, NMFS Enforcement, ADFG, USFWS Inspections

The Coast Guard periodically boards fishing vessels to inspect them for fishery and safety violations. NMFS Enforcement also inspects fishing operations. Additionally, ADFG or USFWS may need to conduct on-site information gathering about the fishing operations. If a party from one of these agencies arrives to inspect fishing operations, introduce yourself as the AMMOP observer, and subsequently remain in the background, letting the inspection party know where you can be found. These agency representatives will have certain objectives to accomplish; if your assistance is needed, they will ask for it.

If the inspection party has questions or requests your assistance, be cooperative. Make sure your logbook and paperwork are in order in case the inspection party wishes to see them. Avoid giving anyone your original forms or your logbook; make copies as needed.

If you have information on suspected or actual violations or other problems, use your judgment to decide if a potential violation would best be reported to the inspection party or saved for debriefing. If a vessel is issued a ticket immediately based on your report, you may be in an awkward position after the inspection party leaves. If you have no information for the inspection party, but someone in the inspection party wishes to question you, find a private location for your conversation. On occasion, an uninformed inspection party member may ask you questions in front of vessel personnel. Should this happen, defer the questions until you can speak in private. If that doesn't work, ask if they will accept a written statement from you. If you are questioned in private, answer all questions completely and honestly. Your testimony is one part of the whole investigation.

Your role in these inspections is as a source of objective information. The agencies will conduct their own inspections and investigation, and they may or may not require your assistance. You should cooperate fully, and not hamper the investigation.

Observer Guidelines for Preparing an Affidavit

An affidavit is a written declaration made under oath before an official, as a notary public. Observers must be prepared to write affidavits and provide evidence or testimony as needed. An affidavit should be a detailed, non-inflammatory, concise, and factual description of the events that led up to and including the potential violation(s).

The first paragraph should be an introduction of yourself; your name, who you work for, what position you hold, how much experience you have, your education, and any other pertinent background information that would support your credibility.

Example: I, (First/Last name), was employed by (Contractor) to serve as a marine mammal observer for the National Marine Fisheries Service (NMFS). I have served as a NMFS fisheries observer on (number of) deployments, and on this trip served aboard the (vessel name) fishing in the (fishery name) with permit (permit number) from (embark to disembark date), where I witnessed several incidents of (state suspected violation). I received a (highest schooling degree) from the (school name) in (year of graduation). I have successfully completed certifications in C.P.R., vessel safety, and NMFS fisheries observer courses.

Referring to your logbook and forms, detail the event addressing the following questions:

- What was the potential violation?
- Who committed the potential violation?
- When, where, why and how did it occur?
- Define crucial information (names, dates, times, locations)
- Outline the issues with the debriefer.
- Detail events in chronological order as they occur.
- Do not summarize or minimize events.
- Identify each time an event occurred.
- Maintain objectivity, do not use personal opinions.
- Use complete sentences in a narrative, not outline form.
- Write in the first person, active tense.
- Should be written on plain paper and may be handwritten or typed.

You should close the affidavit with the following and sign and date:

I certify that, to the best of my knowledge, the above statement is true.

Signature _____ Date _____

Confirm that the information in the heading of the report are correct, including:

Observer's name

Violation(s) type

Trip identification number

Vessel/permit name or number

ADMINISTRATIVE FORMS

Administrative forms deal with operations and tracking information critical to the management and operation of the observer program. These forms differ from the data forms that document the scientific data collected by observers.

Observers and lead observers will complete forms and enter some information electronically in the field. This information will be used in-season to report observer coverage, fishing effort, sampling problems, harassment and refusals, observer suggestions, and other information. This information will be entered into field office computers and uploaded to a webfolder following the debriefing interview every three to four days. The observer contractor and NMFS will download the files and use the information to manage and support the program. It is very important for this information to be available to the contractor and NMFS in a timely and accurate manner.

OBSERVER LOGBOOK

The logbook is used to document conversations, discussions, encounters, notes and observer activity on the docks or in the field. It is for recording names of people and places, times of meetings and deployments, calculations and notes on working conditions, as well as operational notes. The logbook is collected by NMFS at the end of the season and is considered part of the official records of the program. Therefore, it should be kept presentable and professionally. All entries except calculations must be recorded in Rite- in-theRain pen. Errors are crossed out with a single line and pages should not be ripped out. A daily entry is required throughout your deployment. Debriefing, travel, sick, and personal days should be noted as such without detail. Aborted trips, weather-related changes to expected operations, trip refusals, or other issues of concern or questions of note should be recorded. At a minimum, the daily entry in the logbook should include:

Date/times of significant events such as departure/return to/from permit site

Data collection notations

Calculations

Sampling gear issues

Interactions with fishermen

Regulatory compliance issues

Injury/illness/close calls

Safety concerns

Trip Summary Report Form

Observer Trip Summary Forms are for in-season brief notice of observer activities, coverage, and biological samples. These logs serve as a real-time representation of what is going on in the field. They are processed faster than the Trip Forms, and are therefore preliminary and unedited. They are not for long-term use and are less accurate than the Trip Forms.

Observers in the field will be responsible for completing the Trip Summary Form for the debriefing process. It is very important to enter forms in a timely and accurate manner. Each research vessel and field office will have a laptop or desktop computer. During debriefing, the debriefer will verify that the data accurately represent the time the observer spent observing. The observer will then enter the information on the electronic Excel form and e-mail it to the Anchorage MRAG office. A hard copy of the form will serve as a cover sheet for the observer's data forms. An electronic copy will be kept on the observer's zip disk.

The Trip Summary Form will be entered into the computer in an Excel format. Observers will use the mouse or the enter key and arrow keys to toggle between fields. The Caps Lock button will be engaged during field entry. The Observer Code, Trip ID, Observation Date, Permit #, and Contract Region need only be entered on the top line for each day. The program will copy the fields on the appropriate lines below. Check to ensure all fields are entered properly and completely. Once all information is entered the file must be saved in the following format: TRL + Observer ID + Debrief Date **(TRLXXXmmddyy).**

Trip Summary Report Form Field Descriptions

Trip ID: The number assigned to the observation, each observer numbers sample days sequentially.

Observation Date: Date site was observed, record in a mm/dd/yy format.

Contract Region : Three or four digit code for the region:

KI1A = North Cape & Kupreanof Straits
KI1B = Viekoda Bay
KI1C = Uganik Bay
KI2 = Uyak Bay
KI3 = Olga Bay
KI4 = Inner Moser Bay
KI5 = Outer Moser Bay

Observer Codes: The three-letter observer code. The primary observer code should be listed first, followed by the codes of all observers collecting data on this trip.

Permit #s: ADF&G permit number for the observed nets. Sixth digit is a letter and should be capitalized except in the case of O, I, and Z which should be lower case to avoid confusion with 0, 1, and 2.

Permit Holders Name: Last and First name of the primary permit holder selected for the site observed.

Number of Skiffs: The total number of skiffs used to pick the gear at the observed permit #.

Mammal Takes: The number of alive and dead marine mammals taken at the observed site.

Bird Takes: The number of alive and dead marine birds taken at the observed site.

Observed Hauls: The number of hauls observed for a permit number during the sample

Estimated # of hauls not observed: (From Trip Data Form) Subtract observed hauls from number of permit holder's estimated hauls.

Sample Day Type: F = full day P= partial day A= arrested

Debrief Date: The date the Debriefing Log was completed for the observed day.

Total Time Not Fishing: record any periods in which the permit site **did not** have the fishing nets in the water during open periods. Record only periods of non-fishing from the date of the last observation. For the first observation, record the date and time the nets entered the water. The observer should record the date, and length of time the permit holder did not fish in the following format (mmddyy, hrs:mm).

Safety Concerns: record if there are safety concerns, or if near accidents, or accidents occurred during or related to the trip. These incidents must be recorded in the logbook, and should be discussed fully during debriefing.

Other Comments: record refusals, arrested trips, partial hauls, and other events that have been recorded in the logbook and will be discussed fully during debriefing.

NOAA Fisheries Alaska Marine Mammal Observer Program

Trip Summary Form

Trip ID	Obs Date	Contract Region	Obs Codes	Permit #s	Selected Permit Holder		# of Skiffs	Mammal Takes		Bird Takes	
					Last	First		Alive	Dead	Alive	Dead
# of Observed Hauls:					Total time not fishing:						
Est. # haul not obs:					Safety concerns:						
Sample Day Type:					Other comments:						
Debrief Date:											

Trip ID	Obs Date	Contract Region	Obs Codes	Permit #s	Selected Permit Holder		# of Skiffs	Mammal Takes		Bird Takes	
					Last	First		Alive	Dead	Alive	Dead
Observed Hauls:					Total time not fishing:						

Above: Excerpt of paper Trip Summary Form

Below: Trip Summary Form data entry files (Excel)

Obs Code	Trip ID	Obs Date	Permit #	Contract Region	Permit Holders Name Last	First	Obs Hauls	Sample Day Type	Est Hauls Not Obs	# of Skiffs	Mammal Takes Alive	Dead	Bird Takes Alive	Dead	Debrief Date
0	0	01/00/00	0	0	Effort:										
0	0	01/00/00	0	0	Safety:										
0	0	01/00/00	0	0	Comments:										
0	0	01/00/00	0	0											

DEBRIEFING FORM

The lead or assistant lead observer will complete the Debriefing Log. It is used to document what was discussed during a debriefing, and should list the topics discussed, areas that need clarification, safety issues, and other observer concerns and needs. The Debriefing Log will be electronically entered by the team lead or assistant team lead observer during or following the debriefing interview. The Debriefing Log will be entered into the computer in an MS Word format. A space is provided to enter subject/form and notes. Team lead observers will use the mouse or tab keys to toggle between fields. Once all information is entered the file must be saved in the following format: DL + Observer ID + Week Ending Date **(DLXXXmm-dd-yy).**

Observers should review the Debriefing Form to be familiar with what topics they should be prepared to discuss at debriefing.

NOAA Fisheries Alaska Marine Mammal Observer Program

TRIP DEBRIEFING FORM

Observer ID: Trip #:
Debriefing Date: Time In: Time Out:
Debriefer:

FORMS	PRESENT/ REQUIRED	CLARIFICATION NEEDED	ERRORS	CORRECTIONS	NOTES (continue on back as needed)
TRIP					
GEAR					
HAUL					
FISH/SHARK SAMPLE					
INCIDENTAL TAKE					
MARINE MAMMAL SAMPLE					Total # MM Bio samples? Sample Tracking Log completed?
MARINE BIRD SAMPLE					Total # MB Bio samples? Sample Tracking Log completed?
SIGHTING					
PHOTO					
FISHER'S COMMENTS					
OTHER FORMS					
LOGBOOK		REVIEWED?	NOTES:		
LOGISTICAL / SAMPLING ISSUES	**YES / NO**	NOTES:			
SAFETY ISSUES	**YES / NO**	NOTES:			
OBSERVER CONCERNS DISCUSSED	**YES / NO**	NOTES:			

Form AMMOP 032-05

Sample Tracking Log

The Sample Tracking Log is used to track sample transfer, locations, and custodians after collection. At any given moment, the program must be able to account for all the biological samples collected, especially parts from endangered species. This log is completed initially by the observer who collected the samples. At debriefing, the lead observer assumes custody of the samples by signing off on the log. The Sample Tracking Log will be entered into the database by the lead observer in MS Word. Lead observers will click on the Tag Number and Date Sampled fields to enter the information. Use a mouse or the tab key to toggle between fields. In the place of signatures, type the name of the person who signed. Once all information is entered the file must be saved in the following format: STL + Observer ID + Week Ending Date **(STLXXXmm-dd-yy)**.

NOAA Fisheries
Alaska Marine Mammal Observer Program

Biological Sample Chain of Custody Form

Animal Information

Trip:
Haul:
Date taken:
Tag Number:
Species:
Comments:

Copy of Original? ☐

IMPORTANT:
Samples are obtained under permits issued to:
NOAA/NMFS/ AK Marine Mammal Observer Prgm
POB 21668
Juneau, AK 99802
1. When sending samples to next custodian, notify AMMOP Coordinator at (907) 586-7642
2. On receiving or destroying of samples: complete the Log with your initials/date and location, and send a photocopy to address above or fax to (907) 586-7012.

Sample Information

Initial and date when sample is collected, shipped, received, or destroyed per instructions on back of form

Type	Collector	Custodian I	Custodian II	Custodian III	Custodian IV	**Transfer** Name and Contact Info	**Destroyed** Date
Whole Carcass							
Skin							
Head							
Jaw							
Stomach							
Blubber/ Fat glob.							
Muscle							
Repro. Tract							
Fetus							
Liver (Bird)							
Heart (Bird)							
Leg (Bird)							
Other 1:							
Other 2:							
Other 3:							
Other 4:							
Other 5:							

Name and Location

Collector:
Custodian I:
Custodian II:
Custodian III:
Custodian IV:

Data Access Agreement/Statement of Non-disclosure

Procedures for protecting National Marine Fisheries Service (NMFS) data confidentiality relating to the Alaska Marine Mammal Observer Program.

To insure the confidentiality of applicable National Marine Fisheries Service (NMFS) data the following procedures will apply to all authorized users.

- Only authorized users who have signed a statement of non-disclosure will have access to NMFS confidential data or its resultant confidential products.
- Care will be exercised not to leave computers unattended when working with NMFS confidential data.
- Actual confidential data provided by NMFS will be stored under lock and key and segregated from non-NMFS data.
- Only aggregate, summarized, NMFS data will be stored on-line on any time-sharing computer system.
- When the data is stored on multi-user computer systems a separate dedicated account with a unique access code will be used for NMFS data and analyses. Usage of this account is to be limited to the authorized individual.
- On multi-user systems, on-line data will be stored in files or directories to which only the owner has read access. All others including system operators or accounts are to be denied read access.
- On multi-user systems where access to files and directories cannot be restricted due to operating system limitations, specialized encryption software must be used to encrypt the confidential data files. A unique or series of encryption keys should be used for the project.
- On single user systems confidentiality will be maintained by securing the entire machine, either physically or with software that denies unauthorized access. Only the NMFS authorized individual is to be permitted access to the machine.
- If the single user machine is available to non-authorized users, the data confidentiality will be protected by security software which limits access to directories or files by password or performs data encryption. Passwords or encryption keys should be unique to the project.
- Confidential output will be retrieved promptly from output devices.
- Confidential output will be disposed of by shredding.

Trip Data Release Form For Copies Of Trips

The only individuals who may request and receive copies of an observer's trip data include the permit holder(s) or an authorized representative for the permit holder(s). No other individuals may be issued any data with this release form.

For each permit sampled, observers should offer fisherman the opportunity to request copies of the data collected at their site, and have blank copies of this form available for the fisherman to fill out. Completed forms can be returned to the observer that day before the observer leaves the site, or they can be mailed directly to NMFS. If observers receive a completed form, that form should be turned in to the lead or assistant lead observer with all the trip data.

NOAA Fisheries Alaska Marine Mammal Observer Program

DATA RELEASE FORM FOR COPIES OF TRIPS

- The only individuals, excluding authorized NOAA Fisheries personnel, who may request and receive copies of completed AMMOP data forms include: the ADFG fishing permit holder, or a person acting as an authorized representative for the permit holder.
- Any request for copies of observer forms must be submitted in writing on a form letter (see reverse side), which may be obtained from a NMFS observer or the address below. All signed requests must be sent to the following address:
  Program Coordinator, Alaska Marine Mammal Observer Program
  National Marine Fisheries Service
  Office of Protected Resources
  P.O. Box 21668, Room 461
  Juneau, Alaska 99802
- Upon release of the requested data, the authorized recipient then becomes responsible for it.
- Data may not be released upon an oral request, or without first completing and signing the authorized release letter mentioned above.
- Release of data for trips in which more than one fishing permit was observed may only occur if both permit holders or authorized representatives complete and sign data release requests.
- All letters should be completed in pen, not pencil.

SEE FORM ON REVERSE SIDE

FORM AMMOP 021-05

NOAA Fisheries Alaska Marine Mammal Observer Program

DATA RELEASE FOR COPIES OF TRIPS FORM

_____
(Date of Request)

Program Coordinator, Alaska Marine Mammal Observer Program
National Marine Fisheries Service
Office of Protected Resources
P.O. Box 21668, Room 461
Juneau, Alaska 99802

Dear AMMOP Coordinator:

I, _____, a set gillnet permit holder or authorized representative
(Print complete name)

(circle one) of set gillent permit number #_____ request and
(set net permit number)
authorize the release to myself of data recorded at my set gillnet site by an observer from the National Marine Fisheries Service / Alaska Marine Mammal Observer Program.

The information I request is from the _____ fishery.
(Name of Fishery)

This information was collected on _____ in_____.
(Date) (Fishing Location)

I am making this request as the permit holder or the authorized representative of the owner(s), of the said permit. I understand that I am responsible for these data upon release to me by NOAA Fisheries. I further understand that the data I receive may be preliminary, and not yet completely reviewed by the Alaska Marine Mammal Observer Program.

_____
(SIGNED NAME)

_____
(PRINTED NAME)

Address to Which Data should be sent:

_____
Street/ PO Box

_____
City, State, Zip

OFFICE USE ONLY:
Date requested data received/ issued _____
Signature of data releaser _____
Printed name of data releaser _____

FORM AMMOP 021-05

SUBSISTENCE REIMBURSEMENT FORM

NOAA Fisheries Alaska Marine Mammal Observer Program

SUBSISTENCE REIMBURSEMENT FORM

This information will be used to provide the fisherman with reimbursement for food costs associated with hosting an observer. The observer will complete and return this form to NMFS with the trip data. Fisherman's signature is required for processing.

Date: _____ Trip Id: _____ Permit Number: _____
(today's date, mm/dd/yy)

I, _____, have been deployed aboard the
(observer's name, first and last)

F/V _____ or at set gillnet site _____
(fishing vessel name, fishery permit #) (permit holder #)

participating in fishery _____
(target species and gear type)

from _____ to _____ for a total of _____ night(s).
(begin date, mm/dd/yy) (end date, mm/dd/yy) (number)

Number of overnights multiplied by $25.00 = $_____.00
(amount due)

Print Captain/Permit holder's name: _____

Captain/Permit holder's signature: _____

Name and address where check should be sent: _____
(First and Last Name, if different from above)

_____
(Street or P.O. Box)

_____
(Town, State)

_____
(Zip Code)

_____
(Phone Number, optional)

(For Office Use)
Paid on:

FORM AMMOP 020-05

Section Four

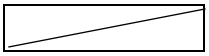
Data Forms and Instructions

Table of Contents

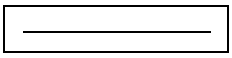
GENERAL DATA GUIDELINES

Please follow these general data guidelines on all forms, at all times:

- All forms should be completed with legible, clear writing.

- If the field does not apply use a slanted line throughout the box.
-
    - Correct: 

- If the field cannot be determined or is unknown use a dash; explain the reason why the information was unknown in the comments field (e.g., didn't ask, couldn't collect, fisher did not know).

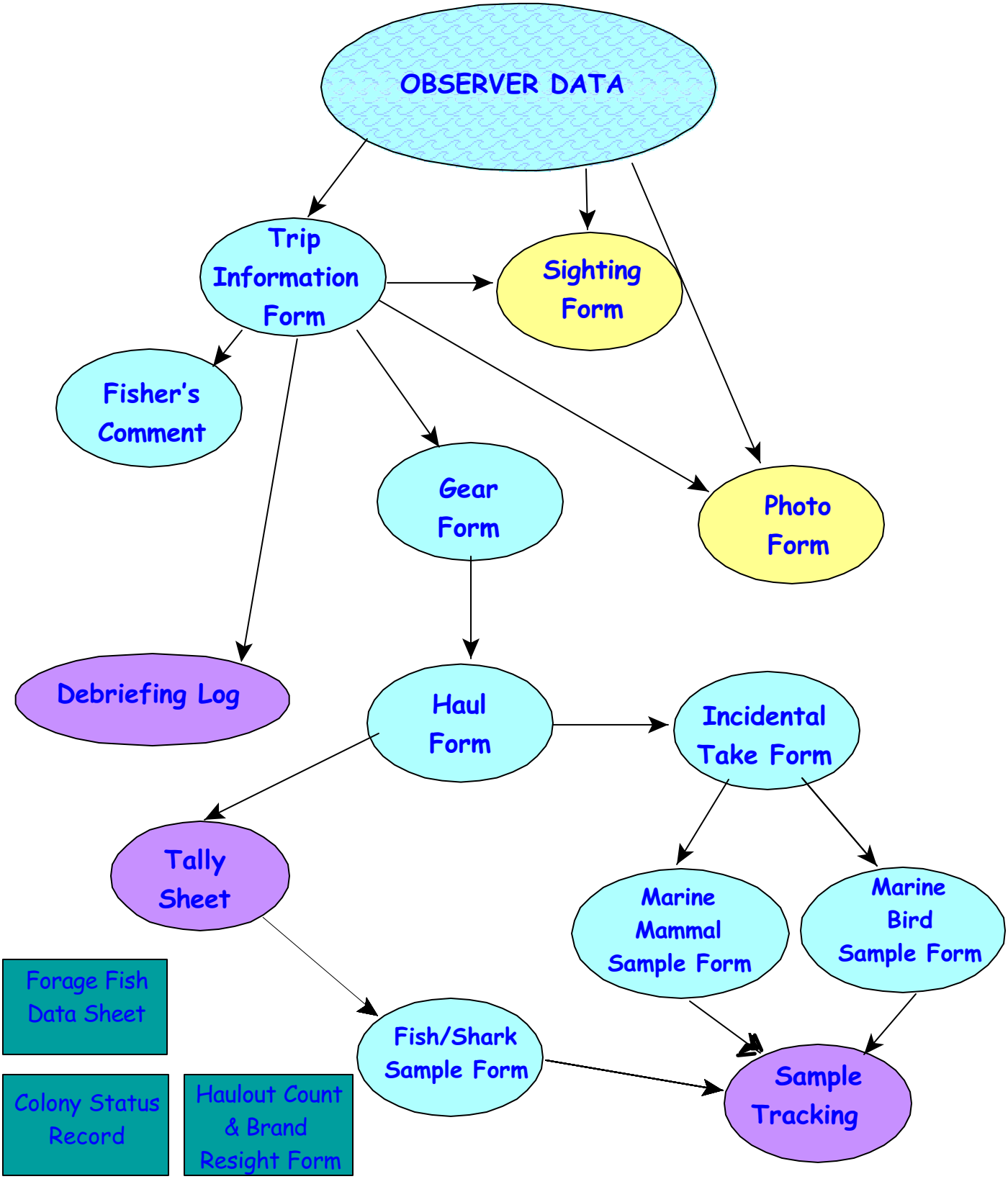
    - Correct: 
-
- If an error needs to be corrected during the trip use a single line through the error (strikethrough the error). Do not erase nor darken over errors.
-
    - Correct strikethrough: ~~The permit holder lost five fish~~
-
- If an error needs to be corrected in debriefing, the strikethrough is made in the color of the debriefer pen; initial and date the strikethrough.

Comment Fields

- Comments are from the observer(s) assigned to a trip. Comments regarding the trip from other sources are not recoded in Comment fields; they documented elsewhere:
-
    - Comments made by the permit holder should be recorded on the Fisher Comment form. If the fisher opts not to complete the form himself or herself, the observer should record the permit holder's comments verbatim on the Fisher Comment form and include a note that the observer recorded the comments for the permit holder.
-
- Comments should be objective. Comments should have a neutral and professional tone.
-
- Instead of actual names, use general names which describe role played (note that it is acceptable to use the observer ID number).
-
    - Correct: The **permit holder** asked the **skiff operator** if **observer A16** …
-
- When vessels are mentioned in comments, describe the vessel to avoid confusion.
    - Correct: T/V, R/V, holding skiff, observer skiff, permit holder skiff

ALASKA MARINE MAMMAL OBSERVER PROGRAM

DATA COLLECTION ORGANIZATION CHART



Trip Information Form

This form serves as a header sheet for an observed trip. An observed trip is defined as the entire period of time, during a 24 hour period, beginning when an observer departs to observe fishing operations for a selected set gillnet permit, to the time an observer returns from observing fishing operations for that permit, provided at least one haul or pick is observed for the selected permit. One Trip Information Form is recorded per trip. All observed trips will have a Trip Information Form. The trips are filed and archived by fishery, year, month, and trip identification number. The fields in the "Tracking" box are completed by appropriate staff to indicate the date and initials of the individuals who processed the data.

For fields requesting a name and code, denoted by "Field Name (& code)", the codes may be filled in and verified after the trip when the manual can be more appropriately referenced in a sheltered environment. Be sure to complete the codes prior to debriefing and please keep your handwriting legible to ensure accurate data entry.

Cross out fields that do not apply with a single slanted line. If the field does not apply and has check boxes with codes that do not apply, cross out the entire block. Unknown fields should be dashed (unless an unknown code is listed on the form). All unknown fields must be explained in comments and addressed in debriefing. For coded fields, if none of the listed codes are appropriate for the situation, record or check the code for "other" and provide details in the comment section. Record a leading zero for decimal formats less than one (example: 0.4).

Definitions	
ADF&G	Alaska Department of Fish and Game. ADF&G's mission is to manage, protect, maintain, and improve the fish, game and aquatic plant resources of Alaska. The primary goals are to ensure that Alaska's renewable fish and wildlife resources and their habitats are conserved and managed on the sustained yield principle, and the use and development of these resources are in the best interest of the economy and well-being of the people of the state. The state fishing regulations are set by the Alaska Board of Fisheries. The state licensing and permitting for fishing are handled by the Alaska Commercial Fisheries Entry Commission (CFEC)
Commercial fishing vessel	A floating craft powered, towed, rowed, or otherwise propelled, which is used for or equipped to be used for commercial fishing or fish processing, fish transport, fish storage, including temporary storage.
Fishing site	A structure or vessel used by a permit holder for providing shelter in support of the operation of stationary net gear.
Net gear site	The in-water location of stationary net gear.
Random sample	Each permit has an equal chance of being selected.
Stratified sampling	The selection of the permit is related to the location of fishing sites by areas defined by MRAG.
Secondary sample	Permits observed because they are assoicated with the randomly seclected permit.
Trip	For the set gillnet fishery, a trip, consists of observing all the fishing associated with a specific permit in a 24 hour period, beginning at midnight.
Fully observed	All of the hauls, from when picking began to when picking ended for that trip were observed.
Partially observed	Either portions of the picks or entire hauls were missed during the trip.

Definitions	
Arrested	A trip was scheduled, the observer departed for the trip, then due to worsening weather, vessel problems or gear trouble, fishing was canceled and the trip ended. Fishing and observing was intended but could not be achieved due to circumstances beyond their control. There must be an intent to fish, contact made to confirm intent to fish, weather was good enough to start off the trip, and then an unexpected turn of events makes fishing and/or observing unobtainable.
Single operator/ owner	The permit holder is the original owner and single operator of the permit.
Joint venture	Two permit holders may combine their gear and fish under one permit, following ADF&G fishing regulations. Both fishermen must still operate under their CFEC permit. Both permit numbers must be recorded on the trip, the first one being the one that was selected.
Co-op	Several permit holders may fish and sell their catch as a unit, dividing the combined profit.
Temporary transfer	A temporary arrangement to transfer the fishing permit and operations to another fisherman. This may be due to a medical emergency.
Permanent transfer	The transfer of a permit through a sale to another party. Occasionally, the permit may revert back to the original owner after a specified time period, with a private contract between the fishermen. In which case, for our purposes, it would be considered a single operator/original owner.

Trip Information Form Field Descriptions

1. Page numbering: This is for paperwork filing purposes. Number front and back of all double sided forms (if used) and backs with comments on them. The pages are numbered by trip with all forms in the order they are listed in the Table of Contents. The trip form serves as the cover sheet for a trip and is considered page 1 for the trip.

2. Year: The year (yyyy) the trip ended.

3. Month: The month (mm) the trip ended.

4. Trip Identification Number: Record your unique three character Observer Identifier combined with the three character Trip Number consecutively numbering your trips for this year (example: X01001).

5. Fishery Name and Code: Write the name of the fishery as "Kod Set" to ensure proper filing and coding. Record the fishery code assigned to identify this fishery. The Fishery Name Code for Kodiak 2005 is:

5 = Kodiak salmon set gillnet

6. Geographical Region and Code: Record the region and code of where this trip occurred, using the Region Codes. If fishing gear overlaps two regions, record the region where the majority of the gear is set:

KI1A =Northern Northwest Region, Kodiak, consists of the permits in the North Cape section and Kupreanof Straits, including ADF&G statistical areas 259-35 thru 259-39.

KI1B =Central Northwest Region, Kodiak, consists of Viekoda Bay. It includes ADF&G statistical area 253-31.

KI1C= Southern Northwest Region, Kodiak, consists of Uganik Bay and UganikPassage. It includes ADF&G statistical areas 253-11 through 253-14.

KI2= Uyak Region, Kodiak, consists of Uyak Bay and includes ADF&G statistical areas 254-10, 254-20, 254-30, and 254-40.

KI3 = Olga Bay Region, Kodiak, consists of Olga Bay and includes the ADF&G statistical area 257-40.

KI4 = Inner Moser Bay Region, Kodiak. This is the inner portions of Moser Bay in the Alitak District. It includes the inner part of ADF&G statistical area: 257-41.

KI5 = Outer Moser Bay Region, Kodiak. This is the outer portion of Moser Bay, Alitak Bay, and Deadman Bay in the Alitak District. It includes ADF&G statistical area 257-50 and the outer portion of 257-41.

7. TRIP BEGIN DATE: Record the date (mmddyy) you left shore or the research platform for this trip.

8. TRIP BEGIN TIME: Record the time, in hours and minutes (hh:mm) you left for this trip. Record time in the 24 hour format.

9. TRIP END DATE: Record the date (mmddyy) that you returned after completing the trip.

10. TRIP END TIME: Record the time (hh:mm) that you returned after completing the trip. Record time in the 24 hour format.

11. TRIP TYPE: At the completion of the trip, record whether the trip was fully observed, partially observed or an arrested trip using the Trip Type Codes:

1 = Fully observed
2 = Partially observed
3 = Arrested
9 = Other (record in comments)

12. FISHING PERMIT NUMBER: Record the state fishing permit number(s) being observed. List the selected permit number first, followed by secondary permit number(s) if applicable (i.e., at joint venture or cooperative fishing sites). For each permit number entered complete fields 13 and 14 as well.

13. PERMIT SELECTION TYPE: For each permit numbers recorded in Field 12, record the selection method. The permit number which was randomly selected should be listed first in field 12, and in field 13 record "1," the code for "primary." Other permit numbers associated with the selected number (i.e., other permit numbers observed this trip) are recorded as "4," the code for "secondary."

14. PERMIT OWNER STATUS: For each permit number observed, record the ownership status of that permit number as of the trip for which it was observed. Ownership of permits may change temporarily or permanently over the course of a fishing season.

15. OPERATION TYPE: Indicate how the permit number(s) being observed is/are operated. Complete for arrested trips.

1 = Single operator
2 = Joint venture
3 = Co-op
9 = Other (record in comments)
0 = Unknown

16. LEASED NET: Record whether the permit being observed is involved in a lease arrangement (i.e., if the net length is shorter or longer due to a lease agreement). The amount of net leased is recorded in field 17.

17. LENGTH OF LEASED NET (fm): Record the length of gear (fathoms) involved in a lease arrangement. Specify if the length is **gained** by lease *from* another permit holder by writing "+." If the length is **shortened** by lease *to* another permit holder, specify by writing "-."

18. VESSEL REGISTRATION NUMBER: Record the registration number(s) displayed on

the hull(s) of the vessel/skiff(s) you are observing. This number will be either the U.S. Coast Guard Documentation Number or the state registration number. This number may have up to eight characters. All vessels and skiffs should have a registration number, however if it has not been registered, record "No Number" for each skiff/vessel not numbered.

19. ADDITIONAL TRIP RESEARCH: Circle each supplemental research that was conducted during this trip. Circle "none" if no supplemental research took place. More than one research type can be selected:

1 = None
2 = Marine bird observer
3 = Shark sampling or tag
4 = Fish sampling or tag
5 = Stranding
9 = Other (record in comments)

20. EXPECTED NUMBER OF HAULS: Prior to the first haul/pick, ask how many hauls/picks are expected to be done on this trip. This may not match the number of actual hauls completed (e.g., fishing slow or weather picks up).

21. NUMBER OF NETS FISHING: Prior to the first pick, ask how many nets this permit is currently fishing during the observed trip. This may be greater than the number of nets actually observed.

22. NUMBER OF SKIFFS USED: Ask how many commercial skiffs or vessels are used to tend the nets under this permit. If it is a co-op, this would be the total number of picking skiffs available to pick this permit number. Do not include holding skiffs or tenders.

This number should match the number of individual vessels recorded in "Vessel Registration Number" field, including all "no number" vessels.

23. PRIMARY SPECIES RETAINED: Record the primary species landed for this trip and the appropriate species code (see Appendix 4. Species Codes for a listing of codes). This is the retained species making up the majority of the catch, in mass.

24. NUMBER OF PRIMARY SPECIES RETAINED: Record the number of retained fish of the primary species. This may be an estimate which can be obtained by summing observer data, asking the fishermen, or asking the dealer. This is the retained species making up the majority of the catch.

25. DEALER NAME: Record the name and code of the company or person to which the fish are sold. See Dealer's Name Codes below for a list of fish buyers and their corresponding codes. This listing is not all-inclusive; if dealer is not on this list, write name, leave the code blank, and note in comments that a code needs to be assigned. Include the tender vessel name in field 26, Delivery Location, if the dealer is unknown.

12510 = Alaska Pacific Seafoods
287 = Island Seafoods
443 = Ocean Beauty Seafoods (King Crab)
12554 = True World Foods
648 = Wards Cove Packing
2652 = Western Alaska Fisheries

26. DELIVERY LOCATION: Record the name of the tender vessel (example: T/V Boat), bay, port, or cannery where the transfer for the sale of fish took place. If you are not there for the final sale of fish, ask the fishermen where and to whom they intend to sell their catch. If you don't have the opportunity to ask, dash the field. Below is list of Tender Vessels recorded in 2002; other vessel names may be recorded:

Common Tender Vessels
T/V Blazer
T/V Buck & Ann
T/V Cindira Gene
T/V Deliverance
T/V Denise Marie
T/V Enterprise
T/V Kendra H
T/V Larsen Bay
T/V Lisa Gayle
T/V Nighthawk
T/V Providence
T/V Shearwater
T/V Sierra Seas
T/V St. Catherine
T/V St. Kathryn
T/V Whale

27. NUMBER OF MARINE MAMMALS: Record the number of marine mammals incidentally taken during this trip. Incidentally taken means the animal was entangled, momentarily or longer, in the fishing gear during this observed trip, which may or may not result in injury or death of the animal. They will be recorded on the Incidental Take Form. If there were no marine mammals taken, record a zero.

28. NUMBER OF MARINE BIRDS: Record the number of marine birds incidentally taken during this trip. Incidentally taken means the animal was entangled, momentarily or longer, in the fishing gear during this observed trip, which may or may not result in injury or death of the animal. They will be recorded on the Incidental Take Form. If there were no marine birds taken, record a zero.

29. NUMBER OF NETS OBSERVED: Record the number of individual nets observed during this trip. If multiple nets were observed by multiple observers for this trip (such as in co-op or joint venture cases), record total number of nets observed by all observers. If no nets were observed during this trip, record a zero.

30. NUMBER OF HAULS OBSERVED: Record the number of picks or hauls observed during this trip. If no hauls occurred during this trip, record a zero.

31. COMMENTS: Record any comments relating to this trip if not recorded elsewhere. Circle Y (yes) or N (no) to indicate if comments are continued on the back of the form.

NOAA Fisheries Alaska Marine Mammal Observer Program

Trip Information Form

Year	Month	Trip ID #	Fishery name & code	Geographical Region & Code
2	3	4	5	6
Trip Begin Date	**Trip Begin Time**	**Trip End Date**	**Trip End Time**	**Trip Type** 11 1 fully observed 2 partially observed 3 arrested 9 other
7	8	9	10	
Fishing Permit # 12	Sample Selection Type 13 1 Primary 4 Secondary 3 Other	Ownership Status 14 0 Original Owner 1 Unknown 2 Permanent Transfer 3 Temporary Transfer 9 Other	Operation Type 15 1 single operator 2 joint venture 3 co-operative 9 other 0 unknown	Vessel Registration # 18
			Leased Net 16 Y N	
			Length of Net Leased (Fm) 17	

Additional Trip Research: 19	1 none	2 marine bird sampling	3 shark tagging	4 fish sampling	5 stranding	9 other

Expected # Hauls	# Nets Fishing	# Skiffs Used	Primary Species Landed (name & code)	# Primary Species Landed
20	21	22	23	24

Dealer (name & code)	Delivery Location
25	26

# Marine Mammals Taken	# Marine Birds Taken	# Nets Observed	# Hauls / Picks Observed
27	28	29	30

Comments (continued on back: Y N) 31

Total Pages for this Trip: _____

Tracking	Debriefed	Received by NMFS	Reviewed by NMFS	Data Entered
Date				
Initials				

Form AMMOP 001-05

Set Gillnet Gear Characteristics Form

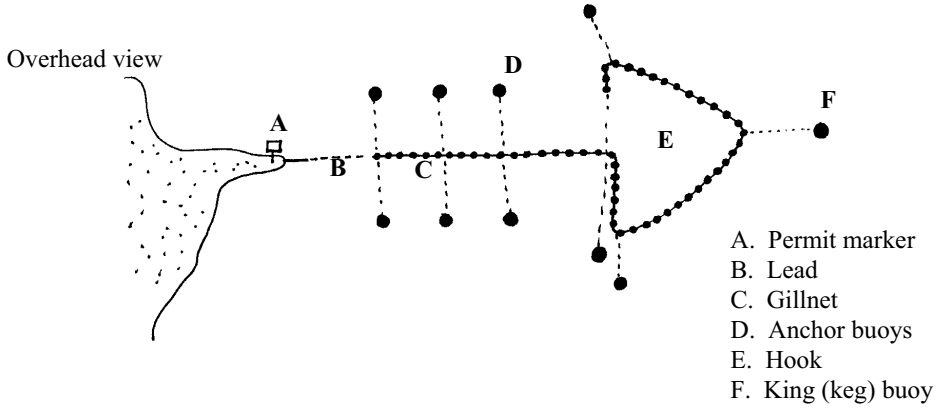
This form contains detailed information on the characteristics of the gear that is observed during the trip. Complete a new form for each uniquely configured net observed during each trip, numbering each net sequentially. One form is completed per net at a permit site, with two exceptions. (1) If a permit holder changes the configuration a net during the trip, a new form is used. On the new form, circle the area which has changed and in comments note that all other aspects have remained the same. (2) If two nets at a site are exactly the same, only one form needs to be completed, but assign two net numbers (example: "1, 2") in the "Net ID".

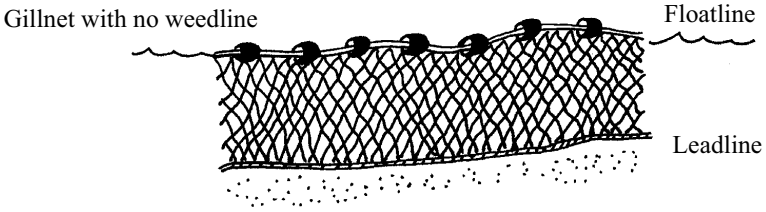
The data on this form is collected in nautical and English measurements such as inches, feet, pounds, and fathoms, which are the industry standard for most fields. Data on other forms will be collected in metric units (meters, Celsius, and grams). Observers should not handle permit holder's gear. If a permit holder does not know a measurement, record the field as unknown.

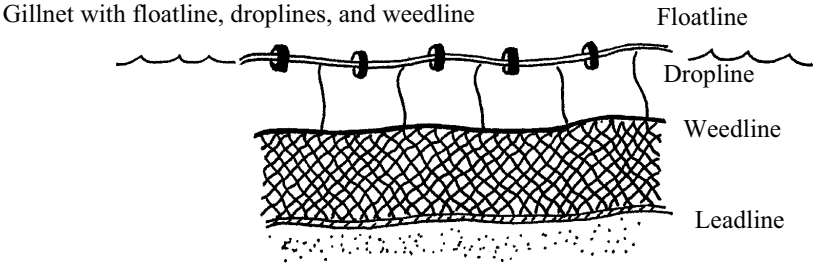
Cross out fields that do not apply with a single slanted line. If the field does not apply and has check boxes with codes that do not apply, cross out the entire block. For measurement fields relating to a field that does not apply because it is not used on this gear, record a zero. Unknown fields should be dashed (unless an unknown code is listed on the form). All unknown fields must be explained in comments and addressed in debriefing. For coded fields, if none of the listed codes are appropriate, record or check the code for "other" and provide details in the comment section.

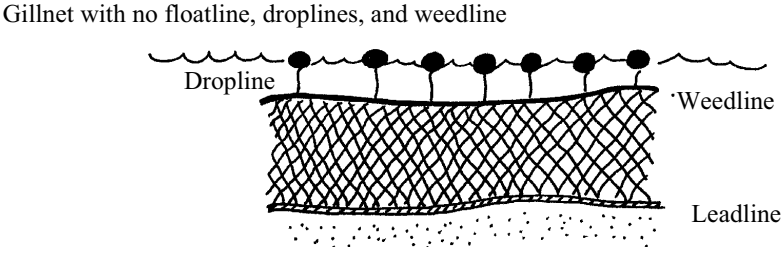
Definitions	
Gear	Goods/equipment used for fishing.
Gillnet	A net primarily designed to catch fish by entanglement in the mesh and consisting of a single sheet of webbing hung between cork line (floatline) and leadline.
Set gillnet	Gillnet that has been intentionally set, staked, anchored, or otherwise fixed.
Site marker	A sign staked to shore, displaying the permit number and permit holder's name of the net gear site. The marker should be posted in 1" lines at least 6" high and be of a color contrasting with the background.
Lead	Length of net employed for guiding fish into a seine or set gillnet. May be called a shore lead.
Net	Commonly refers to the gear as a unit, including the gillnet, lead, etc. However, for data collection purposes, "net" **does not** include the lead.
Float line	Also called "cork line." A line that floats or has floats attached and from which either droplines arec strung or gillnet webbing is hung.
Weedline	A line from which the gillnet webbing is hung and does not float at the surface.
Leadline	A weighted line strung on the bottom of the gillnet webbing.
Dropline	The perpendicular distance between the floats or floatline and the net webbing.
Anchor	Device used to hold a salmon fishing vessel or net in a fixed position relative to the beach; this includes using part of the seine or lead, a ship's anchor or being secured to another vessel or net that is anchored.

Definitions	
Hook	The seaward end of an otherwise straight gillnet, shaped into a configuration to catch fish. Also referred to as a trap in some areas.
Keg Buoy	Large buoy at the seaward end of the gillnet. This buoy should display the permit number. Also referred to as the king buoy.
Running line	This may be a line set from shore to a safe mooring distance for a skiff or a line running from the shore to the shore lead or net.
Depth of net	Perpendicular distance of the webbing between the floatline and the leadline, measured in the number of meshes.
Pinger	Acoustic alarm that is low-intensity and high-frequency sound generator used to reduce bycatch of cetaceans.
AHD	Acoustic Harassment Device. A high-intensity sound generator used to deter pinnipeds and reduce depredation on fish.









Set Gillnet Characteristics Form Field Descriptions

1. Page numbering: This is for paperwork filing purposes. Number front and back of all double sided forms (if used) and backs with comments on them. The pages are numbered by trip, in the order of the Table of Contents.

2. Year: The year (yyyy) the trip ended.

3. Month : The month (mm) the trip ended.

4. Trip Identification Number: Record your unique three character Observer Identifier combined with the three character Trip Number consecutively numbering your trips for this year (example: X01001).

5. Net Identification Number: Record the consecutive number(s) assigned to identify each unique net hauled/picked per trip. If two or more identical nets are used, assign unique consecutive numbers to each net and record all of these numbers on one Gear Form (although a complete record will be entered in the database for each net number). Nets should be numbered consecutively according to the order in which they are hauled/picked.

6. Lead Used?: Record whether or not a shore lead was used on this net.

Y = Yes N = No

7. Lead Length: Record, in whole fathoms, the horizontal distance of the shore lead on this net. This information may be obtained from the captain. If there was no lead used, record a zero.

8. Lead Depth (meshes)**:** Record the minimum, maximum and average number vertical meshes on the shore lead. If there was no lead used, record a zero.

9. Lead Twine Size Number: Record the twine size number of the shore lead twine. This information should be obtained by asking the captain. If known, record the manufacturer in the comments section. If no lead was used, cross out field box.

10. Lead Material: Indicate the type of material making up the shore lead by using the Lead Material Codes. If no lead was used, cross out field box.

1 = Poly (usually seine webbing)
2 = Nylon
8 = Combination (record in comments)
9 = Other (record in comments)
0 = Unknown

11. Lead Mesh Size - Minimum: Record, in tenths of inches, the minimum mesh size of the gillnet. This should be obtained from the permit holder. If the permit holder does not know, mark unknown.

12. Lead Mesh Size - Maximum: Record, in tenths of inches, the minimum mesh size of the gillnet. This should be obtained from the permit holder. If the permit holder does not know, mark unknown.

13. Lead Color: Record the primary color of the shore lead by using the Color Codes listed below. If unable to distinguish between similar colors, use “undetermined” code best describing most likely shades. If no suitable code is listed, select “other” and describe in comments. If net repair or paneling uses varying colors, select “combination”and decribe in comments. If no lead was used, cross out field.

1 = Clear
2 = White
3 = Black
4 = Gray
5 = Green

6 = Blue
7 = Red
8 = Pink
9 = Orange
10 = Yellow
11 = Purple
12 = Tan/Brown
13 =Combination (mixed colors in material)
20 = Blues/Greens, Undetermined
22 = Tans/Blues/Greens/Greys, Undetermined
99 = Other (record in comments)

14. NET COMBINATION: Record whether there was a combination of different materials, twine sizes, mesh sizes, and/or colors in the gillnet.

Y = Yes N = No

15. NET LENGTH: Record, in whole fathoms, the total length of the gillnet, excluding the lead. This information may be estimated or obtained from the captain. This measurement may be confirmed by using laser range finders or radar.

16. NET DEPTH (meshes)**:** Record the minimum, maximum and average number of vertical meshes in the gillnet. This information should be obtained from the permit holder. If net tapers or is constructed with panels, draw a diagram in comments. Note the diagram with the maximum and minimum mesh count in the taper (or panels) and the length of the taper (or panels) relative to the length of the entire net.

17. NET TWINE SIZE NUMBER: Record the industry standard twine size number of the gillnet webbing. This information should be obtained by asking the captain. If known, record the manufacturer in the comments section. If unknown, dash the field.

18. NET MATERIAL: Record the material that the gillnet is made of, using the Gillnet Material Codes. This information should be obtained from the fisherman:

1 = Monofilament nylon
2 = Multi-filament nylon
3 = Six-strand mono
4 = Multi-strand mono (mono twist)
8 = Combination (record in comments)
9 = Other (record in comments)

19. NET MESH SIZE - MINIMUM: Record, in tenths of inches, the minimum mesh size of the gillnet. This should be obtained from the permit holder. If the permit holder does not know, mark unknown.

20. NET MESH SIZE - MAXIMUM: Record, in tenths of inches, the minimum mesh size of the gillnet. This should be obtained from the permit holder. If the permit holder does not know, mark unknown.

21. NET COLOR: Record the primary color of the net by using the Color Codes listed below. If unable to distinguish between similar colors, use "undetermined" code best describing most likely shades. If no suitable code is listed, select "other" and describe in comments. If net repair or paneling uses varying colors, select "combination" and decribe in comments.

1 = Clear
2 = White
3 = Black
4 = Gray
5 = Green
6 = Blue
7 = Red
8 = Pink
9 = Orange
10 = Yellow
11 = Purple
12 = Tan/Brown
13 = Combination (mixed colors in material)
20 = Blues/Greens, Undetermined
22= Tans/Blues/Greens/Grays, Undetermined
99 = Other (record in comments)

22. HANGING RATIO: Record the hanging ratio according to instructions in the Appendix. This value is always less than (or equal to) one; the standard hanging ratio for this fishery is 0.5.

23. NUMBER OF STRANDS: Record the number of strands of twine in the gillnet webbing. If the number of strands in webbing varies between net panels, record the number of strands used in the greatest amount of netting and provide details in the comment section. If there are too many strands to count individually, record "multi."

24. DROPLINE USED: Record whether or not a dropline was attached between the float line or floats and the weedline or top of the gillnet.

Y = Yes N = No

25. DROPLINE HEIGHT: Record, in whole inches, the height of the dropline. If height varies, calculate average and detail in comments. If no droplines are used, record a zero.

26. WEEDLINE USED: Indicate whether a weedline was attached to the top of the gillnet; separate from the float line.

Y = Yes N = No

27. WEEDLINE MATERIAL: Record the material the weedline was made from by using the Weedline Material Codes:

1 = Twisted poly
2 = Braided poly
9 = Other (record in comments)
0 = Unknown

28. FLOAT COMBINATION: Indicate whether there was a combination of different float shapes, colors, and/or distance between floats.

Y = Yes N = No

29. LENGTH OF FLOAT: Record, in whole inches, the length or diameter, whichever is greater, of the floats. If various lengths or diameters occur choose the predominant size and note in comments.

30. NUMBER OF FLOATS: Record the number of floats on the gillnet (not on the lead).

31. FLOAT DISTANCE: Record, in whole inches, the average distance between the center of one float to the center of the next float. If there is a predominant distance between floats, record that distance in the field and note in comments.

32. FLOAT COLOR: Indicate the most commonly used color of floats, using the Color Codes:

1 = Clear
2 = White
3 = Black
4 = Gray
5 = Green
6 = Blue
7 = Red
8 = Pink
9 = Orange
10 = Yellow
11 = Purple
12 = Tan/Brown
13 = Combination (mixed colors on float)
99 = Other (record in comments)

33. FLOAT SHAPE: Indicate the shape of the floats, using the most appropriate Float Shape Code. See Appendix for diagrams:

1 = Sphere / ball
2 = Disk / donut / cylinder
3 = Oval / football
4 = Rectangle / rhombus
5 = Square / Cube
8 = Combination (note details in comments)
9 = Other (record in comments)

34. LEADLINE USED: Record whether or not a leadline (line with lead filled core) attached to the bottom of the net.

Y = Yes N = No

35. LEADLINE WEIGHT: Record the weight of the leadline, in whole pounds per 100 fathoms. Example: if leadline weighs 1.0 lb/ft, then record 600 lbs/100 fm.

36. NUMBER OF BUOYS: Record the number of buoys used for this net. Buoys are attached to the running lines, not directly to the netting.

37. FLOAT LINE USED: Record whether a float line was attached to the top of the gillnet.

Y = Yes N = No

38. FLOAT LINE MATERIAL: Indicate the float line material by using the Float Line Material Codes:

1 = Floating (with a poly core)
2 = Twisted poly
3 = Braided nylon
9 = Other (record in comments)
0 = Unknown

39. ANCHORS USED: Record whether anchors were used to secure the net and running lines.

Y = Yes N = No

40. NUMBER OF ANCHORS: Record the number of anchors used on this net and/or running line. This information may be obtained from the captain. If no anchors were used, record a zero.

41. ANCHOR TYPE: Record the type of anchors used. This information may be obtained form the captain. Use Anchor Type Codes (see Appendix 2: Anchor Type Codes and Diagrams for anchor images).

1 = Standard Danforth anchor
2 = Kedge anchor
3 = Manta anchor
4 = Bruce anchor
5 = Claw anchor
6 = Grapnel anchor
7 = Mushroom anchor
8 = Quick set anchor
9 = Screw anchor
10 = Scrap debris
11 = Tied to vessel
12 = Combination (record in comments)
99 = Other (record in comments)
0 = Unknown

42. HOOK SHAPE: Indicate the hook shape by using the most appropriate Hook Shape Code (see Appendix 3). Where a hook is removed, changed or added for a haul or pick, but nothing else on the gear has changed, begin a new Gear Form. Record year, month, trip ID, Net ID#, and "none" for Hook Shape. Leave the remaining fields blank and record in comments that the gear is identical to net # (fill in), except the hook was changed.

1 = L-shaped
2 = V-shaped
3 = J-shaped
4 = Umbrella
5 = Arrowhead
6 = Flag
7 = Diamond
8 = Box
9 = Zigzag
10 = None
11 = Pennant
99 = Other (draw and describe in comments)

44. LIGHTS USED: Record whether lights were used to mark the net during the fishing period of the observed haul, even if not turned on all the time. Ask fishermen to verify.

Y = Yes N = No

45. NUMBER OF LIGHTS: Record the number of lights used during a haul. If no lights were used during the haul, record a zero.

46. PINGERS USED: This is a small, low-intensity sound-generating device intended to function as an acoustic alarm. Record whether pingers were used to deter mammals from the net (activated during fishing period of the observed haul).

Y = Yes N = No

47. NUMBER OF PINGERS: Record the number of pingers on the gear. This information can be obtained from the captain. If pingers were used between nets, include in count for each net they were intended to affect. If no pingers were used, record a zero.

48. PERCENT PINGERS OPERATING: Pingers are powered by batteries and may or may not be salt water activated. Ask the captain what percentage seemed to be operating. If no pingers were used, cross out field box.

49. PINGER BRAND: Record the brand name of the pinger. This information can be obtained from the captain. If no pingers were used, cross out field box. Pinger Brands:

1 = Dukane
2 = Airmar
9 = Other (record manufacturer in comments)
0 = Unknown

50. PINGER KILOHERTZ: Record the frequency of the sound emitted by the pinger (example: 10 kHz). This information can be obtained from the captain. If no pingers were used, cross out field box.

51. ALARMS USED: Record whether alarms (i.e. Acoustic Harassment Devices) were used t to deter marine mammals during the observed haul/pick. This is a high-intensity sound-generating device that is aversive to marine mammals and keeps or drives them away from an area or structure. Seal bombs, firearm shots, or other loud devices should be included; provide comments.

Y = Yes N = No

52. NUMBER OF ALARMS: Record the number of alarms used on this gear. Seal bombs, firearm shots, or other loud devices should be included, provide comments. If no alarms are used, record a zero.

53. COMMENTS: Record any additional notes on the gear characteristics. Record the length, or portion of net that forms the hook in comments.

NOAA Fisheries Alaska Marine Mammal Observer Program

Set Gillnet Gear Characteristics Form

Year 2	Month 3	Trip ID # 4	Net ID #s 5
Lead Used YES / NO 6	Net Combo YES / NO 14	Hang Ratio 22 / # Strands 23	Leadline Used YES / NO 34
Lead Length (fm) 7	Net Length (fm) 15	Dropline Used YES 24 / NO	Leadline Weight (lbs/100 fm) 35
Lead Depth (mesh count) 8 min max avg	Net Depth (mesh count) 16 min max avg	Dropline Height (") 25	# Bouys 36
Lead Twine Size 9	Net Twine Size 17	Weedline Used YES 26 / NO	Floatline Used 37 YES / NO
Lead Material 10: 1 = poly; 2 = nylon; 8 = combination; 9 = other (comment); 0 = unknown	Net Material 18: 1 = monofilament nylon; 2 = multi-filament nylon; 3 = six-strand mono; 4 = multi-strand mono; 8 = combination; 9 = other (comment)	Weedline Material 27: 1 = twisted poly; 2 = braided poly; 9 = other (comment); 0 = unknown	Floatline Material 38: 1 = floating (w/poly core); 2 = twisted poly; 3 = braided nylon; 9 = other; 0 = unknown
Lead Mesh Size Min (0.1") 11	Net Mesh Size Min (0.1") 19	Float Combination YES / NO 28	Float Length (") 29	Anchors Used YES / NO 39
Lead Mesh Size Max (0.1") 12	Net Mesh Size Max (0.1") 20	# Floats 30	Float Distance (") 31	# Anchors 40
Lead Color 13: 1 = clear; 2 = white; 3 = black; 4 = gray; 5 = green; 6 = blue; 7 = red; 8 = pink; 9 = orange; 10 = yellow; 11 = purple; 12 = tan; 13 = combination; 20 = blue/green; 22 = blue/green/tan/gray; 99 = other	Net Color 21: 1 = clear; 2 = white; 3 = black; 4 = gray; 5 = green; 6 = blue; 7 = red; 8 = pink; 9 = orange; 10 = yellow; 11 = purple; 12 = tan; 13 = combination; 20 = blue/green; 22 = blue/green/tan/gray; 99 = other	Float Color 32: 1 = clear; 2 = white; 3 = black; 4 = gray; 5 = green; 6 = blue; 7 = red; 8 = pink; 9 = orange; 10 = yellow; 11 = purple; 12 = tan; 13 = combination; 99 = other	Float Shape 33: 1 = sphere / ball; 2 = disk / donut / cylinder; 3 = oval / football; 4 = 3D rectangle/rhombus; 5 = square or cube; 8 = combination (comment); 9 = other (comment) Hook Shape 42: 1 = L- shaped; 2 = V - shaped; 3 = J - shaped; 4 = Umbrella; 5 = Arrowhead; 6 = Flag; 7 = Diamond; 8 = Box; 9 = Zig Zag; 10 = None; 11 = Pennant; 99 = Other (comment)	Anchor Type: 1 = Danforth; 2 = Kedge; 3 = Manta; 4 = Bruce; 5 = Claw; 6 = Grapnel; 7 = Mushroom; 8 = Quick set; 9 = Screw; 10 = Scrap metal; 11 = Tied to vessel; 12 = Combo; 99 = Other; 0 = Unknown
Pingers Used YES / NO 46 # Pingers 47	Pinger Brand 49: 1= Dukane; 9= Other(comments); 0=Unknown	Alarms Used YES / NO 51 # Alarms		Lights Used YES / NO 41 # Lights 44
% Pinger Operating 48	Pinger Frequency (kHz) 50	Comments (Cont'd on back Y N) 53		

Form AMMOP 002-05

Page _____ of _____

Set Gillnet Haul Form

This form contains information associated with the observed haul. It describes the location of the haul/pick and fishing practices. Complete a new form after each hauling or picking of gear. If the trip was arrested (stopped before any hauls were observed), do not complete this form nor the Gear Characteristics Form. At the bottom of this form and on the back are the areas to record a summary of the total catch in this haul. A Catch Tally Sheet may be used to tally catch as it occurs and will then be used to summarize the catch by Species, Disposition, Condition, and Disposition Reason. The re-usable tally sheets may be cleaned only after debriefing.

Cross out fields that do not apply with a single slanted line. If the field does not apply and has check boxes with codes that do not apply, cross out the entire block. Unknown fields should be dashed (unless an unknown code is listed on the form). All unknown fields must be explained in comments and addressed in debriefing. For coded fields, if none of the listed codes are appropriate for the situation, record or check the code for "other" and provide details in the comment section. There are a limited number of Secchi disks with which to collect the water clarity measurements, so this field may be dashed (-) if you have not been supplied with the equipment.

If dead incidental takes are retrieved and cannot be kept whole, they should be sampled, and the carcass tagged and thrown overboard. If discarded birds already have a tag (leg band, etc.), they do not have to be carcass tagged. If numerous birds have to be discarded, the plastic carcass tags do not have to be used, and instead the observer can label with a smaller Tyvek sample label. Tagging the carcasses will enable the animal to be identified as already sampled if caught again or washed ashore.

When in doubt of where to record certain data, remember that an observer's job is to detail and document events as accurately as possible. This is preferably done immediately on the data forms, and by recording notes and taking photographs, although further clarifications may be needed during debriefing. The debriefing may include clarification and corrections, with the observers consent if they did not fully understand how to record the data. All original notes and forms are kept with the trip records and any corrections are clearly noted with a date and initials and why the correction was made

Definitions	
Incidental take	A marine mammal or marine bird (alive or dead) that is in any way entangled or snagged in the gear being observed, whether it ultimately is brought on the vessel, falls from the gear, or is self-released.
Open water	An area, when facing seaward, where the majority of the horizon is water.
Large bay	An area inside a bay with considerable exposure to the open ocean or the other side can not be seen with the naked eye.
Sheltered bay	An area inside a bay that is sheltered from the open ocean and land is visible on all sides.
Channel	A broad straight or deep part of a river or harbor with a navigable passage.
Canal	An artificial waterway or artificially improved river used for shipping or travel.

Definitions	
Mainland	The principal land mass of a continent. For our purposes, the main land mass of Kodiak Island will be considered mainland.
Peninsula	A long projection of land into the water, connected to the mainland by a narrow strip of land with a larger land mass at the end.
Island	A land mass completely surrounded by water.
Bar	A ridge made of sand or gravel on a shore or streambed that is formed by tides or currents.
Reef	A strip or ridge of rocks, sand, or coral that rises to or is close to the surface of a body of water.
Secchi disc	White acrylic disc, lowered into the water on a calibrated line to determine the degree of visibility and turbidity (clarity) of aquatic environments.
Ebb tide	The period of a tide between high water and a succeeding low water.
Flood tide	The incoming tide.
High slack	A period of high tide when there is no visible flow of water.
Low slack	A period of low tide when there is no visible flow of water.
Hydraulic pump	A pressure washer. A high-powered water pump may be used from fishing vessels to pressure wash the nets after or while they are being hauled to clear them of debris, algae, or jellyfish. If this process is being used, be sure to wear eye protection as jellyfish particles can sting your eyes and skin.

Set Gillnet Haul Form Field Descriptions

1. Page Numbering: This is for paperwork filing purposes. Number front and back of all double sided forms (if used) and backs with comments on them. The pages are numbered by trip with forms in order as they are listed in the Table of Contents.

2. Year: Record the year (yyyy) when the trip ended.

3. Month: Record the month (mm) when the trip ended.

4. Trip Identification Number: Record your unique three character Observer Identifier combined with the three character Trip Number consecutively numbering your trips for this year (example: X01001).

5. Haul Number: Record the haul number each time gear is hauled or picked and observed on this trip. A net must be pulled from the the water with the intention of picking fish to be considered a haul. If a net is "run" but not "pulled" with the intention to pick fish, it is not considered a haul. If the net is "pulled" with the intention of picking fish and no fish are found, it is still considered a haul. Sequentially number the hauls by trip.

6. Net Identification Number: Record the net number observed for this haul as uniquely identified on the Gear Characteristics Form.

7. Zone: Record the code that best describes the area where the fishing occurs, using Zone Codes:

1 = Open water
2 = Inside large bay
3 = Inside sheltered bay or inlet
4 = River
5 = Channel or canal
9 = Other (record in comments)

8. LAND: Record the code that best describe-the physical land from where the gear is set, using Land Codes:

1 = Main shoreline
2 = Peninsula or small island
3 = Sand bar
4 = Rocky reef
5 = Submerged land surface
8 = Not set from land
9 = Other (record in comments)

9. TIDE: Record the stage of the tidal cycle at the beginning of this haul. Visual cues should be used in addition to tide tables. Use Tide Codes:

1 = Ebb tide
2 = Flood tide
3 = High slack
4 = Low slack
9 = Other (record in comments)

10. STATISTICAL AREA: Record the ADF&G Salmon Statistical Area Codes at the haul location (See Appendix 1: Geographical Region and Statistical Area Code Map). If a net overlaps two statistical areas, record in this field where the majority of the net fishes and note in comments the other area. (If a take occurs, specify in comments which area the take occurred in.)

11. WATER TEMPERATURE: Record the water temperature, in tenths of degrees Celsius, at the fishing location at the beginning of each observed haul. Note in comments where along net length the temperature was collected. This information is collected with a bucket thermometer just below the surface. Do not record temperature estimates.

12. WATER CLARITY: Record the water clarity, in tenths of meters, at the beginning of each observed haul. Measure by lowering a Secchi disc on a calibrated line and using an aqua scope to avoid interference from surface glare. Only a limited number of observers will be issued this gear. Record a dash (-) if this cannot be collected or the gear was not issued.

13. AIR TEMPERATURE: Record, in tenths of degrees Celsius, the air temperature at the beginning of this haul. This is collected with a temperature gauge on the wind meter. Do not estimate temperature or include the wind chill factor.

14. MINIMUM DISTANCE TO SHORE LINE: Record, in whole meters, the minimum distance of the closest section of net (not including the shore lead) to the shore line during the haul. This distance usually will be estimated, can be verified with range finders.

15. MAXIMUM DISTANCE TO SHORE LINE: Record, in whole meters, the maximum distance of the furthest section of net to the shore line during the haul. This distance usually will be estimated, and can be verified with range finders.

16. PRESSURE WASHER (HYDRAULIC PUMP) USED: Record whether a pressure washer was used to clean the net of debris during or directly after this haul. Use the Yes No Codes:

Y = Yes
N = No

17. NUMBER OF SKIFFS USED: Record the total number of skiffs used to pick or haul this net (do not include the observer's skiff or fishermen's fish "holding" skiff).

18. NUMBER OF CREW: Record the number of crew members per skiff. If several skiffs are used, record the number in the primary picking skiff (explain in comment section).

19. SKIFF SIZE: Record the size, in whole feet, of the primary picking skiff. This information is obtained from the captain.

20. ACTIVE FISHING DURATION: Record the the length of time, in hours and minutes (hh.mm), since the initial setting of the gear for this opener to the beginning of this observed haul. Ask fisherman if the net has been tied up (i.e., not fishing) since the beginning of the opener. The time the net has been tied up is subtracted from the length of time since the initial setting of the gear. Record in comments how this number was calculated.

21. ACTIVE SOAK DURATION: Record the fishing time, in hours and minutes (hh.mm), passed since last pick. This is the length of time from the end of last haul to the begin time of this haul. Ask fisherman if the net was tied up at all since the last pick. The time the net has been tied up is subtracted from the length of time since the last pick of the gear. Record in comments how this number was calculated.

22. PRIMARY SPECIES TARGET: Record the species and the species code targeted during this haul (see Appendix 4. Species Codes for a list of species codes). Ask the fishermen what species they are intending to catch during this set. This does not have to be the primary species caught.

23. HAUL BEGIN DATE: Record the date when the haul/pick began, with month, day, year (mmddyy).

24. HAUL BEGIN TIME: Record the time when the observer begins to observe the haul/pick, using the 24 hour clock (hh:mm).

25. HAUL BEGIN LATITUDE: Record the latitude location, in tenths of minutes (ddmm.m), where the fishing began on this haul. This information can be obtained from your personal GPS unit (be sure settings are correct). If bearings cannot be taken, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

26. HAUL BEGIN LONGITUDE: Record the longitude location, in tenths of minutes (dddmm.m), where the fishing began on this haul. This information can be obtained from your personal GPS unit (be sure settings are correct). If bearings cannot be taken, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

27. HAUL BEGIN DEPTH: Record the water depth, in whole fathoms, where fishing began on this haul. This information is collected with a depth sounder (hand held or mounted to the hull of the skiff/vessel), nautical chart, or asking the fisherman. Record a dash if this cannot be obtained.

28. HAUL END DATE: Record the date when the haul ended, with month, day, year (mmddyy).

29. HAUL END TIME: Record the time when the observer finishes observing the haul, using the 24 hour clock (hh:mm).

30. HAUL END LATITUDE: Record the latitude location, in tenths of minutes (ddmm.m), where the fishing ended on this haul. This information can be obtained from your personal GPS unit (be sure settings are correct). If bearings cannot be taken, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

31. HAUL END LONGITUDE: Record the longitude location, in tenths of minutes (dddmm.m), where the fishing ended on this haul. This information can be obtained from your personal GPS unit (be sure settings are correct). If bearings cannot be taken, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

32. HAUL END DEPTH: Record the water depth, in whole fathoms, where the fishing ended on this haul. This information is collected with a depth sounder (hand held or mounted to the hull of the skiff/vessel), nautical chart, or asking the fisherman. Record a dash if this cannot be obtained.

33. GEAR DAMAGE/OBSTRUCTION CODE: Indicate the condition of the gear at the end of the haul. Ask the fisherman if any damage noted occurred since the last haul/pick or pre-existed. Assume obstruction occurred since last pick. Use Gear Damage Codes to reflect damage/ obstruction that occurred while net was fishing and since last pick. If obstruction code 6 or 7 is recorded, list debris type in species name/code list:

1 = No gear damage, very few small holes
2 = Less than 5% of the net torn
3 = Between 5% and 25% of the net torn
4 = Between 25% and 50% of the net torn
5 = Greater than 50% of the net torn
6 = Obstructed by debris, affecting between 10% than 50% of the net (including jellyfish, algae, & seaweed)
7 = Obstructed by debris, affecting 50% of the net or more (including jellyfish, algae, & seaweed)
8 = Net totally balled up
9 = Other (record in comments)

34. PERCENT NET RUN: Record the percent of net that was run (scanned from picking skiff, but not lifted from the water. No fish picked and retained or discarded).

35. PERCENT OF NET PULLED: Record the percent of net that was actually pulled out of the water during this haul, whether or not fish were picked.

36. PERCENT OF NET OBSERVED: Record the percent of the net that was actually observed during this haul, excluding where net was run and not pulled and/or picked. If a portion of the haul was missed, subtract the percent that was not observed and record the reasons in the comment section. Reasons may include engine failure, tardiness, feeling ill, or view was obstructed. Take into account length of net and haul time and number of skiffs picking the net at once.

37. INCIDENTAL TAKE: Indicate whether an incidental take of marine mammal, sea bird, or sea turtle occurred during this haul. Use the Yes/ No Codes:

Y = Yes
N = No

38. OBSERVATION QUALITY: Assess and record the overall conditions under which the observations were made, for the percentage of the net that was observed. Quality may be affected by amount of day light, glare, wave height and angle, relative positioning of skiffs, and interference factors. Excellent quality would indicate that all catch data and incidental takes were accurately counted and clearly identified as best could be expected; poor quality would indicate low confidence that all catch data and incidental takes were correctly noted and identified, perhaps due to light conditions, missed observation periods, etc. Use the following Quality Codes:

1 = Excellent
2 = Good
3 = Fair
4 = Poor
9 = Other (record in comments)

39. SPECIES NAME: Record the common name of the species caught and any debris. Also include the associated code from the Species Codes (Appendix 4: Species Codes). Please be sure to use the most recent list. Describe and draw any unidentified species in comments. Unidentified debris should be described in comments.

40. NUMBER: Record the number of individuals caught in this haul, by Species, Disposition, Condition, and Reason.

41. NUMBER TYPE: Indicate how that count was determined by recording the type of Number. Use the Type Codes:

A = Actual
E = Estimated
F = Fishermen's
L = Landing ticket

42. WEIGHT: Record the summed weight, in tenths of kilograms, by Species, Disposition, Condition, and Reason.

43. WEIGHT TYPE: Indicate how that weight was determined by recording the type of Weight. Use the Type Codes:

A = Actual
E = Estimated
F = Fishermen's
L = Landing ticket
D = ADFG weight estimate table

44. CATCH DISPOSITION: Indicate whether this catch category was kept or discarded. Use Catch Disposition Codes:

K = Kept
D = Discarded

45. ANIMAL CONDITION: Indicate the ultimate condition at the end of the trip of each catch category. All kept species should be dead, unless they are being kept for a live market. Indicate whether discards are released alive or dead. Debris should be unknown. Recording the most appropriate Animal Condition Code:

A = Alive
D = Dead
R = Recovering tank or comatose
U = Unknown

46. DISPOSITION REASON: Indicate why the catch was either discarded or kept for each catch category, using the Disposition Reason Codes:

1 = Discarded, no market, reason not specified
2 = Discarded, no market, too small
3 = Discarded, no market, too large
4 = Discarded, no market, quota filled
5 = Discarded, no market, won't keep until trip end
6 = Discarded, regulations prohibit retention
7 = Discarded, poor quality, reason not specified
8 = Discarded, poor quality, due to sand flea damage
9 = Discarded, poor quality, due to seal damage
10 = Discarded, poor quality, due to shark damage
11 = Discarded, poor quality, due to cetacean damage
12 = Discarded, poor quality, due to scavenger damage
13 = Discarded, poor quality, due to gear damage
14 = Discarded, fell out of gear and lost
15 = Discarded, too large to bring on-board
16 = Discarded, vessel capacity filled
17 = Discarded, not enough fish to pumpon-board
18 = Discarded, incidental take (mammal, bird)
19 = Discarded, debris
20 = Discarded, other reason (record in comments)
21 = Discarded, reason unknown
30 = Kept, landed/sold
31 = Kept, used for bait
32 = Kept, for personal consumption
33 = Kept, other reason (record in comments)
34 = Kept, reason unknown
0 = Unknown disposition

47. COMMENTS: Record any comments associated with this haul.

NMFS Alaska Marine Mammal Observer Program **1** Page Number _____ of _____

SET GILLNET HAUL FORM

Year **2**	Month **3**	Trip Identification Number **4**	Haul Number **5**	Net Id Number **6**

Zone **7**	Land **8**	Tide **9**	Statistical Area **10**	Water Temp c.0 **11**
___ 1 = Open water	___ 1 = Mainland shoreline	___ 1 = Ebb tide		
___ 2 = Inside large bay	___ 2 = Peninsula or island	___ 2 = Flood tide		
___ 3 = Inside sheltered bay	___ 3 = Sand bar	___ 3 = High slack		
___ 4 = River	___ 4 = Rocky reef	___ 4 = Low slack	Water Clarity (m.0) **12**	Air Temp c.0 **13**
___ 5 = Channel or canal	___ 5 = Submerged land	___ 9 = Other (comment)		
___ 9 = Other (comment)	___ 8 = Not set from land			
	___ 9 = Other (comment)			

Min Shore Distance (m) **14**	Max Shore Distance (m) **15**	Hydraulic Pump Used? ___ Y = Yes **16** ___ N = No	# Skiffs **17**	# Crew Per Skiff **18**

Skiff Size (ft) **19**	Fish Duration (hh.mm) **20**	Soak Duration (hh.mm) **21**	Primary Species Sought (& code) **22**

	Date (mmddyyyy)	Time (24 hr)	Latitude (ddhh.m)	Longitude (ddhh.m)	Depth (fa)
BEGIN HAUL	**23**	**24**	**25**	**26**	**27**
END HAUL	**28**	**29**	**30**	**31**	**32**

Gear Damage **33**	% Net Ran **34**	% Net Pulled **35**	% Net Observed **36**	Incidental Take **37**
___ 1 = No gear damage				___ Y = Yes
___ 2 = Less than 5% of the net torn				___ N = No
___ 3 = Between 5% and 25% of the net torn				
___ 4 = Between 25% and 50% of the net torn				
___ 5 = Greater than 50% of the net torn				
___ 6 = Obstructed by debris, affecting less than 50% of net				
___ 7 = Obstructed by debris, affecting 50% or more of net				
___ 8 = Net totally balled up				
___ 9 = Other (comments)				

Observation Quality **38**
___ 1 = Excellent
___ 2 = Good
___ 3 = Fair
___ 4 = Poor
___ 9 = Other (comment)

# / Wt Type Codes
A = Actual
E = Estimated
F = Fishermen's
L = Landing ticket

Disposition Codes
K = Kept
D = Discarded

Animal Condition Codes
A = Alive
D = Dead
R = Recovering tank; comatose
U = Unknown

Species Code	Number	# Type	Weight (kg.0)	Wt Type	Disposition	Animal Condition	Reason (code list)
39	**40**	**41**	**42**	**43**	**44**	**45**	**46**

Comments (Continued on Back: Y___ N ___)

47

2002

Fish/Shark Sample Form

This form is completed when fish or sharks are individually measured or sampled. The data collected include tagging information, length, sex, and individual weights. It should be completed whenever a tagged fish or shark is caught and when there are specific sampling requests for biological samples from fish or sharks. The animals recorded on this form are numbered consecutively per trip. Begin a new form with each haul.

Keep any tags from dead animals. The fisherman is entitled to any tag rewards. Be sure to get their name and mailing address if this applies. The observer should turn in the tag along with the trip data and the fisherman will be ensured the award.

Cross out fields that do not apply with a single slanted line. If the field does not apply and has check boxes with codes that do not apply, cross out the entire block. Unknown fields should be dashed (unless an unknown code is listed on the form). All unknown fields must be explained in comments and addressed in debriefing. For coded fields, if none of the listed codes are appropriate for the situation, record or check the code for "other" and provide details in the comment section.

1. Page Numbering: This is for paperwork filing purposes. Number front and back of all double sided forms (if used) and backs with comments on them. The pages are numbered by trip with forms in order as they are listed in the Table of Contents.

2. Year: The year (yyyy) the trip ended.

3. Month: The month (mm) the trip ended.

4. Trip Identification Number: Record your unique three character Observer Identifier combined with the three character Trip Number consecutively numbering your trips for this year (example: X01001).

5. Haul Number: Record the consecutive haul number assigned to the haul where this animal was caught. This number must agree with the haul number recorded on the corresponding Haul Form.

6. Identification Number: Assign a consecutive number, by trip, to each animal recorded on this form. If there are insufficient lines on one form, continue listing animals on the back and then go to another Fish/Shark Sample Form. Start a new form for each haul.

7. Species: Record the complete common name for each animal as listed in the Species Codes (Appendix 4. Species Codes). Include the appropriate Species Code for data entry (this can be filled in after the trip when codes can be referenced).

8. Tag Number(s): Record the complete alpha-numeric number(s) from the tag(s) you attach, or that were already attached, to the animal. All cattle ear tags issued from 2001 on should begin with "A" followed by 4 digits. This tag number should be uniquely and individually assigned to a particular animal, and only if the animal is dead. If only one tag is recorded, cross out the field box for the second tag.

9. Tag Type(s): Indicate what kind of tag is (or was) on the animal. If only one tag is recorded, cross out the field box for the second tag. Use the Tag Type Codes (record a description of the color in comments):

1 = Cattle ear tag
2 = Brand
3 = Bleach, dye, or ink
4 = Flipper tag
5 = Dorsal fin tag

6 = Metal leg band
7 = Plastic color leg band
8 = Nasal tag
9 = Spaghetti tag
10 = Coded wire tag
11 = Stomach tag
99 = Other (comment)
0 = No tag

10. TAG STATUS(S): Indicate whether the tag was on the animal, left on the animal, or put on the animal. If only one tag is recorded, cross out the field box for the second tag. Use the Tag Status Codes:

1 = Applied by observer
2 = Already on and left on
3 = Already on and removed
9 = Other (record in comments)
0 = No tag

11. ANIMAL CONDITION: Indicate the resulting condition of the animal when (condition at time of release) by recording the most appropriate Animal Condition Code:

A = Alive
D = Dead
R = Recovering tank; comatose
U = Unknown

12. INJURY: Indicate the degree of injury, if any, the animal had upon release by recording one of the most appropriate Injury Codes:

1 = No external injury, responsive
2 = No external injuries, unresponsive
3 = Saturated wet plumage or oiled
4 = Small lacerations; missing plumage
5 = Large wounds; excessive bleeding
6 = Broken appendage(s)
7 = Ingested gear
8 = Gear left on the animal
9 = Moderate decomposition (skin may be sunken, sloughing, or pieces missing)
10 = Severe decomposition (little or no muscle tissue left)
0 = Unknown

13. SEX: Indicate the sex of the animal by recording one of the following Sex Codes:

M = Male
F = Female
U = Unknown

14. TOTAL LENGTH: Record the total length of the animal, in whole centimeters.

15. FORK LENGTH: Record the fork length of the animal, in whole centimeters.

16. GIRTH: Record the girth of the animal, in whole centimeters.

17. WEIGHT: Record the weight of the animal, in tenths of kilograms.

18. WEIGHT TYPE: Indicate how this weight determined, using the Field Type Codes:

A = Actual
E = Estimated
F = Fishermen's
L = Landing ticket
D = Department of Fish and Game chart

19. SAMPLES TAKEN: Indicate whether samples were collected from the animal by recording one of the following:

Y = Yes
N = No

20. COMMENTS: Record any comments detailing behavior, condition, identification of this animal. When recording comments, identify the animal by referring to the animal's Identification Number.

NMFS Alaska Marine Mammal Observer Program

FISH/SHARK SAMPLE FORM

Page Number _____ of _____

Year **2**	Month **3**	Trip Identification Number **4**	Haul Number **5**

Id #	Species (& code)	Tag Number	Tag Type	Tag Status	Animal Condition	Injury	Sex (M;F;U)	Total Lgth (cm)	Fork Lgth (cm)	Girth (cm)	Weight (kg.0)	Weight Type	Sample (Y;N)
6	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**
		1											
		2											
		1											
		2											
		1											
		2											
		1											
		2											
		1											
		2											
		1											
		2											

Comments (Continued on Back: Y___ N___)

20

2002

Tag Type Codes
1 = Cattle ear tag
2 = Brand
3 = Bleach, die, or ink
4 = Flipper tag
5 = Dorsal fin tag
6 = Metal leg band
7 = Plastic color leg band
8 = Nasal tag
9 = Spaghetti tag
10 = Coded wire tag
11 = Stomach tag
99 = Other (comment)
0 = No tag

Tag Status Codes
1 = Applied by observer
2 = Already on and left on
3 = Already on and removed
9 = Other (comment)
0 = No tag

Weight Type Codes
A = Actual
E = Estimated
F = Fishermen's
L = Landing ticket

Animal Condition Codes
A = Alive
D = Dead
R = Recovering tank; comatose
U = Unknown

Injury Codes
1 = No external injury, responsive
2 = No external injuries, unresponsive
3 = Wet plumage or oiled
4 = Small lacerations; missing plumage
5 = Large wounds; excessive bleeding
6 = Broken appendage(s)
7 = Ingested gear
8 = Gear left on
9 = Moderate decomposition
10 = Severe decomposition
0 = Unknown

INCIDENTAL TAKE FORM

This form is for all incidental takes observed during the trip. An incidental take is a marine mammal, marine bird, or sea turtle that is observed entangled in the gear. Begin a new Incidental Take Form with each haul, when incidental takes occur. The incidental takes are numbered consecutively per trip. All incidental takes shall be photographed (see the Photo Form for more details). Dead incidental takes will be uniquely tagged and sampled. Carcasses that cannot be retained will be tagged and discarded at sea. Fishermen have a legal obligation to retain samples that are requested by observers [50 CFR 229.7(c)(4)(vi)].

It is important to understand the definition of incidental take. An incidental take involves direct contact between the gear and a marine mammal, marine bird, or sea turtle (although the later is relatively rare in Alaska). If at any point during an observed trip, a marine mammal or marine bird (or sea turtle) makes physical contact with the fishing gear being observed AND any part of the animal's body gets snagged, ensnared, hung up, tangled, snarled for any period of time, regardless of the final condition and release of the animal, this is an incidental take and is recorded on the Incidental Take Form. There is no set minimum amount of time, such as number of seconds, that the animal has to be held or stuck or in contact with the gear.

Depending on the species and age of the animal, response behaviors may differ. Some animals are extremely sensitive to shock, are quickly overcome or incapacitated, and are unable to free themselves. Other species will have a powerful, continuous response until exhaustion, while other species are strong enough to tear or rip through the gear. Some animals may escape uninjured, while others may drown, asphyxiate, break a limb, have deep lacerations or bleeding wounds, and others may escape with internal injuries or shock responses not obvious externally.

Experts carefully review observer data on incidental takes to determine whether a serious injury or mortality occurred. Serious injuries are injuries that are likely to lead to a mortality. Federal guidelines have been provided but it is still difficult to determine what consitutes serious injury. Therefore, as much information as possible on the condition of the incidental take should be provided by the observer who observed the take in the field. This should include drawings, diagrams, full descriptions of events and injuries. A description of how codes like condition and disposition were decided upon should be included. Opinions based on observations are also helpful.

Not all physical contact with the net is considered an incidental take. Examples of direct contact with fishing gear that are not considered incidental takes include: a sea otter scratching its back on the floatline, a sea lion picking a fish out of the net and swimming away, a bird landing on a float for a rest.

An incidental take may observed to be alive or dead. It is important to note the animal condition, state of decomposition, scavenger damage, environmental conditions, and fully describe the entanglement situation. If it is possible to retain the whole animal a complete necropsy can be done to determine the animal's cause of death, it's body condition at time of death, and it can be examined for resulting injuries from being entangled. If the remains of less than a quarter of an animal in skeletal form is retrieved in the gear, it is not recorded as an incidental take and should be photographed and described in detail in the Catch Section of the Haul Form.

1. PAGE NUMBERING: This is for paperwork filing purposes. Number front and back of all double sided forms (if used) and backs with comments on them. The pages are numbered by trip with forms in order as they are listed in the Table of Contents.

2. YEAR: Record the year (yyyy) when the trip ended.

3. MONTH: Record the month (mm) when the trip ended.

4. TRIP IDENTIFICATION NUMBER: Record your unique three character Observer Identifier combined with the three character Trip Number consecutively numbering your trips for this year (example: X01001).

5. HAUL NUMBER: Record the consecutive haul number assigned to the haul with the take. This number must agree with the haul number recorded on the corresponding Haul Form.

6. INCIDENTAL TAKE ID NUMBER: Assign a consecutive number, by trip, to each animal recorded on this form. If there are insufficient lines on one form, continue listing animals on the back and begin a new Incidental Take Form. Start a new Incidental Take Form for each haul, but continue consecutive incidental take ID numbers through entire trip .

7. SPECIES: Record the complete common name for each animal incidentally taken on this trip as listed in the Species Code (Appendix 4. Species Codes). Include the appropriate Species Code for data entry (this can be filled in after the trip when codes can be referenced).

8. TAG NUMBER(S): Record the complete alpha-numeric number(s) from the tag(s) you attach, or that were already attached, to the animal. All cattle ear tags issued on should begin with "A" followed by 4 digits. This tag number should be uniquely and individually assigned to a particular animal, and only if the animal is dead. If only one tag is recorded, cross out the field box for the second tag.

9. TAG TYPE(S): Indicate what kind of tag is (or was) on the animal. If only one tag is recorded, cross out the field box for the second tag. Use the Tag Type Codes (describe the colors in comments):

1 = Cattle ear tag
2 = Brand
3 = Bleach, dye, or ink
4 = Flipper tag
5 = Dorsal fin tag
6 = Metal leg band
7 = Plastic color leg band
8 = Nasal tag
9 = Spaghetti tag
10 = Coded wire tag
11 = Stomach tag
99 = Other (record in comments)
0 = No tag

10. TAG STATUS(S): Indicate whether the tag was on the animal, left on the animal, or put on the animal. If only one tag is recorded, cross out the field box for the second tag. Use the Tag Status Codes:

1 = Applied by observer
2 = Already on and left on
3 = Already on and removed
9 = Other (record in comments)
0 = No tag(s)

11. DISENTANGLEMENT: Indicate the how the animal was released or disentangled from the gear by recording the most appropriate Disentanglement Code:

1 = Momentary snag with self release
2 = Released from gear at a point unknown
3 = Dislodged from gear under water
4 = Dislodged from gear once out of water

5 = Removal from gear resulted in damaging gear
6 = Removal from gear resulted in cutting the animal
7 = Removal from gear by unrolling or untangling gear
9 = Other (record in comments)
0 = Unknown

12. HORIZONTAL LOCATION: Indicate, horizontally, relative to shore, where in the gear the animal became entangled. The first third of gear would be that closest to shore, and the final third would be that furthest from shore. Use the most appropriate Horizontal Location Code:

1 = Found in first third of gear
2 = Found in middle third of gear
3 = Found in final third of gear
0 = Unknown

13. VERTICAL LOCATION: Indicate, vertically, where in the gear the animal became entangled by recording the most appropriate Vertical Location Code:

1 = At water surface
2 = Near top third of gear
3 = Middle third of gear
4 = Near bottom third of gear
0 = Unknown

14. Animal Condition: Indicate the resulting condition of the animal at the time of release, by recording the most appropriate Animal Condition Code:

A = Alive
D = Dead
R = Recovering or comatose
U = Unknown

15. INJURY: Indicate the degree of injury, if any, the animal had upon release. Record the one most appropriate Injury Code, and note others in comments. If ingested gear or gear left on animals (codes 7 or 8), also indicate other injury codes, if applicable, in comments :

1 = No external injury, responsive
2 = No external injuries, unresponsive
3 = Saturated wet plumage or oiled
4 = Small lacerations and/or missing plumage
5 = Large wounds and/or excessive bleeding
6 = Broken appendage(s)
7 = Ingested gear
8 = Gear left on the animal
9 = Moderate decomposition (skin may be sunken, sloughing, or pieces missing)
10 = Severe decomposition (little or no muscle tissue left)
0 = Unknown

16. AGE CLASS: Indicate the age class of the animal by using one of the following Age Class Codes:
1 = Calf or pup or juvenile (hatch-year)
2 = Immature
3 = Adult
0 = Unknown

Guidelines for Determining Age:

For pinnipeds, generally, pups are < 1 year; immature are 1-3 years old; and adults are > 3 years old. For cetaceans such as harbor porpoise, age class may be hard to determine from field examination, so only distinguish between calves of < 1 year and adults.

If recording a juvenile bird, note whether an egg-tooth is present at the tip of the bill.

For many larids, plumage differs by age. Generally, juvenile gulls are < 1 year, also known as hatch-year; immature are 1-3 years old; and adults are > 3 years old.

17. SEX: Indicate the sex of the animal by recording one of the following Sex Codes:

M = Male
F = Female
U = Unknown or too young

18. PHOTOS TAKEN: Indicate whether photos were taken of this animal.

Y = Yes
N = No

19. SAMPLES TAKEN: Indicate whether samples (including retained whole) or measurements were collected from this animal. For those animals with "Yes", there should be an accompanying Sample Form.

Y = Yes
N = No

20. COMMENTS: Record any additional information regarding the marine mammal incidental take(s), especially when data are unable to be collected. Reference each comment with its corresponding field name and, if applicable, Incidental Take ID #. For each animal, the observer must record (i.e., sketch and/or describe):

Identifying characteristics: condition, marks, scars, gear on the animal, injuries, etc.

Presence of foam or other excretions coming from blowhole, mouth, eyes, mammary glands, etc.

The color of the eyes and if there is any bleeding.

If the animal fell from the gear, the observer should describe in detail at what point it fell, how the animal was entangled and became untangled, and if the animal sank, floated, and/or drifted away.

NMFS Alaska Marine Mammal Observer Program

INCIDENTAL TAKE FORM

1 Page Number _____ of _____

Year 2	Month 3	Trip Identification Number 4			Haul Number 5								
Id #	Species (& code)	Tag Number		Tag Type	Tag Status	Disentan-glement	Horizontal Location	Vertical Location	Animal Condition	Injury	Age Class	Sex (M;F;U)	Photos (Y;N)	Sample (Y;N)
6	7	1	8	9	10	11	12	13	14	15	16	17	18	19
		2												
		1												
		2												
		1												
		2												
		1												
		2												
		1												
		2												

Tag Type Codes
1 = Cattle ear tag
2 = Brand
3 = Bleach, die, or ink
4 = Flipper tag
5 = Dorsal fin tag
6 = Metal leg band
7 = Plastic color leg band
8 = Nasal tag
9 = Spaghetti tag
10 = Coded wire tag
11 = Stomach tag
99 = Other (comment)
0 = No tag

Tag Status Codes
1 = Applied by observer
2 = Already on and left on
3 = Already on and removed
9 = Other (comment)
0 = No tag

Disentanglement Codes
1 = Momentary snag, self release
2 = Released at a point unknown
3 = Dislodged under water
4 = Dislodged once out of water
5 = Removal with gear damage
6 = Removal with cutting animal
7 = Removal by untangling
9 = Other (comment)
0 = Unknown

Horizontal Location Codes
1 = Found in first third of gear
2 = Found in middle third of gear
3 = Found in final third of gear
0 = Unknown

Vertical Location Codes
1 = At water surface
2 = Near top third of gear
3 = Middle third of gear
4 = Near bottom third of gear
0 = Unknown

Animal Condition Codes
A = Alive
D = Dead
R = Recovering tank; comatose
U = Unknown

Injury Codes
1 = No external injury, responsive
2 = No external injuries, unresponsive
3 = Wet plumage or oiled
4 = Small lacerations; missing plumage
5 = Large wounds; excessive bleeding
6 = Broken appendage(s)
7 = Ingested gear
8 = Gear left on
9 = Moderate decomposition
10 = Severe decomposition
0 = Unknown

Age Class Codes
1 = Calf; pup; juvenile (hatch-year)
2 = Immature
3 = Adult
0 = Unknown

Comments (include the id# of the animal)
(Continued on Back: Y___ N___)

20

2002

Marine Mammal Biological Sampling Guidelines

The following are guidelines for documenting incidental takes of, and biologically sampling, marine mammals. Each trip may present different challenges in accommodating these priorities and may be affected by circumstances such as rough weather conditions, the animal falling out of the net, etc. It is up to the observer to use his/her best judgment in following these guidelines.

All marine mammals, marine birds, and sea turtles accidentally or intentionally caught by the vessel, or entangled in its gear, during any stage of fishing activity, are considered incidental takes. Animals determined to be incidental takes may not be recorded as sightings on the Sighting Form, and vice versa.

Once the minimum requirements for each species have been recorded, additional species specific sampling and measurements should be obtained as time permits, after recording catch information.

I. Minimum Requirements

Live Animals:

Identify, photograph, and return to the sea as quickly as possible in a manner that minimizes further stress and injury.

Dead Animals

1. Obtain DNA Sample (Skin)

Cetacean: Obtain a fin clip sample by removing a 1.25 in^2 (3 cm^2) sample from the tip of the dorsal fin or fluke with the skin intact.

Pinniped: Obtain a skin sample by removing a 1.25 in^2 (3 cm^2) sample from one of the flippers with the skin intact.

2. Tagging

Attach a plastic cattle ear tag with a cable tie to all **dead** animals. Only one cattle ear tag should be used per animal. The cattle ear tags should start with one letter, followed by four numbers (example: A0999) - be sure to record all letters and numbers accurately. For porpoise, cinch the cable tie around the caudal peduncle (tail stock). For pinnipeds, cinch the cable tie around the flipper, above the ankle. If it is not possible to retain the whole animal, attach the tag to the carcass and discard at sea. Record that tag number on the Tyvek biological sample labels to uniquely identify from which animal the samples were collected.

Seals and sea lions should be checked for previous tags, brands, tattoos, and other alphanumeric markings. Note the color, size, shape, and where on the body the marking or tag was located.

3. Identifying and Photographing

Refer to the identification guides to assist you while on a deployment. Identify animals to the most specific grouping you are sure of. Do not guess at identification. All animals MUST be photographed. Photographic instructions are outlined in the Photo Form instructions.

4. Body Measurements

If it is not possible to bring an animal aboard the vessel, record the estimated total length in the comment section of the Incidental Take Form. If the animal can be retained, actual length measurements are recorded on the Marine Mammal Sample Form. When measurements are taken which require a mammal to be placed on one side, the preferred method is for the animal to be lying on the right side (i.e., measurements taken on the left side).

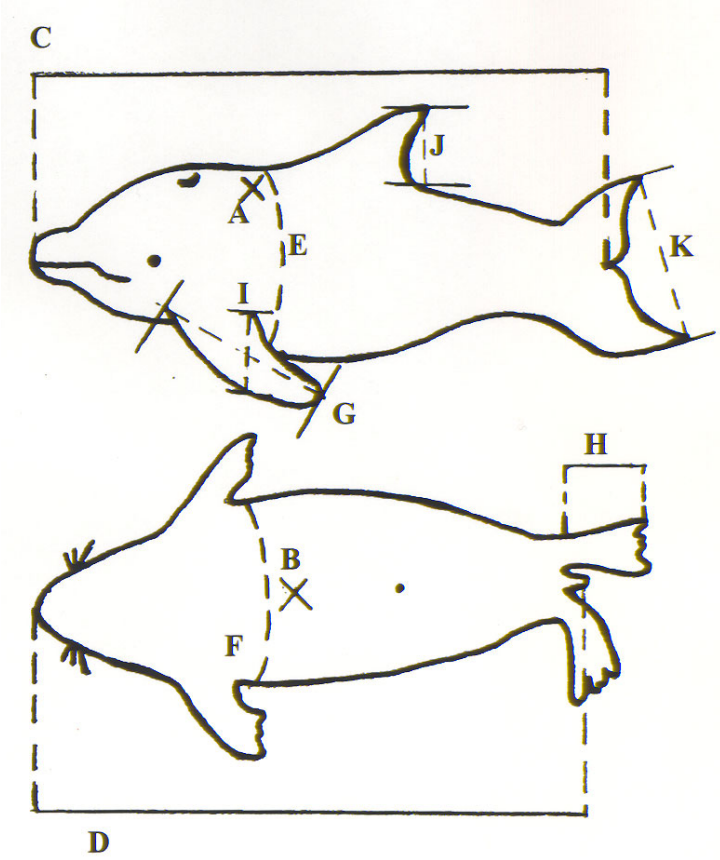


Figure 1. Marine Mammal Body Measurements

Blubber Thickness:

Record, to the nearest millimeter, the thickness of the blubber of the cetacean or pinniped. Measure from where the blubber meets the muscle, up to, but not including, the skin.

Cetacean: To obtain this measurement, make an incision two to three inches behind the blow hole of the marine mammal (Figure 1, Letter A).

Pinniped: To obtain this measurement, make an incision in the ventral surface of the marine mammal, about five or six inches anterior to the navel, in the middle of the body (Figure 1, Letter B).

Total Length:

Cetacean: Record the straight line length from the tip of the jaw (top or bottom jaw, whichever is longer) to the fluke notch (Figure 1, Letter C).

Pinniped: Record the straight line measurement from the snout to the tip of the tail (Figure 1, Letter D).

Girth

Cetacean: Record the girth of the animal just under the pectoral flippers at the axilla. See Figure 1, letter E.

Pinniped: Record the girth of the animal just under the fore-flippers at the axilla. See Figure 1, Letter F.

Hind Flipper or Pectoral Flipper Length:

Cetacean: Record the straight line length of one flipper of the cetacean. This length is taken from the outside or anterior edge of the flipper to the tip of the flipper. This is the longest length along the pectoral flipper. See Figure 1, Letter G.

Pinniped: Record the straight line length of one rear flipper of the pinniped. This length is taken from the outside anterior edge of the flipper at the joint where the flipper connects to the body (this is best located by flexing the flipper forward and measuring from the point where the flipper flexes) to the tip of the flipper. See Figure 1, Letter H.

Pectoral Flipper Width:

Cetacean: Using the same flipper on which the length was measured, record the straight line width, at its widest part. See Figure 1, Letter I.

Pinniped: No measurement taken; dash (-) this field.

Dorsal Fin Height:

Cetacean: Record the straight line height of the dorsal fin of the cetacean from the posterior tip of the fin to the insertion at the body. See Figure 1, Letter J.

Pinniped: No measurement taken; dash (-) this field.

Fluke Width:

Cetacean: Record the width of the flukes of the cetacean, from one tip to the other. See Figure 1, Letter K.

Pinniped: No measurements taken; dash (-) this field.

5. Determining Sex

Sex of cetaceans may be determined by the presence of mammary slits on both sides of the genital slit on females, and the absence of mammary slits on males. However, inserting a probe into the genital slit is a more definite method to determine sex and is required to confirm your determination. When a probe is inserted in females, the slit will open forward; in

males, the slit will open backward. It is important to determine the sex of the animals correctly, and the use of photographs of the genital area will help confirm your determination. Additionally, confirm the sex by examining the animals' reproductive tract if you cut the animal open.

The sex of seals can be determined by the presence of two mammary nipples posterior of the umbilicus on females, and by the penile aperture posterior of the umbilicus on males. The genital opening on females is near the base of the tail, anterior of the anal opening.

6. Describing Unusual Marks or Scar Locations

As you are collecting the body measurements of the animal, observe whether there are any marks or scars on the animal. Sketch and describe these in the comment section of the Marine Mammal Sample Form. If animals are released with gear still attached to any area of the body, be sure to illustrate and comment as to how much remains and where the gear remains attached.

NOTE: Photographs of scars and marks, in addition to sketches, are extremely valuable.

II. Additional Sampling/Measurements

These additional samples are collected once all the minimum sampling requirements are obtained, and after recording the catch.

Retaining the Whole Animal

This is the most valuable sample and also the easiest to obtain, but care must still be taken in handling the animal. If an animal is retained in warm weather and cannot be frozen on board, it should be kept cool until it is unloaded from the vessel. If it must remain on deck or in the skiff, then it should be covered with a tarp and either be iced or occasionally hose with sea water.

Necropsy Guidelines for Sampling Animals not Retained

The tissue/organ samples listed below are to be taken only if the whole animal is not retained. The required length measurements must be taken before any tissue/organ sampling of the animal is done.

All samples will be double bagged, with a waterproof tag enclosed between the first and second bag. As much air as possible should be excluded from both sample bags. Samples from each animal should be kept together in one larger bag, and frozen or iced.

When sampling mammals, the animal should be placed on its right side if possible, with its head to the left of the observer. This is the standard method for marine mammal dissection, and will result in the stomach being in a more accessible position, because it is located on the animal's left side. This will also make other organs easier to locate.

To examine the internal organs, an incision is made from between the flippers to just forward of the anus. To the posterior of the rib cage, the intestines will be the main feature. Just posterior to the rib cage and under it, the liver, a large dark red organ, will be the main feature. The stomach will be located under the liver. Stomach removal is possible without removing the rib cage. However, in order to fully expose the upper part of the stomach and esophagus, and for more working room, removal of the ribcage can be helpful. As you push back the ribs, take care not to break them; broken ribs can leave sharp pieces attached to the backbone which can puncture gloves and hands, resulting in abrasions and infection. If the ribs are not removed, access to the esophagus can be made by cutting between and pushing apart the third and fourth ribs from the bottom.

In order to examine the other internal organs, the intestines should be removed. The kidneys will then become visible near the dorsal side of the abdominal wall. The kidneys have the appearance of compartmentalized globules, almost like a squeezed bunch of grapes.

The testes will appear as paired, sausage-like organs pointing forward and attached to the back wall of the body cavity. They will vary in size depending on species, season, and the maturity of the animal: from a few inches long (the size of your little finger) to a width of two to three inches and a length of six to seven inches. For male phocids, the testes are located in the inguinal area (groin), outside the abdomen, but deep under the skin and blubber.

The female reproductive tract is held in place by a broad ligament, a sheet of peritoneal tissue dorsal to the sheet holding the more ventral urinary bladder. The tract includes the uterus which is oriented along the midline of the body cavity, and the right and left uterine horns which branch laterally from the anterior portion of the uterus. The ovary is anterior to each uterine horn. The ovaries are light gray to tan in color and are bean-shaped.

When you have completed the required sampling for a species, the tagged carcass may be discarded.

Tissue/Organ Samples

Skin:

See 1. Obtain DNA Sample (Skin) above, under I. Minimum Requirements.

Jaw:

Do not collect this sample if you are going to retain the head of the animal. Remove either the whole lower jaw or the lower left jaw with at least four teeth (including the incisor, canine and post-canine for pinnipeds). Be careful not to puncture your skin or gloves, as cetacean and pinniped teeth are sharp.

Stomach:

If it is possible, collect the whole stomach. This should be done by tying off the esophagus and the small intestine near the stomach. Then remove the entire stomach by cutting before the tie on the esophagus and after the tie on the small intestine.

Blubber:

Remove approximately a 10 x 10 cm (.25 lb or 100 g) sample of blubber, including the skin. For cetaceans, take a blubber sample from the dorsal surface of the animal forward of the dorsal fin (Figure 1, Letter A). For pinnipeds, take a blubber sample from the ventral surface, about five or six inches anterior to the navel, along the midline (Figure 1, Letter B). If the animal is badly decomposed, do not collect this sample.

Muscle:

Remove approximately a 0.25 lb (100 g) sample of muscle beneath the blubber on the dorsal surface of the animal forward of the dorsal fin.

Reproductive Organs:

Remove the entire reproductive tract. Collect both gonads.

Head:

Remove the head by making a transverse cut halfway between the eye and the anterior insertion of the flipper.

Fetus:

Collect the whole fetus. If the fetus cannot be brought in whole, a total length measurement and a sex determination are required. Record this information in comments on the Marine Mammal Sample Form. A fetus should not be considered a separate incidental take, however, and should not be recorded on the Incidental Take Form.

Marine Mammal Sample Form

This form is used when incidental takes of marine mammals are measured or sampled. Only dead marine mammals are to be tagged and sampled. The dead marine mammals are uniquely numbered with a plastic cattle ear tag. Start a new page per haul when marine mammals are sampled.

Cross out fields that do not apply with a single slanted line. If the field does not apply and has check boxes with codes that do not apply, cross out the entire block. Unknown fields should be dashed (unless an unknown code is listed on the form). All unknown fields must be explained in comments and addressed in debriefing. For coded fields, if none of the listed codes are appropriate for the situation, record or check the code for "other" and provide details in the comment section.

Marine Mammal Sample Form Field Descriptions

1. Page Numbering: This is for paperwork filing purposes. Number front and back of all double sided forms (if used) and backs with comments on them. The pages are numbered by trip with forms in order as they are listed in the Table of Contents.

2. Year: Record the year (yyyy) when the trip ended.

3. Month: Record the month (mm) when the trip ended.

4. Trip Identification Number: Record your unique three character Observer Identifier combined with the three character Trip Number consecutively numbering your trips for this year (example: X01001).

5. Haul Number: Record the consecutive haul number assigned to the haul with the take. This number must agree with the haul number recorded on the corresponding Haul Form.

6. Tag Number: Record the unique tag number that has been attached to the dead marine mammal. This tag is a plastic cattle ear tag and should be attached to the carcass with a cable tie. The tag number will start with an "A" and be followed by 4 digits. Be sure to record all alpha-digits accurately on allforms and sample labels. Tags should never be reused to identify another animal. If you are unable to assign a plastic tag and the animal already has a unique tag number or brand, record that number. This is NOT the consecutive identification number.

7. Species: Record the complete common name for each animal sampled as listed in the Species Codes (Appendix 4. Species Codes). Include the appropriate Species Code for data entry (this can be filled in after the trip when codes can be referenced).

8. Standard Length: Record the straight line total length, in whole centimeters, of the animal. For cetaceans, this is from the tip of rostrum to the notch in flukes. For pinnipeds, this is from the tip of snout to tip of tail.

9. Girth: Measure and record the axillary girth, in whole centimeters. This is taken at the "armpits", posterior of the fore-flippers or pectoral flippers.

10. Flipper Length: For cetaceans, measure the straight line, in whole centimeters, from the anterior insertion of the pectoral flipper to tip of the flipper. For pinnipeds, measure the straight line, in whole centimeters, from the from outside anterior insertion of the

hind flipper to tip of the longest toe, not including the nail.

11. FLIPPER WIDTH: For cetaceans only, measure, in whole centimeters, the widest straight line distance across the pectoral flipper.

12. DORSAL FIN HEIGHT: For cetaceans only, measure, in whole centimeters the straight line height of the dorsal fin, up and down.

13. FLUKE WIDTH: For cetaceans only, measure the width of the flukes, from one tip to the other, in whole centimeters.

14. BLUBBER THICKNESS: For cetaceans, measure, in millimeters, the depth of the blubber posterior of blow hole just off mid-line. For pinnipeds, measure, in millimeters, blubber thickness at sternum. The measurements are taken from the muscle layer to (but not including) skin layer.

15. SKIN: Was a skin sample collected (this includes a fin clip sample)?

Y = Yes
N = No

16. RETAINED WHOLE: Was the animal retained whole?

Y = Yes
N = No

17. JAW OR TEETH: Was a jaw sample taken(this would include a jaw, tooth, or head sample) ?

Y = Yes
N = No

18. STOMACH: Was the stomach retained whole?

Y = Yes
N = No

19. NUMBER OF OTHER SAMPLES: Record the number of other biological samples collected from this animal. If no other samples were collected, record zero.

20. COMMENTS: Record any additional information regarding the marine mammal incidental take(s), especially when data are unable to be collected. Reference each comment with its corresponding field name. **Reference each description with the animal's unique tag number.** For each animal the observer must sketch and describe:

- **Notes from** external and internal examination (colors, shapes, etc.)

- Location where samples and measurements were taken

- Storage method, size and packaging of samples

Year	Month	Trip Identification Number	Haul Number
2	**3**	**4**	**5**

NMFS Alaska Marine Mammal Observer Program

MARINE MAMMAL SAMPLE FORM

1 Page Number _____ of _____

Tag Number	Species (& code)	Standard Length (cm)	Girth (cm)	Flipper Length (cm)	*Flipper Width (cm)*	*Dorsal Fin Height (cm)*	*Fluke Width (cm)*	Blubber Thickness (mm)	Skin (Y;N)	Retained Whole (Y;N)	Jaw or Teeth (Y;N)	Stomach (Y;N)	# Other Samples
6	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**

Comments (include the tag number of the referenced animal)
(Continued on Back: Y ___ N ___)

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2002

MARINE BIRD BIOLOGICAL SAMPLING GUIDELINES

The following are guidelines for biologically sampling incidental takes of marine birds. Each trip may present different challenges in accommodating these priorities and may be affected by circumstances such as rough weather conditions, the bird falling out of the net, etc. It is up to the observer to use his/her best judgment in following these guidelines.

All marine birds caught by the vessel, or entangled in its gear, during any stage of fishing activity, are considered incidental takes. Birds determined to be incidental takes are not recorded as sightings on the Sighting Form, rather they are recorded on the incidental take form.

LIVE ANIMALS

Identify to species or to the most specific grouping you are sure of, and return to the sea as quickly as possible in a manner that minimizes further stress and injury. To reduce handling time, do not attempt body measurements. If identification is not certain, and someone is available to assist, take a photograph and reference on the Photo Form. Record information for the bird on the Incidental Take Form.

As you are untangling the bird or making a quick survey of its plumage, observe whether there are any marks, scars, or abrasions on the animal. Sketch and describe these in the comment section of the Marine Bird Sample Form. If birds are released with gear still attached to any area of the body, be sure to illustrate and comment as to how much remains and where the gear remains attached.

To the degree possible, given expertise, type of bird, and existing conditions:

1. Examine plumage characteristics (see below) and determine sex, age class (juvenile, immature, adult), and plumage phase (summer breeding, transitional, winter).

2. For fulmars, note if bird is light or dark phase, or use the four-phase classification described on the Bird Measurement Guidelines diagrams.

3. Note if any wing or tail feathers are missing.

DEAD ANIMALS

In most cases, we expect to have freezer facilities available to keep all dead birds for later processing in the lab, where conditions, measurements, and other factors can be more easily controlled. There, we will try to obtain the optimum amount of information from all bird carcasses, including external and internal exams, measurements, stomachs for diet information, tissue samples for genetic, diet, and possible contaminant tests, and preparation of museum and training study skins. We have prioritized the treatment of salvaged bird carcasses based on availability of freezers or quick pick up, number of carcasses the observer has to deal with, and conditions at time of salvage. Conditions such as safety, weather, intensity of day's observations, and observer

ability may determine what 'Tier' of treatment is applied to a carcass in the field. We have established 3 tiers of treatment, listed here from most preferred to least:

Tier I Facilities and time available to freeze whole carcass (most preferred).

Tier II Whole bird can not be frozen, because either there is

A) no freezer available or

B) freezer is available but there is not room to save whole birds

Tier III Too many birds captured at once to be frozen whole and too little time to process using Tier II protocols.

Ideally, process all birds using Tier I protocols; however, if freezer space is not available or limited process using Tier II protocols. If dozens of birds are caught simultaneously, sub-sample 10 birds of each species with Tier I protocols (examine and freeze whole), and apply Tier III protocols to the remainder.

Tier I birds: Facilities and time available to freeze whole carcass (most preferred).

This is the most valuable sample and also the easiest to obtain, but care must still be taken in handling the animal.

If an animal is retained in warm weather and cannot be frozen on board, it should be kept cool until it is unloaded from the vessel. If it must remain on deck or in the skiff, then it should be covered with a tarp and either be iced or occasionally hosed with seawater. When freezing birds, the animal should be placed on its back, with its neck laying naturally (for small birds) or curved back towards the body (for larger or long-necked birds). To save space, wings should be folded against the side and legs folded close to the body and the orientation of birds should be alternated.

1. Tagging

Attach a plastic cattle ear tag with a cable tie to all dead animals. Check all birds for previous tags, particularly leg bands. The USFWS leg band is metal with engraved numbers; record these numbers in the tag number field on the Marine Bird Sample Form. The return of leg band data provides valuable information. Also note presence of any colored plastic leg bands and alphanumeric markings they may have. In rare cases, birds may be fitted with radio antennae, nasal tags, or wing tags, or feathers may be dyed. **Always try to save the whole bird if it has leg bands, tags or other devices attached. If keeping the bird is not possible, remove all tags and devices that were on the bird, place in a bag marked with the unique cattle ear tag number and a note recording the species, date, location, and position of the tags or bands.** For leg bands, note which leg (right, left) and for double bands on a leg, the top (near body) and bottom (near foot) band.

2. Identification

Refer to the identification guides to assist you while on a deployment. Classify animals to the most specific grouping you are sure of. Do not guess at identification. All frozen birds will be identified to species in the lab.

3. External Examination of Plumage and Brood Patch

Sex: Note sex of the bird for species for which sex can be determined from plumages (i.e., waterfowl, sea ducks, phalaropes). Care must be taken when identifying females in these groups, because 1st year birds are often very similar (or for phalaropes, juveniles resemble males). If you are not certain, record the sex as 'unknown'.

Age-class: For many marine birds (loons, albatross, cormorants, phalaropes, gulls, terns, alcids), newly fledged juveniles (hatch-year birds) have distinct plumages. For albatross and gulls, it is possible to distinguish between immatures (1st - 3rd year birds) and adults. Most bird guides show all plumages. If age can be determined by plumage, record age-class and note in comments the identifying characteristics used to make this decision. Record sex and age class information on the Incidental Take Form. The remaining data go on the Marine Bird Sample Form.

Seasonal Plumage Phase: Note whether the plumage phase is closest to summer (breeding), winter, or transitional plumage. Again, care must be taken in identifying winter plumages, since juvenile or immature birds are often similar. Check bird guides for identifying characteristics, and note those in the comment section, if you make a classification. If uncertain, record the plumage as unknown.

Brood Patch: In seabirds, a large bare patch of skin on the belly indicates that the bird will be or has been incubating its egg(s), thus indicating breeding status. This is an important piece of information. It is possible to find the brood patch in frozen birds, but vascularization of the brood patch is most easily observed in a fresh bird. The brood patch may be a single large oval,bi-lobed, or several, discrete patches depending on species. It may be large relative to the body, but still not obvious, since dense feathers and down cover it. Search for the presence of a brood patch by turning the bird on its back, beginning near the cloaca, and brush abdominal feathers backwards towards the head. If a bare patch is found, push back all the feathers around the area to determine the status of the brood patch using criteria and codes indicated on the Marine Bird Sample Form.

4. Examination for Injuries, Oiling, and Rigor Mortis

Examine the carcass for obvious external injuries such as broken wings or legs, abrasions, missing feather patches (other than brood patch), etc. Note these on the Incidental Take Form using Injury Codes. Also check the plumage for spots of oiling, and note in the comments section the approximate size and location of oil patches on the bird. **If time allows,** use the comment section to record 'rigor' status of the carcass as limp, stiff, or decomposing, and the time of inspection. **If time allows and tools are available,** use the comment section to record internal body temperature using a rectal thermometer.

5. Weight

If time allows and weighing tools are available, weigh the bird regardless of its condition. In comments, note whether the carcass was relatively dry (external feathers shed water, deeper feathers and down are dry), damp (external feathers not shedding water), wet (under feathers and down are damp) or soggy (feathers and body soaked through). This information will be used to compare fresh weights to dry weights of the same carcasses in the lab and better-interpret weight data from birds processed using Tier II protocols.

Tier IIA. Can't keep whole bird, and freezer is not available.

When you have completed the required sampling, discard the carcass.

1. Tags

Record the unique ID# for each bird, even if the bird will not be frozen. Look for leg bands, tags, and other marking devices on the bird. Record and save all such bands as described in Tier I protocols.

2. Identification

As with Tier I procedures, identify carcasses to the most specific taxanomic grouping you are sure of. Do not guess at identification. If species identification is not certain, photograph the bird (be sure head and feet are clearly visible) and record on the Photo Form. If you can not take a photograph, note in the comments what identifying characteristics were used to determine the species or species group.

3. External Examination of Plumage and Brood Patch

Follow Tier I guidelines with the exception that if your determination is uncertain, photograph the bird and record on the Photo Form. If you can not take a photograph, note in the comments what characteristics were used to make the sex, age-class or phase determinations.

4. Injuries, Oiling, and Rigor Mortise

Check as for Tier I birds before conducting the necropsy.

5. Body Measurements

Body Weight: Regardless of condition, weigh birds to the nearest gram using an appropriately-sized hand-held pesola and weighing mesh bag. In comments, note whether the carcass was relatively dry (external feathers shed water, deeper feathers and down are dry), damp (external feathers not shedding water), wet (under feathers and down are damp) or soggy (feathers and body soaked).

Head-bill: Place one end of the calipers on the back of the head and the other at the tip of the beak, following Fig. 1 (HL). Press gently through the feathers to reach the skin of the head, but do not press into the skull. Do not compress the tip of the beak. Record to nearest millimeter.

Culmen Length: Place one end of the calipers at the base of the bill, at the feather line, and the other at the tip of the bill, following Fig. 1 (CL). Record to nearest millimeter.

Tarsus Length: Measure the left leg. Bend the leg and foot as in Fig 1 (TL), to find the tarsus joints. Place one end of the calipers on the end joining the foot, using the most protruding point of bone. Place the other end of the calipers at the joint with the femur, roughly diagonal from the lower joint. Press gently, but do not push into the flesh with calipers. Record to nearest millimeter.

Wing Chord: Lay the wing flat against the length of the caliper, or a ruler, but don't flatten or press the wing. Measure to the nearest centimeter from the flesh at the bend of the folded wing to the tip of the longest primary.

6. Determine Fat Index and Sex

The required length measurements should be taken before any tissue/organ sampling of the animal is done. All samples will be double bagged, with a waterproof tag enclosed between the first and second bag. As much air as possible should be excluded from both sample bags. Samples from each animal should be kept together in one larger bag, and frozen or iced.

To examine the internal organs and obtain a fat index, an incision is made from the cloacal opening to the neck.

Fat Index: After carefully peeling the skin away from the breast muscle and keel, examine the inner surface of the skin for degree of fat and record. Use the following criteria:

1) Skin fat associated with feather tracts on either side of the keel absent or membrane-thin; feather bases, "papillae", are prominent.

2) Skin fat surrounds papillae but tips of papillae still visible.

3) Skin fat covers papillae but dimples in fat still visible, especially when feathers are gently pressed inward.

4) Skin fat smooth over papillae, dimples absent even when feathers are gently pressed inward.

5) Skin fat over papillae globular and lumpy, 4+ mm thick.

Caution – newly-growing feathers with dark, rounded, swollen papillae should not be used as gauges of fat level. Use only pointy, light-colored papillae of established feathers.

Sex of Bird: Open the bird up fully by snipping between ribs along one side of the sternum and lifting up on the sternum. Large and small intestines fill the posterior (tail) half of the abdominal cavity. The dark red liver hangs just beneath and posterior to the posterior edge of the sternum and above the stomach.

Push the intestines to one side to reveal the dark red lobes of the kidneys flattened against the dorsal side of the abdominal wall. Testes and ovaries are attached to the body dorsal surface of the body cavity anterior to the kidneys and may be covered by mesentery membranes that potentially obscure their true color. The testes appear as roundish or sausage-shaped organs and will vary in size depending on species, season, and the maturity of the animal. Testes of breeding males are inflated during the breeding season and are an unmistakably creamy white in color. Testes of immature males and non-breeding males are much smaller, smoky grey-black and much less obvious. Regardless, the left testis is always slightly larger than the right.

A single ovary occur only on the left side of the spine and look like a cluster of tiny, pale-white grapes. During the breeding season one or more ova may be inflated and yolk-like in appearance.

7. Preserve Stomach and Fat Samples

Stomach removal is often possible without removing the rib cage, especially if the stomach and esophagus are empty. If the bird has a full stomach remove the sternum and fully expose the upper part of the stomach and esophagus. As you push back the ribs, take care not to break them; broken ribs can leave sharp pieces attached to the backbone which can puncture gloves and hands, resulting in abrasions and infection.

If it is possible, collect the whole stomach. This should be done by tying off the esophagus as high up as possible and clipping the small intestine from the stomach. Then remove the entire stomach by cutting the esophagus above the tie and place it in a whirl pack. If you can not tie the ends, simply clip the esophagus as high above the stomach as possible and place the entire mass into a whirlpack. Add alcohol solution to the whirlpack to cover the organ mass. Place the preserved stomach sample in a zip-lock bag and include a Tyvek biological sample label with the tag number.

If time allows and materials are available, collect a glob of intra-peritoneal fat from around the organs in the body cavity of the bird and place in vial of anti-oxidant buffer. Include with stomach sample in the zip-lock bag for that carcass.

Tier IIB. Can't keep whole bird, but freezer is available.

These birds will be treated similar to Tier IIA birds, with the exception that some body parts can be frozen, and measurements do not have to be done in the field. Do the external and internal examination 1 through 6 as described previously in Tier IIA:

In addition to these procedures, collect and freeze the following tissue/organ samples:

Stomach: Remove and save the stomach as described in Tier IIA birds, but since the stomach will be frozen, there is no need to add alcohol to the whirlpack. After closing the whirlpack, place it inside the larger bag holding the remaining tissue samples, along with the ID tag.

Liver: Snip a finger-tip sized lobe of liver free and place in outer sample bag.

Heart: Use one finger to scoop heart away from rib cage, by reaching above and past the liver and include in outer sample bag.

Fat: Collect a glob of intra-peritoneal fat from around the organs in the body cavity of the bird and place in outer sample bag.

Muscle: Remove a tea-bag sized cube of breast muscle and include in outer sample bag. In small birds, this sample may be most of one breast muscle.

Head: Remove the head by making a transverse cut at the middle of the neck. Place in outer sample bag.

Feet and Legs: Remove the legs above the tarsus, cutting through the leg just below the feather line of the body and place in outer sample bag.

Tier III. Observer can not process all birds caught at once.

If time or conditions do not allow for processing of all birds, such as after a large incidental take of the same species in a single haul, subsample 10 birds for Tier I or Tier II treatments. For remaining birds, collect the following:

1. Identify species or species group. Note if it is the same as birds that are frozen.

2. Check plumage for sex and age-class. If time allows, check for brood patch.

3. If time allows, check for obvious injuries to bird.

4. If additional time allows, select 10 birds for removal and saving of stomachs.

Keep each stomach in a separate whirlpack, put all stomach sample bags from same haul and of same species in the same large sample bag, marked with ID#, species, date, observer identification number.

Marine Bird Sample Form Guidelines & Measurement Diagrams

Head-bill length, culmen (bill) length and tarsus length (bill depth not necessary).

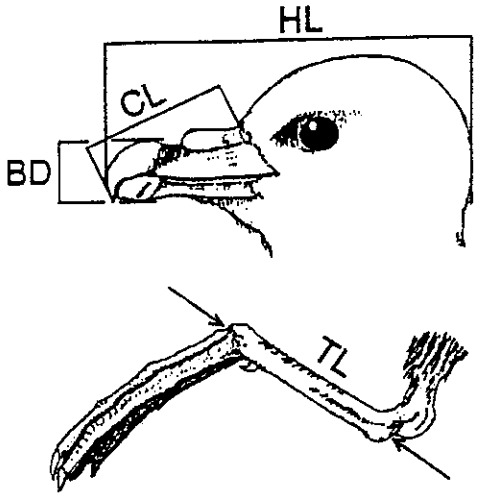
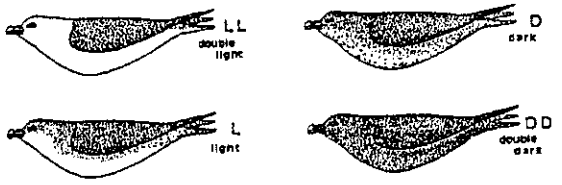


Fig. 1. Four measurements taken on fulmarine petrels: head length (HL); bill depth (BD); bill length (CL); and tarsus length (TL).

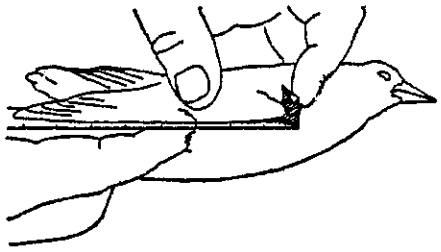
For Norther Fulmars, try to identify the colorphase as close to possible to these four categories.



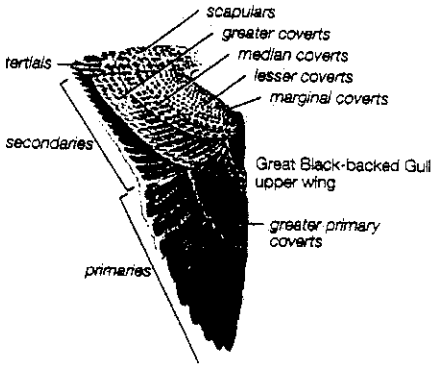
Colourphases of the northern fulmar, Fulmarus glacialis.

Description based on Fisher (1952) and slightly revised in van Franeker and Wattel (1982)

LL	*double light*	*- head, neck and underparts white, except for dark eye-mark. The white may be tinged with yellow.*
L	*light*	*- crown of head, nape and hindneck grey, grading into grey of mantle. Underwing grey. Breast white, but other underparts of body may vary from white to grey.*
D	*dark*	*- head, neck and underparts light or medium grey. Breast in most cases lighter, but never white.*
DD	*double dark*	*- almost uniformly dark or very dark grey. Wings almost as dark as their tips.*



Wing chord: Lay the wing flat against straight edge, but don't flatten or press wing. Measure from flesh at bend of folded wing to tip of longest primary.



Molting: Tail: note number of missing feathers and if central or outer. Wings, note number of missing feathers and if primary or secondary (1st primary is at wing tip, 10th primary is before secondaries).

Marine Bird Sample Form

This form is used when incidental takes of marine birds can not be saved whole, and are measured or sampled in the field. Some characteristics are best measured or examined prior to freezing the body, such as plumage status and brood patch. If time allows, record these aspects even when the carcass will be retained for examination in the lab. If birds have a leg band or other marker, record these (including the numbers) on the form. If the whole bird cannot be retained, or is in very poor condition, retain the head and/or feet (if possible), to confirm species identification.

Only dead marine birds are to be tagged and sampled. The dead marine birds are uniquely numbered with a tag tied around the leg. Start a new page per haul when marine birds are sampled.

Cross out fields that do not apply with a single slanted line. If the field does not apply and has check boxes with codes that do not apply, cross out the entire block. Unknown fields should be dashed (unless an unknown code is listed on the form). All unknown fields must be explained in comments and addressed in debriefing. For coded fields, if none of the listed codes are appropriate for the situation, record or check the code for "other" and provide details in the comment section.

Marine Bird Sample Form Field Descriptions

1. Page Numbering: This is for paperwork filing purposes. Number front and back of all double sided forms (if used) and backs with comments on them. The pages are numbered by trip with forms in order as they are listed in the Table of Contents.

2. Year: The year (yyyy) the trip ended.

3. Month: The month (mm) the trip ended.

4. Trip Identification Number: Record your unique three character Observer Identifier combined with the three character Trip Number consecutively numbering your trips for this year (example: X01001).

5. Haul Number: Record the consecutive haul number assigned to the haul with the take. This number must agree with the haul number recorded on the corresponding Haul Form.

6. Tag Number: Record the unique tag number that has been attached to the dead marine bird. This tag is a plastic cattle ear tag and should be attached to the carcass with a cable tie. The tag number will start with a "D" and be followed by 4 digits. Be sure to record all alpha-digits accurately on all forms and sample labels. Tags should never be reused to identify another animal. If you are unable to assign a plastic tag and the animal already has a unique tag number or brand, record that number. This is NOT the consecutive identification number.

7. Species: Record the complete common name for each animal sampled (Appendix 4. Species Codes). Include the appropriate Species Code for data entry (this can be filled in after the trip when codes can be referenced).

8. PHASE: Plumage varies seasonally, and may indicate breeding status. Select the most appropriate Plumage Phase Code:

S = Summer (breeding) plumage
T = Transitional (molt in progress)
W = Winter (basic) plumage
J = Juvenile plumage
U = Unknown or can't tell

9. MISSING FEATHERS: Birds may molt sequentially or all at once, and this may affect ability to fly. Record if feathers are missing, or just growing back in (still in feather shaft) using the following Feather Codes:

1 = No missing feathers
2 = One or more primary flight feathers missing; record details in comments
3 = One or more secondary flight feathers missing; record details in comments
4 = One or more tail feathers missing
5 = Missing feathers in wings and tail
6 = Other missing feathers (body, head)
7 = Primary and secondary flight feathers missing; record details in comments
0 = Not checked, or can't tell

10. BODY WEIGHT: Weigh bird, to the nearest gram, using hand-held scale. Gently squeeze excess water first. If carcass is extremely waterlogged, do not weigh. If a bag is used to hold the bird, subtract the weight of the bag.

11. HEAD-BILL: For birds, use calipers to measure the head and bill together, in millimeters. Place one end of the calipers at the base of the skull and the other at the tip of the bird's beak.

12. CULMEN LENGTH: For birds, measure the length of the culmen (beak) in millimeters. Place one end of the calipers at the tip of the beak and the other at the top most end of the beak, where the forehead feather line begins, between the eyes.

13. TARSUS LENGTH: For birds, measure the length of the tarsus (main leg bone) in millimeters. The tarsus is the long bone connecting the ankle to the foot. Place one end of the calipers at the top of the upper joint, and the other at the end of the joint connecting to the foot.

14. WING CHORD: Measure, in centimeters, the length of the wing from the 'wrist' (where the wing bends to fold against the body) to the tip of the longest primary feather. Do not stretch out the wing. Place the feather flat (but not pressed tightly) against the ruler or long handle of the caliper, and measure.

15. BROOD PATCH CODE: Search the belly and abdomen of the bird by pulling the body feathers gently toward the head. If there is a bare patch present record its state as near as possible according to the following Brood Patch Codes:

1 = No defeathering
2 = Loss of down and some contour feathers
3 = Loss of down & most contour feathers; vascularization beginning
4 = Loss of feathers & heavy vascularization
5 = Regression beginning, down appearing
6 = Downy, feathers beginning to break sheath
7 = Partial or near-complete regression
0 = Didn't check, or carcass too degraded

16. FAT INDEX: If the whole carcass **is not kept**, open the bird from the cloaca to the throat. Examine for fat deposits (yellowish, fatty material) on the inside of the skin, along the keel bone, and around the heart area. Use the following Fat Index Codes:

1 = Skin fat associated with feather tracts on either side of the keel absent or membrane-thin; feather bases, "papillae", are prominent
2 = Skin fat surrounds papillae but tips of papillae still visible
3 = Skin fat covers papillae but dimples still visible, especially when feathers are gently pressed inward
4 = Skin fat smooth over papillae, dimples absent even when feathers are gently pressed inward
5 = Skin fat over papillae globular and lumpy, 4+ mm thick
0 = Unknown or **did not check**

During the internal exam, note if there are any obvious parasites or discoloration on the liver, heart, or large muscles.

If the sex of the bird can be determined by examination of the ovaries or testes, indicate in the comments section and record the Age Class Code on the Incidental Take Form. Measure the largest egg follicle to the nearest millimeter, and record in comments.

17. RETAINED WHOLE: Was the whole bird carcass retained ?

Y = Yes
N = No

18. RETAINED HEAD/FEET: Were the head and/or feet of the bird retained?

Y = Yes
N = No

19. RETAINED STOMACH: Was the whole stomach of the bird retained?

Y = Yes
N = No

20. NUMBER OF OTHER SAMPLES: Record the number of other biological samples collected from this animal. If no othersamples were collected, record zero.

21. COMMENTS: Record any other pertinent information about the animal's condition, state of injuries, or other details. Be sure to include a reference to the animal's tag number to relate the comment to the appropriate animal.

Year	Month	Trip Identification Number	Haul Number
2	3	4	5

NMFS Alaska Marine Mammal Observer Program

MARINE BIRD SAMPLE FORM

1 Page Number _____ of _____

			Plumage		Body Measurements					Condition		Retained Samples			
Tag Number (or Id #)	Species (& code)	Phase	Feather	Weight (g)	Head-Bill (mm)	Culmen Length (mm)	Tarsus Length (mm)	Wing Chord (cm)	Brood Patch	Fat Index	Whole (Y;N)	Head Feet (Y;N)	Stomach (Y;N)	# Other Samples
6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Phase Codes
S = Summer (breeding) plumage
T = Transitional (molt in progress)
W = Winter (basic) plumage
J = Juvenile plumage
U = Unknown / can't tell

Feather Codes
1 = No missing feathers
2 = One or more primary flight feathers missing
3 = One or more secondary flight feathers missing
4 = One or more tail feathers missing
5 = Missing feathers in wings and tail
6 = Other missing feathers (body, head)
0 = Not checked, or can't tell

Fat Index Codes
1 = Skin very thin, feather ends obvious; no fat along keel or around heart; emaciated
2 = Skin moderately smooth with fat; little fat along keel but none around heart; not emaciated
3 = Skin has moderate fat; fat evident along keel, with some traces around heart
4 = Skin smooth with fat; fat deposits along keel and around heart
5 = Skin thick with fat, feather points barely visible; heavy fat along keel and heart, and spots of fat in interstitials
0 = Unknown or unable to check

Brood Patch Codes
1 = No defeathering
2 = Loss of down and some contour feathers
3 = Loss of down & most contour feathers; vasc. beginning
4 = Loss of feathers & heavy vascularization
5 = Regression beginning, down appearing
6 = Downy, feathers beginning to break sheath
7 = Partial or near-complete regression
0 = Didn't check, or carcass too degraded

Comments (include the tag number of the referenced animal)
(Continued on Back: Y ___ N ___)

21

2002

MARINE MAMMAL SIGHTING WATCHES

Marine mammal sighting watches are conducted to collect detailed information on sightings of marine mammals and marine birds encountered during a deployment. This information is critical in determining the temporal and spatial distribution and relative abundance and behavior of marine mammals in the vicinity of fishing operations.

In addition to marine mammals sighted during dedicated sighting watches, all marine mammals sighted by the observer (and determined not to be incidental takes) during a deployment are recorded on the Marine Mammal Sighting Form. If a dead marine mammal is observed, and the observer determines it is not an incidental take as direct result of the gear being observed, the animal is recorded on the Sighting Form, with extensive comments on how that determination was made. A Marine Mammal Stranding Form is also completed. Photographs should be taken, as the Photo Form instructions detail. If a marine mammal (alive or dead) is seen entangled in or falling from the vessel's gear, the animal is recorded on the Incidental Take Form, accompanied by detailed comments.

Sighting Types

1. On-Watch Sightings - A sighting of a marine mammal made while conducting one of the sighting watches described below.

2. Off-Watch Sightings - An opportunistic sighting of a marine mammal made at a time when the observer is not conducting a formal sighting watch.

Marine mammal sightings must never be double-counted (by the same or different observers) or recorded as a re-sighting. If a pair of observers are working as a team, communication must be maintained to clarify which animals have been counted and the path they are traveling. Each separate grouping of animals, traveling or behaving as a unit, should be considered a sighting. If a multiple-species sighting occurs, each species will be recorded on separate lines, but will reflect the same sighting time. Once the sighting is recorded and identified accurately, they must go back to the coordinated watch so other animals are not missed. Although it may be tempting and entertaining to observe an active animal, the observer must maintain their scientifically rigid watch.

Watch and Count Types

Each watch or count type is described in detail below. With each, it is important that the observer does not extend the specified watch time without taking a break. Sighting survey data have shown reduced effectiveness when watches exceed the specified on-effort watch time period.

1. Transit Watch

A transit watch is conducted while steaming to or from fishing grounds and between fishing sites when transit is likely to be 15 minutes or more. Transit watches are conducted when the Beaufort sea state is 3 or less. The Beaufort Scale defines a Force 4 as 11-16 knot wind; small waves becoming longer; numerous whitecaps. Each transit watch is maintained for up to a continuous 60 min-

utes, followed by a 15 minute break. This cycle is repeated continuously (weather, daylight, and fishing operations permitting) while the vessel is underway. The observer should choose a watch position outside, facing the bow, free of obstructions and as high off the water as possible.

During a transit watch, the observer should thoroughly scan a 180° area from 270° abeam to port across the bow to 90° abeam to starboard. Continuous scanning of the water surface back and forth across the designated area in a continuous sweep is done with the naked eye. Once a sighting is made, binoculars are used to confirm the sighting, make an identification of the species, and determine the number of animals sighted. If biological samples are being collected as the vessel resumes transit after a haul, the transit watch is preempted by the biological sampling priorities.

2. Haul Watch

A haul watch is conducted while the vessel is hauling back or picking fishing gear. These watches provide information on marine mammals that are in the vicinity of the gear during fishing operations. This information is used to assess possible interactions and associations of marine mammals and marine birds with fishing activity. This watch must be concentrated on the water near and around the net, looking for marine mammals in the area and incidental takes of marine mammals and marine birds.

A haul watch is conducted during every haul, regardless of weather conditions. During a haul watch, the observer maintains a continuous watch until the gear is completely onboard or picked. The observer should choose the best possible location from which to conduct the haul watch while remaining out of the way of normal vessel operations. This location should provide an unobstructed view of the net next to the vessel and the area 180° around the net. Observers are expected to remain at the same location (or same relative distance to picking skiff) during the entire watch. During a haul watch, the observer should face the net looking down along the line of the net as it exits the water and is brought up to the vessel. The primary focus should be along that line and where the net breaks the water's surface, and generally within 300 meters of the gear. Continuous scanning of the water surface in the designated area to either side of the net should be done with the naked eye.

Any biological sampling necessary will occur after the pick is over. During a haul watch, scanning the water and net for incidental takes is a priority over all other data collection. The observer should detail the circumstances in comments if at any point they feel they cannot confidently watch for takes.

3. Soak Watch

A soak watch is conducted while the fishing gear is soaking and actively trying to catch fish. The observer should find the best view of the entire net. This is preferably done from an elevated point on shore looking seaward but may also be done from a vessel or skiff positioned at the outermost buoy (king buoy) looking shoreward. Safety comes first, so the observer must weigh the risks of various platforms. If an observer is dropped off on shore for a soak watch, the observer's skiff must remain in visual and radio contact at all times.

As with the transit watches, all soak watches will be conducted at Beaufort 3 or less. At Beaufort 4, wind speed is 11 to 16 kts and frequest white caps and small waves begin to limit visibility. Each soak watch is maintained for at least 30 minutes and up to a continuous 60 minutes, followed by a 15 minute break. This rotation may be repeated up to four hours at a given site. If possible, a soak watch should be attempted an hour before and an hour after an observed haul or pick; or as opportunity arises during the trip. The observer should scan a 180° area with the net directly in front (at 0°). Depending on the weather and sea conditions and height off the water, the distance an observer should be looking out to would be a distance within which a harbor porpoise dorsal fin or seal head could be seen. *Generally, the observer should focus on the water surface area within 1000 meters of the net.* The observer may record marine mammals out to a nautical mile from the gear. Marine mammals are the primary object of concern, however marine birds and vessels may be recorded if they do not become a distraction. Observing hauls takes priority over the transit or soak watches.

4. Set Watch

A set watch is conducted while the vessel is setting out fishing gear. This information is used to assess possible interactions and associations of marine mammals and marine birds with this aspect of the fishing activity. Set watches are a lower priority if the observer is working up samples, preparing for the haul back, or needs to take a break. In some fisheries, such as the set gillnet fishery, sets may be rarely observed and of limited importance. In other fisheries, such as drift gillnet and purse seine, the set watch becomes more critical as this may be when entanglements are observed.

A set watch can be conducted during every set, regardless of weather conditions. During a set watch, the observer maintains a continuous watch until the gear is completely deployed. The observer should choose the best possible location from which to conduct the set watch while remaining out of the way of normal vessel operations. This location should provide an unobstructed view of the net and the area 180° around the net. Observers are expected to remain at the same location (or same relative distance to fishing skiff) during the entire watch. The primary focus should be along the line and where the net breaks the water's surface, and generally within 300 meters of the gear. Continuous scanning of the water surface in the designated area to either side of the net should be done with the naked eye.

5. Horizon Scan

This watch is intended to concentrate on marine birds present on the fishing grounds and will not be conducted during the 2005 field season. When available, specially trained bird observers will be assigned to collect marine bird data exclusively. During a trip, these observers will always be working with a marine mammal observer to supplement the primary observer's trip information with marine bird data. A horizon scan can be done during a soak, haul, or transit from a remote shore platform, a research vessel, or the observer skiff, and may or may not be associated with an observed trip. If a marine bird observer witnesses an entanglement, he or she should inform the marine mammal observer who will verify the sighting before recording it on the appropriate data forms.

A horizon scan is done in a continuous motion from left to right of the area 180° around and over the net for marine birds. Birds are tallied by species and behavior and recorded on the Sighting Form. If the horizon scan is done during transit, the transit watch protocols should be followed. If near a net, the area within 300 meters of the net should be the primary focus. The horizon scan, performed during a soak, should be done every 15 minutes, taking a 15 minute break every hour (following similar soak watch protocols). The period of observation following this rotation schedule should not exceed 4 hours at any given location. The horizon scan, performed during a haul, should be done every 15 minutes throughout the entire haul back, regardless of weather conditions (following similar haul watch protocols). During a haul, marine bird observers will merge the rotation schedules of the horizon scan and net scan. If the net scan falls on the 15 minute mark of the horizon scan, the net scan is preempted by the horizon scan.

6. Net Scan

This watch concentrates on marine birds in close proximity to a fishing net when it is being hauled and will not be conducted during the 2005 field season. Specially trained observers will be assigned to collect marine bird data exclusively. During a trip, these observers will always be working with a marine mammal observer to supplement the trip information with marine bird data. They may help the marine mammal observer keep track of sightings as well if the situation demands. A net scan can be done during a haul from a remote shore platform, a research vessel, or the observer skiff. If a marine bird observer witnesses an entanglement, he or she should inform the marine mammal observer so it may be recorded on appropriate forms.

A net scan is done by scanning the area directly near and over the net for marine birds. Birds are tallied by species and behavior and recorded on the Sighting Form. The area within 10 meters of the net should be the primary focus. The net scan is only performed during a haul and should follow similar haul watch protocols. The net scan should be done every 5 minutes throughout the entire haul back, regardless of weather conditions. During a haul, marine bird observers will merge the rotation schedules of the horizon scan and net scan. If the net scan falls on the 15 minute mark of the horizon scan, the net scan is preempted by the horizon scan.

7. Pinniped Haul Out Count

This count is done opportunistically if it does not deter from the observers' regular duties. If observers expect to be near or transit by a haul out or rookery, an animal count can be made. All regulations and guidelines to avoid marine mammal harassment should be followed. Note any tagged or branded animals. See Appendix for a map of haulouts and the data form.

8. Marine Bird Colony Count

Marine bird colony counts may be done opportunistically if it does not deter from the observers' regular duties. If observers expect to be near or transit by a bird colony, a colony count should be recorded. This count only needs to be done once per season per colony. The standard U.S. Fish and Wildlife Service Colony Status Record Form will be used. The form includes the date, latitude, longitude, number of nests, number of birds and breeding status by species, and a description of the colony and surrounding habitat. See Appendix for the data form.

Table 1. A brief summary of the various watch types, when to do them, what to concentrate on, and what rotation and priority schedule to follow (1 being the highest priority of the watches).

Watch Type	Applicability	Concentration	Rotation	Priority
Haul watch	All hauls and picks. Regardless of weather. Always during a trip.	Incidental takes of mammals and birds. Marine mammals in the vicinity of gear, especially within 300 meters.	Entire haul or pick.	1
Soak watch	Soaking nets. One hour before haul is preferred. Beaufort < 4. Daylight. During a trip or not.	Incidental takes of mammals and birds. Marine mammals in the vicinity of fishing gear, generally within 1000 meters.	1 hour on, 15 minutes off for up to 4 hours.	2
Transit watch	When transit is likely to be 15 minutes or more. Beaufort < 4. Daylight. During a trip or not.	Marine mammals near the fishing grounds. Under ideal conditions, sightings of cetaceans may be made out to 3000 meters.	1 hour on, 15 minutes off.	6
Set watch	All sets. Regardless of weather. Always during a trip.	Incidental takes of mammals and birds. Marine mammals in the vicinity of gear, especially within 300 meters.	Entire set.	5
Horizon scan	Marine bird observers only. During a soak or haul or transit. During a trip or not.	Marine birds within 300 meters of the gear.	Every 15 minutes following haul or soak protocol.	4
Net scan	Marine bird observers only. During a haul. Always during a trip.	Marine birds within 10 meters of the gear.	Every 5 minutes following haul protocol, unless on the 15 minute mark when a horizon scan is done.	3
Pinniped haul out count	During a trip or not. Beaufort < 5. Daylight.	Seals and sea lions at a haul out or rookery site.	Until an accurate count is made.	7
Marine bird colony count	Marine bird observers only. During a trip or not. Beaufort < 4. Daylight.	Marine birds at a colony site.	Until an accurate count is made.	8

Sighting Form

This form is used to record all sighting watches and sightings. A sighting includes marine mammals that are in the fishing area but do not become entangled in the fishing gear. There may be several records per day, but each the time recorded for each sighting should be unique. Sightings and watches may or may not be done during a trip. Sightings must NOT be double-counted (do not record re-sightings). If working with an other observer, be sure to communicate so sightings are not counted by multiple people.

There is a vertical dashed line on the Sighting Form. If recording the begin and end (or occurrence) of a watch, only the fields to the left of the line need to be completed. If recording a sighting, the entire line needs to be filled out. If the latitude, longitude, weather, Beaufort, and wave height has not changed, vertical arrows may be drawn through the lines that are the same.

Cross out fields that do not apply with a single slanted line. Unknown fields should be dashed (unless an unknown code is listed on the form). All unknown fields must be explained in comments and addressed in debriefing. For coded fields, if none of the listed codes are appropriate for the situation, record or check the code for "other" and provide details in the comment section.

Sighting Form Field Descriptions

1. Page Numbering: This is for paperwork filing purposes. Number front and back of all double sided forms (if used) and backs with comments on them. The pages are numbered by trip with forms in order as they are listed in the Table of Contents. If this form is not associated with an observed trip, then the page order would be date and time.

2. Year: Record the year (yyyy) when the trip ended. Dash (-) if not associated with a trip.

3. Month: Record the month (mm) when the trip ended. Dash (-) if not associated with a trip.

4. Trip Identification Number: Record the unique three character Observer Identifier combined with the three character Trip Number consecutively numbered trips for this year of the primary observer (example: X01001). Dash (-) if not associated with a trip.

5. Observer Identifier Number: Record your three character Observer Identifier Number (example: X01).

6. Date: Record the date when this sighting or event occurred, with month, day, year (mmddyy).

7. Event Number: This number is used to associate the start ("begin") of a haul, set, soak or transit watch with the end of that same watch, as well as any on-watch sightings for that watch. Start with "1" for the first watch of the trip and continue to number watches sequentially within a trip. If multiple observers are on a trip, they each begin with "1" on their respective forms. Use a slash (/) in this field for off-watch sightings.

Example of Event numbers:

Event Number	Event Type	Time
1	1 [Begin Haul Watch]	1156
1	11 [On-Watch Sighting]	1223
1	2 [End Haul Watch]	1226
[slash box]	12 [Off-Watch sighting]	1235
2	1	1255
2	11	1305
2	11	1356
2	2	1415
3	1	1448
3	2	1515

8. EVENT TYPE: Record the code to describe an event by using the following Event Type Codes:

1 = Begin haul watch
2 = End haul watch
3 = Begin transit watch
4 = End transit watch
5 = Begin set watch
6 = End set watch
7 = Begin soak watch
8 = End soak watch
9 = Horizon scan (not used in 2005)
10 = Net scan (not used in 2005)
11 = Sighting, on-watch
12 = Sighting, off-watch
99 = Other (record in comments)

* NOTE: If weather, Beaufort state, or wave height changes substantially (by 2 intervals or more) during an extended watch, use event code 99 and record new conditions. Otherwise, the weather change will be reflected at the begin or end watch.

9. PLATFORM: Record the type of platform where you are located for this event, by using the Platform Codes:

1 = Observer skiff
2 = Fishing skiff/vessel
3 = Research vessel
4 = Shore, beach
5 = Shore, elevated cliff or bluff
6 = Shore, dock
7 = Aerial
9 = Other (record in comments)

10. TIME: Record the time when this event took place, using the 24 hour clock (hh:mm).

11. LATITUDE: Record the latitude location, in tenths of minutes (ddmm.m), where you are when the sighting or event occurred. This information can be obtained from your personal GPS unit (be sure settings are correct). If bearings can not be taken, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

12. LONGITUDE: Record the longitude location, in tenths of minutes (dddmm.m), where you are when the sighting or event occurred. This information can be obtained from your GPS unit (be sure settings are correct). If bearings can not be taken, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

13. WEATHER: Record the weather condition, using the Weather Codes:

1 = Clear (<10% cloud cover)
2 = Partly cloudy (10-50% cloud cover)
3 = Cloudy (51-90% cloud cover)
4 = Overcast (>90 cloud cover)
5 = Drizzle
6 = Rain
7 = Fog
8 = Sleet or snow
0 = Unknown

14. BEAUFORT: Record the sea state condition for each event, using the Beaufort Scale:

0 = < 1 Wind speed in knots (kt) ; mirror-like surface
1 = 1-3 kt; ripples; no foam crests
2 = 4-6 kt; small wavelets; crests glassy, not breaking
3 = 7-10 kt; large wavelets; crests beginning to break; scattered whitecaps
4 = 11-16 kt; small waves becoming longer; numerous whitecaps
5 = 17-21 kt; moderate waves becoming longer; many whitecaps; some spray
6 = 22-27 kt; larger waves forming; whitecaps everywhere; more spray
7 = 28-33 kt; sea heaps up; white foam from breaking waves blown in streaks
8 = 34-40 kt; moderate high waves; waves breaking into spindrift; blowing foam

15. WAVE HEIGHT: Record the average estimated wave height, in tenths of meters.

16. SPECIES: Record the common name of the species to the most specific group possible. The species code should recorded (reference Appendix 4, Species Codes). Complete one line for each species in each sighting. Multi-species sightings will have the same event number and time, but be recorded on separate lines. Detail multi-species groups in the comments. This field may also be used to record vessels in the immediate area.

17. NUMBER: Record your best estimate of the number of individuals sighted. If you have a range for the number, record the average here, and the range in comments.

18. ANIMAL BEHAVIOR: Indicate the initial behavior of the animal when first seen by recording the most appropriate code:

1 = Swimming or blowing at surface
2 = Milling/circling
3 = Sounding
4 = Porpoising
5 = Bow riding
6 = Breaching
7 = Thrashing
8 = In-flight
9 = Taking flight
10 = Landing on water
11 = Feeding on catch
12 = Foraging on other prey
13 = Floating on surface
14 = Vessel avoidance
15 = Bird avoidance
16 = Hauled out on land
17 = Dead
99 = Other (record in comments)

19. DISTANCE TO GEAR: Record the closest distance that the animal came to the net, estimated in whole meters.

20. DISTANCE TO VESSEL: Record the distance from the animal to the vessel (or platform) you are on, estimated in whole meters. If you are doing a scan count, dash (-) this field.

21. COMMENTS: Detail the animals' behavior, reactions, identifying characteristics, any signs of injuries or scarring, species associations, vessel's or fishermen's activities during the event, etc. When referring to a specific event, **reference the time** so the comment is specify the appropriate event.

Comments should include remarks regarding:

Behavior

Reactions

Identifying Characteristics

Sign of injury/ Scarring

Environment (human activities)

Marine Mammal Sighting Form

Year	Month	Trip ID #	Observer ID #	Date (DD/MM/YY)
2	3	4	5	6

Event #	Event Type	Platform	Time (hh:mm) 24 hr	Latitude (ddhh.m)	Longitude (dddhh.m)	Weather	Beaufort Sea State	Wave Height (0.1 m)	Species Name and Code	Number	Animal Behavior	Distance to Gear (m)	Distance to Vessel (m)
7	8	9	10	11	12	13	14	15	16	17	18	19	20

Event Type Codes
1 = Begin haul watch
2 = End haul watch
3 = Begin transit watch
4 = End transit watch
5 = Begin set watch
6 = End set watch
7 = Begin soak watch
8 = End soak watch
9 = Horizon scan
10 = Net scan
11 = sighting; on watch
12 = sighting; off watch
99 = other (comment)

Platform Codes
1 = Observer skiff
2 = fishing skiff/vessel
3 = Research vessel
4 = Shore, beach
5 = shore, cliff/hill
6 = shore, dock
7 = aerial
9 = other (comment)

Weather Codes
1 = Clear (<10% cloud cover)
2 = Partly cloudy (10-50% cloud cover)
3 = Cloudy (51-90% cloud cover)
4 = Overcast (>90% cloud cover)
5 = Drizzle
6 = Rain
7 = Fog
8 = Sleet or snow
0 = unknown

Beaufort Wind /Sea State Codes
Code = Wind Speed & Sea State
0 = < 1 kt & mirror-like surface
1 = 1-3 kt & ripples / no foam crests
2 = 4-6 kt & small wavelets / crests glassy – not breaking
3 = 7-10 kt & large wavelets / breaking crests / scattered whitecaps
4 = 11-16 kt & small waves / numerous whitecaps
5 = 17-21 kt & moderate waves / many whitecaps / some spray
6 = 22-27 kt & large waves / whitecaps everywhere
7 = 28-33 kt & sea heaps up / streaks of foam
8 = 34-40 kt & moderate high waves / sprindrifts/ blowing foam

Animal Behavior Codes
1 = Swimming
2 = Milling/circling
3 = Sounding
4 = Porpoising
5 = Bow riding
6 = Breaching
7 = Thrashing
8 = In flight
9 = Taking flight
10 = Landing on water
11 = Feeding on catch
12 = Foraging on other prey
13 = Floating on surface
14 = Vessel avoidance
15 = Bird avoidance
16 = On land
99 = Other (comment)

Comments: (include Event # and time; cont'd on back Y____ N____)

21

Form AMMOP 006-05

Page _____ of _____

Photo Form

This form is used to record information about what photos have been taken. It is completed per roll of film for each frame. Send the form along with the roll when handed into the office for processing. Each roll of film should be labeled by the year, observer identification code, and the consecutive number of rolls of film they have used that year. If there are photos of an incidental take or stranding on the roll, do not wait to complete the roll of film - send it in as soon as possible.

Photographs are required of all incidental takes and should also be taken of sharks and rare or hard-to-identify fish. Photos are an important part of the identification process and can also aid in determining the sex, age, unique markings, and condition of animals taken. Photographs of gear types, fishing operations, and/or observer duties are very useful for observer training and developing outreach materials. For confidentiality purposes, photographs should not be taken of vessel names, vessel numbers, or clear shots of crew members.

When photographing incidental takes of marine mammals and marine birds, photograph any unusual marks and scars, location of gear entanglement (preferably with gear still attached), and characteristics of the animal which can be used for species identification. Important photos of body parts would include a close-up of the animal's head (head-on, side shot, throat area, mouth), rostrum or tip of beak, flipper and fluke shapes, dorsal fin shape and relative placement on back, belly view, genital area, shape and color of feet and bill, gills, and placement of fins. Place a piece of paper with the observer/trip identifier number, the animal's tag number, and the date on it next to the animal's body, and include it in the series of photos. Do not cover important features of the animal's body with the paper. If the paper is wet down, it will be less apt to blow away. If time and conditions preclude this, try to include the carcass tag number in the photograph. It is helpful to include an object in the photo to be used as a size reference (i.e., clipboard, pen, measuring tape, tag).

Keep cameras and film away from excessive heat, moisture, salt, and vapors. Don't keep used film for extended periods of time as it becomes more susceptible to harmful elements once exposed. Keep exposed film in a protective case or bag and send in for processing as soon as possible.

Photo form Field Descriptions

1. Observer Identifier Number: Record your three character Observer Identifier Number (example: X01).

2. Roll Number: Record the number of the roll of film, numbered sequentially by observer for the year.

3. Frame Number: Record the frame number(s). Remember if taking a reading from the camera after the photo has been taken, subtract 1 for the number of the photo you just took.

4. Date: Record the date when this photo was taken, with month, day, year (mmddyy).

5. Time: Record the time when this photo was taken, using the 24 hour clock (hh:mm).

6. Species: If this photo is of an animal, record the species and the species code (see Appendix 4. Species Codes for a list of species codes).

7. Tag Number: If this photo is of an animal with a unique tag number, include the tag in the

first photo of the series and record the complete tag number.

8. SUBJECT: In 2 or 3 words, briefly state the subject of the photo. This field may be used to create the label to be applied to the photo/slide.

9. DESCRIPTION: A more detailed record of the subject. Include trip number, haul number, area location, operation description, specific markings, or what the photo intends to detail.

10. QUALITY: This field will be completed after the film has been developed. It is a ranking of the quality of the photo by using one of the following Quality Codes:

1 = Excellent
2 = Good
3 = Fair
4 = Poor

NMFS Alaska Marine Mammal Observer Program
PHOTO FORM

Observer Identifier Number **1**	Roll Number **2**	Developing Notes	Quality Codes 1 = Excellent 3 = Fair 2 = Good 4 = Poor

Frame	Date	Time	Species / Tag Number / Subject	Description	Quality
3 1	**4**	**5**	**6 7 8**	**9**	**10**
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					

Fisher's Comment Form

This form is used by the permit holder if they wish to comment on the trip which was observed. The permit holder must have been present at the time the observations were made. The observer should offer this option to the fishermen by the completion of each trip. The observer should complete the top portion of the form, allow the fishermen to fill in their comments, collect this completed form directly, within a day and include it in their trip data.

Fisher's Comment Form Field Descriptions

1. Page numbering: This is for paperwork filing purposes. Number front and back of all double sided forms (if used) and backs with comments on them. The pages are numbered by trip with forms in order as the Table of Contents.

2. Year: The year (yyyy)the trip ended.

3. Month: The month (mm) the trip ended.

4. Trip Identification Number: Record your unique three character Observer Identifier combined with the three character Trip Number consecutively numbering your trips for this year (example: X01001).

5. Fishery Name and Code: Write out the name of the fishery to ensure proper filing and coding. Record the fishery code assigned to identify this fishery:

5 = Kodiak salmon set gillnet

6. Vessel Name: Record the name of the vessel to which you are deployed. Care should be taken to record the correct spelling of the vessel's name. Record "No Name" for vessels without a name. Record a dash (-) if this field does not apply.

7. Vessel Number: Record the number displayed on the hull of the vessel to which you are deployed. This number will be either the U.S. Coast Guard Documentation Number or the state registration number. This number may have up to eight characters. This is not the same as the NMFS or state fishing permit number.

8. Permit Number: Record the Federal NMFS or state fishing permit number under which they are fishing.

9. Date: The month, day, year (mmddyy).

10. First Name: Record the fishermen's first name. Verify correct spelling.

11. Last Name: Record the fishermen's last name. Verify correct spelling.

12. Comments: Provide the form to the fisher to complete. Either wait to get the comments back or make arrangements to pick up the form later that day. Include this form with the trip data.

NMFS Alaska Marine Mammal Observer Program **1** Page Number _____ of _____

FISHER'S COMMENT FORM

Year **2**	Month **3**	Trip Identification Number **4**	Fishery Name (& code) **5**
Vessel Name **6**		Vessel Number **7**	Fishing Permit Number **8**
Today's Date **9**		Fisher's First Name **10**	Fisher's Last Name **11**
Comments (Continued on Back: Y ___ N ___) **12**			

2002

Supplemental Research

Observers are encouraged to collect opportunistic information for programs in conjunction with work for the AMMOP. These special projects are lower priority than observer duties. The permit holder is entitled to rewards or returns on tagged animals. Descriptions of the projects are included below followed by posters and/or supplemental data forms.

Shark Research, Alaska Shark Assessment Program

Contact: Dean Courtney, NMFS, Auke Bay Laboratory, Juneau, AK

Over the years some 200 + sharks have been tagged in Alaska waters and many tags still have not been recovered. Most tagging work took place in Southeast Alaska and Prince William Sound; at this time, shark movements seem limited to the areas in which they were tagged. However, the chance of encountering a tagged shark still exists throughout the state. Tags or sightings of tagged sharks should be sent to Dean Courtney, NMFS.

Sablefish Tagging

Contact: Michael Sigler, NMFS, Auke Bay Laboratory, Juneau, AK

Sablefish tagging is an on-going project. Tags or sightings of tagged fish should be sent to Michael Sigler, NMFS.

High Seas Salmon Research Program

Contact: Katherine Myers, School of Aquatic and Fishery Sciences, University of Washington, Seattle, WA

High seas salmon research is an on-going project. Tags or sightings of tags should be sent to Katherine Meyers, UW.

Marine Mammal Stranding Report

Contact: Kate Wynne, Kodiak, AK, or Aleria Jensen, Stranding Coordinator, NMFS, Alaska Regional Office, Juneau, AK.

A nation-wide data reporting system to report dead or ill, injured, or unusual marine mammals floating or stranded ashore. This data is reported on the Marine Mammal Stranding Report Level A Data Form. Photographs are very helpful. For unusual situations, contact Kate Wynne or Aleria Jensen as soon as possible. Unusual situations include observing an entangled animal that is unable to swim, eat or breathe normally, or strandings of rare/ endangered animals like beaked whales or steller sea lions.

Haulout Count and Steller Sea Lion Brand Re-Sight

Contact: Rod Towell, NMFS, National Marine Mammal Laboratory, Seattle, WA

Report haulout counts and sightings of branded sea lions. See Appendix for locations of haulout sites.

Marine Bird Colony Count

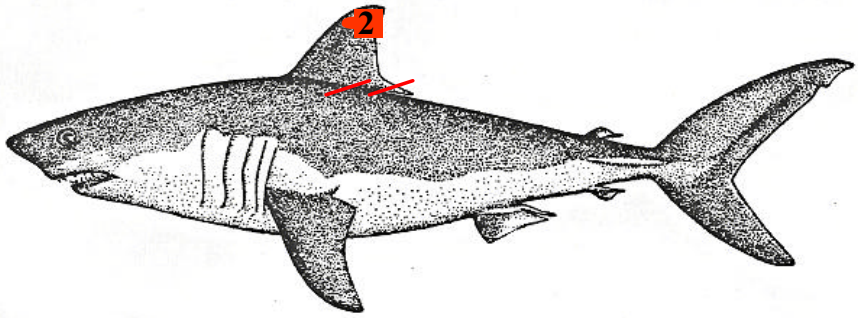
If observers expect to be near or transit by a bird colony, a colony count should be recorded. This count only needs to be done once per season per colony. The standard U.S. Fish and Wildlife Service Colony Status Record Form will be used. The form includes the date, latitude, longitude, number of nests, number of birds and breeding status by species, and a description of the colony and surrounding habitat

Spawning Forage Fish Data

Contact: Susan Payne, NMFS, Kodiak, AK

An on-going study of conditions surrounding the beach spawning events of capelin and Pacific sandlance. During the summer (2005), Susan Payne can be hailed on VHF at Vikoda Bay/ Horseshoe Bay.

Shark Research



Reward For Tag Recoveries

If the shark tag(s) look like this:

Record the tag number, where caught (Latitude-Longitude preferred) and phone number on the tag, then release the shark and call in the Information for a reward.

If the shark tag look like this:

The shark has an electronic tag in it's stomach or surgically implanted in it's body cavity that looks like this:

Look for sutures and/or in the shark's stomach to recover the tag and send to address printed on the tag with catch information (location, etc.) for a reward.

For more information on the Alaska Shark Assessment Program contact Lee Hulbert @ 907-789-6056 or Lee.Hulbert@noaa.gov or visit my website at: http://www.fakr.noaa.gov/oil/sharks.htm

Dogfish Sampling Plan

Plan applies to spiny dogfish (Squalus acanthias) delivered to the dock at regular port sampling locations,or those dogfish caught as bycatch during regular survey cruises. For all dogfish sampled, please record date, method of capture, location and vessel.

Sample Size

If total dogfish catch per sampling event is <50 animals then all animals should be sampled. If >50 animals, the time required to process those animals is prohibitive and a random sub-sample will suffice. Also, if dissection is not possible, then processing will be faster and sample size may be adjusted as necessary (and vice versa).

Sample Processing

With Dissection:

- Samples will be measured for at least TLext (see Figure 1), but preferably PCL, FL and TL_{nat} as well .
- Sexed .
- Whole animal weight .
- Second dorsal spine for ageing. Spine can be removed by cutting straight down from the tip of the spine, not following the angle of the spine, to the vertebrae.
- Then cut horizontally towards the rostral end and removed. Spines can be frozen and shipped cold to UAF for analysis.
- Males: Clasper Inner.Length (CIL) measured (see Figure 2) and maturity assessed (if claspers are calcified and longer than pelvic fins, then they are mature; if semen flows from claspers and they appear red/swollen, then they are actively mating). See Figure 3 for comparison of mature and immature claspers.

- Females will be opened with a ventral cut from the cloaca to the pectoral girdle.
  - Reproductive tract will be assessed for:
  - Maturity: Immature females will have small undeveloped ovaries, undeveloped shell gland, thin oviducts and small uteri. Mature females will have large ovaries with large eggs (unless in the earliest stages of pregnancy) and widened shell gland, thick oviducts and long uteri. Refer to Figure 4 and Figure 5 for examples of both conditions.
  - Progression of pregnancy. Recording what stage of the reproductive cycle the female is in. Stages A, B, H and I can easily be identified by quick examination and notable characteristics (Figure 6, 7 and 8). Other stages require measuring embryos.
  - Presence of embryos or candles. Figures 8a & b give examples of candles.
  - For each side (left or right) of reproductive tract count the number of embryos, if present.
  - Count of developing eggs in ovary, also recorded by side of reproductive tract. In mature females, the eggs that are developing for the next pregnancy are yolky and significantly larger than the smaller white eggs that may be developing for pregnancies further in the future.

- Weight of embryos with and w/o yolk sac

- Stomach contents analysis: Identify to the lowest taxon possible the contents of the stomach. This does not include bait if collected by means of longline or sportfishing. Include the number of each item and if possible weight (for example: 1 cancer crab leg-25g). If available, stomach samples can be placed in labeled bags in 10% buffered formalin and shipped back to UAF for detailed analysis

Without Dissection:
Record all information excluding female maturity, embryos, counts of embryos and eggs, and stomach content.

Minimum Data Requirements:

At a minimum, TL_{ext}, sex and catch info is preferred. Catch info being: location, depth, gear type, time of day (day/night). Other data in order of priority are: CIL, maturity, spine, stomach contents, presence and count of embryos/candles, embryo weights, count of developing eggs, pregnancy stage and other length measurements.

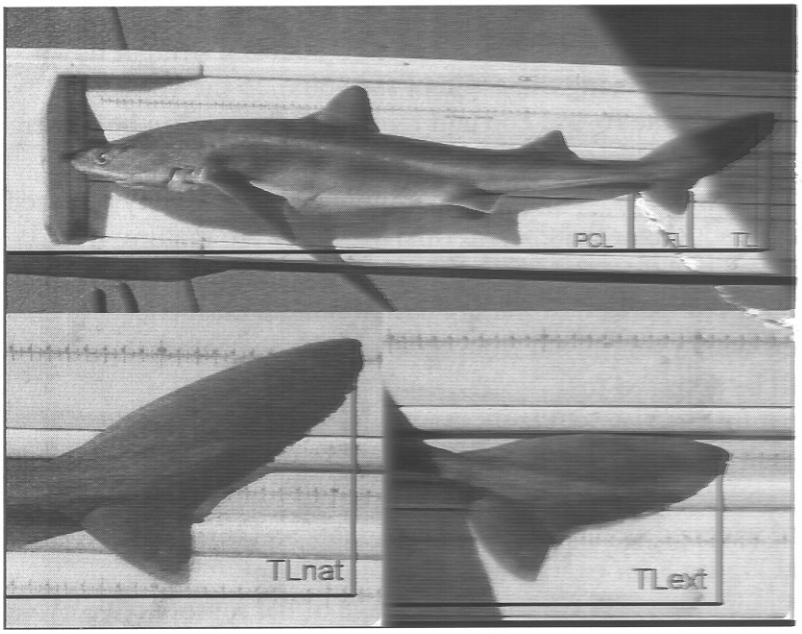


Figure 1-External measurements to be taken of spiny dogfish (*Squalus acanthias*).

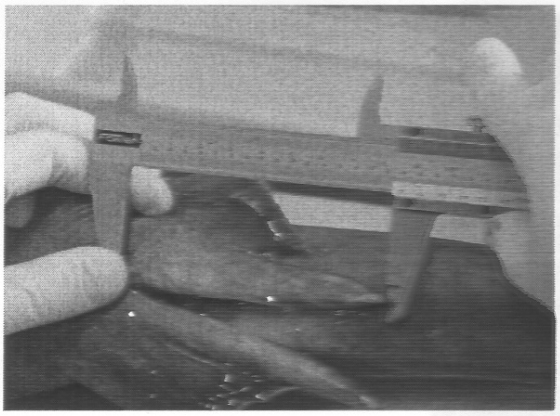


Figure 2-Measuring the clapper inner length (CIL) of male spiny dogfish (*Squalus acanthias*).

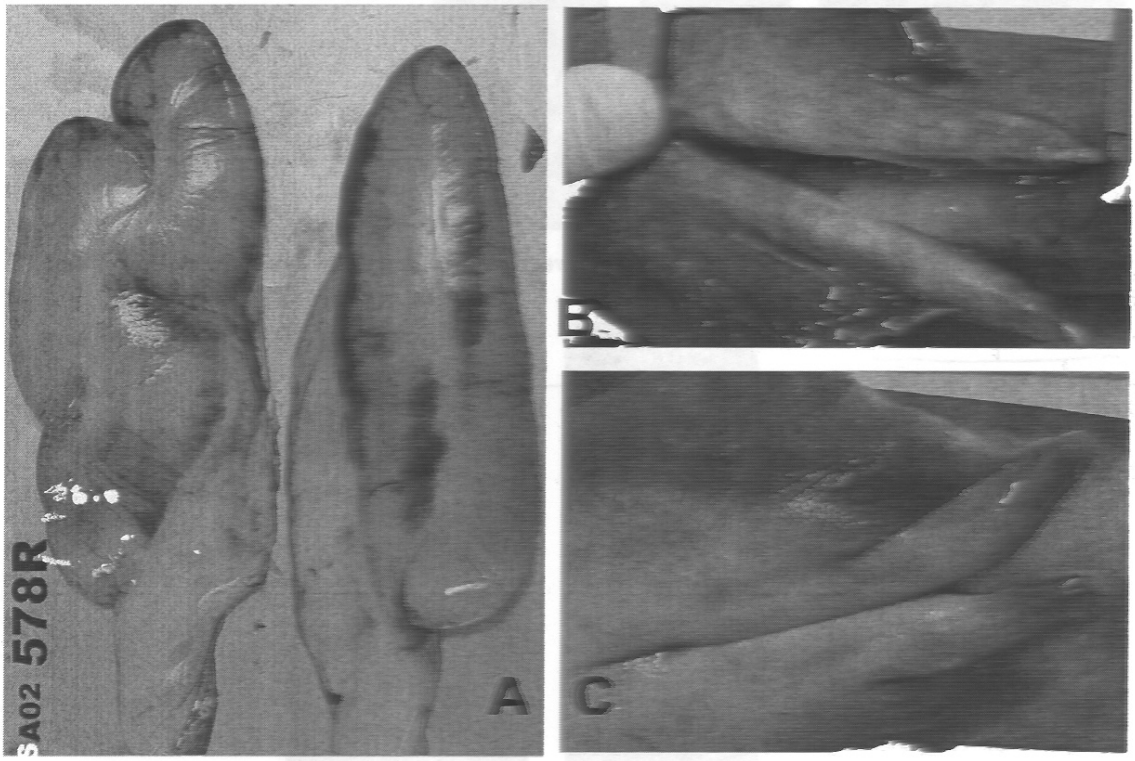


Figure 3-Male internal and external reproductive components. The appearance of mature testes are shown in (A). Mature claspers (B) are easily identifiable from immature claspers (C) by the size and structure.

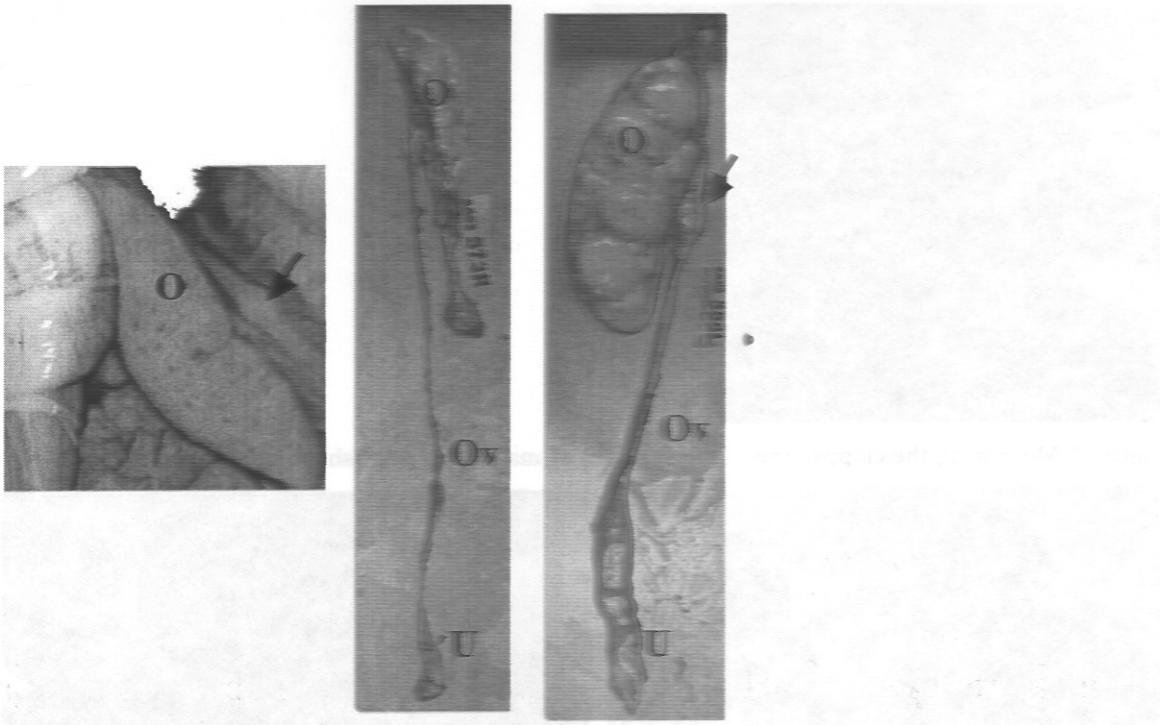


Figure 4-Examples of immature female reproductive tract. O=Ovary, Ov-Oviduct, U=Uterus and the arrow points to the shell gland.

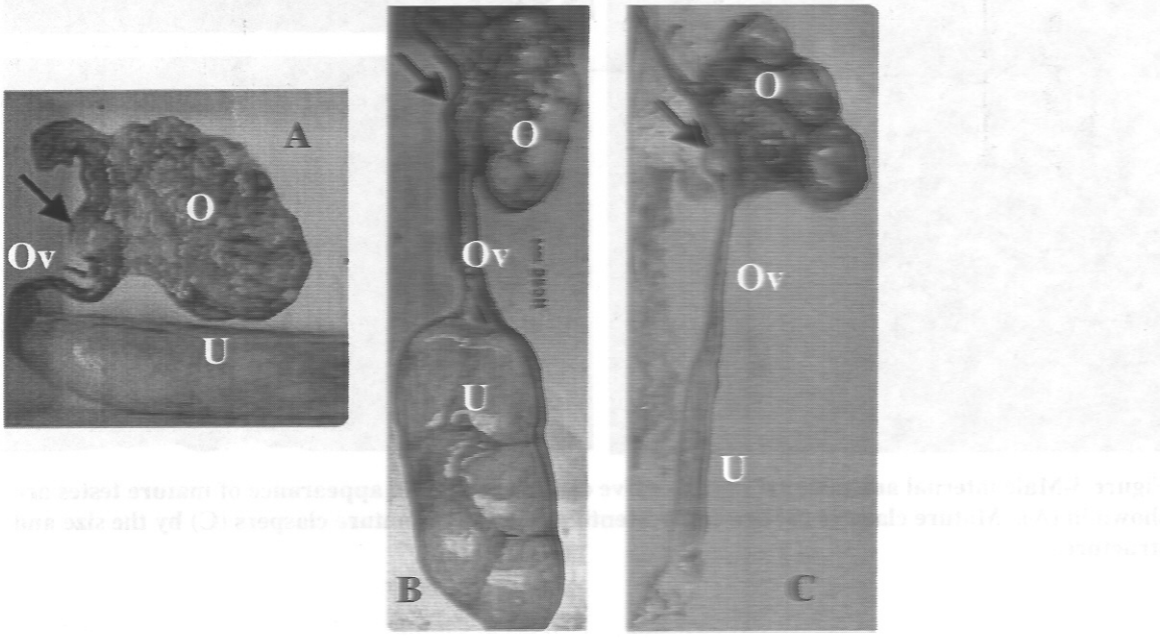


Figure 5-Examples of the mature female reproductive tract. A) shows the earliest stages of pregnancy, where the uterus contains a "candle" and the ovary is "deflated". B) is mid pregnancy, the embryos are free in the uterus and the ovary once again contains large developing eggs. C) is the post-partum or in between pregnancy condition where the uterus is empty but the ovaries have very large well developed eggs which appear to occupy the entire ovary.

	Size or Notable Characteristics
A	candle, unmeasurable embryo
B	candle, measurable embryo
C	free, TL<10cm
D	10.1<TL<15
E	15.1<TL<17.5
F	17.6<TL<20.5
G1	20.6<TL<23
G2	22.5<TL<245
H	No external yolk sac, 22.5<TL<26.2
I	Post Partum

Figure 6-Table of stages of female reproductive cycle as determined by embryo length. Stages A, B, H and I are easily identifiable by notable characteristics.

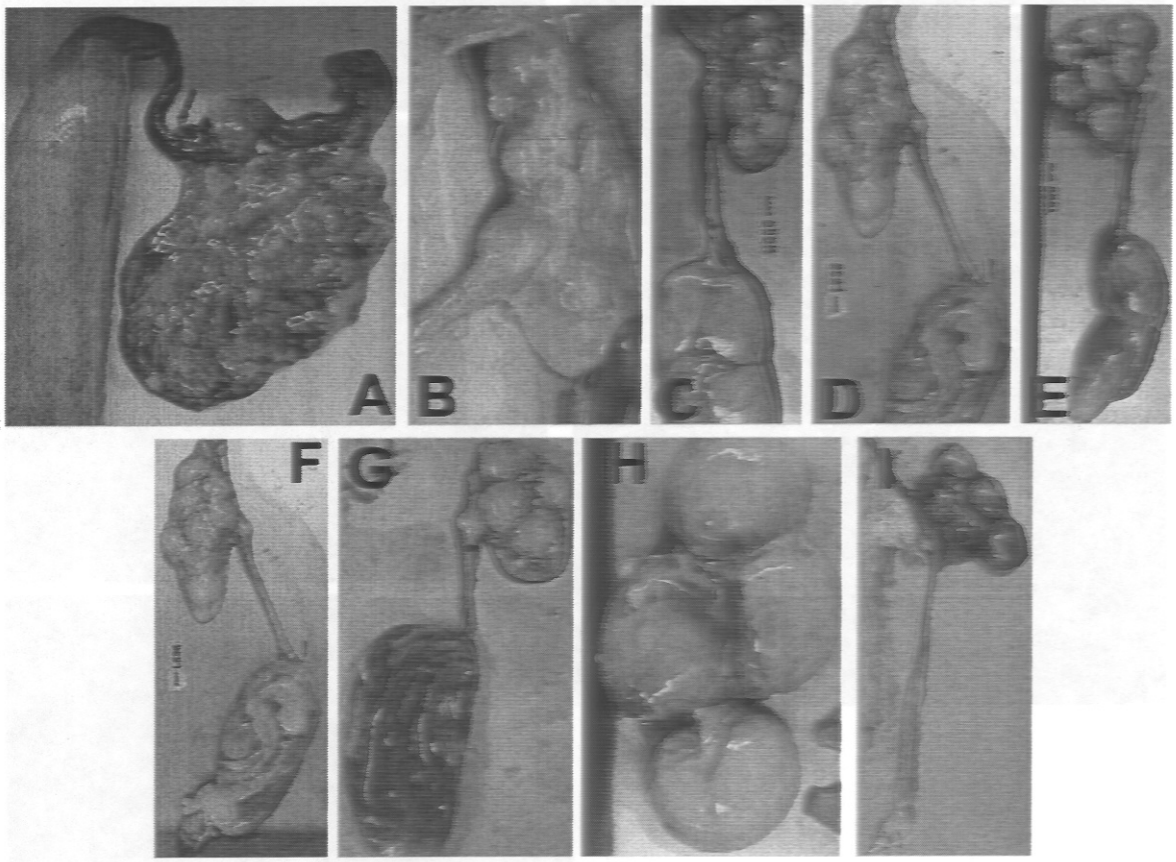


Figure 7-Stages of the reproductive cycle as shown by the ovaries.

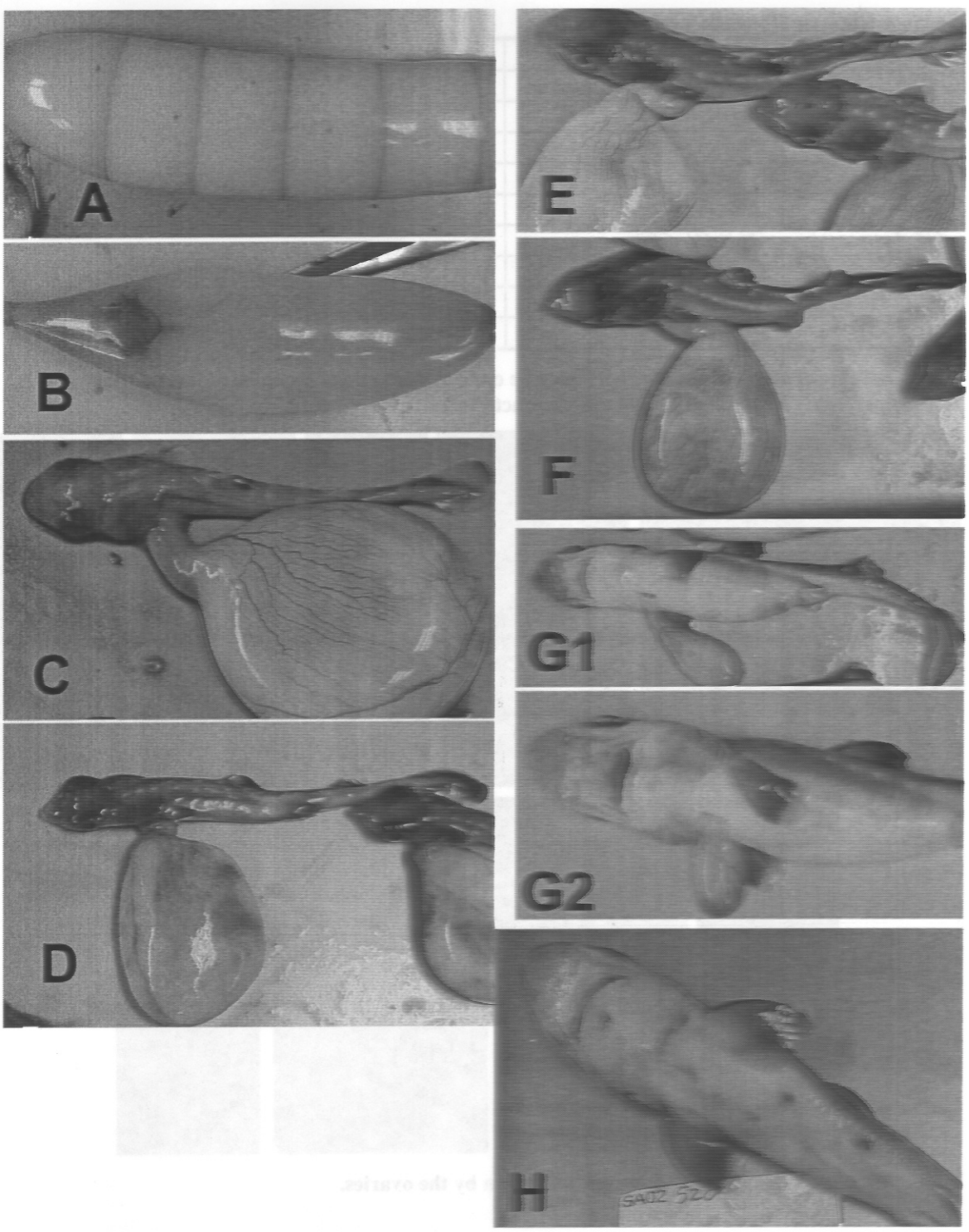
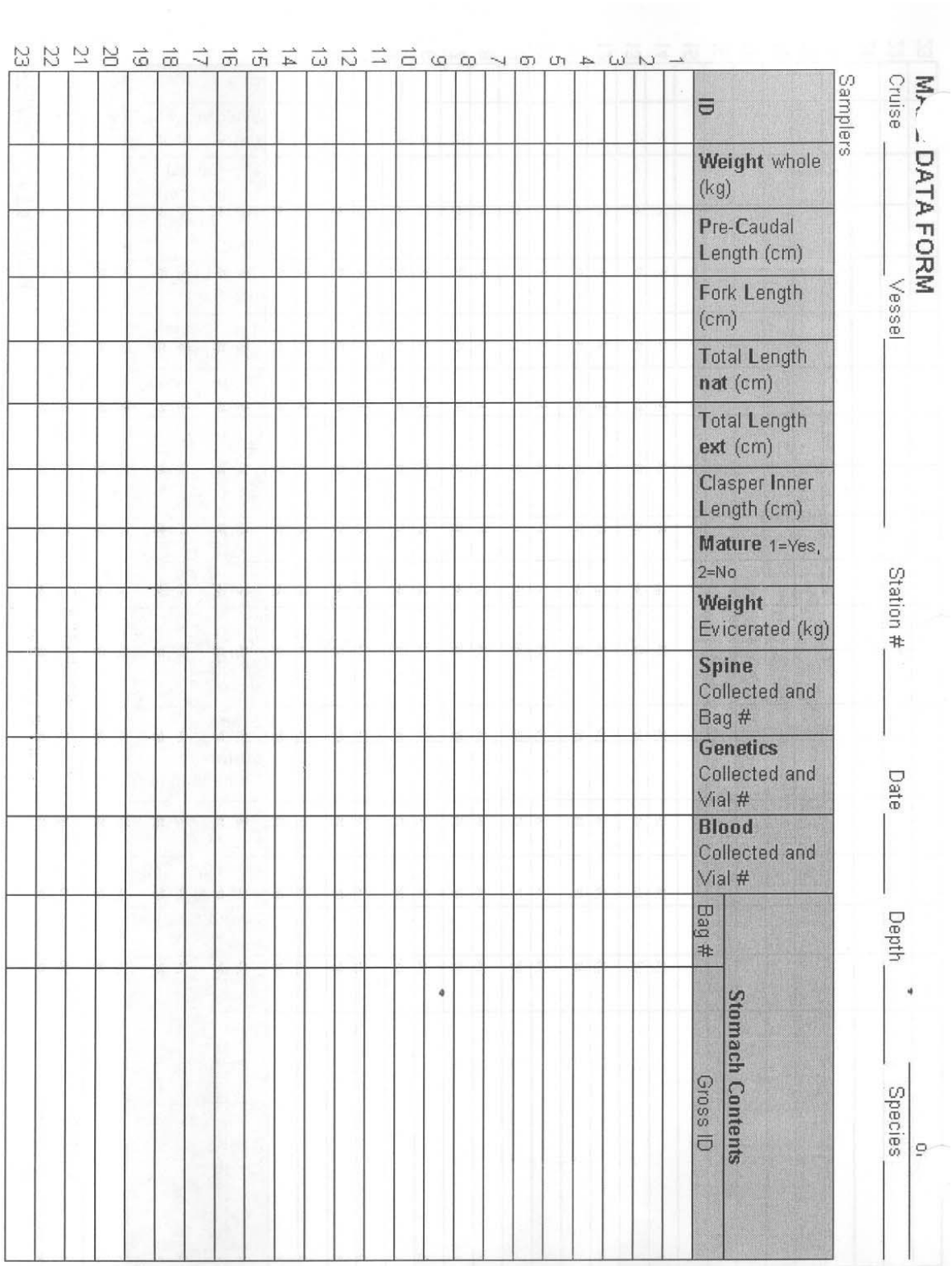


Figure 8-Stages of the reproductive cycle as shown by the developing embryos.



M[illegible] DATA FORM

Cruise _____ Vessel _____ Station # _____ Date _____ Depth _____ ' _____ ° Species _____

Samplers

	ID	Weight whole (kg)	Pre-Caudal Length (cm)	Fork Length (cm)	Total Length nat (cm)	Total Length ext (cm)	Clasper Inner Length (cm)	Mature 1=Yes, 2=No	Weight Evicerated (kg)	Spine Collected and Bag #	Genetics Collected and Vial #	Blood Collected and Vial #	Stomach Contents	
													Bag #	Gross ID
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
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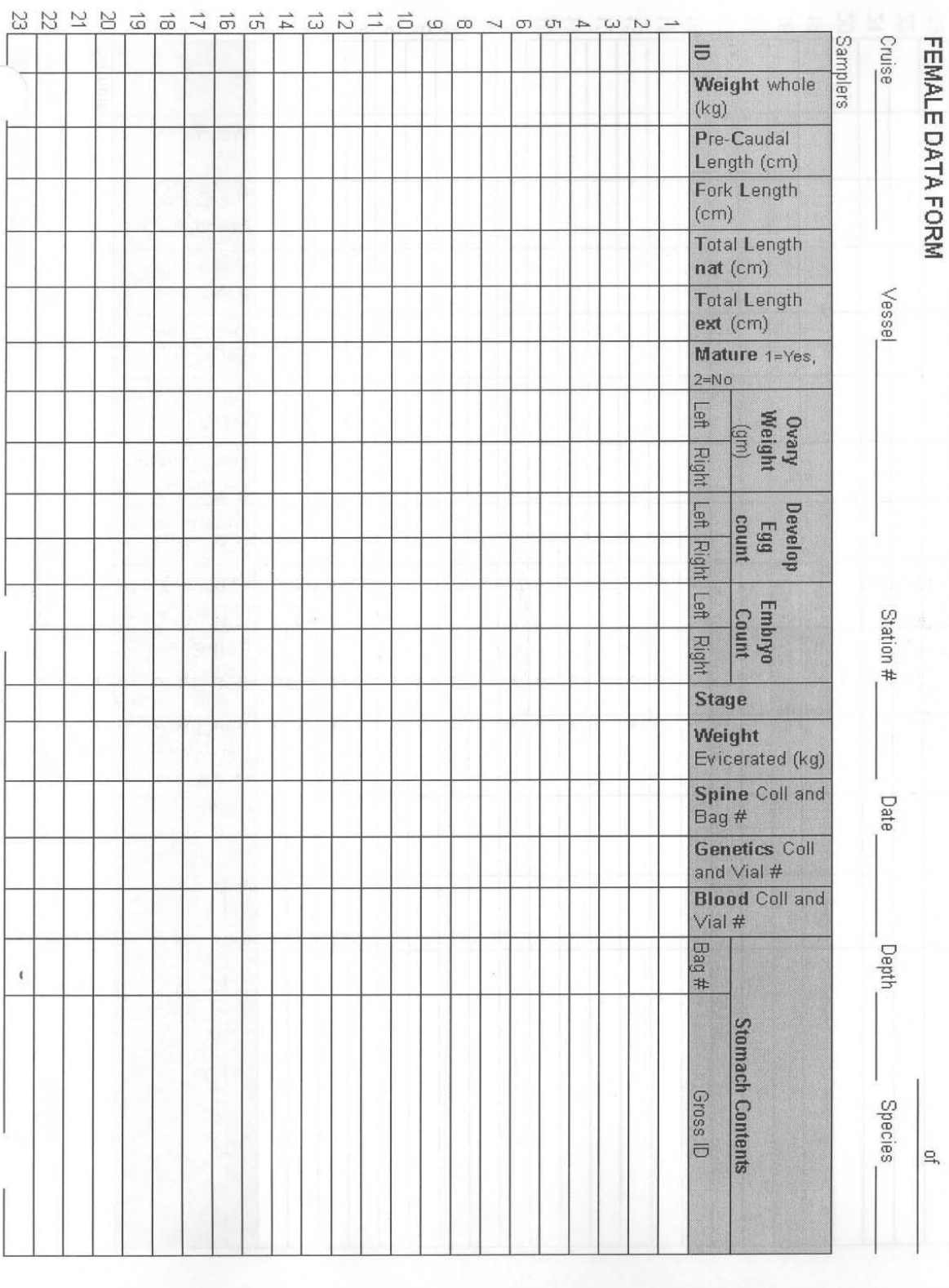
23														



FEMALE DATA FORM

Cruise _____ Vessel _____ Station # _____ Date _____ Depth _____ Species _____ of _____

Samplers

	ID	Weight whole (kg)	Pre-Caudal Length (cm)	Fork Length (cm)	Total Length nat (cm)	Total Length ext (cm)	Mature 1=Yes, 2=No	Ovary Weight (gm)		Develop Egg count		Embryo Count		Stage	Weight Evicerated (kg)	Spine Coll and Bag #	Genetics Coll and Vial #	Blood Coll and Vial #	Stomach Contents	
								Left	Right	Left	Right	Left	Right						Bag #	Gross ID
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
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19																				
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21																				
22																				
23																				

EMB JATA FORM

Cruise_____ Vessel_____ Station #_____ Date_____

Samplers_____

	Maternal Fish ID#	Embryo #Within each female	Location 1=Left Uterus 2=Right Uterus	Sex 1=Male 2=Female	Total Length ext (cm)	Weight: Embryo Wt (gm)	Weight: Yolk Sac Wt (gm)	Candle Wt (gm)
1								
2								
3								
4								
5								
6								
7								
8								
9								
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11								
12								
13								
14								
15								
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17								
18								
19								
20								
21								
22								
23								
24								
25								

	Maternal Fish ID#	Embryo #Within each female	Location 1=Left Uterus 2=Right Uterus	Sex 1=Male 2=Female	Total Length ext (cm)	Weight: Embryo Wt (gm)	Weight: Yolk Sac Wt (gm)	Candle Wt (gm)
26								
27								
28								
29								
30								
31								
32								
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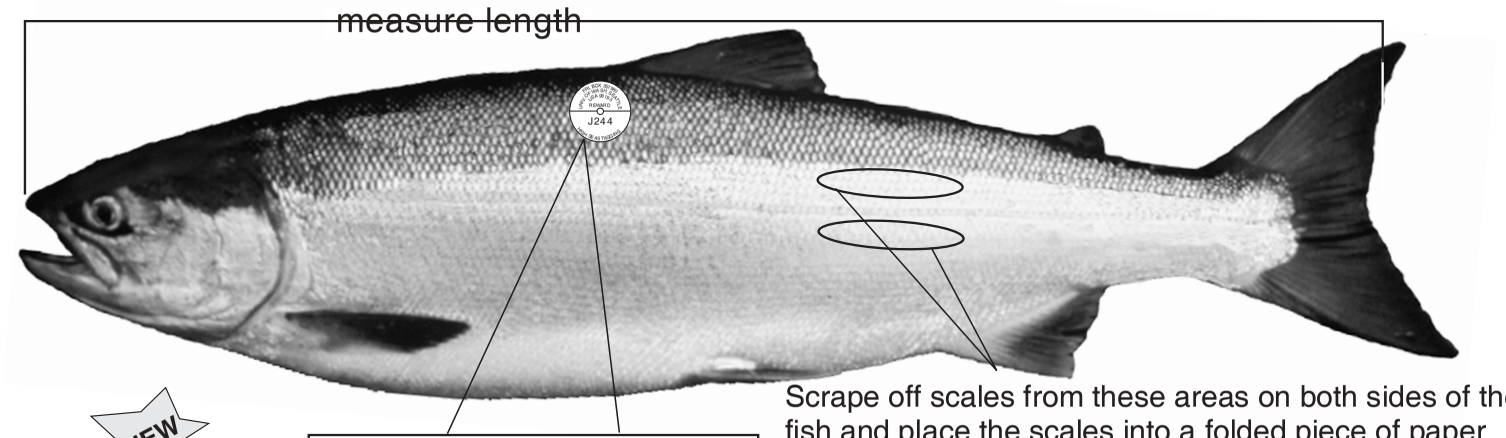
RETURN HIGH SEAS SALMON AND STEELHEAD TAGS



NEW

RETURN high-seas salmon **tag**

- **ENTER** drawing
- **GET** embroidered cap

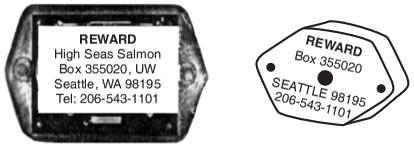
North Pacific Anadromous Fish Commission Tag Drawing 2004

- **$5,000** 1st
- **$3,000** 2nd
- **$1,500** 3rd
- **$ 500** 4th

Examples of high seas tags

Tag color is red and white

Some fish carry an electronic tag



SPECIAL $500 REWARD FOR GEOLOCATING TAG

Scrape off scales from these areas on both sides of the fish and place the scales into a folded piece of paper

- Collect tag, if tag cannot be collected then get tag number and description
- Collect scales and carefully measure fish length as shown
- Record location, date, species, gear, sex, and weight
- Send your name, address, and phone number for cash drawing

Send to: **High Seas Salmon Research Program**
School of Aquatic & Fishery Sciences
University of Washington
Box 355020
Seattle, WA 98195-5020

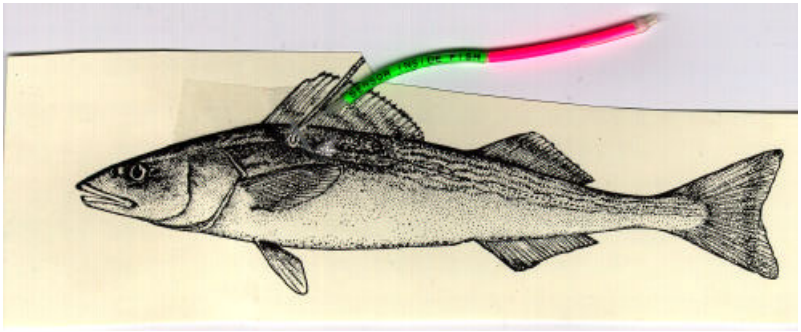
Info call: 206-543-1101
e-mail: kwmyers@u.washington.edu

Websites: http://www.fish.washington.edu/research/highseas/ http://www.npafc.org/

INTERNATIONAL HIGH SEAS SALMON TAGGING

$500 REWARD

For Electronic Tag Inside Sablefish



The NMFS Auke Bay Laboratory is tagging sablefish with a 3/4 inch diameter x 2 1/4 inch long electronic tag found inside of the fish and a 3 inch long flourescent green and flourescent pink tag located near the first dorsal fin of the fish. The external tag reads – "Reward for Depth Sensor Inside Fish". The electronic tag records depth and temperature. Data from those tags will provide information about sablefish behavior in the sea as well as the marine environmental conditions they experience.

An electronic tagged sablefish was recovered on 1 August 1998. The fish was at large since 5 June 1998. Tagged in the Aleutian Islands, the 4-year old fish was recovered 2 nautical miles south of the release site. The fish remained at temperatures from 38 to 39 degrees Fahrenheit and ranged over depths of 200 to 300 fathoms. A plot of the temperature and depth history is attached.

You can help fishery research as well as receive a $500 reward. If you recover an electronic tag please contact:

Michael Sigler
National Marine Fisheries Service
Auke Bay Laboratory
11305 Glacier Hwy
Juneau, Ak 99801
Call Collect @ 907-789-6037

MARINE MAMMAL STRANDING REPORT - LEVEL A DATA

FIELD #: _____ **NMFS REGIONAL #:** _____ (NMFS USE) **NATIONAL DATABASE#:** _____ (NMFS USE)

COMMON NAME: _____ **GENUS:** _____ **SPECIES:**_____

EXAMINER Letterholder: _____

Name: _____ Affiliation: _____

Address: _____ Phone:_____

LOCATION OF INITIAL OBSERVATION
State:_____ County:_____
City: _____
Body of Water: _____
Locality Details: _____
_____
_____
Latitude: _____ N ☐ actual
Longitude: _____ W ☐ estimated
How lat/long determined (Check ONE):
☐ GPS
☐ Map
☐ Internet/Software

OCCURRENCE DETAILS ☐ Restrand GE#: _____ (NMFS USE)

Group Event: ☐ YES ☐ NO
If Yes, Type: ☐ Cow/Calf Pair ☐ Mass Stranding # Animals: _____ ☐ actual ☐ estimated

Findings of Human Interaction: ☐ YES ☐ NO ☐ Could not Be Determined (CBD)
If Yes, Check one or more: ☐ 1. Boat Collision ☐ 2. Shot ☐ 3. Fishery Interaction
☐ 4. Other Human Interaction: _____
Describe How Determined:_____
Gear Collected? ☐ YES ☐ NO Gear Disposition: _____

Other Findings upon Level A: ☐ YES ☐ NO ☐ CBD
If Yes, Check one or more: ☐ 1. Illness ☐ 2. Injury
☐ 3. Other Findings: _____
Describe How Determined:_____

INITIAL OBSERVATION
Date: Year: _____ Month: _____ Day: _____
First Observed: ☐ Beach or Land ☐ Floating ☐ Swimming

CONDITION AT INITIAL OBSERVATION (Check ONE)
☐ 1. Alive ☐ 4. Advanced decomposition
☐ 2. Fresh dead ☐ 5. Mummified/Skeletal
☐ 3. Moderate decomposition ☐ 6. Unknown

LEVEL A EXAMINATION ☐ Not Able to Examine
Date: Year: _____ Month: _____ Day: _____

CONDITION AT EXAMINATION (Check ONE)
☐ 1. Alive ☐ 4. Advanced decomposition
☐ 2. Fresh dead ☐ 5. Mummified/Skeletal
☐ 3. Moderate decomposition

INITIAL LIVE ANIMAL DISPOSITION (Check one or more)
☐ 1. Left at Site ☐ 7. Transferred to Rehabilitiation:
☐ 2. Immediate Release at Site Date: _____ Facility:_____
☐ 3. Relocated _____
☐ 4. Disentangled ☐ 8. Died during Transport
☐ 5. Died at Site ☐ 9. Euthanized during Transport
☐ 6. Euthanized at Site ☐ 10. Other: _____

CONDITION/DETERMINATION (Check one or more)
☐ 1. Sick ☐ 4. Deemed Healthy 7. Location Hazardous:
☐ 2. Injured ☐ 5. Abandoned/Orphaned ☐ a. To animal
☐ 3. Out of Habitat ☐ 6. Inaccessible ☐ b. To public
☐ 8. Unknown/CBD ☐ 9. Other: _____
Comments:_____
_____

MORPHOLOGICAL DATA

SEX (Check ONE)
☐ 1. Male
☐ 2. Female
☐ 3. Unknown

AGE CLASS (Check ONE)
☐ 1. Adult ☐ 4. Pup/Calf
☐ 2. Subadult ☐ 5. Unknown
☐ 3. Yearling

Straight Length:_____ ☐ cm ☐ in ☐ actual ☐ estimated
Weight:_____ ☐ kg ☐ lb ☐ actual ☐ estimated

PHOTOS/VIDEOS TAKEN: ☐ YES ☐ NO
Photo/Video Disposition:_____
_____

TAG DATA
Tags Were:
Present at Time of Stranding (pre-existing): ☐ YES ☐ NO
Applied during Stranding Response: ☐ YES ☐ NO

ID #	Color	Type	Placement * (Circle ONE)	Applied	Present
			D DF L LF LR RF RR	☐	☐
			D DF L LF LR RF RR	☐	☐
			D DF L LF LR RF RR	☐	☐

* D = Dorsal; DF= Dorsal Fin; L = Lateral Body
LF=Left Front; LR = Left Rear; RF = Right Front; RR = Right Rear

WHOLE CARCASS STATUS (Check one or more)
☐ 1. Left at site ☐ 4. Towed: Lat _____ Long _____ ☐ 7. Landfill
☐ 2. Buried ☐ 5. Sunk: Lat _____ Long _____ ☐ 8. Unknown
☐ 3. Rendered ☐ 6. Frozen for Later Examination ☐ 9. Other:____
_____

SPECIMEN DISPOSITION (Check one or more)
☐ 1. Scientific collection
☐ 2. Educational collection
☐ 3. Other: _____
Comments:_____
_____

NECROPSIED ☐ YES ☐ NO Date:_____
NECROPSIED BY: _____

NOAA Form 89-864 (rev. 2004)
OMB No. 0648-0178; Expires August 31, 2007

PLEASE USE THE BACK SIDE OF THIS FORM FOR ADDITIONAL REMARKS

ADDITIONAL REMARKS

ADDITIONAL IDENTIFIER: _____ (If animal is restranded, please indicate any previous field numbers here)

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DISCLAIMER

THESE DATA SHOULD NOT BE USED OUT OF CONTEXT OR WITHOUT VERIFICATION. THIS SHOULD BE STRICTLY ENFORCED WHEN REPORTING SIGNS OF HUMAN INTERACTION DATA.

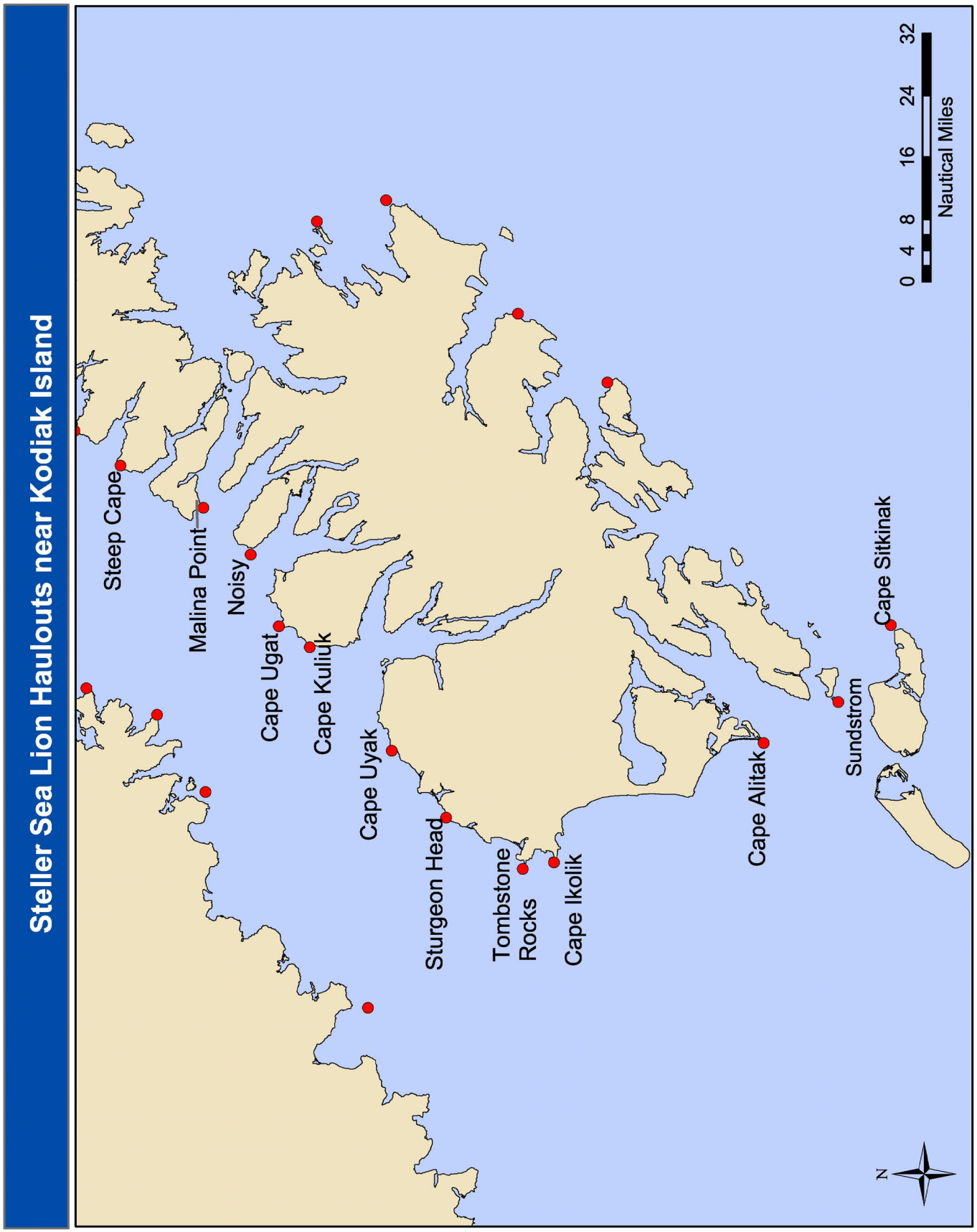
DATA ACCESS FOR LEVEL A DATA

UPON WRITTEN REQUEST, CERTAIN FIELDS OF THE LEVEL A DATA SHEET WILL BE RELEASED TO THE REQUESTOR PROVIDED THAT THE REQUESTOR CREDIT THE STRANDING NETWORK AND THE NATIONAL MARINE FISHERIES SERVICE. THE NATIONAL MARINE FISHERIES SERVICE WILL NOTIFY THE CONTRIBUTING STRANDING NETWORK MEMBERS THAT THESE DATA HAVE BEEN REQUESTED AND THE INTENT OF USE. ALL OTHER DATA WILL BE RELEASED TO THE REQUESTOR PROVIDED THAT THE REQUESTOR OBTAIN PERMISSION FROM THE CONTRIBUTING STRANDING NETWORK AND THE NATIONAL MARINE FISHERIES SERVICE.

PAPERWORK REDUCTION ACT INFORMATION:

PUBLIC REPORTING BURDEN FOR THE COLLECTION OF INFORMATION IS ESTIMATED TO AVERAGE 30 MINUTES PER RESPONSE, INCLUDING THE TIME FOR REVIEWING INSTRUCTIONS, SEARCHING EXISTING DATA SOURCES, GATHERING AND MAINTAINING THE DATA NEEDED, AND COMPLETING AND REVIEWING THE COLLECTION OF INFORMATION. SEND COMMENTS REGARDING THIS BURDEN ESTIMATE OR ANY OTHER ASPECT OF THE COLLECTION OF INFORMATION, INCLUDING SUGGESTIONS FOR REDUCING THE BURDEN TO: CHIEF, MARINE MAMMAL CONSERVATION DIVISION, OFFICE OF PROTECTED RESOURCES, NOAA FISHERIES, 1315 EAST-WEST HIGHWAY, SILVER SPRING, MARYLAND 20910. NOT WITHSTANDING ANY OTHER PROVISION OF THE LAW, NO PERSON IS REQUIRED TO RESPOND TO, NOR SHALL ANY PERSON BE SUBJECTED TO A PENALTY FOR FAILURE TO COMPLY WITH, A COLLECTION OF INFORMATION SUBJECT TO THE REQUIREMENTS OF THE PAPERWORK REDUCTION ACT, UNLESS THE COLLECTION OF INFORMATION DISPLAYS A CURRENTLY VALID OFFICE OF MANAGEMENT AND BUDGET (OMB) CONTROL NUMBER.

NOAA Form 89-864 (rev.2004)
OMB No. 0648-0178; Expires August 31, 2007


Steller Sea Lion Haulouts near Kodiak Island
Steep Cape
Malina Point
Noisy
Cape Ugat
Cape Kuliuk
Cape Uyak
Sturgeon Head
Tombstone Rocks
Cape Ikolik
Cape Alitak
Sundstrom
Cape Sitkinak
0 4 8 16 24 32
Nautical Miles
N

Haulout Count
And Steller Sea Lion Brand Resight Form

Page ___ of ___

Date : _____ (mm/dd/yyyy) Location: _____ Latitude/Longitude: _____

Start Time: _____ (hhmm) End Time: _____ Observer Identifier(s): _____

Temp: _____ WS: _____ WD: _____ Precip: _____ Species: _____

CC: _____ Vis: _____ Tide: _____ Surf: _____ Total Count: _____

*** See back of sheet for codes.**

Brand Info.			**Tag Info.**											
Brand	Side	Quality	Tag #	Left	Right	Color	Time	Sex	Age	Dead	RBl	Obsid	Photo	Comment
														2002

Appendix 5. Colony Status Record.

Colony Status Record

U.S. Fish & Wildlife Service

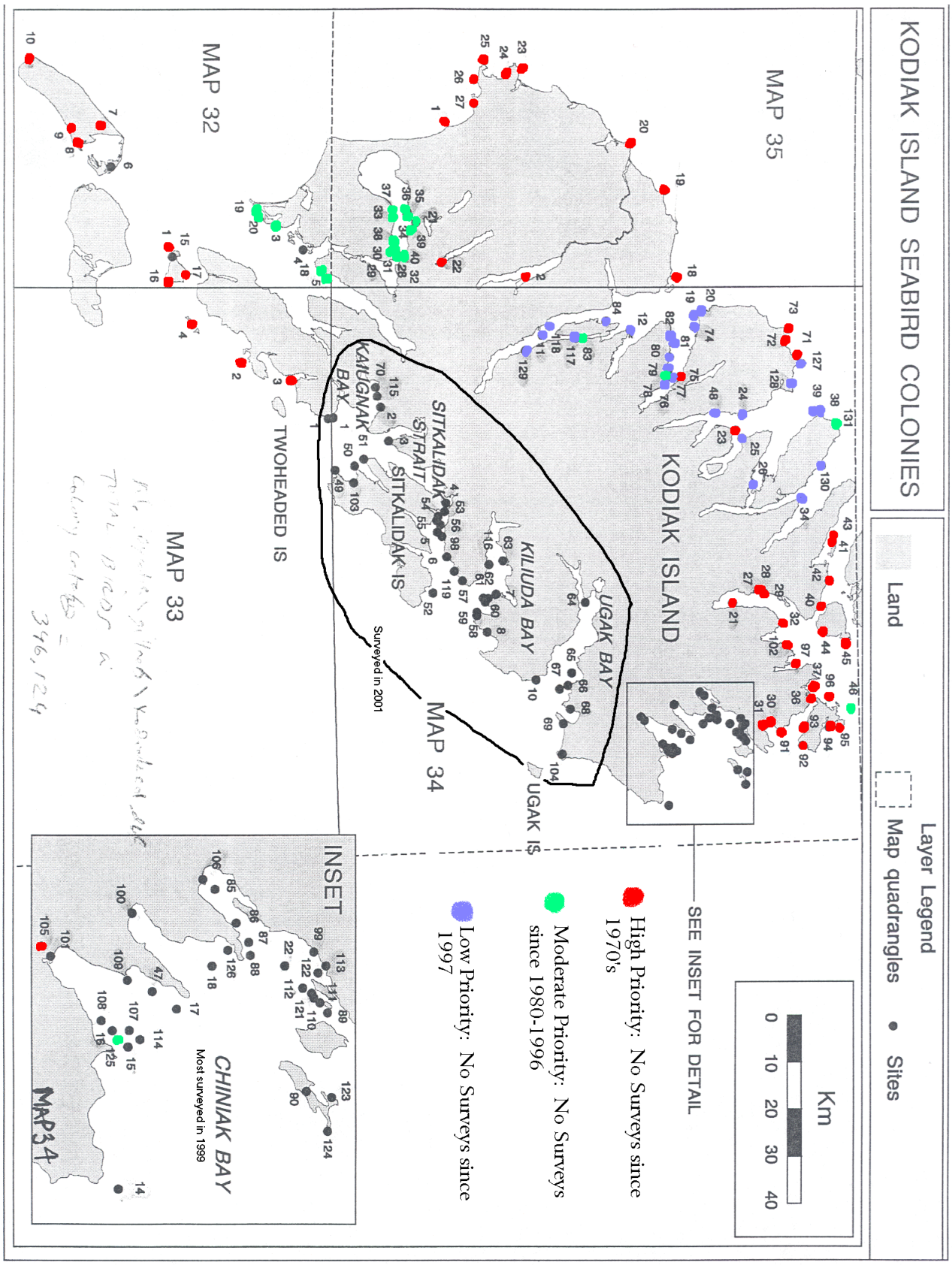
Area Number _____
(To be assigned by office)

Colony Name _____ Observer(s) _____
Date _____ Time _____ Lat. _____ Lon. _____ Map Name/No. _____
Other location data _____

Species	Number of nests/pairs	Number of birds	Breeding status stage of breeding (1)	How counted (2)
Northern Fulmar				
Fork-tailed Storm-Petrel				
Leach's Storm-Petrel				
Double-crested Cormorant				
Brandt's Cormorant				
Pelagic Cormorant				
Red-faced Cormorant				
Cormorant (unidentified)				
Common Eider				
Black Oystercatcher				
Bonaparte's Gull				
Mew Gull				
Black-tailed Gull				
Herring Gull				
Slaty-backed Gull				
Glaucous-winged Gull				
Glaucous Gull				
Black-headed Gull				
Black-legged Kittiwake				
Red-legged Kittiwake				
Sabine's Gull				
Gull (unidentified)				
Common Tern				
Arctic Tern				
Aleutian Tern				
Dovekie				
Common Murre				
Thick-billed Murre				
Murre (unidentified)				
Black Guillemot				
Pigeon Guillemot				
Marbled Murrelet				
Ancient Murrelet				
Cassin's Auklet				
Parakeet Auklet				
Least Auklet				
Whiskered Auklet				
Crested Auklet				
Rhinoceros Auklet				
Tufted Puffin				
Horned Puffin				

(1) Include evidence that species is breeding in colony, and stage (e.g. nest-building, eggs, chicks)
(2) Include for each species: Whole colony or part? Exact count, count by groups, estimate, replicated, etc.?

24


KODIAK ISLAND SEABIRD COLONIES
Land
Layer Legend
Map quadrangles
Sites
MAP 35
MAP 32
MAP 33
MAP 34
KODIAK ISLAND
TWOHEADED IS
KILIUDA BAY
UGAK BAY
UGAK IS
SITKALIDAK STRAIT
SITKALIDAK IS
KATUGNAK BAY
Surveyed in 2001
SEE INSET FOR DETAIL
Km
0 10 20 30 40
High Priority: No Surveys since 1970's
Moderate Priority: No Surveys since 1980-1996
Low Priority: No Surveys since 1997
INSET
CHINIAK BAY
Most surveyed in 1999
MAP34

Attention Beachcombers

WANTED: Sightings of Capelin *(Mallotus villosus)* and Pacific Sandlance *(Ammodytes hexapterus)* on Kodiak Archipelago Beaches

Contact: Susan Payne

Alaska Fisheries Science Center / National Marine Fisheries Service / 301 Research Ct., Kodiak, AK 99615 / (907)481-1719 / susan.a.payne@noaa.gov

Background:

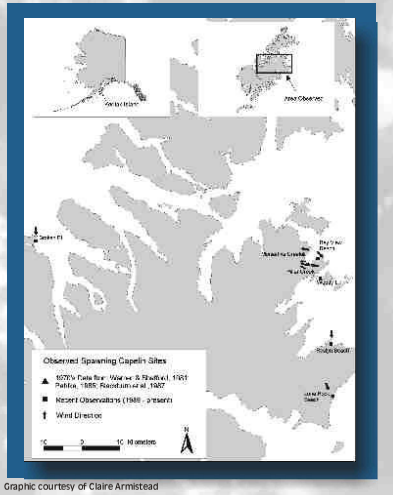
A study is underway to compare hydrographic and astronomical data as well as other conditions surrounding the beach spawning events of capelin and Pacific sandlance.

When to look:

Capelin typically spawn in May and June and Pacific sandlance in the Fall (August-November).

Where to look:

These small schooling fish prefer sandy/fine gravel beaches for spawning such as Roslyn Beach at Cape Chiniak and White Sand Beach and Pillar Creek Beach in Monashka Bay.



Graphic courtesy of Claire Armistead

Capelin being measured for length

Photo by Jan Haaga

What to look for:

Small schooling fish washed up on the high tide line or in the surf. Marine mammals and birds may be feeding heavily. Female fish may be extruding eggs. Male capelin will have a noticeable ridge along their sides. The air may smell of cucumbers.

Please note:

- Beach name and Bay, and if possible, latitude and longitude.
- Date of sighting! Or duration of spawning, if observed over a period of time.
- Time of sighting!
- Tidal stage.
- Local wind direction and cloud cover.
- Animal activity in the area.
- Other pertinent information.

Collect (if possible):

100 fish (any number will do) in plastic bag and freeze. Especially important if species identity is in doubt!

Capelin larva just emerged from egg

Photo courtesy of Joseph Black, Kodiak, AK

Capelin eggs in gravel

Photo courtesy of Joseph Black, Kodiak, AK

Please call immediately:

Susan Payne at 481-1719 or 486-3737

(leave message if unavailable)!

Your assistance is greatly appreciated!

Forage Fish Data Sheet

Page _____

Data collected and entered by _____

Beach Name _____ Latitude ____ ' ____ " Longitude ____ ' ____ " Date / / (m/d/y)

Beach Location _____ Time _____

Forage fish observed _____

Weather (wind direction, cloud cover, etc) _____

Tidal Stage:
Previous tide _____ ft at ____ : Next tide _____ ft at ____ :

Time sampling began ____ : Time sampling ended ____ :

length frequencies? yes / no data sheet #(s)_____

sample collected? yes / no sample # _____

Beach type sand/ course gravel/other

Other marine observations (include animal activity): _____

Please return this form to: Susan Payne, NMFS, 301 Research Court, Kodiak, AK 99615 Phone: 481-1719

Section Five

Health and Safety

Table of Contents

Introduction

The Alaska salmon fisheries operate with smaller boats than most other observer programs around the country. Likewise, Alaska marine environments can be some of the most punishing in the world. Observers hired for this project will complete safety training and will be issued safety equipment prior to deploying for observer work duties, and are expected to be aware of the inherent dangers of that working environment. This manual gives some safety guidelines, and introduces safety and survival topics and should be used as a supplement to your training and common sense. Seek further information, practices drills, understand equipment, and be well aware of your surroundings at all times.

Safety Protocol For Observers

These protocols must be followed by all AMMOP observers

* Observers will not deploy in set gillnet skiffs to perform observer duties.

* Observers may not board a commercial set gillnet skiff for transit or performance of observer duties unless the vessel meets the AMMOP safety checklist and U.S. Coast Guard safety requirements. Boarding to determine if safety standards are met is acceptable.

* Observers may not board fishing tenders or commercial fishing vessels for transit or performance of observer duties that do not display a current USCG safety inspection sticker. Boarding to determine if current sticker is displayed is acceptable.

* Observers may decline to board a permit holder's skiff or other vessel if he/she feels that it is either not a safe vessel or will not be operated in a safe manner and will note on appropriate form.

* If a permit holder refuses to carry an observer, citing safety concerns, the observer will note the refusal in the logbook or on the appropriate form.

* Observers must wear a Personal Floatation Device (PFD - U.S. Coast Guard Approved, Type I, II, or III) at all times when aboard a skiff. There will be a whistle and personal marker light attached to the PFD.

* Observers must carry an immersion suit on board all vessels, including skiffs (unless operating in an immersion-suit-exempted area). There will be a whistle and personal marker light attached to the immersion suit.

* Observers will carry an emergency bag on board all vessels. Items in the bag or on their person will include a PLB, GPS, VHF radio, flashlight, signaling device, and first aid kit.

* Observer skiffs will carry safety gear that includes: VHF radio, flares and day markers, extra PFDs, horn, floating throw cushions,

* When working in the field, observers should always carry these additional survival essentials: map/chart of area, tide/current tables, pencil and paper, whistle, magnetic compass, emergency supply of food and water, extra clothing and rain gear, nylon rope, sunglasses and sun screen, pocket knife, matches or lighter, candle or fire starter, and emergency blanket or tarp.

* Observers will be issued the following additional safety equipment, to be used as appropriate: leather gloves, ear plugs, ear muffs, bear spray, insect repellant, mosquito head net, and wilderness survival book.

* Observers must never camp alone.

AMMOP Safety Checklist For Observers

Observers must not board a skiff or other commercial fishing vessel without meeting these criteria.

The following are **REQUIREMENTS** aboard a skiff or commercial fishing vessel

- ✓ Immersion suit (unless operating in an immersion-suit-exempted fishery/area)
- ✓ Personal marker light
- ✓ Personal flotation device (PFD) (Observer must wear a PFD while on a skiff)
- ✓ Whistle
- ✓ EPIRB (Emergency Position Indicating Radio Beacon)
- ✓ Visual distress signal
- ✓ VHF radio
- ✓ GPS (Geographic Positioning System)
- ✓ Survival kit / First aid kit

The following additional items are **HIGHLY RECOMMENDED**

- ✓ USCG Commercial Fishing Vessel Safety Examination decal (required for observers to board commercial fishing vessels)
- ✓ State registration number or documentation number (USCG requirement)
- ✓ Throwable cushion (USCG skiff requirement. Life Ring Buoy if skiff≥ 26')
- ✓ Fire extinguisher
- ✓ Navigation lights
- ✓ Injury placard
- ✓ Anchor with sufficient line/chain
- ✓ Portable sound producing device (air/mouth horn) (USCG skiff requirement)
- ✓ Oars
- ✓ Spare outboard engine
- ✓ Tide/current tables

U.S. COAST GUARD SAFETY REQUIREMENTS

For State-Registered Commercial Fishing Vessels Inside Three Miles

- **Immersion Suit**** - One CG approved proper size for each person onboard.
- **Personal Marker Light** - Affixed to immersion suit and/or Personal Floatation Device (PFD)
- **Throwable Cushion** - For vessels < 26' one CG approved. For vessels ≥ 26' one ring life buoy (RLB).
- **Visual Distress Signals** - 3 CG approved, day and night visual distress signals or an electric distress light series 46 CFR 161.013 and a day distress flag series 46 CFR 160.072.
- **Fire Extinguishers** -

  For vessels < 26' *if explosive gases can't be trapped* as when there are portable fuel tanks and they are uncovered, no fire extinguisher is required.

  For vessels <26' *if explosive gases can be trapped* as when tanks are installed or portable fuel tanks are covered one B-I CG approved portable fire extinguisher is required.

  For vessels ≥ 26' one B-I CG approved portable fire extinguisher is required.
- **Navigation Lights** - If vessels operate at any time from sunset to sunrise.

  Portable sound producing device (air/mouth horn)
- **Injury Placard** - Posted in highly visible location.
- **State Registration** - Valid original onboard, state numbers displayed on both sides of the bow, minimum 3 inch block style numbers and letters of contrasting color to the vessel's hull with current year dated decal.

Recommended Additional Safety Equipment

- **VHF radio** **
- **Anchor and sufficient line/chain**
- **First aid kit with manual and trained person onboard**
- **Oars**

** *If following an immersion suit exemption, must wear a PFD at all times on the vessel, have a VHF radio, and exemption letter. Check with local USCG for specific area exemptions.*

Small Boat Safety

In this observer program, you will be deployed aboard chartered boats and boats that belong to the government. Skiff operators have been hired to operate the skiffs and the chartered support vessels have licensed crew aboard. You should not be operating these boats except under extreme emergencies where the normal operator is not able to do so. Following is a brief introduction to general small boat safety and operation (in the unlikely event that you are required to operate the boat.)

Preparing for a safe trip

Before getting in a skiff or boat, consider six critical factors. Have a written check list to go over with your skiff operator:

1) **Your boat or skiff.** Know what the boat can and cannot do. Sometimes the best decision is to not make that crossing (when in doubt, chicken out!). Think about what could go wrong and what you would do if it did go wrong (for example, a fouled spark plug, debris in the propeller, a dead battery) Have a plan for these events.

2) **How many people are aboard?** Are there enough PFDs? USCG approved Personal flotation devices (PFD) are required all times! Some flotation jackets (like Stormy Seas jackets) are not USCG approved PFDs.

3) **Where you going?** Discuss the plan for the day, including an agreed upon series of steps to follow if plans go awry, and help the skiff operator complete the float plan. The skiff operator is responsible for filing the float plan with the lead observer. Know the nearest, best shelter from any point you may be in your travel, and those places should be known by all. If you are stranded, do you have enough gear to stay dry and warm?

4) **The environment.** Listen to weather forecasts and know the tides and currents. In most of Alaska, there are no published current tables, and you will rely almost solely on local knowledge. Tides tables are published and you should have a copy (or two). Winds are likely to change quickly without prediction. Get advice from anyone that knows the area, treacherous places, routes, and weather. Make notes and share information with others.

5) **Equipment.** Personal survival kits in a small waterproof container can save your life.

6) **Dress for the conditions.** Wear synthetics like polypropylene and polar fleece, or wool; which retain heat when wet--essential for cold water boating. Avoid cotton. You will lose body heat quickly to wet cotton. Sitting still for hours can get cold, but standing or moving around may not be safe in a small skiff. You need to dress warmer than the fishers, who are more active while picking nets. For added safety, wear bright colors so you are as visible as possible.

Boating procedures

Know these things about the boat:
- How to start, stop and steer the boat.
- How to shut off the fuel supply.
- How to use the anchor.
- Where the fire extinguishers are.
- How to use the EPIRB.
- How to recover on overboard person.
- Where the first aid kit is.

Preventative maintenance (before any trip)

Skiff operators are responsible for the following, but it would be wise for observers to be aware of these as well:

- Fuel: 1/3 to get there, 1/3 to get back, 1/3 to spare. Check the fuel tank, lines, and shutoffs for leaks test them. Secure portable fuel tanks. Give the boat a "smell test" for fuel odors. If you smell fuel–find the problem.

- Battery: secured and in place with no loose connections. Check for corrosion.

- Wiring: The most common cause of breakdowns is electrical problems. See that wiring is secure and in place. Keep electrical connections free of corrosion by using WD40. Test the bilge pump, all gauges, and visually check lights.

- Engine: visual inspection for leaks; check, fuel lines, wiring,, steering, propeller

- Hull: Check for plugs, lighting, scratches and dents, and water under the floor.

Boarding

Before leaving dock, have an undocking plan that you discuss with passengers. You should consider the direction of wind and current and the depth of the water. Do not assume that everyone onboard has the same boating experience that you have. Follow these guidelines:

- Never walk around on a boat without holding on.
- Enter a small boat by stepping into the center.
- Hand equipment into the boat, do not try to carry it aboard as you enter.
- Distribute the load evenly fore and aft and from side to side.
- Check the boat's capacity plate.
- Don't overload the boat; it will reduce stability and make capsizing more likely.
- Maintain a proper lookout. A proper lookout can avoid surprises. Assign a person to act as a lookout.

To comply with Federal law, every boat has a capacity plate that displays the maximum weight of persons aboard in pounds, the maximum carrying weight of the boats in pounds, and the maxi-

mum horsepower recommended for the boat. They are the limits during normal operating conditions. In rough weather, a lighter load may be needed.

Overloading will cause the boat to be unstable. Balance the load for proper trim. Overloading the side will cause a list. Too much bow weight will make the boat plow, too much in the stern will show by making a large wake. In any case, the boat will be unstable and difficult to handle.

Make sure that your engines have run for a few minutes and that they are warmed up before casting off lines. (Long idle periods are not recommended.) Also, check other items on your predeparture check list prior to leaving the dock.

With outboard engines, look to see if the cooling system is functioning. Most outboards circulate water through the exhaust system and have an outlet stream above the water line.

WHILE UNDERWAY

You have a responsibility to know all you can about any boat used by the program. This applies to riders as well as drivers. Practice maneuvers and plan for emergencies before they happen.

- In a powered vessel, you must give way to non-motorized vessels; vessels that are actively fishing, and vessels with limited maneuverability (tugs and barges).

- If you meet a powered vessel head on, pass port to port if possible. One short blast of a signaling device shows this intent, and the signal should be returned. If not, two short blasts request that you will pass starboard to starboard.

- If vessel meet at right angles, the vessel to the right (stand-on vessel) continues course and-peed. The other vessel gives way (give-way vessel), and should take action to pass the stand-on vessel on the stern.

- Navigation lights show green to a vessel on your starboard side, indicating it is the stand-on vessel. You will see the red lights of the port side of the stand-on vessel--give way.

- During restricted visibility, such as fog, a sound signal should be given as one prolonged blast every two minutes. All boats must carry a sound device such as a horn or whistle.

- Have a chart and GPS receiver available so you always know where you are. Plan for changes in wind and weather, and consider the tides and currents. Wind against current will produce standing waves, slowing your progress and giving a rough ride.

- Leeway is when wind or currents push you off course, although your bow is pointing to a specific heading. You can tell is you are experiencing leeway if your wake is off to the side, not directly behind. Compensate by steering into the wind or current.

- Channels are marked with red and green buoys or fixed devices. A rule to remember is "Red, Right, Return": red channel markers are on the starboard when returning from sea.

- Navigation aids are shown on charts. For example, a notation on a chart such as G "9" Fl G 4s describes a buoy (the lettering is in italics) that is green (G), marked "9", that flashes a green light every four seconds (G FL 4s). NOAA chart number 1 is the legend for nautical charts, and can be obtained for free (also on the internet).

ANCHORING

Slowly release anchor while facing into wind (anchor is on bow, never on the stern). Make sure that it is releasing tangle free while allowing vessel to drift downwind with the motor in neutral. When about 1/3 is out, tie it off and allow the anchor to dig in. Release more line to achieve the desired scope (rope 10 times the minimum water depth, chain 5 - 7 times the minimum depth). Raise the outboard so that it doesn't tangle with the anchor line. Check for a dragging anchor.

DOCKING

Practice docking so that your first time is not under adverse conditions. Have a re-docking checklist. Prepare the lines, fenders, and gear well before reaching the dock, and then approach low angle. Shift to reverse to slow quickly, if necessary.

Figure 1. The "HELP" Position

IF A PERSON GOES OVERBOARD

Whoever first sees or hears someone go overboard should shout "man overboard (port or starboard)". This person should become the spotter and continually point to the person in the water until the boat is safely alongside. Try not to lose sight of the person overboard.

Turn quickly toward the side the person fell over and stop the boat. Turning toward the person will push the stern and propeller away. Immediately throw a life saving device toward the person so they will have some assistance in keeping afloat. Your type IV throwable flotation device should always be immediately accessible and within reach of the helm.

- Slowly turn the boat and make a gentle turn keeping the person in view.
- Approach the person slowly into the wind or current.
- When the person is alongside turn off the engine.
- Get the victim on board as soon as possible.
- Treat them for hypothermia–assume hypothermia and treat for it.

CPR may be necessary, followed by treatment for hypothermia. Reduce further heat loss, treat the victim gently, and apply heat to the core of the body.

First Rule of Recovery: Do not become a victim yourself! Stay in the boat and reach for the victim (Reach, Throw, Don't Go!) . It will be very difficult to get the victim back in the boat–you may have to signal for help and try to keep the victim as much out of the water as possible while

others come to help in the recovery. Don't let the victim pull you in the water–it is recommended that you use line, throwable items, or other implements to decrease the chance that a panicked victim pulls you in. If the victim is between two vessels, keep the vessels apart.

Adjust the weight to keep the boat trimmed and help the person aboard. You may have to pull them over the stern. It may be possible to recover an overboard victim by grabbing their clothing under the arms, bouncing them down into the water (don't submerge the head), then pulling aboard by stepping or leaning back in the boat.

If there two rescuers in the boat, one should grab the wrists of the victim and guide their hands to the boat, then grasp them under the arms and raise their torso to the boat. The other persom can then grasp the knee, getting it over the rail and roll the victim into the boat.

Dangers at Setnet Sites and Camps

- Use caution boarding skiffs, which can shift unexpectedly from loading and waves. Stay clear of propellers (even if the engine isn't running).
- Be cautious near lines and around nets that lead to anchors or land. Always tie off the boat.
- Keep gear well above the high tide line, and secure it if unattended.
- Be aware of the tides and don't attempt to cross mud flats.

Fishing Vessel Safety

During training, you will learn about safety and survival procedures and practice drills. However, training alone will not be enough. It is up to you to learn as much as you can about the general emergency procedures for all vessels and the procedures particular to your assignment.

Fishing Vessel Safety Requirements

Your assigned vessel may operate beyond the Boundary Line (an imaginary line drawn from points of land), and therefore be subject to equipment regulations that do not apply to the same size vessel and crew within the boundary. These regulations are published in the Code of Federal Regulations (CFR) Title 46, and are available at USCG offices and in your training.

When you board a vessel, the safety regulations mandate that you receive a safety orientation. This may be as simple as showing you around; but may include watching videos, donning immersions suits, or conducting drills.

An important item to check during, or before, the orientation is the **Commercial Fishing Vessel Safety Examination decal** (figure 2). The U.S. Coast Guard operates a free vessel inspection program to assure that a vessel's safety equipment meets Coast Guard standards. Though the program is voluntary, Federal regulations mandate that any vessel "required to carry an onboard observer" will "provide proof of compliance with U.S. Coast Guard vessel safety requirements" (See Regulatory Compliance in Section 1). Upon successful completion of the exam, the vessel is issued the decal that certifies the vessel's compliance with Coast Guard requirements. The inspection is valid for two years from the date (month/year) marked.

It is important to remember that the safety decal is simply an indicator of the vessel's safety at the time of inspection. The person ultimately responsible for your safety is you. Use the checklist on pages 5-4 to 5-5; and for larger boats, the checklist on page 5-11 as a guide to do your own inspection of the vessel Be aware that only a large boat with more than 16 individuals would be subject to all the regulations. Check these things before you leave port. After departure, you may be seasick; and an emergency is possible at any time.

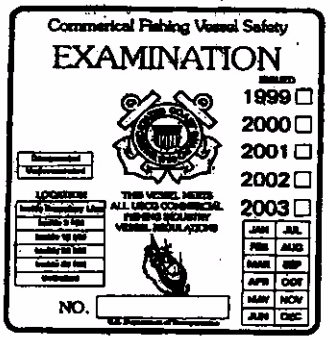


Figure 2. Commercial Fishing Vessel Safety Exam Decal

Owners and operators of fishing vessels may not be aware that a Safety Examination is required. It is a voluntary program for most boats, but is a requirement for vessels that carry Federal observers (and ADFG observers). The USCG, NMFS, and observer providers strive to make vessel operators aware of these requirements. The Coast Guard has conducted Safety Examinations in the field to help vessels meet requirements. Not having a valid decal, or any of the required safety equipment, is cause for an observer to NOT board a vessel, and will be treated similar to any vessel that refuses to take observers. This is a violation of the MMPA and the Magnuson-Stevens Act, and will be forwarded to the NMFS Alaska Enforcement Division. Document any conversations or events, and do not assume that tickets or fines will be issued–our goal is to randomly place observers on safe vessels, with cooperation of the fleet.

In some areas, exemptions to the commercial fishing vessel safety requirements have been made. For example, setnet skiffs less than 26 feet, operating from Ouzinkie Channel south to Rocky Point (this includes Uganik and Uyak Bays) are not required to have immersion suits if they stay within 1.5 miles of shore and wear PFD's at all times.

Guidelines Aboard Small Commercial Vessels

In this observer program, you will be boarding a variety of small vessels. Always orient yourself when boarding a new vessel.

- Stow gear away and keep the work area free of clutter.
- Gillnets in motion will snag rings, other jewelry, clothes with exposed snaps, buttons, buckles, loose cords or flaps. If you are on a driftboat, don't get near the net or try to remove items while the drum is turning or the gear is setting. Know how to stop the drum.
- Don't sit on the roof or bow where you cannot be seen.
- Don't impede the visibility of the person at the wheel.
- Avoid transferring between vessels as much as possible. Do not transfer in rough weather. ALL parties must believe it is safe to transfer. One person should be in charge a guiding the transfer and the communication between boat operators, crew, and observer should be established and clearly defined before proceeding.

VESSEL SAFETY CHECKLIST

1	Any fishing vessel	Check for safety inspection documentation. A USCG Commercial Fishing Vessel Safety Examination is required on fishing vessels that carry observers.
2	Larger vessels	Find the station billet (commonly called the station "bill"), a posted placard describing the role of all hands on board in an emergency.
3	Vessels > 36 ft	Locate life rafts. Are you assigned to a particular one? Check the service dates and capacity displayed on the canister.
4	All fishing vessels (some exempt)	Immersion suits/life preservers - where are the survival suits and PFDs located? Are there enough for everyone on board? Are they accessible at all times? Keep yours where you can get to it in a hurry. Your cabin is recommended, but you may have limited space.
5	Vessel > 26 ft	Life rings. Where are they? Are they accessible?
6	All vessels	Flares–where are the flares located? Check the expiration dates.
7	All outside of 3 miles	EPIRBS–Where is the Emergency Position Indicating Radio Beacon? Is there more than one? Read the instructions.
8	Vessel > 26 ft	Fire extinguishers–where are they? Are they accessible, up to date and charged?
9	CPR, 1st Aid if > 3 persons	First aid materials–where are first aid materials kept? Is there a reference book on board? Who in the crew has had first aid and CPR training?
10	Larger vessels	Radios–where are the radios? Are emergency call instructions posted nearby? Do you know how to operate the radio for an emergency call?
11	Larger vessels	Are there emergency instructions for, and did you get a safety orientation on: survival craft embarkation stations/survival craft assignments fire/emergency/abandon ship signals immersion suits (survival suit locations and donning instructions) procedures for making a distress call procedures for rough weather at sea procedures for anchoring procedures for recovering a person overboard procedures for fighting a fire
12	Larger Vessels	As you walk through the vessel, make yourself aware of potentially hazardous areas. Identify the watertight doors, both on the interior and the outside–can they be secured in case of heavy weather or other emergencies? Are any hatches or passageways blocked or difficult to access? Ask the skipper what the general alarm sounds like, and if he will test it.

Emergency Preparation

If there is a problem, follow the instructions of the skipper. As master of the vessel, the skipper is responsible or the safety of all aboard. It is imperative that you are familiar with the safety equipment and emergency procedures of any boat. Required safety equipment MUST be present, otherwise you should not be aboard. Emergency procedures may not be clear or established, in which case you need to establish them. Discuss them with the vessel operators. If they don't seem to share your concern about safety–discuss them anyway. You are a guest on their boat, and need to be informed about emergencies. Some salmon fishing vessels (gillnetters) are operated by one person, making your role on safety very prominent.

Some safety regulations apply to certain sizes or classes of vessels. Fishing vessel safety regulations are more complex on vessels with more than 16 persons aboard. In this observer program, it is unlikely that you will be on a fishing vessel of that size. Fishing vessels with three or more persons must have someone aboard that is certified in First Aid and CPR. Because you may be the third person on what is usually a two person vessel, this program requires that you have a current First Aid and CPR certification. Of course, it is a good idea regardless of the safety regulations and is a requirement to be an observer in this program.

Emergency Procedures

On larger vessels, there may be posted placards that describe the procedures for specific emergencies. In addition, drills and instruction must be conducted involving each individual at least once a month. Each person on board who has not participated in the drills and instruction must be given a safety orientation before the vessel is underway.

You should get a safety orientation on any boat that you board, no matter what size. Use the checklist and find the listed required equipment. You should ask about, and take every opportunity to learn or review safety and survival procedures.

Other good sources of information about safety and survival include the Vessel Safety Manual, by the North Pacific Fishing Vessel Owner's Association; or Alaska Sea Grant's Beating the Odds On the North Pacific. They are written for the North Pacific Area, and sometimes found aboard larger vessels. They are good sources of information on many sea safety and survival topics, including some that you will learn in training. Ask to see these books at the North Pacific Fisheries Observer Training Center. "Beating the Odds" and other Sea Grant publications are available for purchase.

Abandon Ship

Never give up your best shelter unless it not as good as your alternative. Boats have been abandoned too soon, costing unnecessary loss of lives. If you do abandon, stay near the boat as long as possible. It is your last reported position, a bigger search target, and it may be possible to reboard if it doesn't sink. Keep the raft tied to the boat and be prepared to cut it (there is a knife in a sleeve by the entrance). Of course, a boat on fire may be a threat to a raft, and you should try stay near using the paddles from the emergency kit. In an immersion suit, hang on to the boat,

maybe climb up on the hull if it is overturned. If it sinks, make sure you are safe from any entanglement with the boat. It is a myth that a sinking boat will pull you down in its wake.

Fire

It often takes more than one fire extinguisher to put out a fire. Know where all fire extinguishers are, and get them at the first sign of fire. Be ready to back up another person who is using a fire extinguisher. Aim low and use a sweeping motion. Keep your head low to avoid smoke. Fire extinguishers have several classes. An ABC fire extinguisher is appropriate for most fires. Resist the urge to abandon ship in a fire. Get out the immersion suits and raft, stay upwind and out of the smoke if possible, and be prepared to abandon.

Flooding

Your role in a flooding emergency is probably limited to standing by, with an immersion suit. Consider that anything that can at least slow down, if not stop, water from coming in, it will be to your advantage. The USCG can deliver pumps by aircraft to vessels in trouble.

Grounding

Mistakes are made, and grounding doesn't usually result in injuries or fatalities. Injuries can occur due to a sudden, unexpected stop. Before you pull off the obstruction, check for hull and propeller damage. If on bottom, check the tides–you may get lucky and float off. Stay in shallow water until you are confident in the boat's integrity.

Emergency Equipment

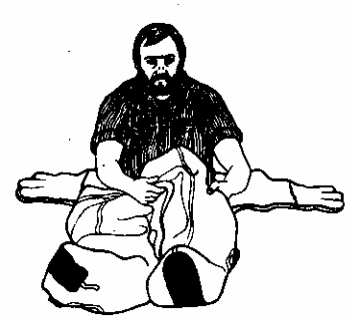
Personal Floatation Devices

A common element of the majority of boating fatalities is the lack of a Personal Floatation Device (PFD). They are designed to provide flotation and keep your head and neck high out of the water, reducing the exposure of heat loss areas to water. A USCG approved PFD is required for all aboard, and is required of observers in any skiff or during transfers. A type V PFD meets the requirement only if worn. Look for the USCG certification on your PFD. Some PFDs, such as Stormy Seas brand inflatables, are not USCG approved. There are several brands of inflatable PFDs available that are USCG approved. You will be provided with a Type III PFD, which MUST be worn at ALL times aboard any vessel while you are deployed.

Immersion suits

An immersion suit is required for everyone aboard a vessel that operates in cold water. There are different brands and styles, but most are made of neoprene. There is a "universal" size, and other sizes are available. You will be provided one by the program for assignments where they are required, and can take one where they are not required if you choose to. Be sure that you can find your suit and put it on in less than a minute, even in the dark. They should be stored in an easily accessible place that you can get to in the dark. The suits should have a working zipper (add some

Donning an Immersion Suit

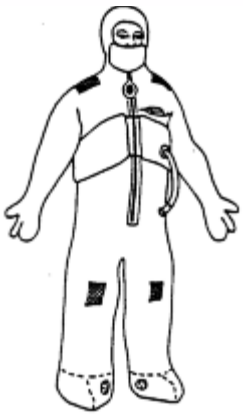


Sit on deck and work your legs into the suit. You may have to remove your boots to do so, but plastic bags over them may help your legs slide in easier.

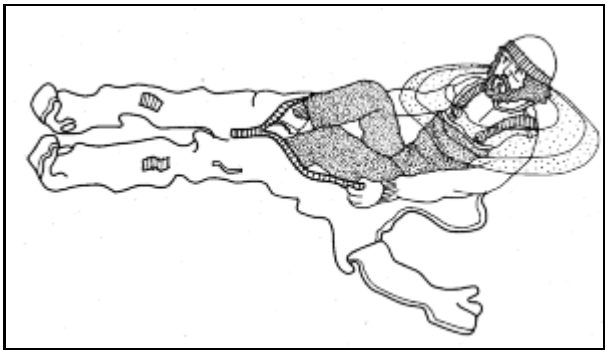
Place your weak arm in first, then pull the hood over your head (or hood first, then weak arm). If you have long hair, make sure that it is safely tucked in the hood. Then place your stronger arm in the sleeve.

Holding the zipper below the slide with one hand, lean back to straighten the zipper and pull the lanyard with the other hand. Secure the face flap. Do not inflate the air bladder until you are in the water.

Jumping in the water is the last resort. Ease yourself into the water if possible. If jumping, protect your head and keep your feet together to protect from floating debris.



If you are already in the water, it is much more difficult to put on an immersion suit. In cold water, it may not be possible to get in the suit before hypothermia sets in. The general technique is to lay on or straddle the suit, then move quickly to get both legs in at once, with the feet all the way to the bottom. Once the legs are in, arms and head will be a little easier. Loss of body heat will quickly make your hands non-functional, and you will be mentally slow and disoriented. You should use the "HELP" position if there is any chance of being rescued quickly and avoid the increased risk of hypothermia.



wax to lubricate), a whistle, and a signal device such as a strobe light attached. You may also consider attaching your PLB.

Life Rafts

Any vessel that operates offshore will have enough life raft capacity for all aboard. Many salmon fishing vessels are not required to have them. If present, life rafts are stored in canisters that allow them to float free and automatically inflate if the vessel sinks. It is much better to manually launch and inflate the raft if there is time. Know where the rafts are stored, how to remove them from the cradle, where to launch them, and how to inflate them.

Pay special attention to the hydrostatic releases that are often used to secure the life raft canister to the cradle. They are not required if the raft is not attached to the cradle and it can float free. You should determine how to release the canister manually, and if the hydrostatic release is correctly mounted. It should be dated, and not expired.

The release should let the canister free.

The painter line (goes in the canister and is attached to the inflation trigger) should stay attached to the boat by a weak link.

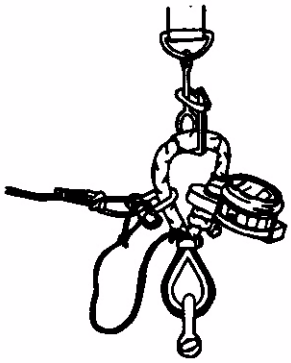


Figure 3. Hydrostatic Release

The weak link is a low breaking strength material, such as a polastic ring, a red cord, or soft metal, that will break and prevent the sinking boat from pulling the raft under.

If the function of the hydrostatic release and raft is not clear to you, ask for guidance. You may be doing everyone a favor by finding a dangerous mistake

EPIRBS

Emergency Position Indicating Radio Beacon: A vessel that operates outside of 3 miles will have at least one EPIRB mounted in a float-free bracket that will be automatically activated in case of sinking. The signal is received by satellite, and in 406 mHz models, will identify the sender. It is important to know where the EPIRB is mounted and how to activate it manually. In case of an abandon ship emergency it is an item you want to take with you. Someone will be assigned that duty on the station bill. Be sure to locate the EPIRB(S) on your vessel and read the directions on how to activate them. An EPIRB should be tested, and the test logged, on a monthly basis.In addition to the EPIRBS owned by vessels, you will be issued a PLB or personal locator beacon, which also operates on the 406 mHz frequency. Be sure to know how to test and operate the PLB. Instructions are in the appendix of this manual.

The Seven Steps to Survival

The Seven Steps to Survival were developed by the U.S. Coast Guard from personal accounts of those who survived emergencies. Committing the seven steps to survival to memory should be one of your goals in learning how to survive the marine environment.

Recognition

This step should be taken the moment you board a vessel--an inherently dangerous environment. Become familiar with normal operations on a vessel, and then reassess anytime the situation changes. In the event of an emergency, you must quickly recognize the seriousness of the situation and that your life is in danger. Hesitation or denial may cost your life, especially in the harsh environment of Alaska. When the situation changes (boarding a raft or reaching shore, for example), the "Seven Steps" begin again with recognition of new dangers and things that may help protect you against them.

In shore survival, recognition of the dangers you face is an important first step. You need to prepare for the unexpected, and the worst case scenario. Although you are probably better of than on the water, being on land adds another set of dangers to consider. Water is still your enemy and will cause hypothermia. Rain, fog, and waves can contribute to how wet you are, and prolong your exposure by impeding your rescue. Wind, tides, and animals are some of the possible immediate threats that you should consider.

Inventory

Stop and assess the situation. Decide what will help you and what will hurt you. Inventory equipment, weather, your skills, injuries, and your mental condition. Doing so will help you to make good decisions that will help you survive. Inventory should be reassessed each time you recognize a change of situation.

On shore, inventory injuries and the health of all individuals. Inventory what is available in the area. Everything you have is important. What may have been trash before is now a possible contributor to your survival. Something as simple as a piece of plastic may make the difference to save lives! The Inventory step builds confidence by showing that you have the means and desire to survive. Find out where you are, consider where to make effective signals (a high rocky outcrop, a wide beach, on top of a hill) and collect anything that may be useful for shelters and signals. Look along the shoreline for man-made debri and inventory what kinds of natural items are present. Never let anyone travel alone–you cannot risk additional victims, and two persons are much less likely to encounter tragedy than one.

Survival kits: A personal survival kit can take up very little space in an immersion suit while greatly enhancing your ability to survive. The items to include in your kit should enhance your ability to address the issues of shelter, signals, fire and personal medical needs. Items such as a knife, dental floss (a strong multi-purpose line), plastic garbage bags, matches, signal mirrors, a compass, small flares, or a space blanket are small items that fit in a zip-lock bag and could save your life.

Comfort Kit: A comfort kit contains a more extensive inventory than a personal survival kit. The items in it should more broadly cover issues raised in the Seven Steps to Survival such as emergency water and food supplies, a first aid kit or a radio. Vessels may have an emergency bag stored and a person named in the station bill to bring it.

SHELTER

Your biggest enemy in Alaska is the cold. Your primary shelter is your clothing. Secondary shelter is anything that further protects you against the loss of your body heat such as an immersion suit, a raft, or an overturned vessel. Water can take heat away from your body much quicker than air, so shelter also helps you keep as dry as possible. High heat areas, including the head and neck, need to be protected most.

In clothing, the air spaces between cloth fibers provide insulation. When cotton cloth absorbs water, it is held in the interstitial spaces between the fibers, rendering it useless as insulation. Therefore cotton, although very comfortable, offers little protection in a damp environment. In contrast, when wool or polyfiber clothes absorb water, the fibers hold the water. This leaves the interstitial spaces, which provide the clothing's insulation, intact. Consider wearing clothes made of wool, polar fleece, or polypropylene. Wool pants and sweaters that cost about $5 in a thrift store could make the difference between life and death. If they are too warm to wear for work, keep them with your immersion suit. Polar fleece, polypropylene, and similar synthetics cost more, but dry quickly and are well suited for many outdoor pursuits beyond your work as an observer.

On shore, shelter is your first priority. You need to start building shelter as soon as you reach shore (maybe some crude signals can be made first). The shelter needs to be small to be warm, as watertight as possible, and close to your signals so that you can tend them. It is usually best to try and take advantage of naturally occurring items, such as downed logs, rocks, or cliffs. These offer some protection from wind and weather immediately, and have some inherent strength to build upon. Cut green evergreen boughs can provide you with insulation from the ground as padding, and can be piled enough to make effective rain shelter by leaning against objects. Look for water runoff patterns and avoid depressions that may collect water. You may never be totally dry, but you will be warmer and drier than outside! Look around the shore and beach for manmade materials that may improve your shelter, your signals, or to collect water.

SIGNALS

Anything that attracts attention and conveys a message is a signal. Radios, EPIRBS, and flares are signals carried by vessels.

Radios: The emergency frequencies are Channel 16 on VHF radios and 2182 kHz or 4125 kHz on single side band radios (SSB). VHF radios are short range and SSB radios are for long range communications. Near the radios, there will be a placard posted that describes MAYDAY calls. Be familiar with what constitutes a proper MAYDAY call. Vessels are required to monitor the emergency frequencies at all times. If you hear a MAYDAY call on the radio, listen carefully and take notes. Inform the person on watch and be ready to respond to the call if the Coast Guard does not. (Information about radio use is in the Appendix)

Flares: The vessel will have flares and/or smoke signals stored in the liferaft and other locations on the vessel (most likely the wheelhouse). Each type, either hand held, rocket, smoke flares, etc. will have instructions for use printed on its canister. If you see a flare launched at sea, inform the person on watch immediately.

Other Signals: Anything that makes you bigger or brighter is a signal. Immersion suits have lights attached. You may have a signal mirror in your personal survival kit. If abandoning ship, anything that can be tossed overboard may help an aircraft spot your position.

In a shore survival situation, three of anything (fires, buoys, immersions suits on the beach) is an internationally recognized distress signal to show distress. Three fires, three piles of trash, or three immersion suits laid out are some examples of effective signal–they need to be seen, and they need to convey a message. If you make an "SOS" on the beach, use a large (16:1) ratio of the letter height to width so that it can be read from low angles by aircraft. Gathering man-made debris, especially brightly colored plastics, make your search target bigger and brighter for a party that is searching for you. If passing boats or planes see piles of debris, three fires, or overturned boat on the beach hopefully they will recognize that this is out of the ordinary and investigate.

Fire starting is an art they may be critical to your survival. Waterproof matches and disposable lighters should be in everyone's personal survival kit. A 9 volt battery and steel wool makes a hot fire starter. Steel scraped on magnesium strips makes sparks, and several types of fire starters are commercially available. In high rainfall areas look for standing dead wood as opposed to downed wood that may not burn well. Dry driftwood usually burns well Practice making fires when you have spare time and know the local items that easily burn. Try rubbing sticks and making fires with sparks–an interesting contest when it is for play, and a skill that could save you life!

WATER

It is recommended that humans drink two liters of water per day to stay healthy. You can live without water for only a few days, and will suffer dehydration from the onset of any abandon ship emergency. Life rafts have limited rations of water, but it is advised to gather as much as possible before abandoning ship, if time permits. Have a strategy for gathering extra water in an emergency. Never drink seawater or urine. Water from most surface sources in Alaska are reasonably safe to drink. It is always best to treat water for Giardia, the most common problem in Alaska, if possible. Boil, or have water purification tablets or gear in your personal survival kit. A one minute boil will kill Giardia cysts, 20 minutes will kill viruses and bacteria. Rainwater is always safe. Devise means of collecting it and be prepared–in Alaska, it will likely rain soon!

FOOD

A person can go without food much longer than without water. Never eat food without water-- your body will rob itself of water to digest food. Life rafts are supplied with limited food rations. In a shore survival situation, many types of edibles can be found near shore. Almost any animals or leafy green plants in the inter-tidal zone are edible (Desmarestia ligulata is brown and not recommended). Learn some of the edibles in your areas. Avoid mussels or clams, they may cause paralytic shellfish poisoning; and snails may contain toxins as a natural defense mechanism. You should familiarize yourself with edible wild foods in the area that you will be working. Almost any type of berry (salmonberry, blueberry), chickweed, goosetongue, beach asparagus, and seaweeds (ribbon, brown,

fucus, bull kelp) are edible pants you should learn to identify. A good source of information is Surviving on the Foods and Water from Alaska's Southern Shores, by Dolly Garcia, UAF Marine Advisory Bulletin 38.

Play

Studies have shown that mental attitude makes a positive difference in a survival situation. Play is anything that keeps you occupied and prevents your mind from dwelling on the difficulties you are facing. Play could be reading, telling jokes or stories, completing a task, improving your shelter and signals, finding food and water--anything that keeps your mind active and focused on life. The will to survive has been shown to be a major contributor to surviving incredible circumstances.

Personal Health and Safety

Fatigue

The potential for fatigue is high in this job. You will be sitting for long hours watching nets, and be fairly inactive. Warm, sunny weather while rocking and back and forth will make you sleepy. This is certainly an issue about getting your job done, but is also a safety issue. Both you and the crew may be tired and more careless, less attentive, and a liability to themselves and others.

"Boater's hypnosis" is the fatigue from exposure to noise, vibration, sun, glared, wind, and motion that occurs while on the water.

Another factor is sleep loss. Most people have reduced alertness and stamina between 2 a.m. and 6 a.m., the time in which they are usually sleeping. Disruptions in your sleep cycle have a large effect on your mood. We become more irritable, depressed, and unable to concentrate and make decisions. These effects tend to be more sporadic than continuous. Reaction times are also slowed-- a dangerous thing around moving gear and boats.

The best solution is to sleep. Five to twelve hours of uninterrupted sleep will recover most people from sleep deprivation. Rest up before an extended work period. Have your gear and supplies prepared well in advance so you have the last 12 hours free to rest and sleep. Naps can be beneficial (especially during what is usually your sleep time). Eat well, and include food high in protein, carbohydrates, and fat. Avoid foods high with high sugar content which cause a quick rise in blood sugar, then a rapid fall that makes you feel tired.

To increase productivity:

- Exercise to increase circulation and and your oxygen supply.
- Listen to music (but do not compromise your safety by drowning out sounds)
- Splash cold water in your face, chew gum, drink soda, stand, change your position
- Drink plenty of water and eat well.

Sea sickness

You need to have some seasickness medication. You will be on smaller boats than you may have experienced in other observer programs, and there will limited opportunities to buy medications. A small investment in over-the-counter motion sickness is well worth the expense. But types that do not cause drowsiness. Dramamine II and Bonine are two of many brands available.

Animal Safety

Wildlife interactions can be dangerous. Do not approach or feed wildlife. Do not leave soap, food, toothpaste or other tasty items in tents or campsites. Stow these items appropriately--away from where you sleep.

The Essentials for Traveling in Bear Country

(Source: ADFG)

Bear Behavior

One of the things that makes Alaska so special is that all three species of North American bears flourish here. There is a chance that you may be lucky enough to see a bear. But even if you don't, you will never be far from one, because Alaska is bear country. Brown/grizzly bears are found from the islands of southeastern Alaska to the arctic. Black bears inhabit most of Alaska's forests. Polar bears frequent the pack ice and tundra of extreme northern and western Alaska.

Bears are curious, intelligent and potentially dangerous animals, but undue fear of bears can endanger both bears and people. Many bears are killed each year by people who are afraid of them. Respecting bears and learning proper behavior in their territory will help so that if you encounter a bear, neither of you will suffer needlessly from the experience.

Most bears tend to avoid people. In most cases, if you give a bear the opportunity to do the right thing, it will. Many bears live in Alaska and many people enjoy the outdoors, but surprisingly few people even see bears. Only a tiny percentage of those few are ever threatened by a bear. A study by the state epidemiologist showed that during the first 85 years of this century, only 20 people died in bear attacks in Alaska. In the 10 years 1975-85, 19 people in Alaska were killed by dogs.

Most people who see a bear in the wild consider it the highlight of their trip. The presence of these majestic creatures is a reminder of how privileged we are to share some of the country's dwindling wilderness.

Bears and People

Bears Don't Like Surprises! If you are hiking through bear country, make your presence known — especially where the terrain or vegetation makes it hard to see. Make noise, sing, talk loudly or tie a bell to your pack. If possible, travel with a group. Groups are noisier and easier for bears to detect. Avoid thick brush. If you can't, try to walk with the wind at your back so your scent will warn bears of your presence. Contrary to popular belief, bears can see almost as well as people, but trust their noses much more than their eyes or ears. Always let bears know you are there.

Bears, like humans, use trails and roads. Don't set up camp close to a trail they might use. Detour around areas where you see or smell carcasses of fish or animals, or see scavengers congregated. A bear's food may be there and if the bear is nearby, it may defend the cache aggressively.

Don't Crowd Bears! Give bears plenty of room. Some bears are more tolerant than others, but every bear has a personal "space" — the distance within which a bear feels threatened. If you stray within that zone, a bear may react aggressively. When photographing bears, use long lenses; getting close for a great shot could put you inside the danger zone.

Bears Are Always Looking for Something to Eat!

Bears have only about six months to build up fat reserves for their long winter hibernation. Don't let them learn human food or garbage is an easy meal. It is both foolish and illegal to feed bears, either on purpose or by leaving food or garbage that attracts them.

Cook away from your tent. Store all food away from your campsite. Hang food out of reach of bears if possible. If no trees are available, store your food in airtight or specially designed bear-proof containers. Remember, pets and their food may also attract bears.

Keep a clean camp. Wash your dishes. Avoid smelly food like bacon and smoked fish. Keep food smells off your clothing. Burn garbage completely in a hot fire and pack out the remains. Food and garbage are equally attractive to a bear so treat them with equal care. Burying garbage is a waste of time. Bears have keen noses and are great diggers.

If a bear approaches while you are fishing, stop fishing. If you have a fish on your line, don't let it splash. If that's not possible, cut your line. If a bear learns it can obtain fish just by approaching fishermen, it will return for more.

Close Encounters: What to do

If you see a bear, avoid it if you can. Give the bear every opportunity to avoid you. If you do encounter a bear at close distance, remain calm. Attacks are rare. Chances are, you are not in danger. Most bears are interested only in protecting food, cubs, or their "personal space." Once the threat is removed, they will move on. Remember the following:

Identify Yourself

Let the bear know you are human. Talk to the bear in a normal voice. Wave your arms. Help the bear recognize you. If a bear cannot tell what you are, it may come closer or stand on its hind legs to get a better look or smell. A standing bear is usually curious, not threatening. You may try to back away slowly diagonally, but if the bear follows, stop and hold your ground.

Don't Run

You can't outrun a bear. They have been clocked at speeds up to 35 mph, and like dogs, they will chase fleeing animals. Bears often make bluff charges, sometimes to within 10 feet of their adversary, without making contact. Continue waving your arms and talking to the bear. If the bear gets too close, raise your voice and be more aggressive. Bang pots and pans. Use noisemakers. Never imitate bear sounds or make a high-pitched squeal.

If Attacked

If a bear actually makes contact, surrender! Fall to the ground and play dead. Lie flat on your stomach, or curl up in a ball with your hands behind your neck. Typically, a bear will break off its attack once it feels the threat has been eliminated. Remain motionless for as long as possible. If you move, and the bear sees or hears you, it may return and renew its attack. In rare instances, particularly with black bears, an attacking bear may perceive a person as food. If the bear continues biting you long after you assume a defensive posture, it likely is a predatory attack. Fight back vigorously.

Protection

Firearms should never be used as an alternative to common-sense approaches to bear encounters. If you are inexperienced with a firearm in emergency situations, you are more likely to be injured by a gun than a bear. It is illegal to carry firearms in some of Alaska's national parks, so check before you go.

Defensive aerosol sprays which contain capsicum (red pepper extract) have been used with some success for protection against bears. These sprays may be effective at a range of 6-8 yards. If discharged upwind or in a vehicle, they can disable the user. Take appropriate precautions. If you carry a spray can, keep it handy and know how to use it.

In Summary

- Avoid surprising bears at close distance; look for signs of bears and make plenty of noise.
- Avoid crowding bears; respect their "personal space."
- Avoid attracting bears through improper handling of food or garbage.
- Plan ahead, stay calm, identify yourself, don't run.

In most cases, bears are not a threat, but they do deserve your respect and attention.

Fish

Be careful handling fish. Fish slime has a high bacterial content. Any open wounds or punctures need to be washed and treated with antiseptic to reduce the possibility of "fish poisoning". If a wound becomes infected, you may need antibiotics. Gloves, raingear, and boots will protect from most of the spines, teeth, or stingers you encounter. Goggles and shields may be neccessary to avoid contact with jellyfish–especially when nets are power-washed. Vinegar or other weak acids can reduce the discomfort of jellyfish stings.

Marine Mammals and Birds

Live marine mammals and birds should be handled as little as possible for your protection and theirs. Stressed, injured, or sick animals can be dangerous. Regardless of their condition, heavier gloves and protective gear may be necessary before handling animals. Diseases can be transferred to you from other warm-blooded animals. Using knives to collect samples adds to the danger.

WEATHER

You should be provided with supplementary materials about weather that you can carry with you to help in your weather observations and predictions. Seek out information about local weather patterns and predictions from the National Weather Service and the local people. Here are a few general definitions and guidelines:

- Radiation fog occurs in clear, calm weather; and is formed by heat radiating off the earth's surface. The air cools and condenses as it rises. The fog clears at low elevations first, but is slow to clear over water.

- Advection fog occurs when warmer air moves over cooler surfaces. It is common in coastal areas, and is the most common type of fog at sea. It is slow to clear, and usually does so by a change in wind direction or increase in speed.

- In the Northern hemisphere, air circulates counter-clockwise around a low pressure system, clockwise around a high pressure. Weather systems usually approach from the west; and local geography, such as mountains or bodies of water, affect its progress. A strong high pressure can often fend off low pressure systems by diverting them or stalling them until they lose their strength.

- Falling barometric pressure indicates worsening conditions. Rising pressure indicates that the worst weather is over. Barometric pressure affects tides--a high pressure lowers tide predictions, low pressure causes higher tides than predicted.

- Clouds that are becoming lower and thicker may indicate worsening weather. If cloud bases arer rising in mountains, fair weather will generally continue. High, thin clouds are an early sign of approaching poor weather.

- In coastal areas, onshore (towards shore) breezes often occur in the morning, switching to offshore in the afternoon. In mountainous areas, these down-slope, offshore breezes can cause localized high winds (sometimes called williwaws); and can be magnified by glaciers, valleys, and steep slopes. Be prepared for wind conditions to change quickly in Alaska's steep coastlines.

- VHF radios have several weather channels. Listen to forecasts two or three times and be familiar with the geographic references. Have a map or chart to refer to as you hear the forecast and make notes--your memory can make mistakes, and your VHF radio might not work next time!

- Larger vessels receive weather faxes from the National Weather Service. If you have access to larger vessels, ask to see the latest forecast and synopsis.

Natural hazards

Earthquake Safety

1. **If you are indoors,** duck or drop down to the floor. Take cover under a sturdy desk, table or other furniture. Hold on to it and be prepared to move with it. Hold the position until the ground stops shaking and it is safe to move. Stay clear of windows, fireplaces, woodstoves, and heavy furniture or appliances that may fall over. Stay inside to avoid being injured by falling glass or building parts. Stay calm and encourage others to do likewise.
2. **If you are outside,** get into the open, away from buildings and power lines.
3. **If you are in a mountainous area,** or near unstable slopes or cliffs, be alert for falling rock and other debris that could be loosened by the earthquake.
4. **If you are at the beach**, move quickly to higher ground or several hundred yards inland.
5. **Expect aftershocks.** Most of these are smaller than the main earthquake. Some may be large enough to do additional damage to weakened structures.

Tsunami safety rules

When you feel a strong earthquake, or hear a tsunami warning, you should assume a dangerous wave is on its way. Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinke, and Port Lions all have tsunami warning signals and designated tsunami shelters.

- A strong earthquake felt in a low-lying coastal area is a natural warning of possible immediate danger. Keep calm and quickly move to higher ground, away from the coast.

- Not all large earthquakes cause tsunamis, but many do. If the quake is located near or directly under the ocean, the probability of a tsunami increases. If you have trouble standing, the earthquake last 15 seconds or more, or you hear that an earthquake has occurred in the ocean or coastline region, prepare for a tsunami emergency.

- A tsunami is not a single wave, but a series of waves. The first wave is not necessarily the largest. Stay out of danger until an "all clear" is issued by a competent authority

- Approaching tsunamis are sometimes heralded by a noticeable rise or fall of coastal water. This is nature's tsunami warning and should be heeded.

- Approaching large tsunamis are usually accompanied by a loud roar that sounds like a train or aircraft.

- A small tsunami at one beach can be a giant a few miles away. Don't let the modest size of one make you lose respect for all.

- Never go down to the beach to watch for a tsunami. When you can see the wave you are too close to escape.

- If you are on a boat or ship and there is time, move your vessel to deeper water (at least 100 fathoms). If it is the case that there is concurrent severe weather, it may may safer to leave the boat at the pier and physically move to higher ground.

- Stay tuned to your radio, marine radio, NOAA Weather Radio, or television stations during a tsunami emergency.

Volcanic Eruptions

Alaska is home to more than 40 volcanoes that have erupted in the last 200 years, and more than half of the state's population lives within 100 miles of an active volcano. The single greatest hazard from an explosive volcanic eruption is ash, fine fragments of rock blown into the atmosphere during volcanic eruption. Ash is carried downwind where the coarser particles fall to the ground and fine ash forms a cloud that is carried with the air currents. Ash is extremely abrasive, does not dissolve in water, and is heavy and slippery when wet. Inhaling ash can be dangerous, especially for those with breathing problems, for children, and the elderly.

What to do during a volcanic ash fall:

- Stay indoors if possible.
- Minimize activity to keep inhalation of fine ash to a minimum.
- Close windows, doors, and dampers; do not run clothes dryers or exhaust fans.
- Place damp towels at door thresholds and other drafty areas.
- Remove ash from flat or low-pitched roofs and gutters to prevent their collapse.
- Shut down and cover sensitive equipment, like computers, TVs, and stereos.
- Listen to radio or TV for further information and instructions.

Safety Summary

Ultimately, you are responsible for your own safety. Take the time to learn as much as you can, and consider what your actions will be in emergencies. This manual and your training serves only as an introduction to observer safety. Here are some steps you should take:

1) Pay close attention to safety related materials presented and made available to you by the OTC, NMFS, and your employer.

2) Take the recommended clothing and safety equipment specified by OTC, NMFS, and your employer.

3) Before you leave port, find the vessel's safety and survival equipment and learn their procedures whether you are shown them or not.

4) Participate in any drills conducted by the vessel and discuss the safety procedures with crew.

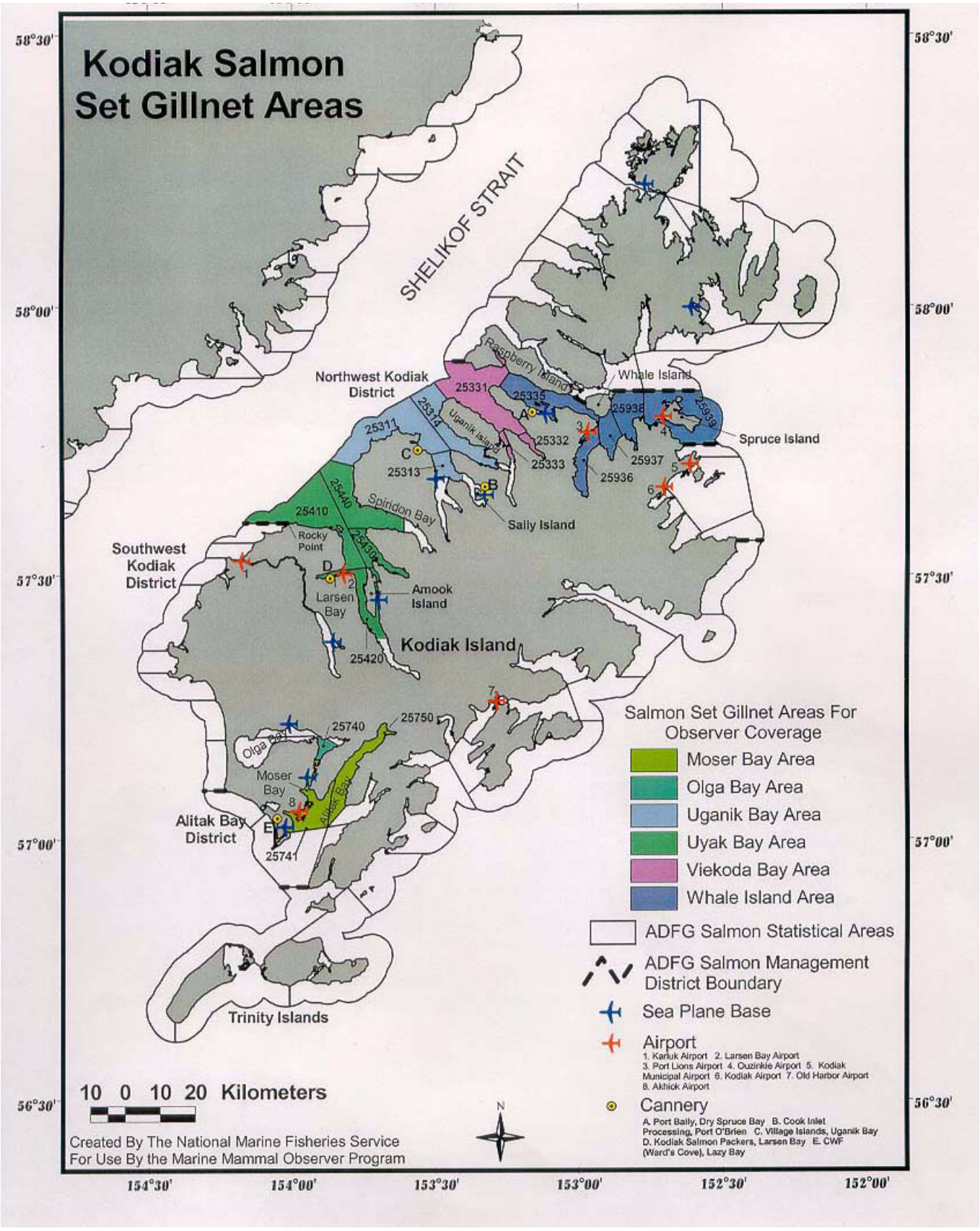
5) Read materials and watch safety related videos that are available on the vessel.

APPENDICES

Appendix 1: Fishery Name Codes

CODE	FISHERY NAME
1	Bristol Bay salmon drift gillnet
2	Bristol Bay salmon set gillnet
3	Cook Inlet salmon drift gillnet
4	Cook Inlet salmon set gillnet
5	Kodiak salmon set gillnet
6	Metlakatla/Annette Island salmon drift gillnet
7	Peninsula/Aleutian Islands salmon drift gillnet
8	Peninsula/Aleutian Islands salmon set gillnet
9	Prince William Sound salmon drift gillnet
10	Southeast salmon drift gillnet
11	Yakutat salmon set gillnet
12	Southeast salmon purse seine

Appendix 2. Geographical Region and Statistical Area Code Map



APPENDIX 3. DEALER'S NAME CODES

CODE	PROCESSOR NAME
12510	Alaska Pacific Seafoods
287	Island Seafoods
443	Ocean Beauty Seafoods (King Crab)
12554	True World Foods
648	Wards Cove Packing
2652	Western Alaska Fisheries

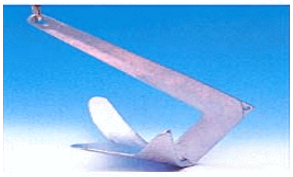
Appendix 4. Anchor Type Codes and Diagrams

1. Standard Danforth anchor

2. Kedge anchor

3. Manta anchor

4. Bruce anchor

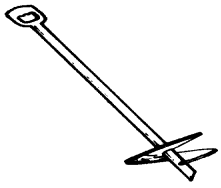


5. Claw anchor

6. Grapnel anchor

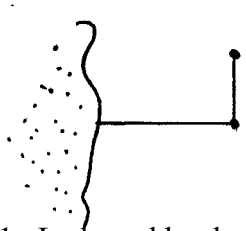
7. Mushroom anchor

8. Quick set anchor

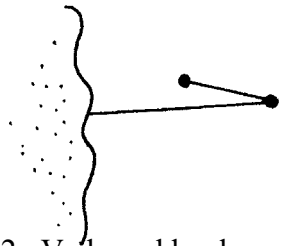


9. Screw anchor

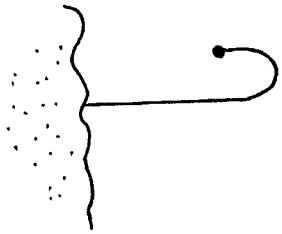
Appendix 5. Hook Shape Diagrams



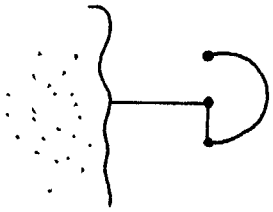
1. L-shaped hook



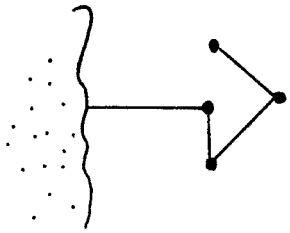
2. V-shaped hook



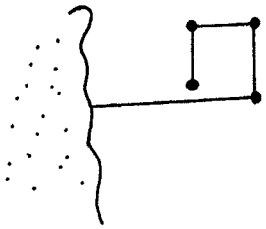
3. J-shaped hook



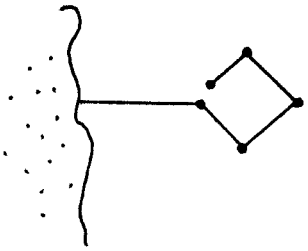
4. Umbrella hook



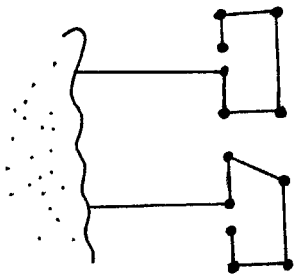
5. Arrowhead hook



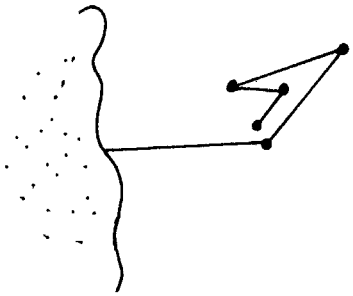
6. Flag hook



7. Diamond hook



8. Box hook



9. Zigzag hook

11. Pennant

Appendix 6. Species Codes (Revised 8/1/02)

CODE	COMMON NAME	SCIENTIFIC NAME
1000	BEAKED WHALE, BAIRD'S (BOTTLENOSE)	BERARDIUS BAIRDII
1001	BEAKED WHALE, CUVIER'S (GOOSEBEAK)	ZIPHIUS CAVIROSTRIS
1002	BEAKED WHALE, UNIDENTIFIED	
1003	BEAKED WHALE, STEJNEGER'S (BERING SEA)	MESOPLODON STEJNEGERI
1004	BEAR, POLAR	URSUS MARITIMUS
1005	DOLPHIN, BOTTLENOSE	TURSIOPS TRUNCATUS
1006	DOLPHIN, NORTHERN RIGHT WHALE	LISSODELPHIS BOREALIS
1007	DOLPHIN, PACIFIC WHITE-SIDED	LAGENORHYNCHUS OBLIQUIDENS
1008	FUR SEAL, NORTHERN (PRIBILOF)	
1009	OTTER, RIVER	LONTRA CANADENSIS
1010	OTTER, SEA	
1011	PORPOISE, DALL'S	
1012	PORPOISE, HARBOR	PHOCOENA PHOCOENA
1013	PORPOISE/DOLPHIN, UNIDENTIFIED	
1014	SEA LION, CALIFORNIA	ZALOPHUS CALIFORNIANUS
1015	SEA LION, STELLER (NORTHERN)	
1016	SEA LION/ FUR SEAL, UNIDENTIFIED	
1017	SEAL, BEARDED	ERIGNATHUS BARBATUS
1018	SEAL, HARBOR	PHOCA VITULINA
1019	SEAL, UNIDENTIFIED	
1020	SEAL, NORTHERN ELEPHANT	MIROUNGA ANGUSTIROSTRIS
1021	SEAL, RIBBON	PHOCA FASCIATA
1022	SEAL, RINGED	PHOCA HISPIDA
1023	SEAL, SPOTTED	PHOCA LARGA
1024	SEAL/ SEA LION/ WALRUS, UNIDENTIFIED	
1025	WALRUS, PACIFIC	
1026	WHALE, BALEEN UNIDENTIFIED	
1027	WHALE, BELUGA	DELPHINAPTERUS LEUCAS
1028	WHALE, BLUE	BALAENOPTERA MUSCULUS
1029	WHALE, BOWHEAD	BALAENA MYSTICETUS
1030	WHALE, FIN (FINBACK)	BALAENOPTERA PHYSALUS
1031	WHALE, GRAY	ESCHRICHTIUS ROBUSTUS
1032	WHALE, HUMPBACK	MEGAPTERA NOVAEANGLIAE
1033	WHALE, KILLER (ORCA)	ORCINUS ORCA
1034	WHALE, MINKE	BALAENOPETERA ACUTOROSTRATA
1035	WHALE, UNIDENTIFIED	
1036	WHALE, NORTHERN RIGHT	EUBALAENA GLACIALIS

CODE	COMMON NAME	SCIENTIFIC NAME
1037	WHALE, SEI	BALAENOPTERA BOREALIS
1040	WHALE, SEI/ FIN UNIDENTIFIED	
1038	WHALE, SPERM	PHYSETER CATODON
1039	WHALE, TOOTHED UNIDENTIFIED	
	BIRDS	
2001	ALABATROSS, LAYSAN	PHOEBASTRIA IMMUTABILIS
2002	ALBATROSS, BLACK-FOOTED	DIOMEDEA NIGRIPES
2000	ALBATROSS, UNIDENTIFIED	
2003	ALBATROSS, SHORT-TAILED	PHOEBASTRIA ALBATRUS
2004	ALCID, UNIDENTIFIED	
2005	AUKLET, CASSIN'S	PTYCHORAMPUS ALEUTICUS
2006	AUKLET, CRESTED	AETHIA CRISTATELLA
2007	AUKLET, LEAST	AETHIA PUSILLA
2084	AUKLET, UNIDENTIFIED	
2008	AUKLET, PARAKEET	AETHIA PSITTACULA
2009	AUKLET, RHINOCEROUS	CERORHINCA MONOCERATA
2010	AUKLET, WHISKERED	AETHIA PYGMAEA
2011	BUFFLEHEAD	BUCEPHALA ALBEOLA
2013	CORMORANT, BRANDT'S	PHALACROCORAX PENICILLATUS
2014	CORMORANT, DOUBLE-CRESTED	PHALACROCORAX AURITUS
2012	CORMORANT, UNIDENTIFIED	
2015	CORMORANT, PELAGIC	PHALACROCORAX PELAGICUS
2016	CORMORANT, RED-FACED	PHALACROCORAX URILE
2088	DUCK, UNIDENTIFIED	
2093	DUCK, HARLEQUIN	HISTRIONICUS HISTRIONICUS
2081	EAGLE, BALD	HALIAEETUS LEUCOCEPHALUS
2089	EAGLE, UNIDENTIFIED	
2017	EIDER, COMMON	SOMATERIA MOLLISSIMA
2018	EIDER, KING	SOMATERIA SPECTABILIS
2085	EIDER, UNIDENTIFIED	
2019	EIDER, SPECTACLED	SOMATERIA FISCHERI
2020	EIDER, STELLER'S	POLYSTICTA STELLERI
2078	FULMAR, UNIDENTIFIED	
2021	FULMAR, NORTHERN	FULMARUS GLACIALIS
2022	GREBE, HORNED	PODICEPS AURITUS
2023	GREBE, UNIDENTIFIED	
2024	GREBE, RED-NECKED	PODICEPS GRISEGENA

CODE	COMMON NAME	SCIENTIFIC NAME
2025	GREBE, WESTERN	AECHMOPHORUS OCCIDENTALIS
2026	GUILLEMOT, BLACK	CEPPHUS GRYLLE
2027	GUILLEMOT, UNIDENTIFIED	
2028	GUILLEMOT, PIGEON	CEPPHUS COLUMBA
2029	GULL, BONAPARTE'S	LARUS PHILADELPHIA
2030	GULL, GLAUCOUS	LARUS HYPERBOREUS
2031	GULL, GLAUCOUS-WINGED	LARUS GLAUCESCENS
2032	GULL, HERRING	LARUS ARGENTATUS
2033	GULL, IVORY	LARUS EBURNEA
2034	GULL, MEW	LARUS CANUS
2079	GULL, UNIDENTIFIED	
2035	GULL, SABINE'S	LARUS SABINI
2036	GULL/KITTIWAKE, UNIDENTIFIED	
2037	JAEGER/SKUA, UNIDENTIFIED	
2038	JEAGER, LONG-TAILED	STERCORARIUS LONGICAUDUS
2039	JEAGER, PARASITIC	STERCORARIUS PARASITICUS
2040	JEAGER, POMARINE	STERCORARIUS POMARINUS
2041	KITTIWAKE, BLACK-LEGGED	LARUS TRIDACTYLA
2080	KITTIWAKE, UNIDENTIFIED	
2042	KITTIWAKE, RED-LEGGED	LARUS BREVIROSTRIS
2043	LOON, COMMON	GAVIA IMMER
2044	LOON, UNIDENTIFIED	
2045	LOON, PACIFIC	GAVIA PACIFICA
2046	LOON, RED-THROATED	GAVIA STELLATA
2047	LOON, YELLOW-BILLED	GAVIA ADAMSII
2048	MALLARD	ANAS PLATYRHYNCHOS
2092	MERGANSER, UNIDENTIFIED	
2090	MERGANSER, RED-BREASTED	MERGUS SERRATOR
2049	MURRE, COMMON	URIA AALGE
2050	MURRE, UNIDENTIFIED	
2051	MURRE, THICK-BILLED	URIA LOMVIA
2052	MURRELET, ANCIENT	SYNTHLIBORAMPHUS ANTIQUUS
2091	MURRELET, KITTLITZ/ MARBLED UNIDENTIFIED	BRACHYRAMPHUS
2053	MURRELET, KITTLITZ'S	BRACHYRAMPHUS BREVIROSTRIS
2054	MURRELET, MARBLED	BRACHYRAMPHUS MAMMORATUS
2086	MURRELET, UNIDENTIFIED	
2055	OYSTERCATCHER, BLACK	HAEMATOPUS BACHMANI
2082	PETREL, UNIDENTIFIED	
2056	PHALAROPE, UNIDENTIFIED	

CODE	COMMON NAME	SCIENTIFIC NAME
2057	PINTAIL, NORTHERN	ANAS ACUTA
2058	PUFFIN, HORNED	FRATERCULA CORNICULATA
2059	PUFFIN, UNIDENTIFIED	
2060	PUFFIN, TUFTED	FRATERCULA CIRRHATA
2061	SCAUP, GREATER	AYTHYA MARILA
2062	SCOTER, BLACK	MELANITTA NIGRA
2087	SCOTER, UNIDENTIFIED	
2063	SCOTER, SURF	MELANITTA PERSPICILLATA
2064	SCOTER, WHITE-WINGED	MELANITTA DEGLANDI
2065	SEABIRDS, UNKNOWN (AUKS, GUILLEMOTS, GULLS, MURRES, PUFFINS, TERNS)	
2066	SHEARWATER, DARK STORM UNIDENTIFIED	
2083	SHEARWATER,	
2067	SHEARWATER, SHORT-TAILED	
2068	SHEARWATER, SOOTY	PUFFINUS GRISEUS
2069	SHEARWATER/PETRELS/STORM PETRELS, NK	
2070	STORM PETREL, FORK-TAILED	OCEANODROMA FURCATA
2071	STORM PETREL, LEACH'S	OCEANODROMA LEUCORHOA
2072	TEAL, GREEN-WINGED	ANAS CRECCA
2073	TERN, ALEUTIAN	STERNA ALEUTICA
2074	TERN, ARCTIC	STERNA PARADISAEA
2075	TERN, COMMON	STERNA HIRUNDO
2076	TERN, TYPICAL UNIDENTIFIED	
2077	TUBENOSES, UNIDENTIFIED	PROCELLARIDAE FAMILY
	TURTLES	
3000	SEA TURTLE, GREEN	CHELONIA MYDAS
3001	SEA TURTLE, HAWKSBILL	ERETMOCHELYS IMBRICATA
3002	SEA TURTLE, KEMP'S RIDLEY	LEPIDOCHELYS KEMPII
3003	SEA TURTLE, LEATHERBACK	DEMOCHELYS CORIACEA
3004	SEA TURTLE, LOGGERHEAD	CARETTA CARETTA
3005	SEA TURTLE, UNIDENTIFIED	
3006	SEA TURTLE, RIDLEY UNIDENTIFIED	
	BONY FISH	
4000	ALEWIFE	ALOSA PSEUDOHARENGUS
4001	ALLIGATORFISH, ALEUTIAN	
4341	ALLIGATORFISH, UNIDENTIFIED	

CODE	COMMON NAME	SCIENTIFIC NAME
4002	ALLIGATORFISH, SMOOTH	
4003	ANCHOVY, NORTHERN	ENGRAULIS MORDAX
4004	ARGENTINE, PACIFIC	
4005	BARRACUDA, PACIFIC	SPHYRAENA ARGENTEA
4006	BARRACUDINA, DUCKBILL	PARALEPIS ATLANTICA
4342	BARRACUDINA, UNIDENTIFIED	
4007	BARRACUDINA, RIBBON (WHITE)	
4008	BARRACUDINA, SLENDER	LESTIDIUM RINGENS
4009	BARRELEYE	MACROPINNA MICROSTOMA
4010	BIGSCALE	MELAMPHAEIDAE FAMILY
4011	BLACKFISH, ALASKA	
4012	BLACKSMELT, EARED (OKHOTSK)	
4013	BLENNY, NK	
4014	BRISTLEMOUTH(BRISTLEFISH), BLACK	
4343	BRISTLEMOUTH, UNIDENTIFIED	
4015	BRISTLEMOUTH, PHANTOM	CYCLOTHONE PSEUDOPALLIDA
4016	BRISTLEMOUTH, SHOWY	CYCLOTHONE SIGNATA
4017	BRISTLEMOUTH, SLENDER	GONOSTOMA GRACILE
4018	BRISTLEMOUTH, TAN (BICOLORED)	
4019	BULBOUS DREAMER	ONEIRODES ESCHRICHTI
4020	BURBOT	LOTA LOTA
4021	CAPELIN	MALLOTUS VILLOSUS
4022	CHAR, ARCTIC	SALVELINUS ALPINUS
4023	CHUB, LAKE	COUESIUS PLUMBIUS
4024	CISCO, ARCTIC	COREGONUS AUTUMNALIS
4025	CISCO, BERING	COREGONUS LAURETTAE
4026	CISCO, LEAST	COREGONUS SARDINELLA
4344	CISCO, UNIDENTIFIED	
4027	COCKSCOMB, HIGH	ANOPLARCHUS PURPURESCENS
4345	COCKSCOMB, NK	
4028	COCKSCOMB, SLENDER	ANOPLARCHUS INSIGNIS
4029	COD, ARCTIC	BOREOGADUS SAIDA
4030	COD, LONGFIN	ANTIMORA ROSTRATA
4346	COD, UNIDENTIFIED	GADIDAE FAMILY
4031	COD, PACIFIC	GADUS MACROCEPHALUS
4032	COD, SAFFRON	ELEGINUS GRACILIS
4033	CODLING, BERING SEA (LONGFIN)	
4034	CODLING, HUNDRED-FATHOM	PSYSICULUS RASTRELLIGER
4347	CODLING, UNIDENTIFIED	MORIDAE FAMILY

CODE	COMMON NAME	SCIENTIFIC NAME
4035	CODLING, PACIFIC FLATNOSE	ANTIMORA MICROLEPIS
4036	CUSK-EEL, BASKETWEAVE	OPHIDION SCRIPPSAE
4348	CUSK-EEL, UNIDENTIFIED	
4037	CUSK-EEL, SPOTTED	CHILARA TAYLORI
4038	DAB, GULF SAND	CITHARICHTHYS FRAGILIS
4039	DAB, LONGFIN SAND	CITHARICHTHYS XANTHOSTIGMA
4040	DAB, LONGHEAD	LIMANDA PROBOSCIDEA
4349	DAB, UNIDENTIFIED	
4041	DAB, PACIFIC SAND	CITHARICHTHYS SORDIDUS
4042	DAB, SPECKLED SAND	CITHARICHTHYS STIGMAEUS
4043	DAGGERTOOTH	ANOTOPTERUS PHARAO
4044	DOLLY VARDEN	SALVELINUS MALMA
4045	DOLPHINFISH (MAHI MAHI)	CORYPHAENA HIPPURUS
4046	DOLPHINFISH (POMPANO)	CORYPHAENA EQUISETIS
4350	DOLPHINFISH, UNIDENTIFIED	
4047	DRAGONFISH, LONGFIN	TACTOSTOMA MACROPUS
4048	EELPOUT, BIGFIN	LYCODES (APRODON) CORTEZIANUS
4049	EELPOUT, BLACK	LYCODES DIAPTERUS
4050	EELPOUT, BLACKBELLY	LYCODOPSIS PACIFICA
4051	EELPOUT, EBONY	LYCODES CONCOLOR
4052	EELPOUT, KAMCHATkA	LYCENCHELYS CAMCHATICA
4053	EELPOUT, MARBLED	LYCODES RARIDENS
4351	EELPOUT, UNIDENTIFIED	
4054	EELPOUT, PALLID	LYCODAPUS MANDIBULARIS
4055	EELPOUT, POLAR	LYCODES TURNERI
4056	EELPOUT, SHORTFIN	LYCODES BREVIPES
4057	EELPOUT, TWOLINE	BOTHROCARA BRUNNEUM
4058	EELPOUT, WATTLED	LYCODES PALEARIS
4059	EULACHON	THALEICHTHYS PACIFICUS
4381	FLATFISH, UNIDENTIFIED	
4061	FLOUNDER, ARCTIC	LIOPSETTA GLACIALIS
4062	FLOUNDER, ARROWTOOTH	ATHERESTHES STOMIAS
4063	FLOUNDER, BERING	HIPPOGLOSSOIDES ROBUSTUS
4065	FLOUNDER, KAMCHATKA	ATHERESTHES EVERMANNI
4064	FLOUNDER, LONG	
4352	FLOUNDER, UNIDENTIFIED	
4066	FLOUNDER, STARRY	PLATICHTHYS STELLATUS
4067	FROSTFISH	BENTHODESMUS ELONGATUS
4068	GRAYLING, ARCTIC	

CODE	COMMON NAME	SCIENTIFIC NAME
4069	GREENLING, KELP	HEXAGRAMMOS DECAGRAMMUS
4070	GREENLING, MASKED	HEXAGRAMMOS ACTOGRAMMUS
4353	GREENLING, UNIDENTIFIED	
4071	GREENLING, ROCK	HEXAGRAMMOS LAGOCEPHALUS
4072	GREENLING, WHITESPOTTED	HEXAGRAMMOS STELLERI
4073	GUNNEL, BANDED	PHOLIS FASCIATA
4074	GUNNEL, BERING	PHOLIS GILLI
4075	GUNNEL, CRESCENT	PHOLIS LAETA
4076	GUNNEL, KELP	ULVICOLA SANCTAEROSAE
4077	GUNNEL, LONGFIN	PHOLIS CLEMENSI
4354	GUNNEL, UNIDENTIFIED	
4078	GUNNEL, PENPOINT	APODICHTHYS FLAVIDUS
4079	GUNNEL, RED	PHOLIS SCHULTZI
4080	GUNNEL, ROCKWEED	APODICHTHYS FUCORUM
4081	GUNNEL, SADDLEBACK	PHOLIS ORNATA
4082	GUNNEL, STIPPLED	RHODYMENICHTHYS DOLICHOGASTER
4083	HAKE, PACIFIC	MERLUCCIUS PRODUCTUS
4084	HALIBUT, PACIFIC	HIPPOGLOSSUS STENOLEPIS
4085	HATCHETFISH, SILVERY	ARGYROPELECUS LYCHNUS
4086	HEADLIGHTFISH, CALIFORNIA	
4087	HERRING, PACIFIC	CLUPEA HARENGUS PALLASI
4088	HIGHFIN DRAGONFISH	BATHOPHILIUS FLEMINGI
4089	IRISH LORD, BROWN	HEMILEPIDOTUS SPINOSUS
4355	IRISH LORD, UNIDENTIFIED	
4090	IRISH LORD, RED	HEMILEPIDOTUS HEMILEPIDOTUS
4091	IRISH LORD, YELLOW	HEMILEPIDOTUS JORDANI
4092	KING-OF-THE-SALMON	TRACHIPTERUS ALTIVELIS
4093	LAMPFISH, BROKENLINE	LAMPANYCTUS JORDANI
4094	LANCETFISH, LONGFISH	
4095	LANTERNFISH, BLUE	TARLETONBEANIA CRENULARIS
4356	LANTERNFISH, UNIDENTIFIED	
4096	LANTERNFISH, NORTHERN	STENOBRACHIUS LEUCOPSARUS
4097	LIGHTFISH, STAREYE	POLLICHTHYS MAULI
4098	LINGCOD	OPHIODON ELONGATUS
4099	LOOSEJAW, SHINY (SHINING)	
4100	LUMPSUCKER, LEATHERFIN	EUMICROTREMUS DERJUGINI
4357	LUMPSUCKER, UNIDENTIFIED	
4101	LUMPSUCKER, PACIFIC SPINY	EUMICROTREMUS ORBIS
4102	LUMPSUCKER, SMOOTH	APTOCYCLUS VENTRICOSUS

CODE	COMMON NAME	SCIENTIFIC NAME
4103	MACKEREL, ATKA	
4104	MACKEREL, CHUB	
4105	MACKEREL, JACK	
4358	MACKEREL, UNIDENTIFIED	
4106	MANEFISH	CARISTIUS MACROPUS
4107	MARLIN, STRIPED	TETRAPTURUS AUDAX
4108	MEDUSAFISH	ICICHTHYS LOCKINGTONI
4109	MELAMPHID, CRESTED	POROMITRA CRASSICEPS
4110	MELAMPHID, HIGHSNOUT	MELAMPHAES LUGUBRIS
4111	MIDSHIPMAN, PLAINFIN	
4112	OARFISH	REGALECUS GLESNE
4113	OPAH	LAMPRIS GUTTATUS
4114	PAPERBONES, UNIDENTIFIED	
4115	PEARLEYE, NORTHERN	
4116	PERCH, PACIFIC OCEAN	
4117	PIKE, NORTHERN	ESOX LUCIUS
4118	PLAICE, ALASKA	
4119	POACHER, BERING	OCCELLA DODECAEDRON
4120	POACHER, BIGEYE	BATHYAGONUS PENTACANTHUS
4121	POACHER, BLACKFIN	BATHYAGONUS NIGRIPINNIS
4122	POACHER, BLACKTIP	XENERETMUS LATIFRONS
4123	POACHER, DRAGON	PERCIS JAPONICUS
4124	POACHER, GRAY STARSNOUT	BATHYAGONUS ALASCANA
4125	POACHER, N. SPEARNOSE	AGONOPSIS VULSA
4359	POACHER, UNIDENTIFIED	
4126	POACHER, SAWBACK	SARRITOR FRENATUS
4127	POACHER, STURGEON	AGONUS ACIPENSERINUS
4128	POACHER, WARTY	OCCELLA VERRUCOSA
4129	POLLOCK (WALLEYE POLLOCK)	
4132	POMFRET, UNIDENTIFIED	
4130	POMFRET, PACIFIC	BRAMA JAPONICA
4131	POMFRET, ROUGH	TARACTES ASPER
4133	POMPANO, PACIFIC	
4134	PRICKLEBACK, BLACK	XIPHISTER ATROPURPUREUS
4135	PRICKLEBACK, LONGSNOUT	LUMPENELLA LONGIROSTRIS
4360	PRICKLEBACK, UNIDENTIFIED	
4136	PRICKLEBACK, PEARLY	BRYOZOICHTHYS MARJORIUS
4137	PRICKLEBACK, RIBBON	PHYTICHTHYS CHIRUS
4138	PRICKLEBACK, ROCK	XIPHISTER MUCOSUS

CODE	COMMON NAME	SCIENTIFIC NAME
4139	PRICKLEBACK, SNAKE	LUMPENUS SAGITTA
4140	PRICKLEBACK, WHITEBARRED	POROCLINUS ROTHROCKI
4141	PROWFISH	ZAPRORA SILENUS
4142	QUILLFISH	PTILICHTHYS GOODEI
4143	RAGFISH	ICOSTEUS AENIGMATICUS
4144	RATTAIL(GRENADIER), CALIFORNIA	
4145	RATTAIL, FILAMENTED	CORYPHAENOIDES FILIFER
4146	RATTAIL, GIANT	ALBATROSSIA PECTORALIS
4361	RATTAIL, UNIDENTIFIEDK	MACROURIDAE FAMILY
4147	RATTAIL, PACIFIC	CORYPHAENOIDES ACROLEPIS
4148	RIBBONFISH, WHIPTAIL	DESMODEMA LORUM
4149	ROCKFISH, AURORA	SEBASTES AURORA
4150	ROCKFISH, BANK	SEBASTES RUFUS
4151	ROCKFISH, BLACK	SEBASTES MELANOPS
4152	ROCKFISH, BLACKGILL	SEBASTES MELANOSTOMUS
4153	ROCKFISH, BLUE	SEBASTES MYSTINUS
4154	ROCKFISH, BOCACCIO	SEBASTES PAUCISPINIS
4155	ROCKFISH, BROWN	SEBASTES AURICULATUS
4156	ROCKFISH, CANARY	SEBASTES PINNIGER
4157	ROCKFISH, CHAMELEON	SEBASTES PHILLIPSI
4158	ROCKFISH, CHILIPEPPER	SEBASTES GOODEI
4159	ROCKFISH, CHINA	SEBASTES NEBULOSUS
4160	ROCKFISH, COPPER	SEBASTES CAURINUS
4161	ROCKFISH, DARK DUSKY	SEBASTES CILIATUS
4162	ROCKFISH, DARKBLOTCHED	SEBASTES CRAMERI
4163	ROCKFISH, FLAG	SEBASTES RUBRIVINCTUS
4164	ROCKFISH, GRAY	SEBASTES GLAUCOUS
4165	ROCKFISH, GREENSPOTTED	SEBASTES CHLOROSTICTUS
4166	ROCKFISH, GREENSTRIPED	SEBASTES ELONGATUS
4167	ROCKFISH, HARLEQUIN	SEBASTES VARIEGATUS
4168	ROCKFISH, LIGHT DUSKY	SEBASTES SPP
4060	ROCKFISH, UNIDENTIFIED	
4169	ROCKFISH, NORTHERN	SEBASTES POLYSPINIS
4170	ROCKFISH, OLIVE	SEBASTES SERRANOIDES
4171	ROCKFISH, PINK ROSE	SEBASTES SIMULATOR
4172	ROCKFISH, PYGMY	SEBASTES WILSONI
4173	ROCKFISH, QUILLBACK	SEBASTES MALIGER
4174	ROCKFISH, REDBANDED	SEBASTES BABCOCKI
4175	ROCKFISH, REDSTRIPE	SEBASTES PRORIGER

CODE	COMMON NAME	SCIENTIFIC NAME
4176	ROCKFISH, ROSETHORN	SEBASTES HELVOMACULATUS
4177	ROCKFISH, ROSY	SEBASTES ROSACEUS
4178	ROCKFISH, ROUGHEYE	SEBASTES ALEUTIANUS
4179	ROCKFISH, SHARPCHIN	SEBASTES ZACENTRUS
4180	ROCKFISH, SHORTBELLY	SEBASTES JORDANI
4181	ROCKFISH, SHORTRAKER	SEBASTES BOREALIS
4182	ROCKFISH, SILVERGRAY	SEBASTES BREVISPINIS
4183	ROCKFISH, SPECKLED	SEBASTES OVALIS
4184	ROCKFISH, SPLITNOSE	SEBASTES DIPLOPROA
4185	ROCKFISH, STARRY	SEBASTES CONSTELLATUS
4186	ROCKFISH, STRIPETAIL	SEBASTES SAXICOLA
4187	ROCKFISH, TIGER	SEBASTES NIGROCINCTUS
4188	ROCKFISH, VERMILION	SEBASTES MINIATUS
4189	ROCKFISH, WIDOW	SEBASTES ENTOMELAS
4190	ROCKFISH, YELLOWEYE	SEBASTES RUBERRIMUS
4191	ROCKFISH, YELLOWMOUTH	SEBASTES REEDI
4192	ROCKFISH, YELLOWTAIL	SEBASTES FLAVIDUS
4193	RONQUIL, ALASKAN	BATHYMASTER CAERULEOFASCIATUS
4363	RONQUIL, UNIDENTIFIED	
4194	RONQUIL, NORTHERN	RONQUILUS JORDANI
4195	SABLEFISH	ANOPLOPOMA FIMBRIA
4196	SALMON, CHINOOK	ONCORHYNCHUS TSHAWYTSCHA
4197	SALMON, CHUM	ONCORHYNCHUS KETA
4198	SALMON, COHO	ONCORHYNCHUS KISUTCH
4380	SALMON, MIXED	
4340	SALMON, UNIDENTIFIED	
4199	SALMON, PINK	ONCORHYNCHUS GORBUSCHA
4200	SALMON, SOCKEYE	ONCORHYNCHUS NERKA
4201	SAND LANCE, PACIFIC	AMMODYTES HEXAPTERUS
4202	SANDFISH, PACIFIC	
4203	SARDINE, PACIFIC	SARDINOPS SAGAX
4204	SAURY, PACIFIC	COLOLABIS SAIRA
4205	SCABBARDFISH, BLACK	
4206	SCORPIONFISH, ALEUTIAN	
4207	SCULPIN, ANTLERED	ENOPHRYS DICERUS
4208	SCULPIN, ARCTIC	MYOXOCEPHALUS SCORPINOIDES
4209	SCULPIN, ARCTIC STAGHORN	GYMNOCANTHUS TRICUSPIS
4210	SCULPIN, ARMORHEAD	GYMNOCANTHUS GALEATUS
4211	SCULPIN, BIGMOUTH	HEMITRIPTERUS BOLINI

CODE	COMMON NAME	SCIENTIFIC NAME
4212	SCULPIN, BLACKFIN	MALACOCOTTUS KINCAIDI
4213	SCULPIN, BLOB	PSYCHROLUTES PHRICTUS
4214	SCULPIN, BUFFALO	ENOPHRYS BISON
4215	SCULPIN, BUTTERFLY	HEMILEPIDOTUS PAPILIO
4216	SCULPIN, CALICO	CLINOCOTTUS EMBRYUM
4217	SCULPIN, COASTRANGE	COTTUS ALEUTICUS
4218	SCULPIN, CRESTED	BLEPSIAS BILOBUS
4219	SCULPIN, DUSKY	ICELINUS BURCHAMI
4220	SCULPIN, FOURHORN	MYOXOCEPHALUS QUADRICORNIS
4221	SCULPIN, GREAT	MYOXOCEPHALUS POLYACANTHO-CEPHALUS
4222	SCULPIN, GYMNOCANTHUS UNIDENTIFIED	
4223	SCULPIN, ICELUS CANALICULATUS	ICELUS CANELICULATUS
4224	SCULPIN, ICELUS EURYOPS	ICELUS EURYOPS
4225	SCULPIN, ICELUS UNIDENTIFIED	ICELUS SPP
4226	SCULPIN, LEISTER	ENOPHRYS LUCASI
4227	SCULPIN, MOSSHEAD	CLINOCOTTUS GLOBICEPS
4228	SCULPIN, MYOXOCEPHALUS UNIDENTIFIED	MYOXOCEPHALUS SPP
4364	SCULPIN, UNIDENTIFIED	
4229	SCULPIN, NORTHERN	ICELINUS BOREALIS
4230	SCULPIN, PACIFIC STAGHORN	LEPTOCOTTUS ARMATUS
4231	SCULPIN, PLAIN	MYOXOCEPHALUS JAOK
4232	SCULPIN, PRICKLY	COTTUS ASPER
4233	SCULPIN, RIBBED	TRIGLOPS PINGELI
4234	SCULPIN, RIFFLE	COTTUS HYPSELURUS
4235	SCULPIN, ROUGHSPINE	TRIGLOPS MACELLUS
4236	SCULPIN, SAILFIN	NAUTICHTHYS OCULOFASCIATUS
4237	SCULPIN, SCISSORTAIL	TRIGLOPS FORFICATA
4238	SCULPIN, SHORTHORN	MYOXOCEPHALUS SCORPIUS
4239	SCULPIN, SILVERSPOTTED	BLEPSIAS CIRRHOSUS
4240	SCULPIN, SISSORTAIL	TRIGLOPS FORFICATUS
4241	SCULPIN, SLIM	RADULINUS ASPRELLUS
4242	SCULPIN, SLIMY	COTTUS COGNATUS
4243	SCULPIN, SPECTACLED	TRIGLOPS SCEPTICUS
4244	SCULPIN, SPINYHEAD	DASYCOTTUS SETIGER
4245	SCULPIN, TADPOLE	PSYCHROLUTES PARADOXUS
4246	SCULPIN, THORNY	ICELUS SPINIGER
4247	SCULPIN, THREADFIN	ICELINUS FILAMENTOSUS
4248	SCULPIN, THYRISCUS ANOPLUS	THYRISCUS ANOPLUS

CODE	COMMON NAME	SCIENTIFIC NAME
4249	SCULPIN, TRIGLOPS UNIDENTIFIED	
4250	SCULPIN, WARTHEAD	MYOXOCEPHALUS NIGER
4251	SCULPIN, WARTY	MYOXOCEPHALUS GROENLANDICUS
4252	SEABASS, UNIDENTIFIED	
4253	SEADEVIL, N. GIANT (DEEPSEA ANGLER)	
4254	SHAD, AMERICAN	ALOSA SAPIDISSIMA
4255	SHANNY, ARCTIC	STICHAEUS PUNCTATUS
4256	SHANNY, DAUBED	LUMPENUS MACULATUS
4365	SHANNY, UNIDENTIFIED	
4257	SHEEFISH (ICONNU)	
4258	SKILFISH	ERILEPIS ZONIFER
4259	SMELT, DELTA	HYPOMESUS TRANSPACIFICUS
4260	SMELT, LONGFIN	SPIRINCHUS THALEICHTHYS
4261	SMELT, NIGHT	SPIRINCHUS STARKSI
4366	SMELT, UNIDENTIFIED	
4262	SMELT, POND	HYPOMESUS OLIDUS
4263	SMELT, RAINBOW	OSMERUS MORDAX
4264	SMELT, SURF	HYPOMESUS PRETIOSUS
4265	SMELT, WHITEBAIT	ALLOSMERUS ELONGATUS
4266	SMOOTHTONGUE, CALIFORNIA	LEUROGLOSSUS STILBIUS
4367	SMOOTHTONGUE, UNIDENTIFIED	
4267	SMOOTHTONGUE, NORTHERN	LEUROGLOSSUS SCHMIDTI
4268	SNAILFISH, ALASKA	CAREPROCTUS COLLETTI
4273	SNAILFISH, BIGHEAD	
4269	SNAILFISH, BLACKFINNED	CAREPROCTUS CYPSELURUS
4270	SNAILFISH, BLACKTAIL	CAREPROCTUS MELANURUS
4271	SNAILFISH, CHRYSTALLICHTHYS UNIDENT.	
4272	SNAILFISH, FORKTAIL	CAREPROCTUS FURCELLUS
4275	SNAILFISH, LOBEFIN	POLYPERA GREENI
4276	SNAILFISH, MARBLED	LIPARIS DENNYI
4368	SNAILFISH, UNIDENTIFIED	
4274	SNAILFISH, OKHOTSK	
4277	SNAILFISH, PINK	CAREPROCTUS RASTRINUS
4278	SNAILFISH, RIBBON	LIPARIS CYCLOPUS
4279	SNAILFISH, RINGTAIL	LIPARIS RUTTERI
4280	SNAILFISH, VARIEGATED	LAPARIS GIBBUS
4281	SNIPE EEL, SLENDER	NEMICHTHYS SCOLOPACEUS
4282	SNIPE-EEL, BLACKLINE	BORODINULA INFANS
4369	SNIPE-EEL, UNIDENTIFIED	

CODE	COMMON NAME	SCIENTIFIC NAME
4283	SOLE, BUTTER	ISOPSETTA ISOLEPIS
4284	SOLE, C-O	PLEURONICHTHYS COENOSUS
4285	SOLE, CURLFIN	PLEURONICHTHYS DECURRENS
4286	SOLE, DEEPSEA	EMBASSICHTHYS BATHYBIUS
4287	SOLE, DOVER	MICROSTOMUS PACIFICUS
4288	SOLE, ENGLISH	PLEURONECTES VETULUS
4289	SOLE, FLATHEAD	HIPPOGLOSSOIDES ELASSODON
4290	SOLE, HYBRID	INOPSETTA ISCHYRA
4370	SOLE, UNIDENTIFIED	
4291	SOLE, NORTHERN ROCK	LEPIDOPSETTA POLYXYSTRA
4292	SOLE, PETRALE	EOPSETTA JORDANI
4293	SOLE, REX	ERREX ZACHIRUS
4382	SOLE, ROCK UNIDENTIFIED	
4294	SOLE, ROUGHSCALE	CLIDODERMA ASPERRIMUM
4295	SOLE, SAKHALIN	LIMANDA SAKHALINENSIS
4296	SOLE, SAND	PSETTICHTHYS MELANOSTICTUS
4297	SOLE, SLENDER	LYOPSETTA EXILIS
4298	SOLE, SOUTHERN ROCK	LEPIDOPSETTA BILINEATA
4299	SOLE, YELLOWFIN	PLEURONECTES ASPER
4300	SPINYCHEEK STARSNOUT	BATHYAGONUS INFRASPINATA
4301	SQUARETAIL, SMALLEYE	
4302	STICKLEBACK, NINESPINE	PUNGITIUS PUNGITIUS
4371	STICKLEBACK, UNIDENTIFIED	
4303	STICKLEBACK, THREESPINE	GASTEROSTEUS ACULEATUS
4304	STURGEON, GREEN	ACIPENSER MEDIROSTRIS
4372	STURGEON, UNIDENTIFIED	
4305	STURGEON, SIBERIAN	ACIPENSER BAERI
4306	STURGEON, WHITE	ACIPENSER TRANSMONTANUS
4307	SUCKER, LONGNOSE	CATOSTOMUS CATOSTOMUS
4308	SUNFISH, OCEAN	MOLA MOLA
4309	SWORDFISH	XIPHIAS GLADIUS
4310	THORNYHEAD, BROAD BANDED	SEBASTOLOBUS MACROCHIR
4311	THORNYHEAD, LONGSPINE	SEBASTOLOBUS ALTIVELIS
4373	THORNYHEAD, UNIDENTIFIED	
4312	THORNYHEAD, SHORTSPINE	SEBASTOLOBUS ALASCANUS
4313	THREADFIN SLICKHEAD	TALISMANIA BIFURCATA
4314	TOMCOD, PACIFIC	MICROGADUS PROXIMUS
4315	TONGUEFISH, CALIFORNIA	
4316	TROUT, BROOK	SALVELINUS FONTINALIS

CODE	COMMON NAME	SCIENTIFIC NAME
4317	TROUT, CUTTHROAT	ONCORHYNCHUS CLARKI
4318	TROUT, LAKE	SALVELINUS NAMAYCUSH
4374	TROUT, UNIDENTIFIED	
4319	TROUT, PERCH	PERCOPSIS OMISCOMAYCUS
4320	TROUT, RAINBOW	ONCORHYNCHUS MYKISS
4322	TUBESHOULDER, UNIDENTIFIED	
4321	TUBESHOULDER, SHINING	
4323	TUNA, ALBACORE	THUNNUS ALALUNGA
4324	TUNA, BIG EYE	THUNNUS OBESUS
4376	TUNA, UNIDENTIFIED	
4325	TUNA, YELLOWFIN	THUNNUS ALBACARES
4326	TURBOT, GREENLAND	
4327	VIPERFISH, PACIFIC	CHAULIODUS MACOUNI
4328	WARBONNET, DECORATED	CHIROLOPHIS DECORATUS
4329	WARBONNET, MOSSHEAD	CHIROLOPSIS NUGATOR
4377	WARBONNET, UNIDENTIFIED	
4330	WEARYFISH, SCALY	
4331	WHALEFISHES, FLABBY UNIDENTIFIED	
4332	WHITEFISH, BROAD	COREGONUS NASUS
4333	WHITEFISH, HUMPBACK	COREGONUS PIDSCHIAN
4378	WHITEFISH, UNIDENTIFIED	
4334	WHITEFISH, PYGMY	PROSOPIUM COULTERI
4335	WHITEFISH, ROUND	PROSOPIUM CYLINDRACEUM
4336	WOLF-EEL	ANARRHICHTHYS OCELLATUS
4337	WOLFFISH, BERING	
4338	WRYMOUTH, DWARF	LYCONECTES ALEUTENSIS
4339	WRYMOUTH, GIANT	DELOLEPIS GIGANTEA
4379	WRYMOUTH, UNIDENTIFIED	
	OTHER FISH	
5000	HAGFISH, BLACK	EPTATRETUS DEANI
5037	HAGFISH, UNIDENTIFIED	
5001	HAGFISH, PACIFIC	EPTATRETUS STOUTI
5002	LAMPREY, ARCTIC	LAMPETRA JAPONICA
5038	LAMPREY, UNIDENTIFIED	
5003	LAMPREY, PACIFIC	LAMPETRA TRIDENTATUS
5004	LAMPREY, RIVER	LAMPETRA AYRESI
5005	LAMPREY, WESTERN BROOK	LAMPETRA RICHARDSONI

CODE	COMMON NAME	SCIENTIFIC NAME
5006	RATFISH, SPOTTED	HYDROLAGUS COLLIEI
5007	RAY, PACIFIC ELECTRIC	
5008	SHARK, BLUE	PRIONACE GLAUCA
5009	SHARK, BROWN CAT	APRISTURUS BRUNNEUS
5010	SHARK, MAKO	ISURUS OXYRINCHUS
5039	SHARK, UNIDENTIFIED	
5011	SHARK, PACIFIC SHARPNOSE	RHIZOPRIONODON LONGURIO
5012	SHARK, PACIFIC SLEEPER	SOMNIOSUS PACIFICUS
5013	SHARK, PYGMY	EUPROTOMICRUS BISPINATUS
5014	SHARK, SALMON	LAMNA DITROPIS
5015	SHARK, SIXGILL	HEXANCHUS GRISEUS
5016	SHARK, SOUPFIN	GALEORHINUS ZYOPTERUS
5017	SHARK, SPINY DOGFISH	SQUALUS ACANTHIAS
5018	SHARK, THRESHER	ALOPIAS VULPINUS
5019	SKATE EGG CASE, UNIDENTIFIED	
5020	SKATE, ALASKA	BATHYRAJA PARMIFERA
5021	SKATE, ALEUTIAN	BATHYRAJA ALEUTICA
5022	SKATE, BERING	BATHYRAJA INTERRUPTA
5023	SKATE, BIG	RAJA BINOCULATA
5024	SKATE, CALIFORNIA	RAJA INORNATA
5025	SKATE, COMMANDER	BATHYRAJA LINDBERGI
5026	SKATE, DEEPSEA	BATHYRAJA ABYSSICOLA
5027	SKATE, FLATHEAD	BATHYRAJA ROSISPINIS
5028	SKATE, GOLDEN	BATHYRAJA SMIRNOVI
5029	SKATE, LONGNOSE	RAJA RHINA
5040	SKATE, UNIDENTIFIED	
5030	SKATE, OKHOTSK	BATHYRAJA VIOLACEA
5031	SKATE, ROUGHTAIL	BATHYRAJA TRACHURA
5032	SKATE, SANDPAPER	BATHYRAJA KINCAIDI
5033	SKATE, SOFT NOSED	BATHYRAJA SPP
5034	SKATE, STARRY	RAJA STELLULATA
5035	SKATE, WHITEBLOTCHED	BATHYRAJA MACULATA
5036	SKATE, WHITEBROW	BATHYRAJA MINISPINOSA
	MOLLUSKS	
6000	ABALONE	HALIOTOS KAMTSCHATKANA
6001	CHITON, UNIDENTIFIED	
6002	CLAM, SOFTSHELL	

CODE	COMMON NAME	SCIENTIFIC NAME
6003	CLAM, ALASKA RAZOR	
6004	CLAM, BUTTER	SAXIDOMUS GIGANTEUS
6005	CLAM, GEODUCK	PAROPE GENEROSA
6006	CLAM, HORSE	TRESUS CAPAX
6007	CLAM, PACIFIC (NORTHERN) RAZOR	
6008	CLAM, PACIFIC LITTLENECK	PROTOTHACA STAMINEA
6009	CLAM, SURF	SPISULA POLYNYMA
6010	COCKLE, NUTTALL (COCKLE CLAM)	
6011	LIMPETS	
6012	MUSSEL, BLUE	MYLITUS EDULIS
6013	NUDIBRANCH , UNIDENTIFIED	
6014	OCTOPUS, COMMON PACIFIC	OCTOPUS DOFLEINI
6015	OCTOPUS, PELAGIC	ORDER VAMPYROMORPHA
6016	OYSTER, PACIFIC	CRASSOSTREA GIGAS
6017	SCALLOP, ARCTIC PINK	CHLAMYS PSEUDISLANDICA
6018	SCALLOP, HINDS	CHLAMYS RUBIDA
6019	SCALLOP, PACIFIC PINK	CHLAMYS HASTATA
6020	SCALLOP, WEATHERVANE	PECTEN CAURINUS
6021	SHELL, ALASKA VOLUTE	BOREOMELON STEARNSII
6022	SHELL, ANGULAR WHELK	BUCCINUM ANGULOSUM
6024	SHELL, ANTIPLANES UNIDENTIFIED	
6023	SHELL, ANTIPLANES PIONA	ANTIPLANES PIONA
6025	SHELL, BERING WHELK	BERINGIUS BEHRINGI
6026	SHELL, BOREOTROPHON UNIDENTIFIED	
6027	SHELL, BROWN WHELK	CLINOPEGMA MAGNA
6029	SHELL, BUCCINUM UNIDENTIFIED	
6028	SHELL, BUCCINUM PHYSEMATUM	BUCCINUM PHYSEMATUM
6030	SHELL, CHANNELED WHELK	BUCCINUM SOLENUM
6031	SHELL, CLATHRATE TROPHON	BOREOTROPHON CLATHRATUS
6032	SHELL, COLUS ESYCHUS	COLUS ESYCHUS
6033	SHELL, COLUS NK	
6034	SHELL, CREPIDULA NK	
6035	SHELL, DALL'S TROPHON	BOREOTROPHON MURICIFORMIS
6036	SHELL, ELEGANT TROPHON	BOREOTROPHON PACIFICUS
6037	SHELL, FAT WHELK	NEPTUNEA VENTRICOSA
6038	SHELL, FRAGILE WHELK	VOLUTOPSIUS FRAGILIS
6039	SHELL, FRIELES WHELK	BERINGIUS FRIELEI
6040	SHELL, GLACIAL WHELK	BUCCINUM GLACIALE
6041	SHELL, HALL'S WHELK	COLUS HALLI

CODE	COMMON NAME	SCIENTIFIC NAME
6042	SHELL, INCISED WHELK	PLICIFUSUS INCISUS
6043	SHELL, KEELED AFORIA	AFORIA CIRCINATA
6044	SHELL, KROYER'S WHELK	PLICIFUSUS KROYERI
6045	SHELL, LADDER WHELK	BUCCINUM SCALARIFORME
6046	SHELL, LITTLE WHELK	NEPTUNEA BOREALIS
6047	SHELL, LYRE WHELK	NEPTUNEA LYRATA
6048	SHELL, NATICA UNIDENTIFIED	
6049	SHELL, NEPTUNEA AMIANTA	NEPTUNEA AMIANTA
6050	SHELL, NEPTUNEA INTERSCULPTA	NEPTUNEA INTERSCULPTA
6051	SHELL, NEPTUNEA UNIDENTIFIED	
6052	SHELL, NORTHERN WHELK	NEPTUNEA HEROS
6053	SHELL, OBLIQUE WHELK	COLUS HYPOLISPUS
6054	SHELL, OREGON TRITON	FUSITRITON OREGONENSIS
6055	SHELL, PLICIFUSUS UNIDENTIFIED	
6056	SHELL, POLAR WHELK	BUCCINUM POLARE
6057	SHELL, PRIBILOF WHELK	NEPTUNEA PRIBILOFFENSIS
6058	SHELL, ROSY WHELK	COLUS ROSEUS
6059	SHELL, SHOULDERED WHELK	VOLUTOPSIUS STEFANSSONI
6060	SHELL, SINOUS WHELK	BUCCINUM PLECTRUM
6061	SHELL, SNAIL UNIDENTIFIED	
6062	SHELL, THICK-RIBBED WHELK	COLUS SPITZBERGENSIS
6063	SHELL, THIN-RIBBED WHELK	COLUS HERENDEENII
6064	SHELL, THREADED WHELK	VOLUTOPSIUS FILOSUS
6065	SHELL, TULIP WHELK	VOLUTOPSIUS MIDDENDORFFII
6066	SHELL, VELUTINA VELUTINA	VELUTINA VELUTINA
6067	SHELL, WARPED WHELK	VOLUTOPSIUS DEFORMIS
6068	SNAIL, CROWNED HAIRY SNAIL	TRICOTROPIS CORONATA
6069	SNAIL, EGGS UNIDENTIFIED	
6070	SNAIL, ERODED TURRET SNAIL	TACHYRHYNCHUS EROSUS
6071	SNAIL, PALLID MOON SNAIL	POLINICES PALLIDA
6072	SNAIL, RUSTY MOONSNAIL	CRYPTONATICA RUSSA
6073	SNAIL, SHELL NK	
6074	SQUID, CALIFORNIA MARKET	LOLIGO OPALESCENS
6075	SQUID, GIANT	MOROTEUTHIS ROBUSTA
6076	SQUID, MAJESTIC	BERRYTEUTHIS MAGISTER
6077	SQUID, PACIFIC BOBTAILED	ROSSIA PACIFICA
	OTHER LIFE	
7000	ASCIDIAN/ SEA SQUIRT/ TUNICATE	

CODE	COMMON NAME	SCIENTIFIC NAME
7001	BARNACLE, UNIDENTIFIED	
7002	CORAL	CORALLIUM SP.
7003	CORAL, RED TREE	PRIMNOA WILLEYI
7004	CORALS, BRYOZOANS UNIDENTIFIED	
7005	CRAB, ALASKAN HERMIT	PAGURUS OCHOTENSIS
7006	CRAB, ALEUTIAN HERMIT	PAGURUS ALEUTICUS
7007	CRAB, ARCTIC LYRE	HYAS COARCTATUS
7008	CRAB, BAIRDI TANNER	CHIONOECETES BAIRDI
7009	CRAB, BLUE KING	PARALITHODES PLATYPUS
7010	CRAB, BROWN BOX	LOPHOLITHODES FORAMINATUS
7011	CRAB, DECORATOR	OREGONIA GRACILIS
7012	CRAB, DUNGENESS	CANCER MAGISTER
7013	CRAB, FUZZY	ACANTHOLITHODES HISPIDUS
7014	CRAB, GOLDEN/BROWN KING	LITHODES AEQUISPINA
7015	CRAB, GROOVED TANNER	CHIONOECETES TANNERI
7016	CRAB, HAIR	ERIMACRUS ISENBECKII
7017	CRAB, HELMET	TELMESSUS CHEIRAGONUS
7018	CRAB, HYBRID TANNER	CHIONOECETES HYBRID
7082	CRAB, UNIDENTIFIED	
7019	CRAB, OPILIO TANNER	CHIONOECETES OPILIO
7020	CRAB, OREGONIA BIFURCA	OREGONIA BIFURCA
7021	CRAB, PACIFIC LYRE	HYAS LYRATUS
7022	CRAB, PARALOMIS MULTISPINA	PARALOMIS MULTISPINA
7023	CRAB, PARALOMIS VERILLI	PARALOMIS VERILLI
7024	CRAB, PEA	PINNIXA OCCIDENTALIS
7025	CRAB, PURPLE HERMIT	ELASSOCHIRUS CAVIMANUS
7026	CRAB, PYGMY ROCK	CANCER OREGONENSIS
7027	CRAB, RARE KING	PARALITHODES BREVIPES
7028	CRAB, RED BOX	LOPHOLITHODES MANDTII
7029	CRAB, RED HERMIT	ELASSOCHIRUS GILLI
7030	CRAB, RED KING	PARALITHODES CAMTSCHATICUS
7031	CRAB, RHINOCEROS	RHINOLITHODES WOSNESSENSKII
7032	CRAB, SCALED	PLACETRON WOSNESSENSKII
7033	CRAB, SCARLET KING	LITHODES COUESI
7034	CRAB, SPLENDID HERMIT	LABIDOCHIRUS SPLENDESCENS
7035	CRAB, TRIANGLE TANNER	CHIONOECETES ANGULATUS
7036	CRAB, WIDEHAND HERMIT	ELASSOCHIRUS TENUIMANUS
7037	CRINOIDS, UNKNOWN(FEATHER STARS, SEA LILLIES)	

CODE	COMMON NAME	SCIENTIFIC NAME
7038	HERRING, ROE ON KELP	
7039	HYDROIDS, UNIDENTIFIED	
7040	INVERTEBRATE UNIDENTIFIED	
7041	ISOPOD	ISOPODA
7042	JELLYFISH (ALL)	
7085	KELP, UNIDENTIFIED	
7043	KRILL	EUPHAUSIACEA, ORDER
7044	LAMP SHELL, UNIDENTIFIED	
7045	LEECH, UNIDENTIFIED	
7046	POLYCHAETE, UNIDENTIFIED	
7047	SEA ANEMONE, UNIDENTIFIED	
7048	SEA CUCUMBER, BROWNSCALED	PSOLUS FABRICII
7049	SEA CUCUMBER, CRESCENT	PENTAMERA LISSOPLACA
7050	SEA CUCUMBER, RED	PARUSTICHOPUS
7051	SEA CUCUMBER, REDSCALED	PSOLUS SP.
7052	SEA CUCUMBER, SEA FOOTBALL	CUCUMARIA FALLAX
7053	SEA CUCUMBER, SLENDER	BATHYPLOTES SP.
7055	SEA ONIONS, UNIDENTIFIED	
7056	SEA PEN/ SEA WHIP, UNIDENTIFIED	
7057	SEA POTATO, UNIDENTIFIED	
7058	SEA SPIDERS, UNIDENTIFIED	
7059	SEA STAR, BASKET	GORGONOCEPHALUS
7060	SEA STAR, BRITTLE UNIDENTIFIED	
7061	SEA STAR, SUNSTAR	SOLASTERIDAE
7062	SEA STARS, UNIDENTIFIED	
7063	SEA URCHIN, FRAGILE	ALLOCENTROTUS FRAGILIS
7064	SEA URCHIN, GREEN	STRONGYLOCENTROTUS DROE-BACHIENSIS
7065	SEA URCHIN, HEART	BRISASTER LATIFRONS
7066	SEA URCHIN, RED	STRONGYLOCENTROTUS FRANCISCA-NUS
7067	SEA URCHIN/SAND DOLLAR, UNIDENTIFIED	
7068	SEARCHER	BATHYMASTER SIGNATUS
7084	SEAWEEDS (ALSO SEE KELP 7085)	
7069	SHRIMP, ARCTIC ARGID	ARGIS DENTATA
7070	SHRIMP, COONSTRIPE	PANDALUS DANAE
7071	SHRIMP, DEEP	PANDALOPSIS ALEUTICA
7072	SHRIMP, HUMPY	PANDALUS GONIURUS
7083	SHRIMP, UNIDENTIFIED	

CODE	COMMON NAME	SCIENTIFIC NAME
7073	SHRIMP, NORTHERN/PINK	PANDALUS BOREALIS
7074	SHRIMP, OCEAN	PANDALUS JORDANI
7075	SHRIMP, SIDESTRIPE	PANDALOPSIS DISPAR
7076	SHRIMP, SPOT	PANDALUS PLATYCEROS
7077	SPONGE, UNIDENTIFIED	
7078	WORM, BRISTLE (SEA MOUSE)	APHRODITA NEGLIGENS
7079	WORM, OLIGOCHAETE UNIDENTIFIED	
7080	WORM, PEANUT, UNIDENTIFIED	
7081	WORM, SPOON	

VESSELS

8001	F/V, DRIFT GILLNET
8002	F/V, LONGLINE
8003	F/V, POT
8004	F/V, PURSE SEINE
8005	F/V, SET GILLNET
8006	F/V, TENDER
8007	F/V, TRAWL
8008	F/V, TROLL
8009	RECREATIONAL, FISHING
8010	RECREATIONAL, KAYAK
8000	RECREATIONAL, OTHER
8011	RECREATIONAL, WILDLIFE VIEWING
8012	SHIP, CARGO
8013	SHIP, FERRY
8015	VESSEL, OTHER LARGE (>60 FEET)
8015	VESSEL, OTHER MID-SIZE (25-60 FEET)
8016	VESSEL, OTHER SMALL (<25 FEET)

DEBRIS

9001	DEBRIS, MAN-MADE (I.E, METALS, PLASTICS)
9002	DEBRIS, UNIDENTIFIED
9000	DEBRIS, NATURAL (I.E., WOOD)

Appendix 7. Disposition Reason Codes

1 = Discarded, no market, reason not specified

2 = Discarded, no market, too small

3 = Discarded, no market, too large

4 = Discarded, no market, quota filled

5 = Discarded, no market, won't keep until trip end

6 = Discarded, regulations prohibit retention

7 = Discarded, poor quality, reason not specified

8 = Discarded, poor quality, due to sand flea damage

9 = Discarded, poor quality, due to seal damage

10 = Discarded, poor quality, due to shark damage

11 = Discarded, poor quality, due to cetacean damage

12 = Discarded, poor quality, due to scavenger damage

13 = Discarded, poor quality, due to gear damage

14 = Discarded, fell out of gear and lost

15 = Discarded, too large to bring on-board

16 = Discarded, vessel capacity filled

17 = Discarded, not enough fish to pump onboard

18 = Discarded, incidental take (mammal, bird)

19 = Discarded, debris

20 = Discarded, other reason (record in comments)

21 = Discarded, reason unknown

30 = Kept, landed/sold

31 = Kept, used for bait

32 = Kept, for personal consumption

33 = Kept, other reason (record in comments)

34 = Kept, reason unknown

0 = Unknown disposition

Appendix 8. Marine Mammal Haulouts and Seabird Colonies of Kodiak Island

Table 2. Steller Sea Lion Haulouts, Kodiak. Known locations of Steller sea lion haulouts on Kodiak Island.

(Provided by B. Gerke, NMFS, 2002.)

Haulout Name	Latitude (N)	Longitude (W)
CAPE KULIAK	58.13333	-154.20833
CAPE ALITAK	56.84167	-154.31167
CAPE IKOLIK	57.28667	-154.79167
CAPE KULIUK	57.80833	-153.93333
CAPE UYAK	57.63333	-154.35000
MALINA POINT	58.03333	-153.36667
STEEP CAPE	58.20833	-153.19167
STURGEON HEAD	57.51667	-154.61667
SUNDSTROM	56.68333	-154.15000
TOMBSTONE ROCKS	57.35267	-154.81933
NOISY	57.93333	-153.55833
PUALE BAY	57.67667	-155.38500

Table 3. Kodiak Island Marine Bird Colony Description. A listing of the marine bird colonies inside AMMOP's study area. The map number and site numbers are referencing Figure 1. The table lists the Alaska Department of Fish and Game (ADF&G) statistical area, AMMOP's regional area code, relative priority among colony counts for this area, common site name, latitude, longitude, and number of birds at last count. (Provided by U.S. Fish and Wildlife Service, Migratory Bird Management, 2002.)

Map #	Site #	ADF&G Area	Region	Priority	Site Name	Latitude	Longitude	# Birds
32	3	25741	KI5	MOD	Egg Island	56.89	-154.22	792
32	5	25741	KI5	MOD	Fox Island	56.99	-154.03	1291
32	18	25741	KI5	MOD	Little Fox Island	56.98	-154.06	534
34	11	25420	KI2	LOW	Alf Islands	57.4	-153.83	1156
34	12	25430	KI2	LOW	Carlsen Point	57.57	-153.85	617
34	19	25440	KI2	LOW	Bird Rock	57.69	-153.9	2857
34	20	25440	KI2	LOW	Chief Point	57.71	-153.91	76
34	21	25936	KI1	HI	Reef 2	57.76	-152.86	450
34	23	25313	KI1	HI	S.E. Of Rock Point	57.77	-153.48	20
34	24	25313	KI1	LOW	Village Islands	57.79	-153.54	2222
34	25	25313	KI1	LOW	Gull Light	57.79	-153.45	579
34	26	25314	KI1	LOW	Unganik Pass Islets	57.81	-153.29	658
34	27	25936	KI1	HI	Barabara Cove	57.82	-152.91	50
34	28	25936	KI1	HI	N. Barabara Cove Point	57.82	-152.9	2060
34	29	25936	KI1	HI	Trount Triangle	57.82	-152.89	200
34	32	25937	KI1	HI	Kekur Point Rock	57.86	-152.79	400
34	34	25331	KI1	LOW	Naugolka Point Island	57.9	-153.23	499
34	36	25939	KI1	HI	Otmeloi Point	57.91	-152.51	34
34	37	25939	KI1	HI	Low Island	57.91	-152.55	1835
34	38	25314	KI1	LOW	North Noisy Island	57.93	-153.55	1794
34	39	25314	KI1	LOW	South Noisy Island	57.92	-153.55	451
34	40	25335	KI1	HI	Koniuji Island	57.93	-152.84	120
34	41	25335	KI1	HI	Bare Island	57.95	-153.08	-1
34	42	25335	KI1	HI	Chernof Point	57.95	-152.93	7
34	43	25335	KI1	HI	Island W. Of Bare Island	57.96	-153.1	4000
34	44	25937	KI1	HI	Whale Island	57.94	-152.75	6686
34	45	25938	KI1	HI	Treeless Island	57.98	-152.71	300
34	46	25939	KI1	MOD	The Triplets	57.98	-152.48	108347
34	48	25313	KI1	LOW	Uganik Bay - 2 Islets	57.73	-153.55	455

34	71	25311	KI1	HI	1.25 Mi Sw Of Miner'S Pt.	57.89	-153.75	30
34	72	25311	KI1	HI	Pt. 4 Mi. Sw Of Miners Pt.	57.87	-153.81	82
34	73	25311	KI1	HI	Island Off Cape Ugat	57.87	-153.85	912
34	74	25440	KI2	LOW	Aux Triangle	57.69	-153.86	312
34	75	25440	KI2	HI	Pt. 1 Mi Se Of Cliff Triangle	57.67	-153.68	24
34	76	25440	KI2	LOW	S. Shore Spiridon Bay Islands	57.64	-153.65	316
34	77	25440	KI2	LOW	Ditto Islands	57.65	-153.68	399
34	78	25440	KI2	MOD	Island S. Ditto Islands	57.64	-153.68	175
34	79	25440	KI2	LOW	Anguk Islands	57.65	-153.71	285
34	80	25440	KI2	LOW	Unnamed Island Spiridon Bay	57.65	-153.75	52
34	81	25440	KI2	LOW	Thistle Rock	57.66	-153.8	350
34	82	25440	KI2	LOW	Clover Rock	57.65	-153.82	517
34	83	25420	KI2	MOD	Amook Bay Island	57.48	-153.82	689
34	84	25420	KI2	LOW	Is. Nw Side Amook Bay	57.53	-153.88	628
34	91	25939	KI1	HI	Monashka Seastack	57.85	-152.4	58
34	92	25939	KI1	HI	Largest Island, S. Icon Bay	57.89	-152.35	364
34	93	25939	KI1	HI	Eider & Nelson Islands	57.89	-152.41	3976
34	94	25939	KI1	HI	Knee Bay Stack	57.94	-152.41	30
34	95	25939	KI1	HI	Island Bay Islets	57.96	-152.41	3940
34	96	25939	KI1	HI	Small Triangle	57.94	-152.52	32
34	97	25938	KI1	HI	Anton Larsen Bay Islands	57.88	-152.64	5200
34	102	25937	KI1	HI	Island Near Sharatin Bay	57.87	-152.71	308
34	117	25420	KI2	LOW	"Small Island", Amook Pass	57.47	-153.82	592
34	118	25420	KI2	LOW	Twin Islands	57.42	-153.86	983
34	127	25311	KI1	LOW	Miners Point	57.9	-153.72	127
34	128	25311	KI1	LOW	West of Broken Point	57.88	-153.65	54
34	129	25420	KI2	LOW	Southeast of Alf Island	57.37	-153.77	12
34	130	25331	KI1	LOW	Uganik Island	57.93	-153.35	170
34	131	25314	KI1	MOD	Cape Uganik	57.97	-153.5	30
35	18	25410	KI2	HI	Bear Island	57.66	-154.04	96

Figure 1. Steller Sea Lion Haulouts, Kodiak. (Provided by B. Gerke, NMFS, 2002.)

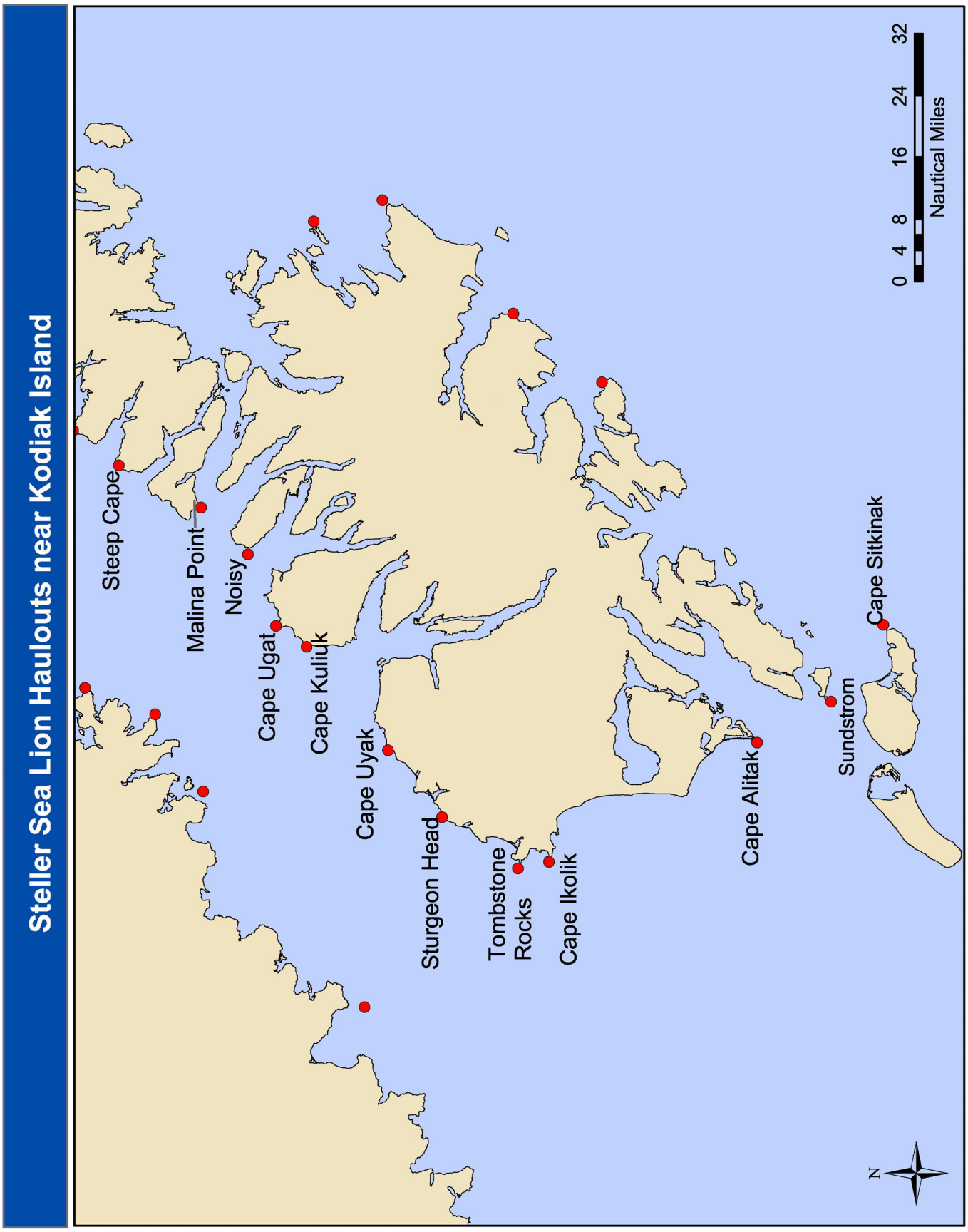
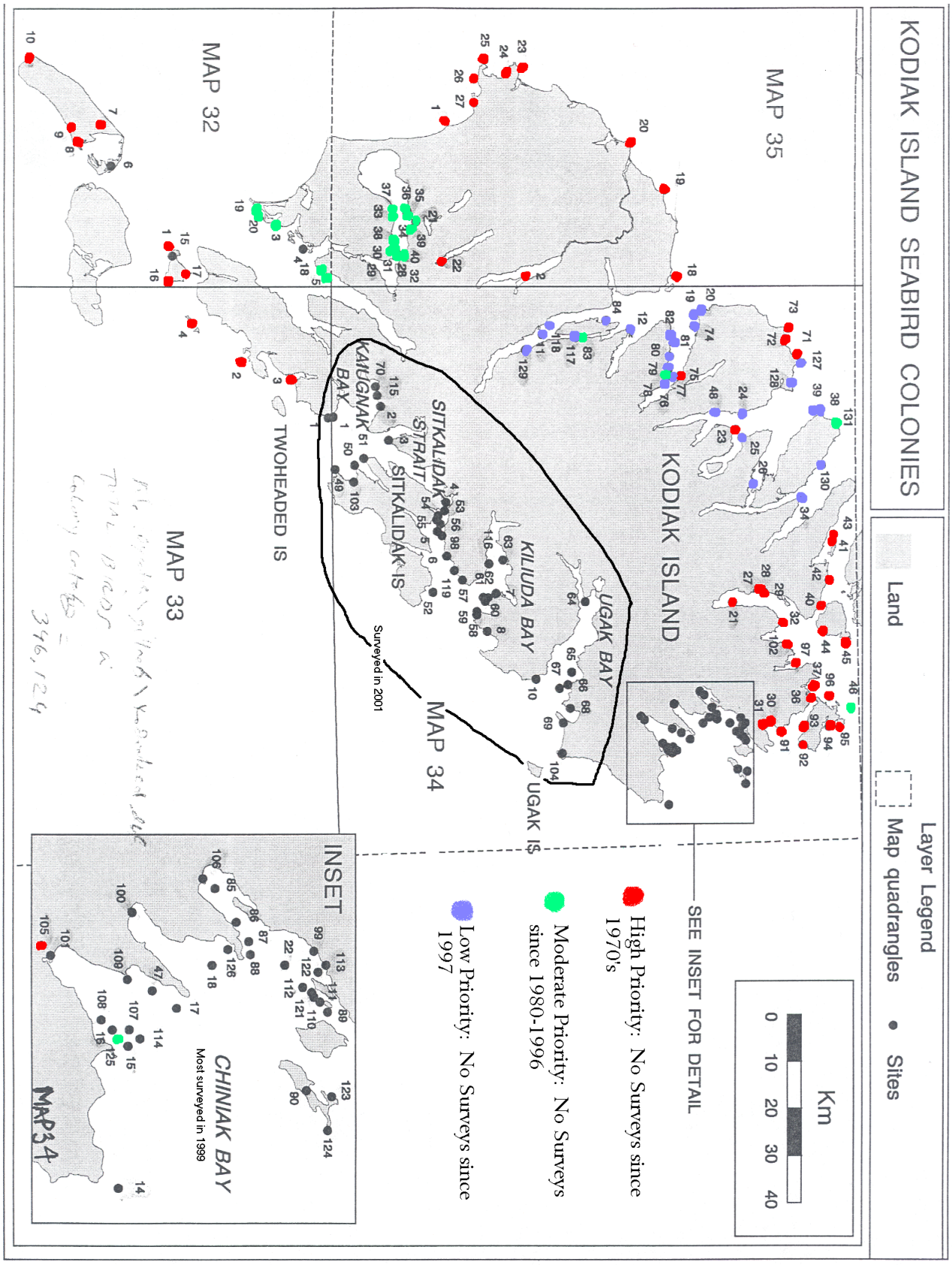


Figure 2. Marine Bird Colonies of Kodiak Island. (Provided by U.S. Fish and Wildlife Service, Migratory Bird Management, 2002.)



Appendix 9: Gear Instructions

Radios

The radios that you use most often are VHF-FM (Very High Frequency Modulation), used for short-range vessel-to-vessel and vessel-to-shore communication, and HF-SSB (High Frequency-

Single Side Band), used for communication when the stations are out of VHF range with each other. Both types offer certain special advantages, and each requires a specific operating procedure.

VHF-FM Radios

In the United States, the VHF Band is broken up into 71 channels, with a frequency range of from 156.000 to163.000 MHz, including six WX (Weather) channels. By law, all operating VHF stations are required to have at least three of these channels: channel 6, channel 16, and at least one other working channel.

Channel 6 (156.300 MHz) is the Intership Safety Channel, used for intership safety purposes, search-and rescue (SAR) communications with ships and aircraft of the U.S. Coast Guard, and vessel movement reporting within ports and inland waterways. This channel must not be used for non-safety communications.

Channel 16 (156.800 MHz) is the International Distress, Safety, and Calling Channel (Intership and Ship-to-Coast).

This channel must be monitored at all times the station is in operation (except when actually

communicating on another channel). This channel is also monitored by the U.S. Coast Guard, Public Coastal Stations, and many Limited Coastal Stations. Calls to vessels are normally initiated on this channel. Then, except in an emergency, you must switch to a working channel. It is against FCC regulations to conduct business on this channel. In addition, vessels calling must use their assigned call sign at the beginning and end of each transmission.

Channel 22A (157.100 MHz) is the U.S. Coast Guard Liaison Channel. This channel is used for

communications with U.S. Coast Guard ships, aircraft, and coastal stations after first establishing contact on channel 16. Navigational warnings and, where not available on WX channels, Marine Weather forecasts are also broadcast on this frequency.

Channels 24. 25. 26. 27 and 28 (also 84. 85. 86 and 87) are the Public Correspondence channels (ship-tocoast). These are available to all vessels to communicate with Public Coastal stations (Marine Operator).

Channels 26 and 28 are the primary public correspondence channels.

Channels 1. 3. 5. 12. 13. 14. 15. 17. 65. 66. 73. 74. 77. 81. 82 and 83 are channels with special designations (port traffic communications, U.S. government communications, locks and bridges, environmental, etc.), andtheir use close to shore or to ports should be minimized.

Channels 7. 8. 9. 10. 11. 18. 19. 67. 68. 69. 70. 71. 72. 78. 79. 80 and 88 are commercial and non-commercial working channels that are available for conducting business. The abbreviated format (no call signs) is acceptable on these frequencies. It should be noted that some of these channels may be locally restricted, in which case their use for business should be avoided.

HF-SSB Radios

To communicate over distances of beyond twenty miles, you will need to use satellite communication or a medium to high frequency radiotelephone referred to as Single Side Band (SSB) radio. The signal is poorer in quality than VHF and susceptible to slight atmospheric shifts. Lower frequencies are used for medium distances and higher frequencies for greater distances. The general rule for single sideband frequency selection is: multiply the frequency in MHz by 100 to obtain the approximate coverage distance in miles. At night however, the ranges of SSB radiowave travel are from 2-3 times greater. Therefore, use a lower frequency at night to cover the same distance.

All ship SSB radiotelephones must be capable of operating on 2182 kHz, the international distress and calling frequency, and at least 2 other frequencies. 4125 kHz is the “hailing frequency” and is also used as an Emergency channel. Numerous channels are available for your use; which ones are available varies from place to place. However, channel 2670 kHz is only used for communicating with the Coast Guard and should not be used for other purposes.

When using SSB radiotelephone, you must observe radio silence on channel 2182 kHz and 4125 kHz for 3 minutes immediately after the hour and the half hour. The purpose of radio silence on the emergency hailing channel is to clear the airwave for weak or distant distress signals. No radio silence is used on the VHF emergency channel: channel 16.

Radio Procedures

The airwaves are in the public domain, and it is the responsibility of the radio station operator to conduct business according to established guidelines and procedures. While on the air, the operator should follow the following guidelines:

1. Listen before beginning transmission in order to ensure that you are not interfering with other stations or with emergency radio traffic.

2. Identify your station when calling. On the SSB, a calling station must limit the duration of the hail to not more than 30 seconds. If there is no reply, the hail may be repeated at 2 minute intervals up to a maximum of three times, at which time the calling station must sign off and wait a minimum of 15 minutes before making another attempt. This requirement does not apply in emergency situations.

3. Keep transmissions short and concise, giving the other station a chance to respond, ask questions, or reconfirm an unclear message. A long, complicated message can best be effected in short segments with breaks in between to ensure that the receiving station has copied each portion of the message correctly.

4. Follow correct radio procedure while on the air. The phonetic alphabet should be learned and used. You should also know and use the radio "punctuation" words ("over", "clear", "out","roger", "words twice", "say again", "standing by", and "break"). Since most radio communication is only one way at a time, these words can be valuable for signaling your intentions to the receiving station. Make sure to speak directly into the microphone; loudly, slowly, and distinctly—but not shouting. The use of profanity is strictly forbidden.

5. Upon completing a transmission, you must sign off by identifying your station and using the words "clear" or "out" (or, if you expect to soon resume contact with the same station, by using the phrase"standing by").

Radios cannot transmit and receive simultaneously. When you have temporarily finished talking and are ready to listen, say "over," and release the button on your microphone. When the other party is ready to listen they will say "over." At the end of your entire message, say "out" rather than "over." Keep in mind that people on other ships can hear your conversation, so be careful about sensitive or personal information.

Sounds are easily garbled on radios so the phonetic alphabet is used:

A - Alpha	B - Bravo	C - Charlie	D - Delta
E - Echo	F - Foxtrot	G - Gulf	H - Hotel
I - India	J - Juliet	K - Kilo (keelo)	L - Lima (Leema)
M - Mike	N - November	O - Oscar	P - Papa
Q - Quebec	R - Romeo	S - Sierra	T - Tango
U - Uniform	V - Victor	W - Whiskey	X - X-ray
Y- Yankee	Z- Zulu		

Every ship and all Coast Guard stations continually listen to the emergency frequencies, which are also the "hailing" frequencies. Therefore when you want to talk to someone, call on an emergency frequency. As soon as you contact them, arrange to switch to another channel. It is illegal, impolite, unfair, and dangerous to talk on emergency channels. Sometimes atmospheric conditions are such that the emergency frequencies are the only ones that work. At those times you simply cannot communicate via radio except to report emergencies.

Emergency frequencies are:

VHF: Channel 16, international distress

VHF: Channel 13, for ships to avoid collisions, but not to contact Coast Guard shore stations.

SSB: 2182 kHz or 4125 kHz, international distress frequencies

GPS

Data collection in the salmon fisheries includes the location of the fishing. You will be issued hand-held GPS units to navigate and determine the latitude and longitude of observed fishing operations.

The lines of longitude and latitude form a grid around the Earth and are enumerated by degrees. Each degree is divided into 60 minutes, each minute into 60 seconds.

The lines of Latitude run east-west and are parallel to the Equator (0 degrees latitude). The North pole is 90 ° North, and the South pole is 90° South latitude. Each degree of latitude is equal to 60 nautical miles (a handy fact when measuring distances on charts).

Lines of longitude run north-south, and meet at the North pole and South pole. They are not parallel, and divide the earth into shapes similar to sections of an orange. The "Prime Meridian" is the "Zero degrees Longitude" and runs through Greenwich, Great Britain. As you move west, towards North America, the longitude increases until you reach 179 59.9' West, less than a tenth of a mile from the 180 degree latitude line. If you go East from Greenwich, the longitude increases until you reach the 180° line.

An accurate method of determining your latitude and longitude is by Global Positioning System (GPS), which is a series of satellites in orbit around the Earth that emit signals at specific times. A GPS receiver can receive the signal and determine your distance from a given satellite by the time delay from emission to reception. Several signals from different satellites can fix a position, but the satellite must be above the horizon so that its signal can be received.

Instructions for Garmin GPS 12 Personal Navigator

Determine your position. Hold the button with the "light bulb" down until the display turns on.

After a system test, it should display the ***Satellite page***, which identifies which orbiting satellites are detectable above the horizon. You may have to select your location or use the "autolocate" feature first.

Once the unit determines the latitude and longitude of your location, it displays the ***Position page***. Strong signals and more satellites increase accuracy. Buildings, mountains, and heavy tree cover will block some signals. If you are getting at least three satellite signals, your position is fairly accurate. If you receive four or more, the altitude of your location should also be correct. Satellite coverage is sometimes low in Alaska, and if the unit takes more than about three minutes to show the Position page, you may have to try later (this should be rare). There are differing opin-

ions about the accuracy of the GPS positioning, but it is generally within about 50 feet, or about a tennis court at its worst. Differential GPS, which is available in some areas but requires a differential receiver, corrects for errors in satellite orbits and is more accurate.

The ***Main Menu*** will lead you to menus to change the "setup" of the unit. Latitude and longitude in can be displayed in several formats. For example, hddd mm' ss.s' would show the coordinates to tenths of a second. hddd mm.mm' would show hundredths of minutes. Remember that there are 60 minutes in a degree, so 59 50.5' = 59 50' 30".

Map Datums probably will not affect your accuracy of position fixing, but if using a chart or map for navigation, consult the legend for Datum information and change the GPS to this new reference. WGS 84 is usually the default datum.

The ***Navigation page*** should be used when traveling. The display can be in several formats, and includes compass bearings. Once you have entered waypoints in the GPS receiver, you can use it to navigate with several modes, either by compass bearing or a "highway" display.

The ***Map Page*** shows your route and waypoints. Waypoints are Latitudes and Longitudes that you store in the receiver. Press the "Mark" key. The unit will prompt you for a three digit name. If you change the name of the waypoint, press "enter". If you press "enter", a default name wil be assigned. You can delete or replace waypoints using the menu.

Bushnell Yardage Pro Rangefinder

A rangefinder is simple to use, *but is not weatherproof and should be taken out of the case only when necessary.* Measure distances in meters (hold the MODE button down for 5 seconds to . The unit measures distances from 20 to 800 meters (850 m for highly reflective objects), and is accurate to +/- 2 meters.

To use, hold the power button down until a range is displayed. Once a range is displayed, release the power button and the display will remain active for 8 seconds. If you hold the power button down for more than 3 seconds, the unit will switch to "scan" mode, and be continuously updated. "Rain" mode can be used to ignore pulses reflected from precipitation. "Reflective" mode (REFL) is for highly reflective targets and has increased maximum range, but it decreases the ability to detect less reflective targets that you will encounter. ">150" mode is for filtering out brush or objects that are less than 150 meters away. In your data collection, "Standard" mode (which has no LCD indication) should be used in most situations. You may find the "RAIN" mode to be useful, which will be indicated by "RAIN" in the LCD display.

Dial Caliper

The dial caliper is capable of measuring to a much smaller level of accuracy than needed for your data collection. Knowing how to read to read the dial to 1/1000 of an inch or .02 mm is not necessary. It is an expensive instrument and should be rinsed of salt water, oiled, and stored in its case.

Depth Meter

The depth meter runs a 9 volt battery. Do not drop it–it is not shockproof. Hold the front cap in the water, push the switch, remove it and read it. It will shut off after 10 seconds. To change between feet and meters, remove the front cap with a counter-clockwise and flip the third switch away from the wire back for meters, forward for feet. You will need a paper clip to flip this small switch.

Kestrel 2000 Pocket Thermo Wind Meter

If there is little wind (<2 mph), wave the meter to measure air temperature, increasing air circulation into the unit. Use the MODE key to change display between "current wind speed", "Maximum wind speed" , "Average wind speed", "air temperature", and "wind chill". Hold down the ON button while pressing MODE to change the scale from "Beaufort force", "Knots", "MPH", etc.

Stopwatch

Press the upper right button to start or stop time measurement. Reset to zero with the upper left button. Other functions are probably not necessary. The center button, held down for two seconds, is used to choose between "stopwatch" (plain time measurement) and "interval timer" (lap measurement).

Appendix 10: Conversions: WEIGHTS AND MEASUREMENTS

Distances

1 inch (in) = 2.54 centimeters (cm)

1 cm = 10 millimeters (mm) = .3937 in

1 foot (ft) = 0.3048 meters (m) = 0.1667 fathoms (fm)

1 m = 100 cm = 3.2808 ft = 0.5468 fm

1 fathom = 6 ft = 1.829 m

1000 m = 1 kilometer (km) = .6214 statute miles (mi)

1 statute mile = 5280 ft = 1.609 km = 880 fathoms

1 nautical mile (nm) = 1.15078 statute miles (mi) = 1.852 km = 1012.6859 fathoms

1° Latitude = 60 nm

Weight

1 pound (lb) = .4536 kilogram (kg)

1 kg = 2.2046 lb

Temperature

° Fahrenheit (F) = (1.8 x °Celsius) + 32 °

°Celsius (C) = 5/9(°F - 32°)

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(cut this out for 1" edge of 3 ring binder)