



Davidson Seamount Taxonomic Guide

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
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Office of National Marine Sanctuaries



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Davidson Seamount Taxonomic Guide

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COVER

Top left: Unidentified yellow ruffled sponge (PORIFERA sp. 8).

Top right: Gorgonian coral (*Paragorgia arborea*).

Lower Left: Crinoids and corals, including feather star (*Florometra serratissima*), black coral (*Trissopathes pseudotristicha*), and primnoid coral (*Narella* sp.).

Lower Right: Deep sea toad (*Bathychaunax (Chaunax) coloratus*).

Image Credits: Top left and lower right (NOAA/MBARI 2002); top right and lower left (NOAA/MBARI 2006).

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ABSTRACT

Davidson Seamount is one of the largest seamounts in U.S. waters and the first to be characterized as a “seamount.” In 2002 and 2006, the Monterey Bay National Marine Sanctuary (MBNMS) led two multi-institutional expeditions to characterize the geology and natural history of Davidson Seamount. Results from these expeditions to Davidson Seamount are adding to the scientific knowledge of seamounts, including the discovery of new species. In November 2008, the MBNMS boundary was expanded to include the Davidson Seamount. In addition, a management plan for Davidson Seamount was created to develop resource protection, education, and research strategies for the area. The purpose of this taxonomic guide is to create an inventory of benthic and mid-water organisms observed at the Davidson Seamount to provide a baseline taxonomic characterization. At least 237 taxa were observed and are presented in this guide; including 15 new or undescribed species (8 sponges, 3 corals, 1 ctenophore, 1 nudibranch, 1 polychaete, 1 tunicate) recently or currently being described by taxonomic experts. This is the first taxonomic guide to Davidson Seamount, and is intended to be revised in the future as we learn more about the seamount and the organisms that live there.

KEY WORDS

Davidson Seamount, taxonomy, corals, sponges, invertebrates, fishes, marine protected area, MPA, deep sea, guide, images, exploration, ROV, Monterey Bay National Marine Sanctuary.

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INTRODUCTION

Numerous seamounts of volcanic origin, diverse in size and shape, occur off the coast of California (Davis et al. 2002). Davidson Seamount is one of the largest seamounts in U.S. waters. It is located off central California, 120 km southwest of Monterey and 150 km west of Cambria (Fig. 1). It was the first to be characterized as a “seamount” in 1938 by the United States Board on Geographic Names, and was named in honor of the United States Coast and Geodetic Survey scientist George Davidson (Davidson Seamount 1990). The seamount is an inactive volcano, last erupting approximately 9.8 million years ago (David Clague pers comm). It has an atypical seamount shape, having northeast-trending ridges created by a type of volcanism only recently described by geologists (Davis et al. 2002). The seamount is 2,280 m tall, 42 km long, and 13 km wide, yet the summit is far below the ocean surface (1,250 m).

In 2002 and 2006, the Monterey Bay National Marine Sanctuary (MBNMS) led two multi-institutional expeditions to characterize the geology and natural history of the Davidson Seamount. Partners included the Monterey Bay Aquarium Research Institute (MBARI), Monterey Bay Aquarium (MBA), Moss Landing Marine Laboratories (MLML), National Oceanic and Atmospheric Administration (NOAA) Fisheries, and the British Broadcasting Corporation (BBC). Results from these recent expeditions to Davidson Seamount are adding to the scientific knowledge of seamounts, including the discovery of new species.

As part of a Joint Management Plan Review process, the National Marine Sanctuary Program (NMSP) determined that, “the Davidson Seamount requires protection from the take of or other injury to benthic organisms or those organisms living near the seafloor because of the seamount’s special ecological and fragile qualities and potential future threats that could adversely affect these qualities” (NOAA 2008a). In November 2008, the MBNMS boundary was expanded to include the Davidson Seamount (Department of Commerce 2008; Fig. 2). In addition, a management plan for Davidson Seamount was created to develop resource protection, education, and research strategies for the area (NOAA 2008b, c).

With the new sanctuary designation of Davidson Seamount, it is considered an area of special national significance. Until now, no seamounts were protected by the Monterey Bay National Marine Sanctuary or any other National Marine Sanctuary. Recent research suggests that this pristine area, with ancient and fragile species like deep-sea corals, may be an oasis necessary for maintaining healthy coastal populations in the MBNMS (McClain et al. *In Press*). The National Marine Sanctuary Program is the only group in NOAA with a mandate to conduct marine education, and it can now conduct public education on seamounts. Proximity of Davidson Seamount to the MBA and MBARI will greatly enhance education and research opportunities on what is already one of the best-studied seamounts in the world.

The purpose of this taxonomic guide is to create an inventory of benthic and mid-water organisms observed at the Davidson Seamount to provide a baseline taxonomic characterization. At least 237 taxa were observed and are presented in this guide; including 15 new or undescribed species (8 sponges, 3 corals, 1 ctenophore, 1 nudibranch, 1 polychaete, 1 tunicate) recently or currently being described by taxonomic experts. This is the first taxonomic guide for Davidson

Seamount, and is intended to be revised in the future as we learn more about the seamount and the organisms that live there.

METHODS

The goals of the expedition in 2002 were to explore and characterize the geology and natural history of the seamount (see DeVogelaere et al. 2005), and to determine the age and growth of several deep-sea corals (see Andrews et al. 2005). Remotely operated vehicle (ROV) dive surveys were selected to include a subset of depths and habitats (base, flank, and crest) of the seamount (Fig. 1). Six full-day ROV dives were completed: two dives were conducted from base to crest on either side of the seamount (to include all depths and representative habitats); and four dives were conducted at the seamount crest, along ridges, or at deeper cones (to focus on the most diverse and interesting habitats relative to corals). Meanwhile, at the sea surface, a science team identified seabirds and marine mammals (but information on these taxa are not included in the guide).

In 2006, a model was developed and tested to predict suitable habitat for corals on the seamount. In addition, corals were collected for further age and growth investigations. Specific regions of the seamount were targeted for coral investigations during eight dives (Fig. 1). The BBC completed three dives using high-definition video for inclusion in the television series *Planet Earth*.

For both expeditions, we used MBARI's state-of-the-art research vessel *Western Flyer* and its deep-diving ROV *Tiburón*. The ROV was equipped with cameras, lights, manipulator arms, accurate positioning systems, and *in situ* pressure, temperature, dissolved oxygen, and conductivity sensors. To document habitat and species occurrence at the seamount, digital video (Panasonic E-550 Digital Betacam™ and Ikegami HDL-40 HD™) was continuously recorded, supplemented by intermittent high-quality digital still images (Nikon® Coolpix® 990). Video frame grabs were collected and annotated using MBARI's computer video annotation programs, VICKI (Video Information Capture with Knowledge Inferencing; 2002) and VARS (Video Annotation and Reference System; 2006). During both expeditions, collection of video and still footage was primarily directed at or near the seafloor. Midwater footage however, was opportunistically collected.

Organisms were identified by expedition participants and other taxonomic experts. Most identifications were made using video or still images. Where either method did not suffice, specimens were collected and sent to taxonomic experts for further identification. A subset of specimens has been archived at MBARI, and may be available for further study (see "Specimens" section for contact information).

After each cruise, preliminary video annotations were edited at MBARI's Video Lab. Species were identified to the lowest possible taxon. In many instances, species names were not known and common names were assigned to animals. As a result, this taxonomic guide was created to identify known and unknown species. Video and still images of unknown species were reviewed

with taxonomic experts to assign species names, if available. In addition, biological tissues from select species collected during dives aided in species identification.

This taxonomic guide summarizes biological observations made during 6 ROV dives completed during May 17-24, 2002, and 11 ROV dives completed during January 26- February 4, 2006, aboard the R/V *Western Flyer* using the ROV *Tiburón*. Biological observations are described from ~140 hours of ROV video and sample collections (primarily on the seafloor).

HOW TO USE THIS GUIDE

Format

Organisms in this guide are presented in taxonomic order, starting with Phylum Foraminifera (xenophyophores) and ending with Subphylum Vertebrata (fishes). Organisms are identified to the lowest possible taxon. The header of each page lists a portion of the classification scheme, and continues below in table form with image and identification information. An example of the guide format is provided in Table 1.

Classification

The classification schemes for several taxonomic groups (e.g., sponges, corals) are currently undergoing, or in need of, revision by the larger research community. This guide is not intended as a new classification system, but instead presents the organisms observed at Davidson Seamount using recent classification schemes, and cites the respective reference(s).

Identification information is provided on the right side of the table including, taxonomic classification continued from the header, scientific name (or lowest taxonomic identification), common name, taxonomic classification reference, identifier reference, video identifiability, and depth range observed at Davidson Seamount. If an organism could not be identified to at least the genus level, the lowest possible taxonomic name was assigned (in capital letters), labeled “sp.”, numbered if more than one taxa was observed and could be differentiated (e.g., PORIFERA sp. 1, PORIFERA sp. 2), or labeled “spp.” if more than one taxon was observed and could not be differentiated (e.g., RADIOLARIA spp.; ZOARCIDAE spp.). In the latter case, a representative image was used for the “spp.” group, if available.

Common Name

Some common names are well established, and are used where available. Where common names are not available (e.g., unidentified organisms, no accepted common name), descriptive common names are assigned until further identification is possible.

Taxonomic Classification Reference

The reference used to classify an organism is cited, and the full reference is located in the *References* section of the guide.

Identifier Reference

The person(s) who helped identify an organism is cited (in alphabetical order), and listed in the *Personal Communications* section of the guide.

Video Identifiability

Descriptions of the video identifiability scheme are as follows:

Confirmed: This organism has been collected and/or has been definitively identified by a taxonomic expert for MBARI or MBNMS.

Provisional: This organism is very likely to be this taxon based on an investigation by MBARI or MBNMS staff (literature search, consultation with outside taxonomic experts, etc.).

Unconfirmed: The status of this organism is pending field collection and further taxonomic investigation, or the description and naming of a new species.

Observed Depth

The depth range where the organism was observed during the 2002 and 2006 Davidson Seamount expeditions is provided in meters. This guide is also intended as an inventory of organisms, so taxonomic information is provided whether an image was available or not. The latter occurred when an organism could be identified with moving video but not with a still image or video framegrab.

Images

An image is located on the left side of the table (including image credit). Occasionally, red lasers (as many as four) are visible in images. The bottom two horizontal lasers are approximately 29 cm apart.

Table 1. An example of the guide format and brief explanation of notation.

Phylum
Class
Order

<i>Image</i>	<i>Further classification (e.g., Family name)</i> <i>Scientific name</i> <i>Common name</i> <i>Taxonomic classification reference</i> <i>Person(s) who identified organism</i> <i>Video Identifiability</i> <i>Observed depth range in meters (m)</i>
<i>Image Credit</i>	

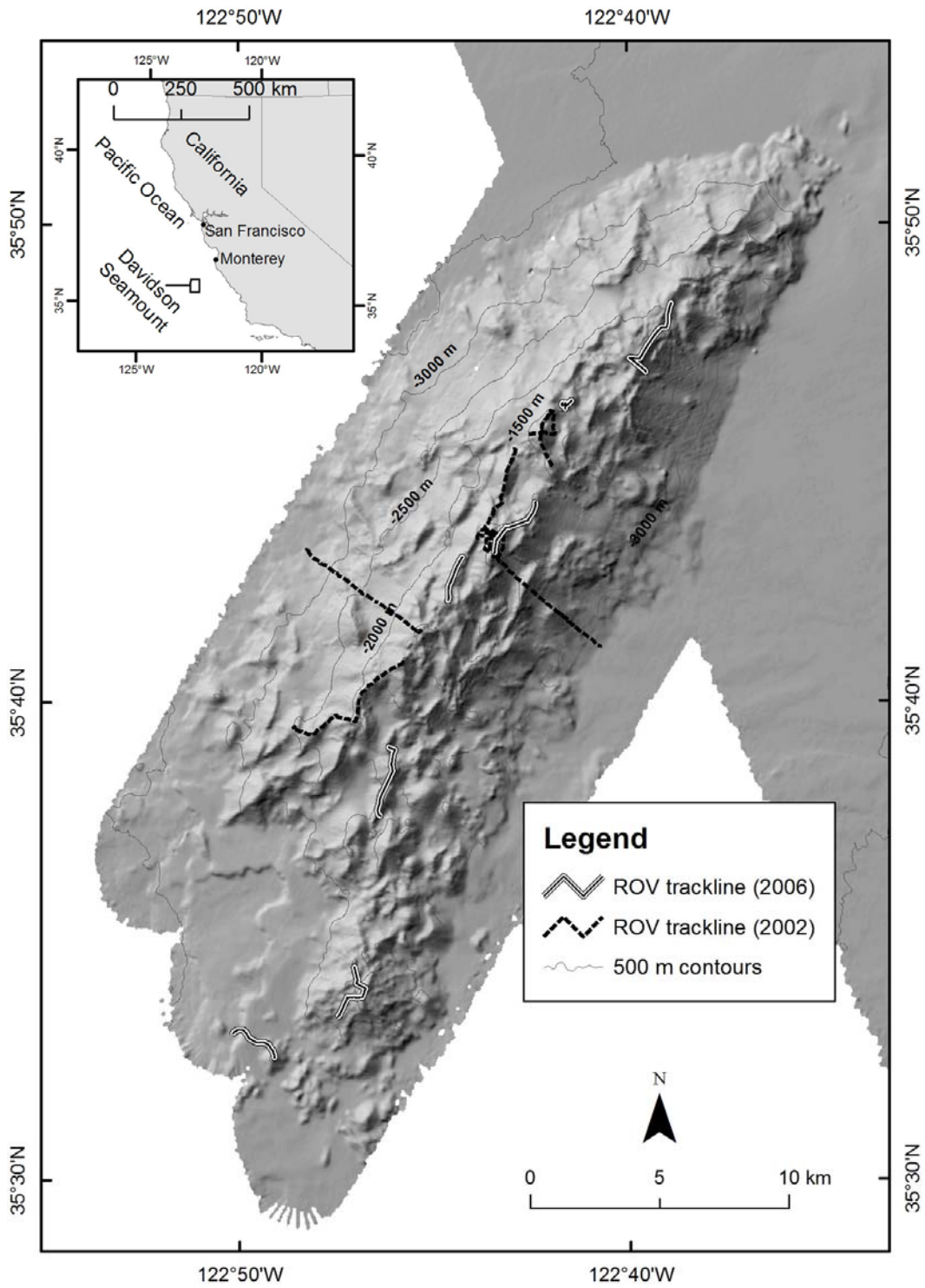


Figure 1. Davidson Seamount and tracklines of 2002 and 2006 remotely operated vehicle (ROV) dives. Credit: Chad King, SIMoN/MBNMS.

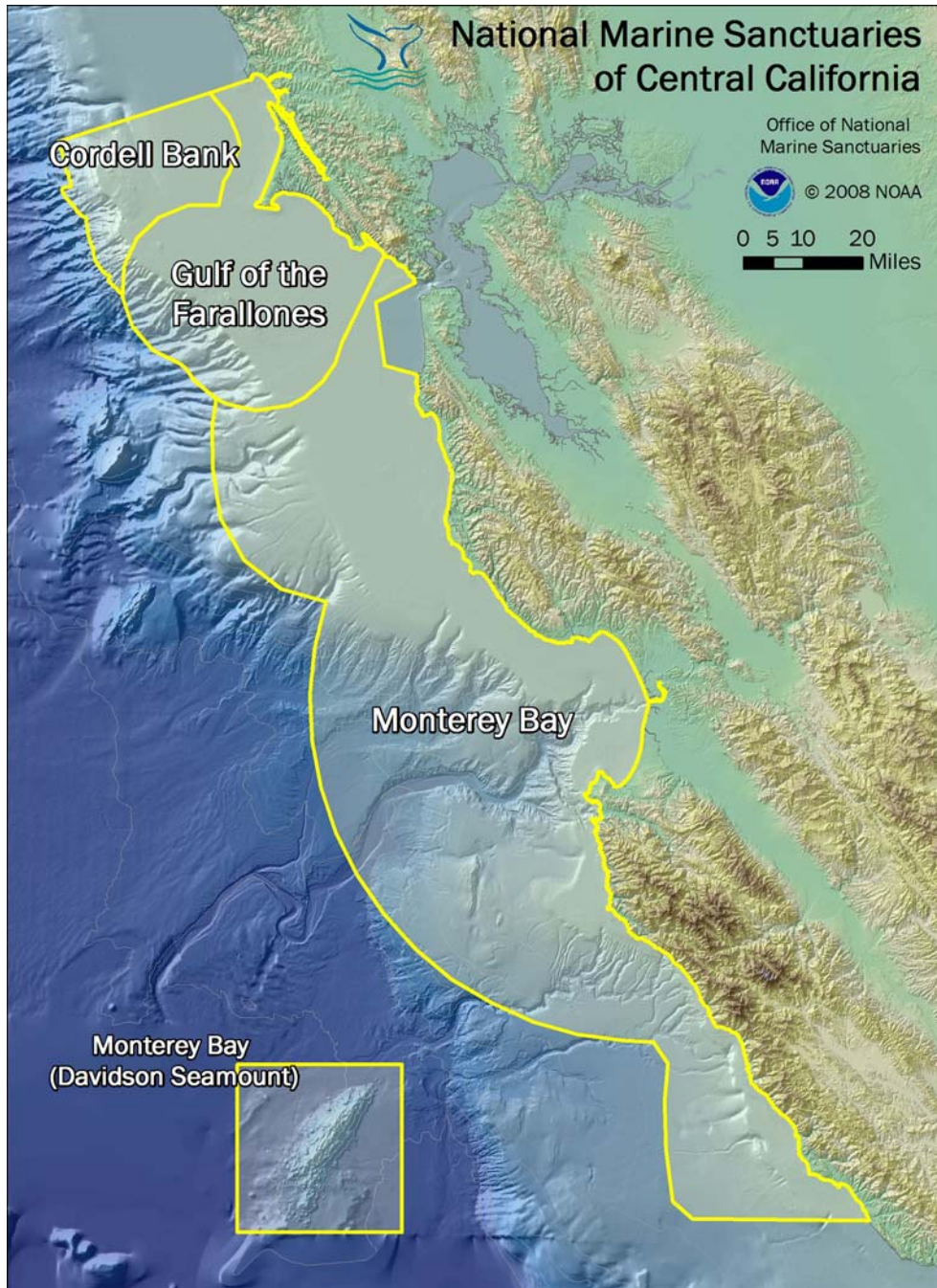




Figure 2. Davidson Seamount Management Zone as part of the Monterey Bay National Marine Sanctuary. Credit: Chad King, SIMoN/MBNMS.

TAXONOMIC GUIDE


1. Phylum: FORAMINIFERA 1.1. Class: Xenophyophorea

	<p>XENOPHYOPHOREA sp. 1</p> <p>Classification: Brands 1989-2007 Identified by: Kuhnz Video Identifiability: Provisional</p> <p>Observed Depth: 3,055 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>XENOPHYOPHOREA sp. 2</p> <p>Classification: Brands 1989-2007 Identified by: Barry; Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 2,048 – 2,847 m</p>
<p>Credit: NOAA/MBARI 2006</p>	

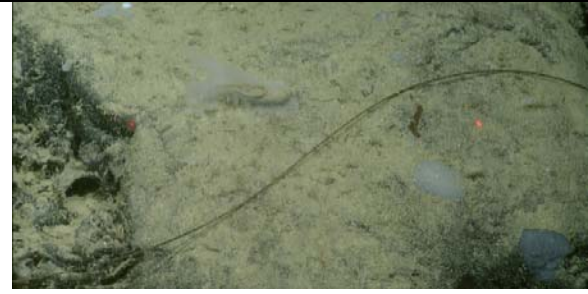
2. Phylum: RADIOZOA
2.1. Subphylum: Radiolaria

	<p>RADIOLARIA spp. radiolarians</p> <p>Classification: Brands 1989-2007 Identified by: Lundsten; von Thun</p> <p>Video Identifiability: Confirmed Observed Depth: 313 – 3,315 m</p>

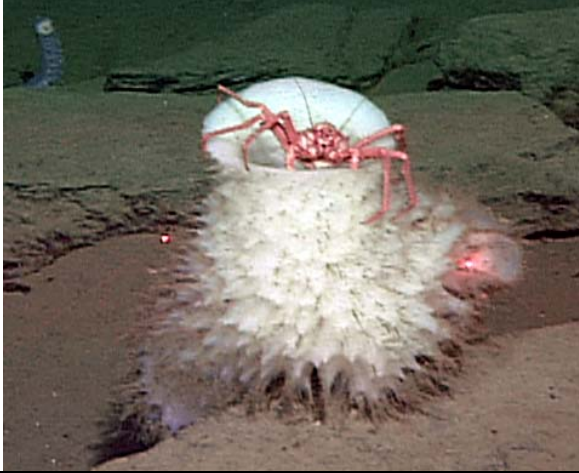


3. Phylum: PHAEOPHYTA – brown algae (drift)
 3.1. Class: Phaeophyceae
 3.1.1. Order: Laminariales

	<p>Family: Alariaceae <i>Alaria marginata</i> (and <i>Alaria</i> sp.) kelp (drift), ribbon</p> <p>Classification: Mondragon & Mondragon 2003 Identified by: DeVogelaere; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 2,803 – 2,864 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Lessoniaceae <i>Macrocystis</i> sp. kelp (drift), giant</p> <p>Classification: Mondragon & Mondragon 2003 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,666 – 3,035 m</p>
	<p>Family: Lessoniaceae <i>Nereocystis luetkeana</i> kelp (drift), bull</p> <p>Classification: Mondragon & Mondragon 2003 Identified by: von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 2,788 m</p>


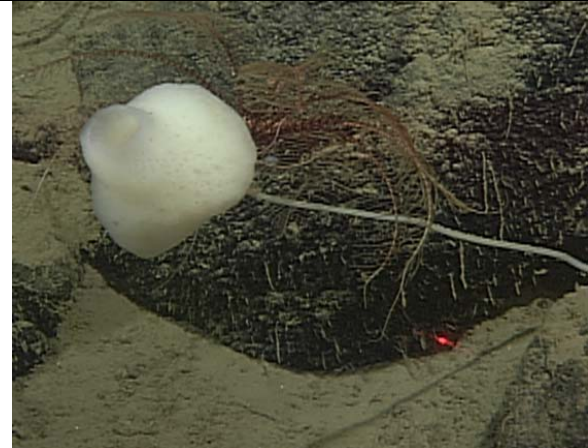
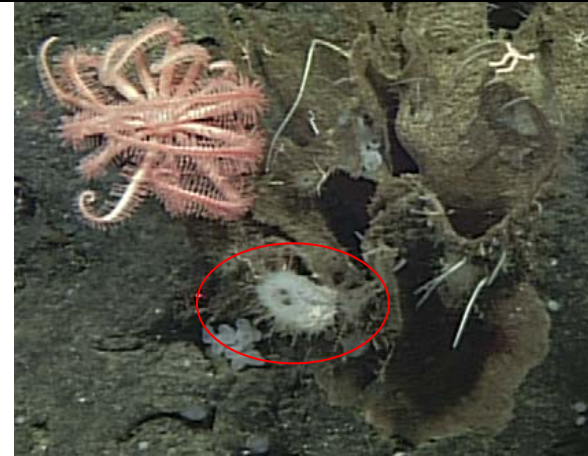
- 4. Phylum: ANTHOPHYTA – flowering plants (drift)
 - 4.1. Class: Monocotyledones
 - 4.1.1. Order: Najadales

	<p>Family: Potamogetonaceae <i>Phyllospadix</i> sp. surfgrass (drift)</p> <p>Classification: Mondragon & Mondragon 2003 Identified by: Lundsten Video Identifiability: Confirmed Observed Depth: 2,207 – 3,253 m</p>
<p>Credit: NOAA/MBARI 2006</p>	

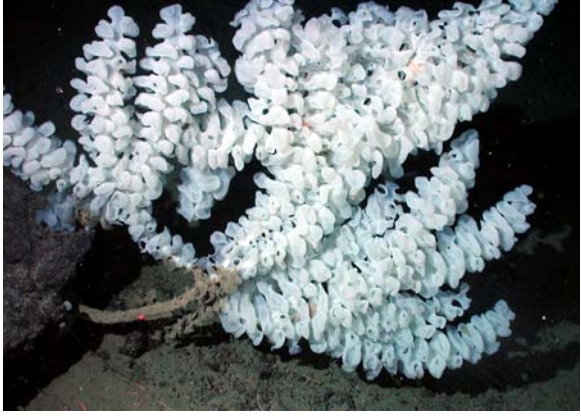


5. Phylum: PORIFERA – sponges

	<p>PORIFERA sp. 1 sponge</p> <p>Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional</p> <p>Observed Depth: ~2,420 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>PORIFERA sp. 2 sponge</p> <p>Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional</p> <p>Observed Depth: 2,254 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>PORIFERA sp. 3 sponge</p> <p>Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional</p> <p>Observed Depth: 1,827 m</p>
<p>Credit: NOAA/MBARI 2002</p>	


5. Phylum: PORIFERA – sponges

	<p>PORIFERA sp. 4 sponge, striated</p> <p>Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional</p> <p>Observed Depth: 1,391 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>PORIFERA sp. 5 sponge, stalked (white)</p> <p>Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional</p> <p>Observed Depth: 2,870 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>PORIFERA sp. 6 sponge</p> <p>Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional</p> <p>Observed Depth: 1,257 – 1,670 m</p>
<p>Credit: NOAA/MBARI 2002</p>	



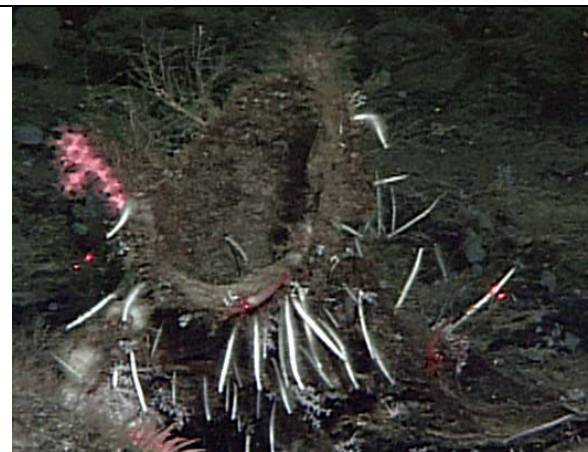
5. Phylum: PORIFERA – sponges

	<p>PORIFERA sp. 7 sponge, stalked ruffled (white)</p> <p>Classification: ITIS Identified by: Burton; Lundsten; Trejo Video Identifiability: Provisional</p> <p>Observed Depth: 2,563 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>PORIFERA sp. 8 sponge, ruffled (yellow)</p> <p>Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional</p> <p>Observed Depth: 1,309 – 1,938 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>PORIFERA sp. 9 sponge, encrusting gray</p> <p>Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional</p> <p>Observed Depth: 1,400 – 1,988 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

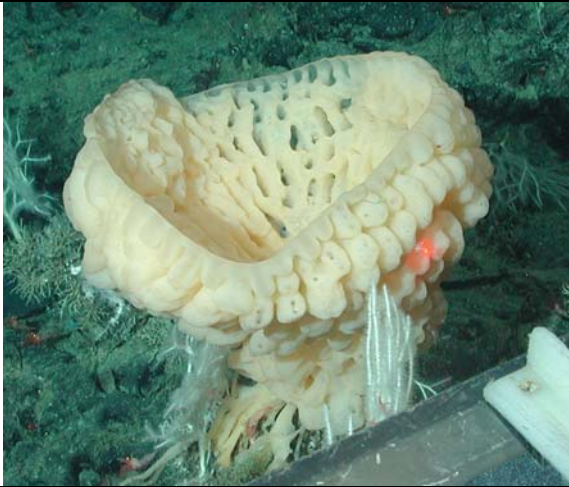


5. Phylum: PORIFERA – sponges
5.1. Class: Demospongiae
5.1.1. Order: Astrophorida

	<p>Family: Pachastrellidae <i>Thenia muricata</i> sponge</p> <p>Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed</p> <p>Observed Depth: 1,254 m</p>
<p>Credit: MBARI © 2004</p>	



5. Phylum: PORIFERA – sponges
 5.1. Class: Demospongiae
 5.1.2. Order: Poecilosclerida

	<p>POECILOSCLERIDA sp. sponge, stalked flute</p> <p>Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Unconfirmed</p> <p>Observed Depth: 2,665 – 3,275 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Family: Cladorhizidae <i>Asbestopluma</i> sp. nov. sponge, branched (white)</p> <p>Classification: van Soest et al. 2005 Identified by: Lee; Reiswig Video Identifiability: Confirmed</p> <p>Observed Depth: 1,274 – 1,935 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Family: Cladorhizidae <i>Asbestopluma</i> sp. 1 sponge, single (white)</p> <p>Classification: van Soest et al. 2005 Identified by: Lee Video Identifiability: Confirmed</p> <p>Observed Depth: 1,284 – 1,922 m</p>
<p>Credit: NOAA/MBARI 2002</p>	




5. Phylum: PORIFERA – sponges
 5.2. Class: Hexactinellida
 5.2.1. Order: Hexactinosida

	<p>Family: Aphrocallistidae <i>Heterochone calyx</i> sponge, goiter (yellow/orange)</p> <p>Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed</p> <p>Observed Depth: 1,257 – 3,286 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Euretidae <i>Chonelasma</i> sp. nov. sponge, trumpet (white)</p> <p>Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed</p> <p>Observed Depth: 1,250 – 3,255 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p><i>Chonelasma</i> sp. nov. (as above)</p>
<p>Credit: NOAA/MBARI 2002</p>	



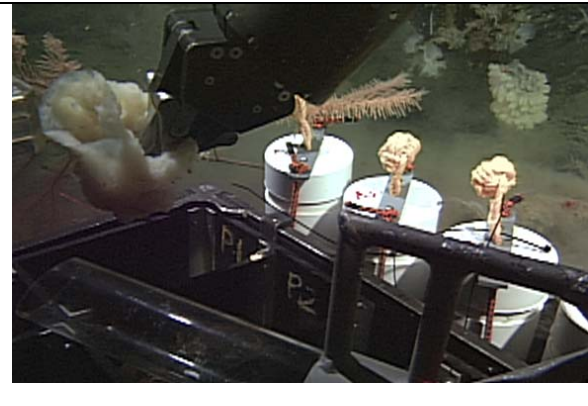
5. Phylum: PORIFERA – sponges
 5.2. Class: Hexactinellida
 5.2.1. Order: Hexactinosida

	<p>Family: Farreidae <i>Farrea occa</i> sponge, ruffle (white)</p> <p>Classification: van Soest et al. 2005 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,247 – 2,494 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Family: Tretodictyidae <i>Sclerothamnopsis compressa</i> sponge</p> <p>Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed</p> <p>Observed Depth: 1,307 – 2,071 m</p>
<p>Credit: NOAA/MBARI 2002</p>	


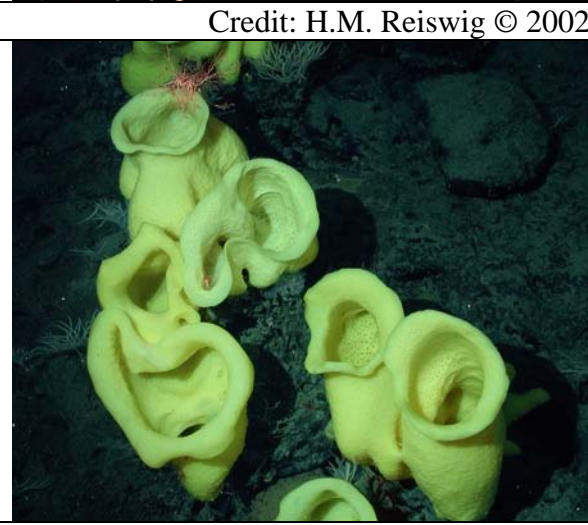
5. Phylum: PORIFERA – sponges
 5.2. Class: Hexactinellida
 5.2.2. Order: Lyssacosida

	<p>Family: Euplectellidae Subfamily: Bolosominae <i>Saccocalyx pedunculata</i> sponge, stalked goiter (white)</p> <p>Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed</p> <p>Observed Depth: 1,295 – 3,169 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Family: Euplectellidae Subfamily: Corbitellinae <i>Atlantisella</i> sp. nov. sponge, creeping (white)</p> <p>Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed</p> <p>Observed Depth: 1,603 – 3,102 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Family: Euplectellidae Subfamily: Corbitellinae <i>Regadrella</i> sp. nov. sponge, vase (white)</p> <p>Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed</p> <p>Observed Depth: 1,329 – 2,681 m</p>
<p>Credit: NOAA/MBARI 2006</p>	



5. Phylum: PORIFERA – sponges
 5.2. Class: Hexactinellida
 5.2.2. Order: Lyssacinosa

	<p>Family: Rossellidae <i>Caulophacus</i> sp. nov. sponge, mushroom (white)</p> <p>Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed</p> <p>Observed Depth: 1,471 – 2,880 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Rossellidae <i>Crateromorpha</i> sp. nov. sponge</p> <p>Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed</p> <p>Observed Depth: 1,348 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Crateromorpha</i> sp. nov. (as above)</p>
<p>Credit: NOAA/MBARI 2002</p>	



5. Phylum: PORIFERA – sponges
 5.2. Class: Hexactinellida
 5.2.2. Order: Lyssacinosida

 <p>Credit: H.M. Reiswig © 2002</p>	<p>Family: Rossellidae <i>Hyalascus</i> sp. nov. sponge</p> <p>Classification: van Soest et al. 2005 Identified by: Reiswig Video Identifiability: Confirmed</p> <p>Observed Depth: 1,726 m</p>
 <p>Credit: NOAA/MBARI 2002</p>	<p>Family: Rossellidae <i>Staurocalyptus</i> sp. nov. sponge</p> <p>Classification: ITIS Identified by: Reiswig Video Identifiability: Confirmed</p> <p>Observed Depth: 1,246 – 1,698 m</p>

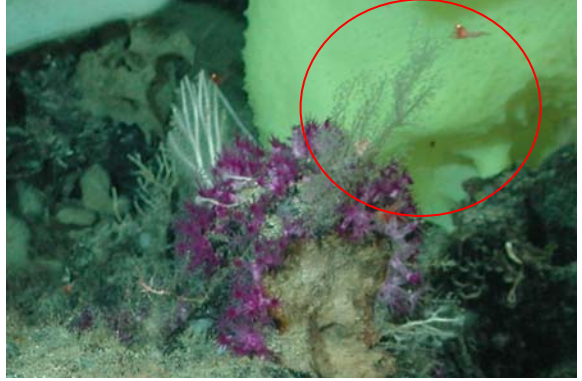


6. Phylum: CNIDARIA
 6.1. Class: Scyphozoa – jellyfish
 6.1.1. Order: Coronatae

	<p>Family: Atollidae <i>Atolla</i> sp. jellyfish, crown</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 889 m</p>
<p>Credit: MBARI © 2000</p>	
	<p>Family: Periphyllidae <i>Periphylla periphylla</i> jellyfish, crown</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 311 m</p>
<p>Credit: MBARI © 2005</p>	


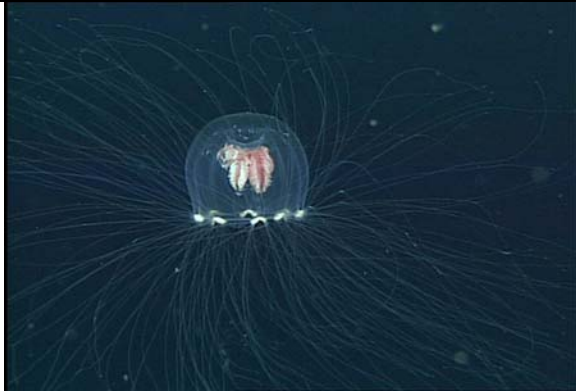

6. Phylum: CNIDARIA
 6.1. Class: Scyphozoa – jellyfish
 6.1.2. Order: Semaestomeae

	<p>Family: Ulmaridae <i>Poralia rufescens</i></p> <p>Classification: Cairns et al. 2002 Identified by: Schlining; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 816 – 3,211 m</p>
<p>Credit: MBARI © 2007</p>	
	<p>Family: Ulmaridae Subfamily: Tiburoniinae <i>Tiburonia granrojo</i></p> <p>Classification: Matsumoto et al. 2003 Identified by: Matsumoto Video Identifiability: Confirmed</p> <p>Observed Depth: 1,363 – 1,371 m</p>
<p>Credit: NOAA/MBARI 2002</p>	




6. Phylum: CNIDARIA
6.2. Class: Hydrozoa – hydrozoa

	<p>HYDROZOA sp. 1 hydroid</p> <p>Classification: ITIS; Cairns et al. 2002 Identified by: Burton; Trejo Video Identifiability: Unconfirmed</p> <p>Observed Depth: 1,340 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>HYDROZOA sp. 2 hydroid</p> <p>Classification: ITIS; Cairns et al. 2002 Identified by: Burton; Trejo Video Identifiability: Unconfirmed</p> <p>Observed Depth: 1,429 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>HYDROZOA sp. 3 hydroid</p> <p>Classification: ITIS; Cairns et al. 2002 Identified by: Burton; Trejo Video Identifiability: Unconfirmed</p> <p>Observed Depth: 1,483 m</p>
<p>Credit: NOAA/MBARI 2002</p>	



6. Phylum: CNIDARIA
 6.2. Class: Hydrozoa
 6.2.1. Order: Anthoathecatae

	<p>Suborder: Filifera Family: Hydractiniidae HYDRACTINIIDAE sp. nov.</p> <p>Classification: Cairns et al. 2002 Identified by: Miglietta Video Identifiability: Confirmed</p> <p>Observed Depth: 1,663 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Suborder: Filifera Family: Bougainvilliidae <i>Chiarella</i> sp.</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,281 – 1,289 m</p>
<p>Credit: MBARI © 2003</p>	
	<p>Suborder: Capitata Family: Myriothelidae (=Candelabridae) MYRIOTHELIDAE sp.</p> <p>Classification: Cairns et al. 2002; ITIS Identified by: Williams Video Identifiability: Provisional</p> <p>Observed Depth: 2,706 m</p>
<p>Credit: NOAA/MBARI 2006</p>	




6. Phylum: CNIDARIA
 6.2. Class: Hydrozoa
 6.2.2. Order: Narcomedusae

	<p>Family: Aeginidae <i>Aegina citrea</i> narcomedusa, golf tee</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,236 – 1,278 m</p>
<p>Credit: MBARI © 2004</p>	
	<p>Family: Aeginidae <i>Aegina</i> sp. narcomedusa</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 200 – 3,273 m</p>
<p>Credit: MBARI © 2001</p>	
	<p>Family: Aeginidae <i>Aeginura</i> sp. narcomedusa</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 491 m</p>
<p>Credit: MBARI © 2003</p>	


6. Phylum: CNIDARIA
 6.2. Class: Hydrozoa
 6.2.2. Order: Narcomedusae

	<p>Family: Cuninidae <i>Cunina</i> sp. narcomedusa, mesopelagic</p> <p>Classification: Cairns et al. 2002 Identified by: von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 1,658 – 3,314 m</p>
<p>Credit: MBARI © 2002</p>	
	<p>Family: Cuninidae <i>Solmissus</i> sp.</p> <p>Classification: Cairns et al. 2002 Identified by: von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 222 – 1,645 m</p>
<p>Credit: MBARI © 2002</p>	

6. Phylum: CNIDARIA
 6.2. Class: Hydrozoa
 6.2.3. Order: Trachymedusae

	<p>Family: Halicreatidae <i>Halicreas minimum</i> jelly</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 740 m</p>
<p>Credit: MBARI © 2001</p>	
	<p>Family: Rhopalonematidae <i>Benthocodon</i> sp. jelly</p> <p>Classification: Cairns et al. 2002 Identified by: von Thun Video Identifiability: Provisional</p> <p>Observed Depth: 1,170 – 3,314 m</p>
<p>Credit: MBARI © 2005</p>	
	<p>Family: Rhopalonematidae <i>Colobonema sericeum</i> medusa, silky</p> <p>Classification: Cairns et al. 2002 Identified by: von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 526 – 558 m</p>
<p>Credit: MBARI © 2007</p>	

6. Phylum: CNIDARIA
6.2. Class: Hydrozoa
6.2.3. Order: Trachymedusae


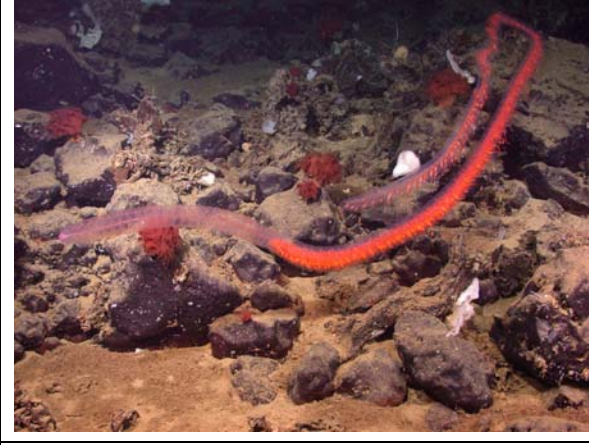

	<p>Family: Rhopalonematidae <i>Crossota millsae</i> jelly</p> <p>Classification: Cairns et al. 2002 Identified by: Matsumoto Video Identifiability: Confirmed</p> <p>Observed Depth: 3,314 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

6. Phylum: CNIDARIA

6.2. Class: Hydrozoa

6.2.2. Subclass: Siphonophorae – siphonophores

6.2.2.1. Order: Physonectae




	<p>Family: Agalmatidae <i>Nanomia bijuga</i></p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 61 – 2,267 m</p>
<p>Credit: MBARI © 2002</p>	
	<p>Family: Agalmatidae <i>Stephanomia amphitridis</i> siphonophore</p> <p>Classification: Cairns et al. 2002 Identified by: Pugh Video Identifiability: Confirmed</p> <p>Observed Depth: 1,304 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Family: Apolemiidae <i>Apolemia</i> spp.</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 439 – 1,159 m</p>
<p>Credit: MBARI © 2002</p>	

6. Phylum: CNIDARIA

6.2. Class: Hydrozoa

6.2.2. Subclass: Siphonophorae – siphonophores

6.2.2.1. Order: Physonectae


	<p>Family: Physophoridae <i>Physophora hydrostatica</i> siphonophore</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,131 m</p>
<p>Credit: MBARI © 2003</p>	
	<p>Family: Rhodaliidae <i>Stephalia dilata</i> siphonophore, benthic</p> <p>Classification: van der Land 2006 Identified by: Pugh Video Identifiability: Confirmed</p> <p>Observed Depth: 1,702 – 2,805 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Rhodaliidae <i>Thermopalia taraxaca</i> siphonophore</p> <p>Classification: van der Land 2006 Identified by: Pugh Video Identifiability: Confirmed</p> <p>Observed Depth: 2,741 – 2,938 m</p>
<p>Credit: MBARI © 2006</p>	

6. Phylum: CNIDARIA

6.2. Class: Hydrozoa

6.2.2. Subclass: Siphonophorae – siphonophores

6.2.2.2. Order: Calyphorae

	<p>Family: Prayidae <i>Gymnopræia lapislazula</i> siphonophore</p> <p>Classification: Haddock et al. 2005 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 407 m</p>
<p>Credit: MBARI © 2005</p>	

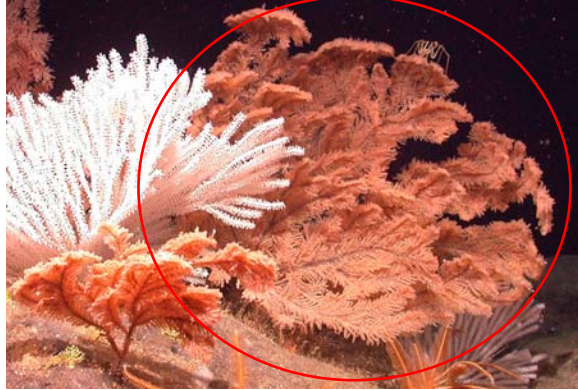

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.1. Order: Antipatharia – black corals

6.3.1.1.1. Family: Cladopathidae

	<p><i>Trissopathes pseudotristicha</i> black coral</p> <p>Classification: Opresko 2003 Identified by: Opresko Video Identifiability: Confirmed</p> <p>Observed Depth: 2,566 – 2,972 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p><i>Trissopathes</i> sp. (cf. <i>T. tetracrada</i>) black coral</p> <p>Classification: Opresko 2003 Identified by: Opresko Video Identifiability: Confirmed</p> <p>Observed Depth: 2,318 m</p>
<p>Credit: NOAA/MBARI 2002</p>	




6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.1. Order: Antipatharia – black corals

6.3.1.1.2. Family: Schizopathidae

	<p><i>Bathypathes</i> sp. black coral</p> <p>Classification: Opresko 2002 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 2,268 – 3,283 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p><i>Lillipathes</i> sp. black coral</p> <p>Classification: Opresko 2002 Identified by: Opresko Video Identifiability: Confirmed</p> <p>Observed Depth: 1,304 – 2,056 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Umbellapathes</i> sp. black coral</p> <p>Classification: Opresko 2005 Identified by: Opresko Video Identifiability: Confirmed</p> <p>Observed Depth: 1,505 – 3,207 m</p>
<p>Credit: NOAA/MBARI 2006</p>	




6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.2. Order: Ceriantharia – tube-dwelling anemones

6.3.1.2.1. Family: Cerianthidae




	<p>CERIANTHIDAE sp. 1 tube-dwelling anemone</p> <p>Classification: Cairns et al. 2002 Identified by: Burton; Trejo Video Identifiability: Confirmed</p> <p>Observed Depth: 2,854 – 3,250 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>CERIANTHIDAE sp. 2 tube-dwelling anemone</p> <p>Classification: Cairns et al. 2002 Identified by: Kuhnz Video Identifiability: Confirmed</p> <p>Observed Depth: 1,502 – 3,250 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>CERIANTHIDAE sp. 3 tube-dwelling anemone</p> <p>Classification: Cairns et al. 2002 Identified by: Burton; Trejo Video Identifiability: Confirmed</p> <p>Observed Depth: 1,254 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.3. Order: Actiniaria – anemones

	<p>ACTINIARIA sp. 1 (possibly <i>Bathypheilia</i> sp.) anemone</p> <p>Classification: Cairns et al. 2002 Identified by: Kuhnz Video Identifiability: Unconfirmed</p> <p>Observed Depth: 1,360 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>ACTINIARIA sp. 2 anemone</p> <p>Classification: Cairns et al. 2002 Identified by: Burton; Trejo Video Identifiability: Unconfirmed</p> <p>Observed Depth: 2,846 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>ACTINIARIA sp. 3 anemone</p> <p>Classification: Cairns et al. 2002 Identified by: Burton; Trejo Video Identifiability: Unconfirmed</p> <p>Observed Depth: 1,254 m</p>
<p>Credit: NOAA/MBARI 2002</p>	




6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.3. Order: Actiniaria – anemones

6.3.1.3.1. Suborder: Nyantheae

	<p>Family: Actinostolidae ACTINOSTOLIDAE spp. anemone</p> <p>Classification: Cairns et al. 2002 Identified by: von Thun Video Identifiability: Unconfirmed</p> <p>Observed Depth: 1,325 – 3,237 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Actinostolidae <i>Stomphia</i> sp. (probably <i>S. didemon</i>) anemone</p> <p>Classification: Cairns et al. 2002 Identified by: Kuhnz Video Identifiability: Provisional</p> <p>Observed Depth: 1,365 – 1,900 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Hormathiidae HORMATHIIDAE sp. anemone</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten; von Thun Video Identifiability:</p> <p>Observed Depth: 1,265 – 3,270 m</p>
<p>Credit: NOAA/MBARI 2002</p>	


6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.3. Order: Actiniaria – anemones

6.3.1.3.1. Suborder: Nyantheae



	<p>Family: Liponematidae <i>Liponema brevicornis</i> anemone, pom-pom</p> <p>Classification: Cairns et al. 2002 Identified by: Kuhnz Video Identifiability: Confirmed</p> <p>Observed Depth: 2,726 – 3,271 m</p>
<p>Credit: MBARI © 2004</p>	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.4. Order: Zoanthidea



	<p>ZOANTHIDEA sp. 1 zoanthid (upon <i>Calyptrophora</i> sp.)</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,710 – 1,764 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>ZOANTHIDEA sp. 2 zoanthid (upon dead coral)</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,728 – 2,199 m</p>
<p>Credit: NOAA/MBARI 2006</p>	

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.5. Order: Corallimorpharia

	<p>CORALLIMORPHARIA spp. anemone</p> <p>Classification: Cairns et al. 2002 Identified by: Kuhnz; Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 2,868 – 3,261 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Corallimorphidae <i>Corallimorphus</i> sp. anemone</p> <p>Classification: Cairns et al. 2002 Identified by: Kuhnz; Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 1,858 – 3,251 m</p>
<p>Credit: NOAA/MBARI 2002</p>	



6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.1. Subclass: Hexacorallia (Zoantharia)

6.3.1.6. Order: Scleractinia – stony corals

6.3.1.6.1. Suborder: Caryophylliina

	<p>CARYOPHYLLIINA sp. stony coral (cup coral)</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Provisional</p> <p>Observed Depth 1,480 – 3,254 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Flabellidae <i>Javania cailleti</i> stony coral</p> <p>Classification: Cairns et al. 2002 Identified by: Cairns; Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,914 – 2,689 m</p>
<p>Credit: NOAA/MBARI 2006</p>	




6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.1. Order: Alcyonacea – soft corals

6.3.2.1.1. Suborder: Alcyoniina

	<p>Family: Alcyoniidae <i>Anthomastus ritteri</i> coral, mushroom soft</p> <p>Classification: Williams and Cairns 2004 Identified by: Lundsten; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 1,246 – 3,277 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Anthomastus ritteri</i> (closed polyps) (as above)</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Alcyoniidae <i>Anthomastus robustus</i></p> <p>Classification: Williams and Cairns 2004 Identified by: Kuhn; Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 3,214 m</p>
<p>Credit: NOAA/MBARI 2002</p>	


6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.1. Order: Alcyonacea – soft corals

6.3.2.1.1. Suborder: Alcyoniina

	<p>Family: Alcyoniidae <i>Anthomastus</i> sp. 1 coral, soft</p> <p>Classification: Williams and Cairns 2004 Identified by: Lundsten Video Identifiability: Unconfirmed</p> <p>Observed Depth: 2,077 – 2,314 m</p>
<p>Credit: MBARI © 2004</p>	


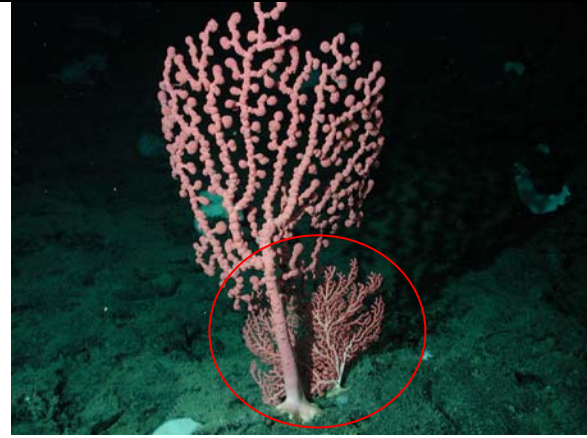

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips

6.3.2.2.1. Suborder: Scleraxonia

	<p>Family: Paragorgiidae <i>Paragorgia arborea</i> coral, bubble gum</p> <p>Classification: Cairns et al. 2002 Identified by: Sanchez; Williams; Wing Video Identifiability: Confirmed</p> <p>Observed Depth: 1,245 – 1,779 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Family: Paragorgiidae <i>Paragorgia</i> sp. 1 coral, bubble gum</p> <p>Classification: Cairns et al. 2002 Identified by: Burton; Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,250 – 3,043 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Paragorgia</i> sp. 1 (as above)</p>
<p>Credit: NOAA/MBARI 2002</p>	


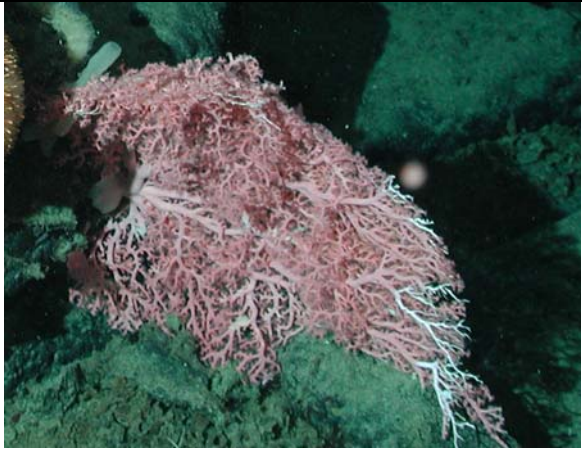

6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips

6.3.2.2.1. Suborder: Scleraxonia

	<p>Family: Paragorgiidae <i>Paragorgia</i> sp. 2 (white morph) coral, bubble gum (white morph)</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 2,493 – 3,005 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Coralliidae <i>Corallium</i> sp. coral, precious</p> <p>Classification: Williams and Cairns 2004 Identified by: Cairns Video Identifiability: Confirmed</p> <p>Observed Depth: 1,252 – 2,447 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p><i>Corallium</i> sp. (as above)</p>
<p>Credit: NOAA/MBARI 2006</p>	


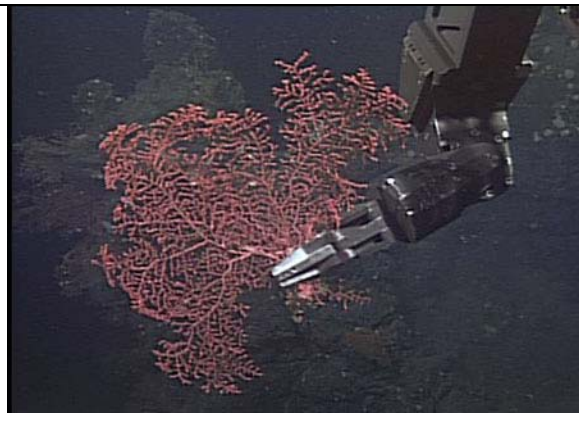
6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips

6.3.2.2.2. Suborder: Holaxonia

	<p>Family: Acanthogorgiidae <i>Acanthogorgia</i> sp. coral</p> <p>Classification: Williams and Cairns 2004 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,266 – 1,958 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Plexauridae <i>Swiftia kofoidi</i> coral, red sea fan</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten; Williams Video Identifiability: Confirmed</p> <p>Observed Depth: 1,294 – 1,352 m</p>
<p>Credit: MBARI © 2004</p>	


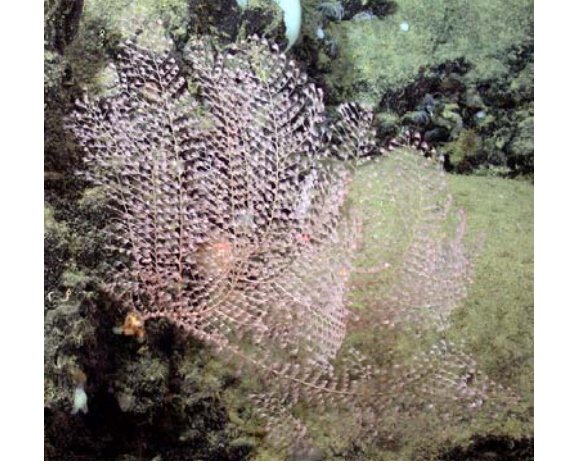
6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips

6.3.2.2.3. Suborder: Calcaxonia

	<p>Family: Chrysogorgiidae <i>Chrysogorgia monticola</i> coral, golden gorgonian</p> <p>Classification: Cairns 2007 Identified by: Cairns (HOLOTYPE) Video Identifiability: Confirmed</p> <p>Observed Depth: 2,283 – 3,015 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Chrysogorgiidae <i>Chrysogorgia pinnata</i> coral, golden gorgonian</p> <p>Classification: Cairns 2007 Identified by: Cairns (HOLOTYPE) Video Identifiability: Confirmed</p> <p>Observed Depth: 2,466 – 3,246 m</p>
<p>Credit: NOAA/MBARI 2006</p>	




6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips

6.3.2.2.3. Suborder: Calcaxonia

	<p>Family: Primnoidae <i>Calyptrophora bayeri</i> coral</p> <p>Classification: Cairns 2007 Identified by: Cairns (HOLOTYPE) Video Identifiability: Confirmed</p> <p>Observed Depth: 1,683 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Family: Primnoidae <i>Calyptrophora</i> sp. (cf. <i>C. antilla</i>) coral</p> <p>Classification: Cairns 2007 Identified by: Cairns Video Identifiability: Confirmed Note: Partially covered with zooanthids</p> <p>Observed Depth: 1,763 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p><i>Calyptrophora</i> sp. (cf. <i>C. antilla</i>) (as above)</p> <p>Note:</p> <ul style="list-style-type: none"> • red circle: <i>Calyptrophora</i> sp. • blue circle: Zooanthids covering <i>Calyptrophora</i> sp.
<p>Credit: NOAA/MBARI 2006</p>	



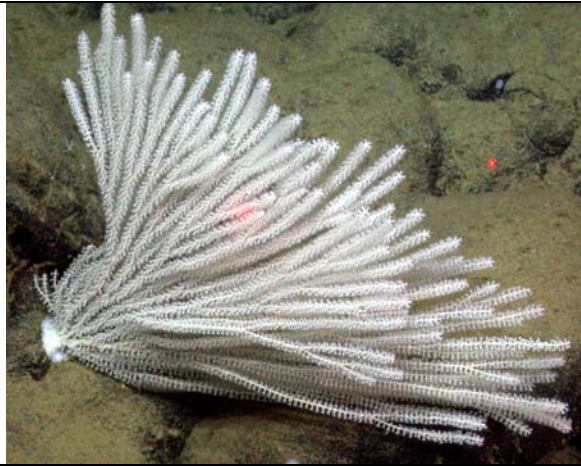
6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips

6.3.2.2.3. Suborder: Calcaxonia

	<p>Family: Primnoidae <i>Calyptrophora</i> sp. coral</p> <p>Classification: Cairns 2007 Identified by: Cairns Video Identifiability: Confirmed</p> <p>Observed Depth: 1,573 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Calyptrophora</i> sp. (as above)</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Primnoidae <i>Narella</i> sp. coral</p> <p>Classification: Cairns et al. 2002 Identified by: Cairns; Lunsten Video Identifiability: Provisional</p> <p>Observed Depth: 1,610 – 3,079 m</p>
<p>Credit: NOAA/MBARI 2006</p>	


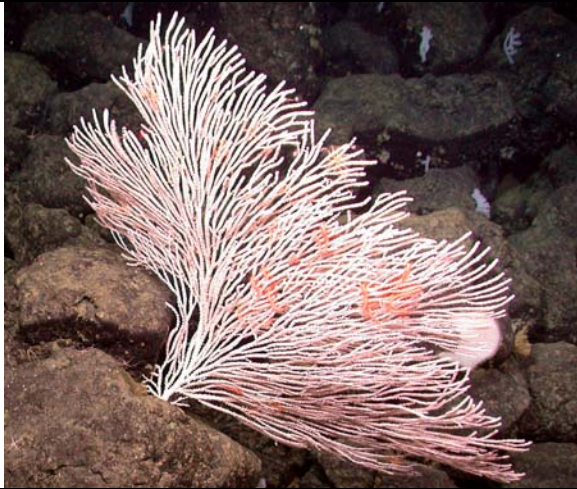
6. Phylum: CNIDARIA

6.3. Class: Anthozoa

6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips

6.3.2.2.3. Suborder: Calcaxonia

	<p>Family: Primnoidae <i>Parastenella ramosa</i> coral</p> <p>Classification: Cairns 2007 Identified by: Cairns Video Identifiability: Confirmed</p> <p>Observed Depth: 1,310 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Family: Primnoidae <i>Parastenella</i> sp. coral</p> <p>Classification: Williams and Cairns 2004 Identified by: Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 1,771 – 3,051 m</p>
<p>Credit: NOAA/MBARI 2006</p>	


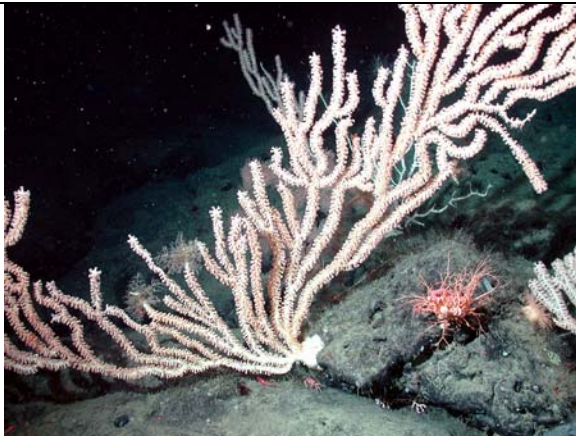

6. Phylum: CNIDARIA

6.3. Class: Anthozoa



6.3.2. Subclass: Octocorallia (Alcyonaria)

6.3.2.2. Order: Gorgonacea – sea fans and sea whips


6.3.2.2.3. Suborder: Calcaxonia

	<p>Family: Isididae <i>Acanella</i> sp. coral, bamboo</p> <p>Classification: Williams and Cairns 2004 Identified by: Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 1,675 – 1,682 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Family: Isididae <i>Keratoisis</i> sp. coral, bamboo</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten; Williams; Wing Video Identifiability: Confirmed</p> <p>Observed Depth: 1,451 – 2,846 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Isididae <i>Lepidisis</i> sp. coral, bamboo</p> <p>Classification: Cairns et al. 2002 Identified by: Williams; Wing Video Identifiability: Confirmed</p> <p>Observed Depth: 1,286 – 3,288 m</p>
<p>Credit: NOAA/MBARI 2006</p>	




7. Phylum: CTENOPHORA – comb jellies or sea walnuts
 7.1. Class: Tentaculata
 7.1.1. Order: Cydippida

	<p>Family: Haeckeliidae <i>Aulacoctena</i> sp. ctenophore</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,284 m</p>
<p style="text-align: center;">Credit: MBARI © 2001</p>	
	<p>Family: Pleurobrachiidae <i>Hormiphora</i> sp. ctenophore</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 39 m</p>
<p style="text-align: center;">Credit: MBARI © 2002</p>	


7. Phylum: CTENOPHORA – comb jellies or sea walnuts
7.1. Class: Tentaculata
7.1.2. Order: Platyctenida

	<p>Family: Tjalfiellidae <i>Tjalfiella tristoma</i> ctenophore</p> <p>Classification: Cairns et al. 2002 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 2,221 m</p>
<p>Credit: MBARI © 2002</p>	


7. Phylum: CTENOPHORA – comb jellies or sea walnuts
 7.1. Class: Tentaculata
 7.1.3. Order: Lobata

	<p>LOBATA sp. nov. ctenophore, lobate</p> <p>Classification: Matsumoto (pers comm) Identified by: Matsumoto Video Identifiability: Confirmed</p> <p>Observed Depth: 1,377 – 3,315 m</p>
<p style="text-align: center;">Credit: MBARI © 2005</p>	
	<p>Family: Bathocyroidae <i>Bathocyroe</i> spp. ctenophore, lobate</p> <p>Classification: Cairns et al. 2002 Identified by: von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 1,242 – 2,987 m</p>
<p style="text-align: center;">Credit: MBARI © 2005</p>	
	<p>Family: Lampoctenidae <i>Lampocteis cruentiventer</i> ctenophore, lobate</p> <p>Classification: Harbison et al. 2001 Identified by: Kuhnz; Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,233 – 3,238 m</p>
<p style="text-align: center;">Credit: NOAA/MBARI 2006</p>	




7. Phylum: CTENOPHORA – comb jellies or sea walnuts
7.1. Class: Tentaculata
7.1.3. Order: Lobata

	<p>Family: Lampoctenidae <i>Lampocteis</i> sp. ctenophore, lobate</p> <p>Classification: Harbison et al. 2001 Identified by: Matsumoto Video Identifiability: Provisional</p> <p>Observed Depth: 2,102 m</p>
<p>Credit: NOAA/MBARI 2002</p>	


8. Phylum: MOLLUSCA – slugs, chitons, clams, squids, octopuses
8.1. Class: Gastropoda – sea slugs

	<p>Order: Vetigastropoda Superfamily: Patelloidea PATELLOIDEA sp. limpet</p> <p>Classification: Brands 1989-2007 Identified by: Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 1,288 – 1,748 m</p>
	<p>Order: Caenogastropoda Suborder: Neogastropod Family: Turridae TURRIDAE sp. turrid</p> <p>Classification: Brands 1989-2007 Identified by: Geiger; Lonhart; McLean Video Identifiability: Confirmed</p> <p>Observed Depth: 2,080 m</p>
<p>Credit: NOAA/MBARI 2006</p>	


8. Phylum: MOLLUSCA – slugs, chitons, clams, squids, octopuses
 8.1. Class: Gastropoda – sea slugs
 8.1.1. Subclass: Opisthobranchia
 8.1.1.1. Order: Nudibranchia

	<p>NUDIBRANCHIA sp. nov. mystery mollusk (midwater)</p> <p>Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 1,497 – 2,342 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Tritoniidae <i>Tritonia</i> sp. (cf. <i>T. diomedea</i> or sp. nov.) nudibranch</p> <p>Classification: ITIS Identified by: Kuhnz; Lundsten; McClain Video Identifiability: Provisional</p> <p>Observed Depth: 1,247 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Bathydoridae BATHYDORIDIDAE sp. nudibranch</p> <p>Classification: Brands 1989-2007 Identified by: Lundsten Video Identifiability: Unconfirmed</p> <p>Observed Depth: 3,254 m</p>
<p>Credit: NOAA/MBARI 2006</p>	

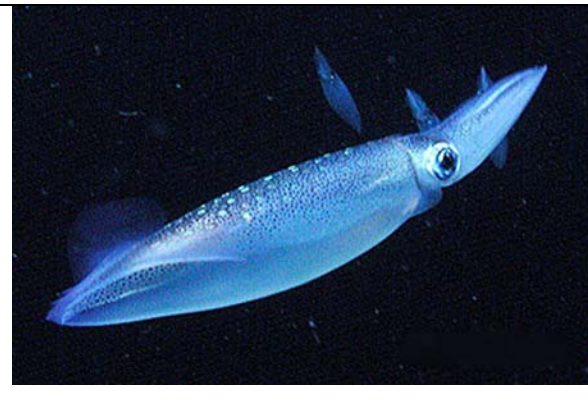
- 8. Phylum: MOLLUSCA – slugs, chitons, clams, squids, octopuses
 - 8.2. Class: Polyplacophora – chitons
 - 8.2.1. Order: Neoloricata

	<p>NEOLORICATA sp. chiton</p> <p>Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 1,559 – 2,926 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

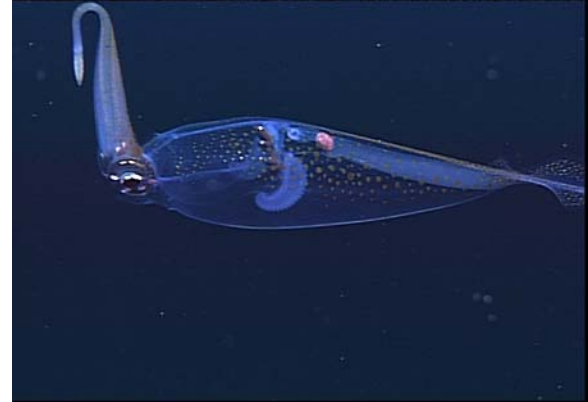


8. Phylum: MOLLUSCA – slugs, chitons, clams, squids, octopuses
 8.3. Class: Bivalvia – bivalves
 8.3.1. Subclass: Pteriomorpha

	<p>Order: Limoida Family: Limidae <i>Acesta mori</i> clam</p> <p>Classification: ITIS Identified by: Barry Video Identifiability: Confirmed</p> <p>Observed Depth: 1,266 – 1,996 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Order: Ostreoida Family: Pectinidae ?PECTINIDAE sp. scallop</p> <p>Classification: ITIS Identified by: Lundsten Video Identifiability: Unconfirmed</p> <p>Observed Depth: 1,772 m</p>


- 8. Phylum: MOLLUSCA – slugs, chitons, clams, squids, octopuses
 - 8.4. Class: Cephalopoda – cephalopods
 - 8.4.1. Subclass: Coleoidea
 - 8.4.1.1. Superorder: Decabrachia
 - 8.4.1.1.1. Order: Teuthida
 - 8.4.1.1.1.1. Suborder: Myopsina

	<p>Family: Loliginidae <i>Loligo (=Doryteuthis) opalescens</i> squid, California market</p> <p>Classification: Anderson 2000; Vecchione et al. 2005 Identified by: von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 427 m</p>
<p style="text-align: center;">Credit: MBARI © 2001</p>	




- 8. Phylum: MOLLUSCA – slugs, chitons, clams, squids, octopuses
 - 8.4. Class: Cephalopoda – cephalopods
 - 8.4.1. Subclass: Coleoidea
 - 8.4.1.1. Superorder: Decabrachia
 - 8.4.1.1.1. Order: Teuthida
 - 8.4.1.1.1.2. Suborder: Oegopsina

	<p>Family: Cranchiidae <i>Galiteuthis</i> sp. squid, glass</p> <p>Classification: ITIS Identified by: von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 959 m</p>
Credit: MBARI © 2002	
	<p>Family: Gonatidae <i>Gonatus onyx</i> squid, clawed armhook</p> <p>Classification: ITIS Identified by: von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 1,337 – 1,345 m</p>
Credit: NOAA/MBARI 2002	
	<p>Family: Ommastrephidae <i>Dosidicus gigas</i> squid, Humboldt</p> <p>Classification: ITIS Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 283 – 614 m</p>
Credit: NOAA/MBARI 2006	



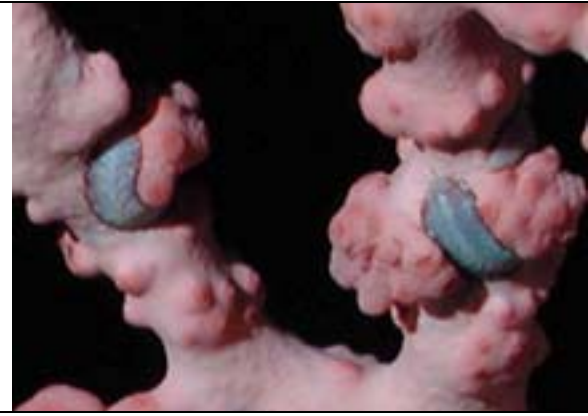
- 8. Phylum: MOLLUSCA – slugs, chitons, clams, squids, octopuses
 - 8.4. Class: Cephalopoda – cephalopods
 - 8.4.1. Subclass: Coleoidea
 - 8.4.1.2. Superorder: Octobranchia
 - 8.4.1.2.1. Order: Octopoda
 - 8.4.1.2.1.1. Suborder: Cirrina

	<p>Family: Opisthoteuthidae <i>Opisthoteuthis</i> sp. devilfish, flapjack</p> <p>Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional</p> <p>Observed Depth: 3,220 m</p>
<p>Credit: NOAA/MBARI 2002</p>	


- 8. Phylum: MOLLUSCA – slugs, chitons, clams, squids, octopuses
 - 8.4. Class: Cephalopoda – cephalopods
 - 8.4.1. Subclass: Coleoidea
 - 8.4.1.2. Superorder: Octobranchia
 - 8.4.1.2.1. Order: Octopoda
 - 8.4.1.2.1.2. Suborder: Incirrina

	<p>Family: Bolitaenidae <i>Japetella</i> sp. octopus, pelagic</p> <p>Classification: ITIS Identified by: Lundsten; Matsumoto Video Identifiability: Confirmed</p> <p>Observed Depth: 945 m</p>
<p style="text-align: center;">Credit: NOAA/MBARI 2006</p>	
	<p>Family: Octopodidae <i>Benthooctopus</i> sp. octopus, benthic</p> <p>Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 1,461 – 2,770 m</p>
<p style="text-align: center;">Credit: NOAA/MBARI 2002</p>	
	<p>Family: Octopodidae <i>Graneledone boreopacifica (pacific)</i> octopus</p> <p>Classification: ITIS/Sweeney et al. 1998 Identified by: Kuhnz Video Identifiability: Confirmed</p> <p>Observed Depth: 1,458 – 1,974 m</p>
<p style="text-align: center;">Credit: NOAA/MBARI 2002</p>	



9. Phylum: ANNELIDA – segmented worms
 9.1. Class: Polychaeta – polychaete worms
 9.1.1. Subclass: Palpata
 9.1.1.1 Order: Aciculata
 9.1.1.1.1. Suborder: Phyllodocida

	<p>Family: Tomopteridae <i>Tomopteris</i> sp. polychaete, tomopterid</p> <p>Classification: ITIS Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 297 – 494 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Aphroditidae <i>Laetmonice</i> sp. polychaete, sea mouse</p> <p>Classification: ITIS; Lundsten (pers comm) Identified by: Harris; Lundsten; Schlining Video Identifiability: Confirmed</p> <p>Observed Depth: 1,969 – 2,644 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Family: Polynoidae POLYNOIDAE sp. scale worm, blue (upon <i>Paragorgia arborea</i>)</p> <p>Classification: ITIS Identified by: Baco-Taylor; Kuhnz Video Identifiability: Provisional</p> <p>Observed Depth: 1,257 – 3,044 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

9. Phylum: ANNELIDA – segmented worms
 9.1. Class: Polychaeta - polychaete worms
 9.1.1. Subclass: Palpata
 9.1.1.2 Order: Canalipalpata
 9.1.1.2.1. Suborder: Sabellida

	<p>Family: Sabellidae <i>Euchone</i> sp. nov. polychaete, sabellid</p> <p>Classification: Brands 1989-2007 Identified by: Lundsten; Rouse Video Identifiability: Confirmed</p> <p>Observed Depth: 1,722 – 3,252 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Family: Serpulidae SERPULIDAE spp. polychaete, serpulid</p> <p>Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 1,495 – 3,287 m</p>

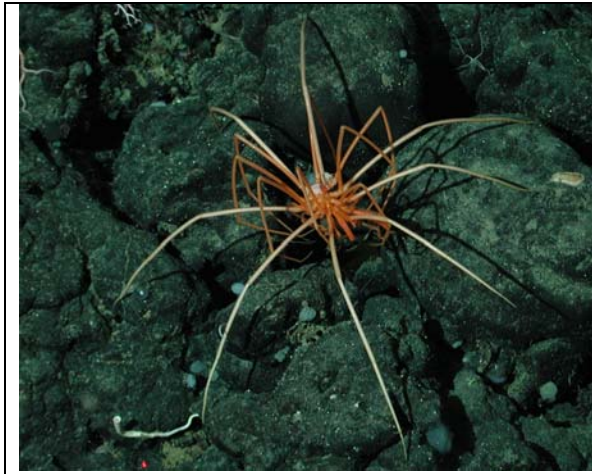
- 9. Phylum: ANNELIDA – segmented worms
 - 9.1. Class: Polychaeta - polychaete worms
 - 9.1.1. Subclass: Palpata
 - 9.1.1.2. Order: Canalipalpata
 - 9.1.1.2.2 Suborder: Terebellida

	<p>Family: Poeobiidae <i>Poeobius meseres</i> polychaete, holopelagic</p> <p>Classification: Brands 1989-2007 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 781 – 1,723 m</p>
Credit: NOAA/MBARI 2002	
	<p>Family: Fauveliopsidae <i>Flota</i> sp. polychaete</p> <p>Classification: Brands 1989-2007 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 2,564 – 2,678 m</p>
Credit: MBARI © 2002	

10. Phylum: ARTHROPODA – sea spiders, barnacles, shrimps, crabs

10.1. Subphylum: Chelicerata

10.1.1. Class: Pycnogonida – sea spiders



PYCNOGONIDA sp.
sea spider

Classification: ITIS
Identified by: Lundsten; von Thun
Video Identifiability: Confirmed

Observed Depth: 1,440 – 3,288 m

Credit: NOAA/MBARI 2002

10. Phylum: ARTHROPODA



10.2. Subphylum: Crustacea – crustaceans

10.2.1. Class: Maxillopoda

10.2.1.1. Subclass: Thecostraca

10.2.1.1.1. Infraclass: Cirripedia – barnacles

10.2.1.1.1.1. Superorder: Thoracica

	<p>Order: Pedunculata Suborder: Scalpellomorpha SCALPELLOMORPHA sp. barnacle, stalked</p> <p>Classification: ITIS Identified by: Lundsten; Van Syoc Video Identifiability: Confirmed</p> <p>Observed Depth: 1,547 – 3,082 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Order: Sessilia Suborder: Verrucomorpha VERRUCOMORPHA sp. barnacle</p> <p>Classification: ITIS Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,654 – 2,907 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

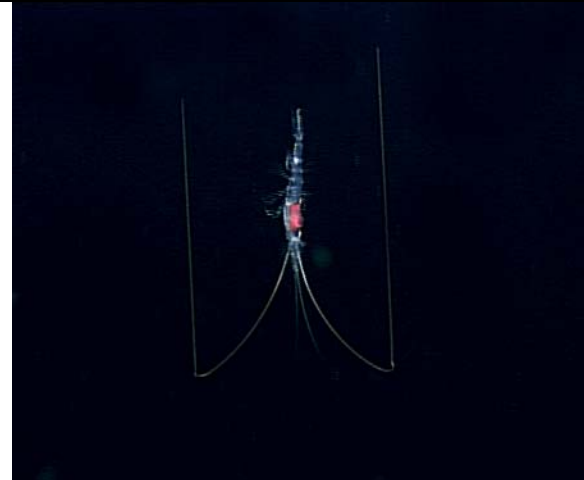
10.2.2.1. Subclass: Eumalacostraca

10.2.2.1.1. Superorder: Eucarida

10.2.2.1.1.1. Order: Decapoda – shrimp, lobsters, crabs

10.2.2.1.1.1.1. Suborder: Dendrobrachiata

10.2.2.1.1.1.1.1. Family: Sergestidae - shrimps

	<p><i>Sergestes similis</i> shrimp, midwater</p> <p>Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 301 – 3,256 m</p>
<p>Credit: MBARI © 2002</p>	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca



10.2.2.1. Subclass: Eumalacostraca

10.2.2.1.1. Superorder: Eucarida

10.2.2.1.1.1. Order: Decapoda – shrimp, lobsters, crabs

10.2.2.1.1.1.2. Suborder: Pleocyemata

10.2.2.1.1.1.2.1. Infraorder: Caridea

	<p>CARIDEA spp. shrimp</p> <p>Classification: ITIS Identified by: von Thun Video Identifiability: Provisional</p> <p>Observed Depth: 1,347 – 3,101 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Pandalidae <i>Pandalopsis ampla</i> shrimp, deepwater bigeye</p> <p>Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 1,280 – 1,747 m</p>
<p>Credit: NOAA/MBARI 2006</p>	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1. Subclass: Eumalacostraca

10.2.2.1.1. Superorder: Eucarida

10.2.2.1.1.1. Order: Decapoda – shrimp, lobsters, crabs

10.2.2.1.1.1.2. Suborder: Pleocyemata

10.2.2.1.1.1.2.2. Infraorder: Anomura

10.2.2.1.1.1.2.2.1. Family: Lithodidae – king crabs



LITHODIDAE sp.
crab (probably juvenile)

Classification: ITIS
Identified by: Kuhnz
Video Identifiability: Provisional

Observed Depth: 1,284 – 2,535 m

Credit: NOAA/MBARI 2002

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1 Subclass: Eumalacostraca



10.2.2.1.1. Superorder: Eucarida

10.2.2.1.1.1. Order: Decapoda – shrimp, lobsters, crabs

10.2.2.1.1.1.2. Suborder: Pleocyemata

10.2.2.1.1.1.2.2. Infraorder: Anomura

10.2.2.1.1.1.2.2.1. Family: Lithodidae – king crabs

	<p><i>Neolithodes diomedea</i> crab</p> <p>Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 1,431 – 1,560 m</p>
<p>Credit: MBARI © 2004</p>	
	<p><i>Neolithodes</i> sp. crab, spiny</p> <p>Classification: ITIS Identified by: Kuhnz; Lundsten Video Identifiability: Unconfirmed</p> <p>Observed Depth: 1,247 – 1,526 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1. Subclass: Eumalacostraca



10.2.2.1.1. Superorder: Eucarida

10.2.2.1.1.1. Order: Decapoda – shrimp, lobsters, crabs

10.2.2.1.1.1.2. Suborder: Pleocyemata

10.2.2.1.1.1.2.2. Infraorder: Anomura

10.2.2.1.1.1.2.2.1. Family: Lithodidae – king crabs

	<p><i>Paralomis multispina</i> crab</p> <p>Classification: ITIS Identified by: Kuhnz; Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 1,661 – 2,306 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Paralomis verrilli</i> crab, vermillion</p> <p>Classification: ITIS Identified by: Kuhnz Video Identifiability: Provisional</p> <p>Observed Depth: 2,349 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1 Subclass: Eumalacostraca



10.2.2.1.1. Superorder: Eucarida

10.2.2.1.1.1. Order: Decapoda – shrimp, lobsters, crabs

10.2.2.1.1.1.2. Suborder: Pleocyemata

10.2.2.1.1.1.2.2. Infraorder: Anomura

10.2.2.1.1.1.2.2.2. Family: Galatheidae – squat lobsters

	<p><i>Munida</i> sp. lobster, squat</p> <p>Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Provisional</p> <p>Observed Depth: 1,306 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Munidopsis</i> spp. lobster, squat</p> <p>Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 1,512 – 3,290 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca



10.2.2.1. Subclass: Eumalacostraca

10.2.2.1.1. Superorder: Eucarida

10.2.2.1.1.1. Order: Decapoda – shrimp, lobsters, crabs

10.2.2.1.1.1.2. Suborder: Pleocyemata

10.2.2.1.1.1.2.3. Infraorder: Brachyura

	<p>BRACHYURA sp. crab</p> <p>Classification: ITIS Identified by: Kuhnz Video Identifiability: Provisional</p> <p>Observed Depth: 1,319 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Pisidae <i>Chorilia longipes</i> crab, longhorn decorator</p> <p>Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 1,585 m</p>
<p>Credit: MBARI © 2002</p>	

10. Phylum: ARTHROPODA


10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1. Subclass: Eumalacostraca

10.2.2.1.2. Superorder: Peracarida

10.2.2.1.2.1. Order: Mysida - mysids

	<p>MYSIDA spp. shrimp, opossum</p> <p>Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Provisional</p> <p>Observed Depth: 413 – 3,307 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

10. Phylum: ARTHROPODA

10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca

10.2.2.1. Subclass: Eumalacostraca

10.2.2.1.2. Superorder: Peracarida

10.2.2.1.2.2. Order: Amphipoda - amphipods

	<p>AMPHIPODA spp. amphipod</p> <p>Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 1,289 – 1,616 m</p>
	<p>Suborder: Caprellidea Infraorder: Caprellida Family: Caprellidae CAPRELLIDAE spp. caprellid</p> <p>Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 1,257 – 1,728 m</p>
<p>Credit: NOAA/MBARI 2006</p>	

10. Phylum: ARTHROPODA


10.2. Subphylum: Crustacea – crustaceans

10.2.2. Class: Malacostraca



10.2.2.1. Subclass: Eumalacostraca

10.2.2.1.2. Superorder: Peracarida

10.2.2.1.2.3. Order: Isopoda - isopods

	<p>ISOPODA spp. isopod</p> <p>Classification: ITIS Identified by: von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 1,319 – 2,789 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Munnopsidae MUNNOPSIDAE spp. isopod</p> <p>Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Provisional</p> <p>Observed Depth: 217 – 3,312 m</p>

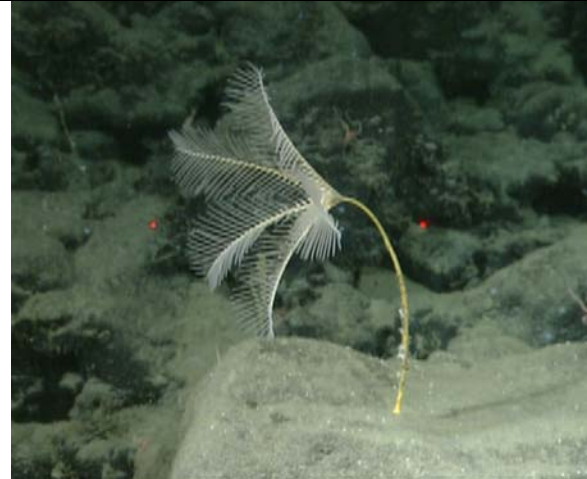
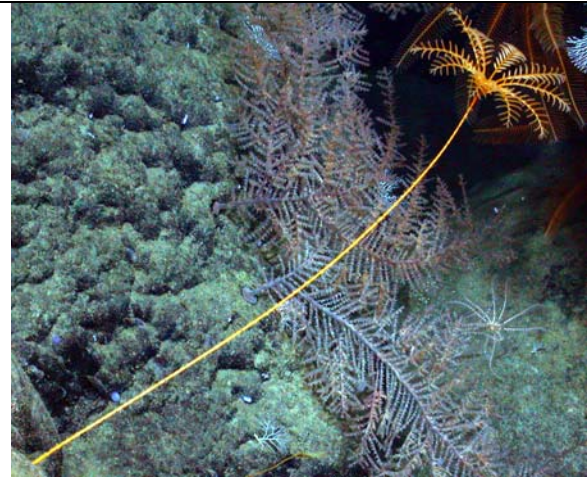

11. Phylum: ECTOPROCTA – bryozoans

	<p>ECTOPROCTA sp. 1 bryozoan</p> <p>Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 3,004 – 3,114 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>ECTOPROCTA sp. 2 bryozoan</p> <p>Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 3,005 m</p>
<p>Credit: NOAA/MBARI 2006</p>	

12. Phylum: ECHINODERMATA

12.1. Class: Crinoidea - crinoids, feather stars



12.1.1. Subclass: Articulata

	<p>Order: Millericrinida Family: Hyocrinidae <i>Hyocrinus</i> sp. crinoid, 5-arm</p> <p>Classification: Brands 1989-2007 Identified by: Lundsten; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 2,476 – 3,273 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Order: Bourgueticrinida Family: Bathyrcrinidae BATHYCRINIDAE sp. crinoid, 10-arm</p> <p>Classification: Brands 1989-2007 Identified by: Kuhnz; Lundsten; Messing Video Identifiability: Confirmed</p> <p>Observed Depth: 1,950 – 3,274 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>BATHYCRINIDAE sp. (as above)</p>
<p>Credit: NOAA/MBARI 2002</p>	

12. Phylum: ECHINODERMATA

12.1. Class: Crinoidea - crinoids, feather stars

12.1.1. Subclass: Articulata

	<p>Order: Comatulida Family: Antedonidae <i>Florometra serratissima</i> crinoid (feather star)</p> <p>Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 1,261 – 3,210 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p><i>Florometra serratissima</i> (as above)</p>
<p>Credit: NOAA/MBARI 2006</p>	

12. Phylum: ECHINODERMATA

12.2. Class: Asteroidea – sea stars

12.2.1. Order: Notomyotida

12.2.1.1. Family: Benthopectinidae






Benthopecten sp. (possibly *B. claviger*)
sea star, prickly

Classification: Cal Acad 2004
Identified by: Kuhnz; Mah
Video Identifiability: Provisional




Observed Depth: 2,460 m

Credit: NOAA/MBARI 2002

12. Phylum: ECHINODERMATA
 12.2. Class: Asteroidea – sea stars
 12.2.2. Order: Valvatida
 12.2.2.1. Family: Goniasteridae

	<p><i>Ceramaster patagonicus</i> sea star</p> <p>Classification: Cal Acad 2004 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,663 – 2,605 m</p>
<p>Credit: MBARI © 2004</p>	
	<p><i>Ceramaster</i> sp. sea star</p> <p>Classification: Cal Acad 2004 Identified by: Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 1,279 – 3,209 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p><i>Evoplosoma</i> sp. nov. sea star</p> <p>Classification: Cal Acad 2004 Identified by: Mah Video Identifiability: Confirmed</p> <p>Observed Depth: 3,034 m</p>
<p>Credit: NOAA/MBARI 2006</p>	

12. Phylum: ECHINODERMATA
 12.2. Class: Asteroidea – sea stars
 12.2.2. Order: Valvatida
 12.2.2.1. Family: Goniasteridae




	<p><i>Hippasteria californica</i> sea star</p> <p>Classification: Cal Acad 2004 Identified by: Lundsten; Mah Video Identifiability: Confirmed</p> <p>Observed Depth: 1,277 – 2,664 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Hippasteria spinosa</i> sea star</p> <p>Classification: Cal Acad 2004 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,495 – 1,682 m</p>
<p>Credit: MBARI © 2005</p>	
	<p><i>Mediaster</i> spp. sea star</p> <p>Classification: Cal Acad 2004; ITIS Identified by: Mah Video Identifiability: Confirmed</p> <p>Observed Depth: 2,500 – 2,932 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

12. Phylum: ECHINODERMATA

12.2. Class: Asteroidea – sea stars

12.2.3. Order: Velatida

12.2.3.1. Family: Pterasteridae

	<p><i>Hymenaster koehleri</i> sea star</p> <p>Classification: Cal Acad 2004; ITIS Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,917 – 3,257 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>?<i>Pteraster</i> sp. 1 sea star</p> <p>Classification: Cal Acad 2004 Identified by: Mah Video Identifiability: Provisional</p> <p>Observed Depth: 2,850 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Pteraster</i> sp. 2 (possibly <i>Hymenaster</i> sp.) sea star</p> <p>Classification: Cal Acad 2004 Identified by: Mah Video Identifiability: Provisional</p> <p>Observed Depth: 2,887 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

12. Phylum: ECHINODERMATA

12.2. Class: Asteroidea – sea stars

12.2.3. Order: Velatida

12.2.3.1. Family: Pterasteridae



	<p><i>Pteraster</i> sp. 3 (possibly <i>Hymenaster</i> sp.) sea star</p> <p>Classification: Cal Acad 2004 Identified by: Mah Video Identifiability: Provisional Observed Depth: 3,100 – 3,180 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Pteraster</i> sp. 4 sea star</p> <p>Classification: Cal Acad 2004 Identified by: Lundsten; Mah Video Identifiability: Provisional Observed Depth: 3,100 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Pteraster</i> sp. 5 sea star</p> <p>Classification: Cal Acad 2004 Identified by: Lundsten; Mah Video Identifiability: Provisional Observed Depth: 1,302 – 1,317 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

12. Phylum: ECHINODERMATA

12.2. Class: Asteroidea – sea stars

12.2.3. Order: Velatida

12.2.3.2. Family: Solasteridae

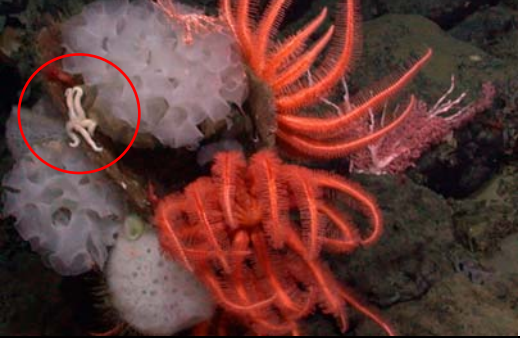
	<p><i>Lophaster furcilliger</i> sea star</p> <p>Classification: Cal Acad 2004 Identified by: Lundsten; Mah Video Identifiability: Confirmed</p> <p>Observed Depth: 1,662 – 1,718 m</p>
<p>Credit: MBARI © 2004</p>	
	<p><i>Solaster</i> spp. sun star (upon <i>Pannychia moseleyi</i>)</p> <p>Classification: Cal Acad 2004 Identified by: Lundsten; von Thun Video Identifiability: Provisional</p> <p>Observed Depth: 1,318 – 2,937 m</p>
<p>Credit: NOAA/MBARI 2006</p>	

12. Phylum: ECHINODERMATA


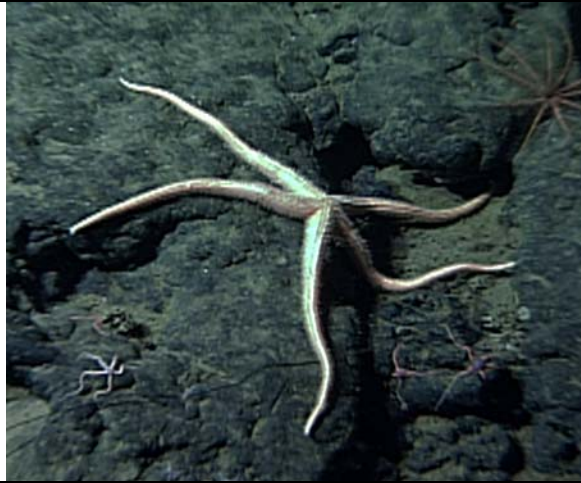

12.2. Class: Asteroidea – sea stars

12.2.4. Order: Spinulosida

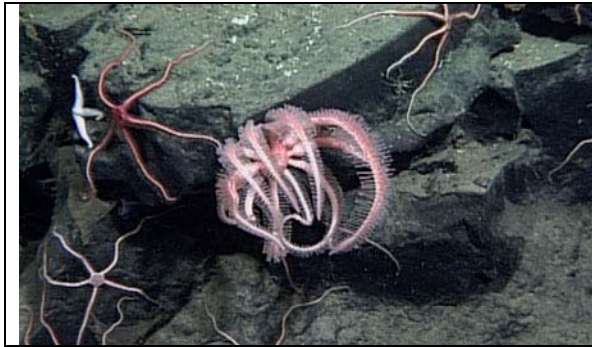
12.2.4.1. Family: Echinasteridae

	<p><i>Henricia</i> sp. sea star</p> <p>Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Provisional</p> <p>Observed Depth: 1,278 – 3,288 m</p>
<p>Credit: NOAA/MBARI 2006</p>	

12. Phylum: ECHINODERMATA
 12.2. Class: Asteroidea – sea stars
 12.2.5. Order: Forcipulatida

	<p>Family: Asteriidae <i>?Anteliaster</i> sp. sea star</p> <p>Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 2,498 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Family: Zoroasteridae <i>Myxoderma sacculatum</i> sea star</p> <p>Classification: ITIS Identified by: Kuhnz; Lundsten; Mah Video Identifiability: Confirmed</p> <p>Observed Depth: 2,668 – 2,728 m</p>
<p>Credit: MBARI © 2003</p>	
	<p>Family: Zoroasteridae ZOROASTERIDAE sp. sea star, pink</p> <p>Classification: Cal Acad 2004 Identified by: Kuhnz; Mah Video Identifiability: Provisional</p> <p>Observed Depth: 1,574 – 2,921 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

12. Phylum: ECHINODERMATA
12.2. Class: Asteroidea – sea stars
12.2.6. Order: Brisingida



Credit: MBARI © 2004


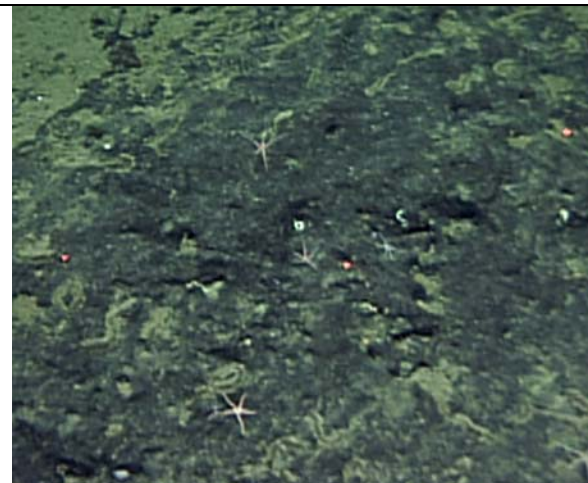
BRISINGIDA spp.
sea star, brisingid

Classification: Cal Acad 2004
Identified by: Kuhnz; Lundsten
Video Identifiability: Confirmed

Observed Depth: 1,304 – 3,287 m

12. Phylum: ECHINODERMATA

12.3. Class: Ophiuroidea – brittle stars, basket stars

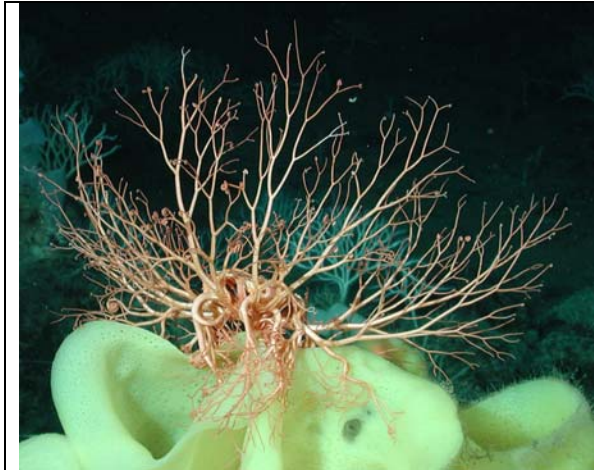
	<p>OPHIUROIDEA spp. brittle star</p> <p>Classification: Cal Acad 2004 Identified by: Kuhnz Video Identifiability: Confirmed</p> <p>Observed Depth: 2,801 – 3,007 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>OPHIUROIDEA spp. (as above)</p>
<p>Credit: NOAA/MBARI 2006</p>	

12. Phylum: ECHINODERMATA

12.3. Class: Ophiuroidea – brittle stars, basket stars

12.3.1. Order: Phrynophiurida

12.3.1.1. Family: Gorgonocephalidae



Gorgonocephalus sp.
basket star

Classification: Cal Acad 2004
Identified by: Lundsten; Mah; von Thun
Video Identifiability: Provisional

Observed Depth: 1,254 – 1,780 m

Credit: NOAA/MBARI 2002

12. Phylum: ECHINODERMATA

12.3. Class: Ophiuroidea – brittle stars, basket stars

12.3.2. Order: Ophiurida

12.3.2.1. Family: Ophiacanthidae




OPHIACANTHIDAE sp.
brittle star

Classification: Cal Acad 2004
Identified by: Lundsten
Video Identifiability: Provisional
Observed Depth: 1,571 – 3,287 m


Credit: NOAA/MBARI 2006

12. Phylum: ECHINODERMATA

12.4. Class Echinoidea – urchins

	<p>ECHINOIDEA sp. urchin</p> <p>Classification: Smith 2005 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,850 m</p>
<p>Credit: NOAA/MBARI 2002</p>	



12. Phylum: ECHINODERMATA
12.4. Class: Echinoidea – urchins
12.4.1. Order: Cidaroida

	<p>Family: Cidaridae <i>Aporocidaris milleri</i> urchin, pencil</p> <p>Classification: Smith 2005 Identified by: Kuhnz Video Identifiability: Provisional</p> <p>Observed Depth: 3,270 – 3,288 m</p>
<p>Credit: MBARI © 2006</p>	


12. Phylum: ECHINODERMATA

12.4. Class: Echinoidea – urchins

12.4.2. Order: Echinothuroida



	<p>Family: Echinothuriidae <i>Tromikosoma panamense</i> urchin</p> <p>Classification: Smith 2005 Identified by: Kuhnz; Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 2,666 – 3,250 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Echinothuriidae <i>Tromikosoma</i> sp. urchin</p> <p>Classification: Smith 2005 Identified by: Kuhnz; Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 2,024 – 2,932 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

12. Phylum: ECHINODERMATA
12.4. Class Echinoidea – urchins
12.4.3. Order: Holasteroidea

	<p>Family: Pourtalesiidae <i>Cystocrepis setigera</i> urchin</p> <p>Classification: Smith 2005 Identified by: Kuhnz Video Identifiability: Provisional</p> <p>Observed Depth: 1,950 – 2,064 m</p>
<p>Credit: NOAA/MBARI 2006</p>	

12. Phylum: ECHINODERMATA


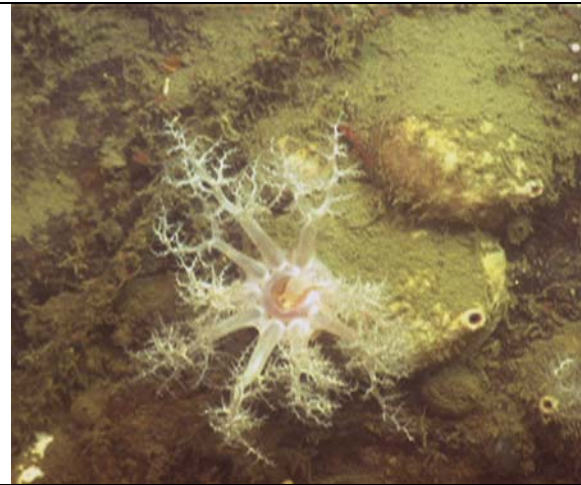
12.5. Class: Holothuroidea - sea cucumbers

	<p>HOLOTHUROIDEA sp. 1 sea cucumber</p> <p>Classification: ITIS Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 2,912 – 2,926 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>HOLOTHUROIDEA sp. 2 sea cucumber</p> <p>Classification: ITIS Identified by: Burton; Trejo Video Identifiability: Confirmed</p> <p>Observed Depth: 2,788 – 2,854 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

12. Phylum: ECHINODERMATA

12.5. Class: Holothuroidea - sea cucumbers



12.5.1. Order: Dendrochirotida

	<p>Family: Cucumariidae <i>Abyssocucumis abyssorum</i> sea cucumber</p> <p>Classification: ITIS Identified by: Kuhnz Video Identifiability: Confirmed</p> <p>Observed Depth: 3,250 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Psolidae <i>Psolus squamatus</i> sea cucumber</p> <p>Classification: ITIS Identified by: Kuhnz Video Identifiability: Provisional</p> <p>Observed Depth: 1,280 – 1,679 m</p>
<p>Credit: MBARI © 2002</p>	

12. Phylum: ECHINODERMATA

12.5. Class: Holothuroidea - sea cucumbers




12.5.2. Order: Aspidochirotida

	<p>Family: Synallactidae <i>Paelopatides confundus</i> sea cucumber</p> <p>Classification: ITIS Identified by: Kuhnz; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 2,286 – 3,166 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Synallactidae SYNALLACTIDAE sp. sea cucumber</p> <p>Classification: ITIS Identified by: Kuhnz Video Identifiability: Provisional</p> <p>Observed Depth: 1,676 – 3,260 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

12. Phylum: ECHINODERMATA

12.5. Class: Holothuroidea - sea cucumbers


12.5.3. Order: Elasipodida

	<p>Family: Deimatidae <i>Oneirophanta mutabilis</i> sea cucumber</p> <p>Classification: ITIS Identified by: Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 2,621 – 3,254 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Family: Elpidiidae <i>Peniagone</i> sp. sea cucumber</p> <p>Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 1,352 – 3,253 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p>Family: Elpidiidae <i>Scotoplanes globosa</i> sea cucumber</p> <p>Classification: ITIS Identified by: Kuhnz Video Identifiability: Confirmed</p> <p>Observed Depth: 3,264 m</p>
<p>Credit: MBARI © 2005</p>	

12. Phylum: ECHINODERMATA

12.5. Class: Holothuroidea - sea cucumbers




12.5.3. Order: Elasipodida

 A photograph showing two sea cucumbers on a dark, sandy seafloor. One sea cucumber is on the left, and another is on the right. They are elongated, cylindrical organisms with a lighter-colored body and darker, spiny appendages.	<p>Family: Laetmogonidae <i>Pannychia moseleyi</i> sea cucumber</p> <p>Classification: ITIS Identified by: Kuhnz; Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,718 – 3,008 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

12. Phylum: ECHINODERMATA

12.5. Class: Holothuroidea - sea cucumbers

12.5.3. Order: Elasipodida


	<p>Family: Psychropotidae <i>Benthodytes</i> sp. 1 sea cucumber</p> <p>Classification: ITIS Identified by: Video Identifiability: Provisional</p> <p>Observed Depth: 2,516 – 2,789 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Benthodytes</i> sp. 1 (as above)</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Psychropotidae <i>Benthodytes</i> sp. 2 sea cucumber</p> <p>Classification: ITIS Identified by: Kuhnz; Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 2,860 – 3,276 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

13. Phylum: CHAETOGNATHA - chaetognaths

	<p>CHAETOGNATHA spp. chaetognath</p> <p>Classification: ITIS Identified by: Lundsten; vonThun Video Identifiability: Confirmed</p> <p>Observed Depth: 206 – 2,100 m</p>

14. Phylum: HEMICHORDATA


14.1. Class: Enteropneusta - acorn worms

	<p>ENTEROPNEUSTA sp. acorn worm</p> <p>Classification: ITIS Identified by: Lundsten; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 2,566 – 3,301 m</p>
<p>Credit: NOAA/MBARI 2006</p>	

15. Phylum: CHORDATA

15.1. Subphylum: Tunicata



15.1.1. Class: Ascidiacea – sea squirts

	<p>Order: Pleurogona Family: Pyuridae <i>Culeolus</i> sp. tunicate, stalked</p> <p>Classification: ITIS Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,654 – 2,733 m</p>
<p>Credit: NOAA/MBARI 2006</p>	

15. Phylum: CHORDATA

15.1. Subphylum: Tunicata


15.1.2. Class: Thaliacea - salps

	<p>Order: Salpida SALPIDA spp. salp</p> <p>Classification: Brands 1989-2007 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 268 – 555 m</p>
<p>Credit: MBARI © 2005</p>	
	<p>Order: Doliolida <i>Doliolenetta</i> sp. nov. (and other DOLIOLIDA spp.) salp</p> <p>Classification: Taxonomicon Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 435 – 1,211 m</p>
<p>Credit: MBARI © 2004</p>	

15. Phylum: CHORDATA

15.1. Subphylum: Tunicata

15.1.3. Class: Appendicularia - larvaceans

	<p>Order: Copelata Family: Oikopleuridae <i>Bathochordaeus</i> sp. (and other APPENDICULARIA spp.) larvacean, giant</p> <p>Classification: Brands 1989-2007 Identified by: Lundsten; von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 256 – 3,280 m</p>
<p>Credit: MBARI © 2002</p>	

15. Phylum: CHORDATA



15.2. Subphylum: Vertebrata

15.2.1. Class: Chondrichthyes - cartilaginous fishes

15.2.1.1. Subclass: Elasmobranchii

15.2.1.1.1. Order: Rajiformes – rays, skate

15.2.1.1.1.1. Suborder: Rajoidei

	<p>RAJOIDEI spp. egg cases</p> <p>Classification: Ebert and Davis 2007 Identified by: Davis; Ebert Video Identifiability: Confirmed</p> <p>Observed Depth: 1,310 – 1,319 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Arhynchobatidae <i>Bathyraja abyssicola</i> skate, deepsea</p> <p>Classification: ITIS Identified by: Ebert; Kuhnz Video Identifiability: Confirmed</p> <p>Observed Depth: 2,018 – 2,371 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>Family: Rajidae <i>Amblyraja badia</i> skate, broad</p> <p>Classification: ITIS Identified by: Ebert; Kuhnz Video Identifiability: Confirmed</p> <p>Observed Depth: 1,642 m (female)</p>
<p>Credit: NOAA/MBARI 2006</p>	

15. Phylum: CHORDATA


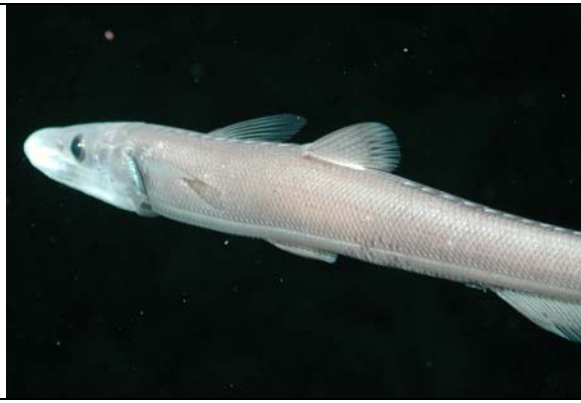
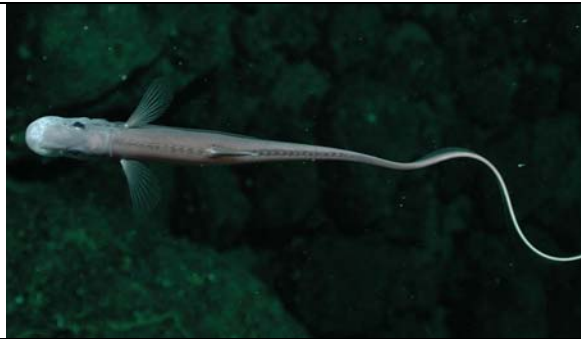
15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.1. Order: Notacanthiformes

15.2.2.1.1.1. Family: Halosauridae – halosaurs

	<p><i>Aldrovandia</i> sp. lizardfish, salty (or halosaur)</p> <p>Classification: Eschmeyer et al. 2005; Froese and Pauly 2005 Identified by: Cailliet; Rosenblatt Video Identifiability: Confirmed</p> <p>Observed Depth: 1,736 – 1,918 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Aldrovandia</i> sp. (as above)</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Aldrovandia</i> sp. (as above)</p>
<p>Credit: NOAA/MBARI 2002</p>	

15. Phylum: CHORDATA


15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.2. Order: Anguilliformes – true eels

15.2.2.1.2.1. Family: Synphobranchidae – cutthroat eels

	<p>SYNAPHOBRANCHIDAE sp. eel, cutthroat</p> <p>Classification: Froese and Pauly 2005 Identified by: Burton; Lea; Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 2,498 – 2,500 m</p>
<p>Credit: NOAA/MBARI 2006</p>	

15. Phylum: CHORDATA


15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.2. Order: Anguilliformes – true eels

15.2.2.1.2.2. Family: Nettastomatidae – duckbill eels

	<p><i>Venefica tentaculata</i> eel, witch</p> <p>Classification: Eschmeyer et al. 2005; Froese and Pauly 2005 Identified by: Cailliet; Lea; Rosenblatt Video Identifiability: Provisional</p> <p>Observed Depth: 1,856 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

15. Phylum: CHORDATA


15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.2. Order: Anguilliformes – true eels

15.2.2.1.2.3. Family: Serrivomeridae – sawtooth eels

	<p><i>Serrivomer</i> sp. (possibly <i>S. sector</i>) eel, sawtooth</p> <p>Classification: Eschmeyer et al. 2005; Froese and Pauly 2005 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 631 m</p>
<p>Credit: NOAA/MBARI 2006</p>	

15. Phylum: CHORDATA

15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.3. Order: Saccopharyngiformes

15.2.2.1.3.1. Family: Cyematidae – bobtail eels



Cyema atrum
eel, bobtail

Classification: Eschmeyer et al. 2005

Identified by: Burton; Trejo

Video Identifiability: Confirmed

Observed Depth: 1,320 m

Credit: MBARI © 2002

15. Phylum: CHORDATA


15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.4. Order: Osmeriformes (Argentiniformes)

15.2.2.1.4.1. Family: Bathylagidae – deep-sea smelts

	<p>BATHYLAGIDAE spp. smelt, deep-sea</p> <p>Classification: Nelson et al. 2004 Identified by: von Thun Video Identifiability: Confirmed</p> <p>Observed Depth: 305 – 787 m</p>
<p>Credit: MBARI © 2000</p>	

15. Phylum: CHORDATA


15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.4. Order: Osmeriformes (Argentiniformes)

15.2.2.1.4.2. Family: Alepocephalidae – slickheads

	<p>ALEPOCEPHALIDAE sp. (possibly <i>Conocara salmoneum</i>) slickhead</p> <p>Classification: ITIS; Eschmeyer et al. 2005 Identified by: Burton; Lea; Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 1,276 – 2,920 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

15. Phylum: CHORDATA


15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.5. Order: Stomiiformes

15.2.2.1.5.1. Family: Gonostomatidae – bristlemouths

	<p><i>Cyclothone</i> sp. bristlemouth</p> <p>Classification: ITIS; Eschmeyer et al. 2005 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 389 – 502 m</p>
<p>Credit: MBARI © 2003</p>	

15. Phylum: CHORDATA

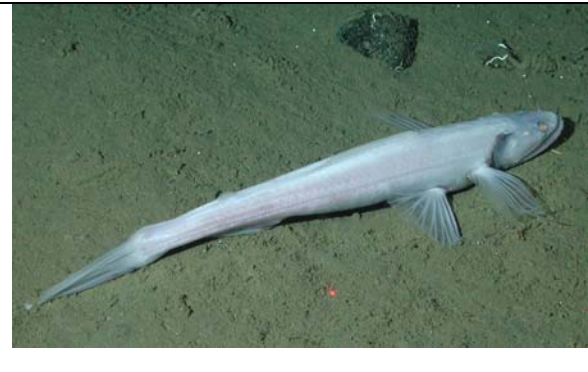
15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.6. Order: Aulopiformes

15.2.2.1.6.1. Family: Synodontidae – lizardfishes

	<p><i>Bathysaurus mollis</i> lizardfish, highfin</p> <p>Classification: Nelson 1994, Nelson et al. 2004, Eschmeyer et al. 2005 Identified by: Cailliet Video Identifiability: Confirmed</p> <p>Observed Depth: 2,012 – 2,401 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

15. Phylum: CHORDATA


15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.7. Order: Myctophiformes

15.2.2.1.7.1. Family: Myctophidae – lanternfishes

	<p>MYCTOPHIDAE spp. lanternfish</p> <p>Classification: Nelson et al. 2004 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 676 m</p>
<p>Credit: MBARI © 2003</p>	

15. Phylum: CHORDATA




15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.8. Order: Ophidiiformes

15.2.2.1.8.1. Family: Ophidiidae – cusk-eels and brotulas

	<p><i>Luciobrotula</i> sp. brotulid</p> <p>Classification: ITIS; Eschmeyer et al. 2005 Identified by: Kuhnz; Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 1,306 – 1,929 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Luciobrotula</i> sp. (as above)</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Spectrunculus grandis</i> cusk-eel, giant</p> <p>Classification: ITIS; Nelson et al. 2004 Identified by: Burton; Cailliet; Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,254 – 3,287 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

15. Phylum: CHORDATA




15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.9. Order: Gadiformes

15.2.2.1.9.1. Family: Macrouridae – grenadiers, rattails

	<p><i>Albatrossia pectoralis</i> grenadier, giant</p> <p>Classification: ITIS; Froese and Pauly 2005; Eschmeyer et al. 2005 Identified by: Burton; Iwamoto Video Identifiability: Provisional</p> <p>Observed Depth: 1,764 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p><i>Coryphaenoides acrolepis</i> grenadier, Pacific</p> <p>Classification: ITIS; Froese and Pauly 2005; Eschmeyer et al. 2005 Identified by: Burton; Kuhn; Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,311 m</p>
<p>Credit: NOAA/MBARI 2006</p>	
	<p><i>Coryphaenoides armatus/yaquinae</i> grenadier, abyssal/rough abyssal</p> <p>Classification: ITIS; Froese and Pauly 2005; Eschmeyer et al. 2005 Identified by: Burton; Kuhn Video Identifiability: Confirmed</p> <p>Observed Depth: 3,125 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

15. Phylum: CHORDATA


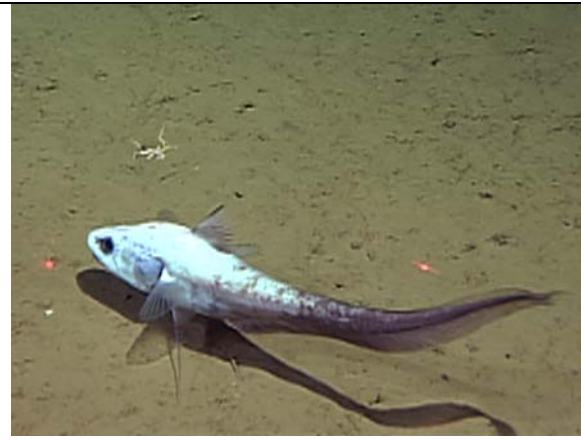
15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.9. Order: Gadiformes

15.2.2.1.9.1. Family: Macrouridae – grenadiers, rattails

	<p><i>Coryphaenoides filifer</i> grenadier, filamented</p> <p>Classification: ITIS; Froese and Pauly 2005; Eschmeyer et al. 2005 Identified by: Burton; von Thun Video Identifiability: Provisional</p> <p>Observed Depth: 3,000 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Coryphaenoides leptolepis</i> grenadier, ghostly</p> <p>Classification: ITIS; Froese and Pauly 2005; Eschmeyer et al. 2005 Identified by: Burton; Kuhn; Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 2,666 – 2,942 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

15. Phylum: CHORDATA



15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.9. Order: Gadiformes

15.2.2.1.9.2. Family: Moridae – codlings

 A photograph of a dark, slender fish with a prominent dorsal fin and a small eye, swimming in a greenish, turbid water environment.	<p><i>Antimora microlepis</i> codling, finescale (or Pacific flatnose)</p> <p>Classification: ITIS Identified by: Kuhnz Video Identifiability: Confirmed</p> <p>Observed Depth: 1,259 – 2,800 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
 A photograph of a dark, slender fish with a prominent dorsal fin and a small eye, resting on a sandy or rocky seabed.	<p>MORIDAE sp. (<i>Lepidion</i> sp. or possibly <i>Laemonema</i> sp.) codling</p> <p>Classification: ITIS Identified by: Burton; Kuhnz; Lea; Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 1,771 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

15. Phylum: CHORDATA


15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.10. Order: Lophiiformes

15.2.2.1.10.1. Family: Chaunacidae – sea toads

	<p><i>Bathychaunax (Chaunax) coloratus</i> sea toad, deep</p> <p>Classification: ITIS; Eschmeyer et al. 2005 Identified by: Cailliet; Lea; Rosenblatt Video Identifiability: Confirmed</p> <p>Observed Depth: 2,461 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

15. Phylum: CHORDATA


15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.11. Order: Scorpaeniformes

15.2.2.1.11.1. Family: Scorpaenidae – rockfishes

	<p><i>Sebastolobus alascanus</i> thornyhead, shortspine</p> <p>Classification: ITIS; Nelson et al. 2004 Identified by: Burton; Cailliet; Trejo Video Identifiability: Confirmed</p> <p>Observed Depth: 1,255 m</p>
<p>Credit: NOAA/MBARI 2002</p>	

15. Phylum: CHORDATA

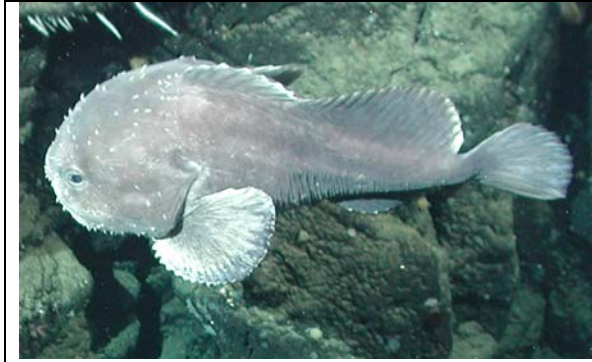
15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.11. Order: Scorpaeniformes

15.2.2.1.11.2. Family: Psychrolutidae – fathead sculpins



Psychrolutes phrictus
sculpin, blob (or no-name sculpin)

Classification: ITIS; Eschmeyer et al. 2005
Identified by: Burton; Cailliet; Lunsten
Video Identifiability: Confirmed

Observed Depth: 1,279 – 1,537 m

Credit: NOAA/MBARI 2002

15. Phylum: CHORDATA


15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.11. Order: Scorpaeniformes

15.2.2.1.11.3. Family: Liparidae – snailfishes

	<p><i>Careproctus ovigerus</i> (juvenile) snailfish, abyssal</p> <p>Classification: Nelson 1994; Nelson et al. 2004 Identified by: Stein et al. 2006 Video Identifiability: Confirmed</p> <p>Observed Depth: 1,324 – 1,356 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p>LIPARIDAE sp. snailfish, unidentified (blackhead)</p> <p>Classification: Nelson 1994; Nelson et al. 2004 Identified by: Lundsten Video Identifiability: Provisional</p> <p>Observed Depth: 1,556 – 2,739 m</p>

15. Phylum: CHORDATA



15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.12. Order: Perciformes

15.2.2.1.12.1. Family: Zoarcidae – eelpouts

	<p><i>Bothrocara brunneum</i> eelpout, twoline</p> <p>Classification: ITIS; Eschmeyer et al. 2005 Identified by: Burton; Kuhnz; Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,453 – 3,229 m</p>
<p>Credit: NOAA/MBARI 2002</p>	
	<p><i>Lycenchelys</i> spp. (and other ZOARCIDAE spp.) eelpout</p> <p>Classification: ITIS; Eschmeyer et al. 2005 Identified by: Kuhnz; Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 448 – 3,244 m</p>
<p>Credit: MBARI © 2006</p>	

15. Phylum: CHORDATA




15.2. Subphylum: Vertebrata

15.2.2. Superclass: Osteichthyes - bony fishes

15.2.2.1. Class: Actinopterygii – ray-finned fishes

15.2.2.1.12. Order: Perciformes

15.2.2.1.12.1. Family: Zoarcidae – eelpouts

	<p><i>Lycodapus fierasfer</i> eelpout, blackmouth</p> <p>Classification: ITIS; Eschmeyer et al. 2005 Identified by: Kuhnz Video Identifiability: Provisional</p> <p>Observed Depth: 2,788 m</p>
Credit: NOAA/MBARI 2002	
	<p><i>Lycodapus mandibularis</i> eelpout, pallid</p> <p>Classification: ITIS; Eschmeyer et al. 2005 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 1,576 – 2,665 m</p>
Credit: MBARI © 2002	
	<p><i>Pachycara bulbiceps</i> eelpout, snubnose</p> <p>Classification: ITIS; Eschmeyer et al. 2005 Identified by: Lundsten Video Identifiability: Confirmed</p> <p>Observed Depth: 2,607 – 2,926 m</p>
Credit: NOAA/MBARI 2002	

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SPECIMENS

A subset of specimens from Davidson Seamount are archived at the Monterey Bay Aquarium Research Institute, and may be available for further study. Contact the authors for further information on availability (lonny@mbari.org or erica.burton@noaa.gov).

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TAXONOMIC CHECKLIST

Classification of the Organisms Observed at Davidson Seamount off Central California, U.S.A.

Phylum: Foraminifera

Class: Xenophyophorea

XENOPHYOPHOREA sp. 1

XENOPHYOPHOREA sp. 2

Phylum: Radiozoa

Subphylum: Radiolaria

RADIOLARIA spp.

Phylum: Phaeophyta (drift)

Class: Phaeophyceae

Order: Laminariales

Family: Alariaceae

Alaria marginata

Alaria sp.

Family: Lessoniaceae

Macrocystis sp.

Nereocystis luetkeana

Phylum: Anthophyta (drift)

Class: Monocotyledones

Order: Najadales

Family: Potamogetonaceae

Phyllospadix sp.

Phylum: Porifera

PORIFERA sp. 1

PORIFERA sp. 2

PORIFERA sp. 3

PORIFERA sp. 4

PORIFERA sp. 5

PORIFERA sp. 6

PORIFERA sp. 7

PORIFERA sp. 8

PORIFERA sp. 9

Class: Demospongiae

Order: Astrophorida

Family: Pachastrellidae

Thenea muricata

Order: Poecilosclerida

POECILOSCLERIDA sp.

Family: Cladorhizidae

Asbestopluma sp. nov.

Asbestopluma sp. 1

Class: Hexactinellida

Subclass: Hexasterophora

Order: Hexactinosida

Family: Aphrocallistidae

Heterochone calyx

Family: Euretidae

Chonelasma sp. nov.

Family: Farreidae

Farrea occa

Family: Tretodictyidae

Sclerothamnopsis compressa

Order: Lyssacinossida

Family: Euplectellidae

Subfamily: Bolosominae

Saccocalyx pedunculata

Subfamily: Corbitellinae

Atlantisella sp. nov.

Regadrella sp. nov.

Family: Rossellidae

Caulophacus sp. nov.

Crateromorpha sp. nov.

Hyalascus sp. nov.

Staurocalyptus sp. nov.

Phylum: Cnidaria

Class: Scyphozoa

Order: Coronatae

Family: Atollidae

Atolla sp.

Family: Periphyllidae

Periphylla periphylla

Order: Semaestomeae

Family: Ulmaridae

Poralia rufescens

Tiburonia granrojo

Class: Hydrozoa

HYDROZOA sp. 1

HYDROZOA sp. 2

HYDROZOA sp. 3

Order: Anthoathecatae

Family: Hydractiniidae

HYDRACTINIIDAE sp.

Family: Bougainvilliidae

Chiarella sp.

Family: Myriothelidae (=Candelabridae)

MYRIOTHELIDAE sp.

Order: Narcomedusae

Family: Aeginidae

Aegina citrea

Aegina sp.

Aeginura sp.

Family: Cuninidae

Cunina sp.

Solmissus sp.

Order: Trachymedusae

Family: Halicreatidae

Halicreas minimum

Family: Rhopalonematidae

Benthocodon sp.

Colobonema sericeum

Crossota millsae

Subclass: Siphonophorae

Order: Physonectae

Family: Agalmatidae

Nanomia bijuga

Stephanomia amphitridis

Family: Apolemiidae

Apolemia spp.

Family: Physophoridae

Physophora hydrostatica

Family: Rhodaliidae

Stephalia dilata

Thermopalia taraxaca

Order: Calycophorae

Family: Prayidae

Gymnopraia lapislazula

Class: Anthozoa

Subclass: Hexacorallia (=Zoantharia)

Order: Antipatharia

Family: Cladopathidae

Subfamily: Cladopathinae

Trissopathes pseudotristicha

Trissopathes sp. (cf. *T. tetracrada*)

Family: Schizopathidae

Bathypathes sp.

Lillipathes sp.

Umbellapathes sp.

Order: Ceriantharia

Family: Cerianthidae

CERIANTHIDAE sp. 1

CERIANTHIDAE sp. 2

CERIANTHIDAE sp. 3

Order: Actiniaria

ACTINIARIA sp. 1 (possibly *Bathypheilia* sp.)

ACTINIARIA sp. 2

ACTINIARIA sp. 3

Suborder: Nyantheae

Infraorder: Thenaria

Family: Actinostolidae

ACTINOSTOLIDAE spp.

Stomphia sp. (probably *S. didemon*)

Family: Hormathiidae

HORMATHIIDAE sp.

Family: Liponematidae

Liponema brevicornis

Order: Zoanthidea

ZOANTHIDEA sp. 1

ZOANTHIDEA sp. 2

Order: Corallimorpharia

CORALLIMORPHARIA spp.

Family: Corallimorphidae

Corallimorphus sp.

Order: Scleractinia

Suborder: Caryophylliina

CARYOPHYLLIINA sp.

Family: Flabellidae

Javania cailleti

Subclass: Octocorallia (=Alcyonaria)

Order: Alcyonacea

Suborder: Alcyoniina

Anthomastus ritteri

Anthomastus robustus

Anthomastus sp. 1

Order: Gorgonacea

Suborder: Scleraxonia

Family: Paragorgiidae

Paragorgia arborea

Paragorgia sp. 1

Paragorgia sp. 2

Family: Coralliidae

Corallium sp.

Suborder: Holaxonia

Family: Acanthogorgiidae

Acanthogorgia sp.

Family: Plexauridae

Swiftia kofoidi

Suborder: Calcaxonia

Family: Chrysogorgiidae

Chrysogorgia monticola (HOLOTYPE)

Chrysogorgia pinnata (HOLOTYPE)

Family: Primnoidae

Calyptrophora bayeri (HOLOTYPE)

Calyptrophora sp. (cf. *C. antilla*)

Calyptrophora sp.

Narella sp.

Parastenella ramosa

Parastenella sp.

Family: Isididae

Acanella sp.

Keratoisis sp.

Lepidisis sp.

Phylum: Ctenophora

Class: Tentaculata

Order: Cydippida

Family: Haeckeliidae

Aulacoctena sp.

Family: Pleurobrachiidae

Hormiphora sp.

Order: Platyctenida

Family: Tjalfiellidae

Tjalfiella tristoma

Order: Lobata

LOBATA sp. nov.

Family: Bathocyroidae

Bathocyroe spp.

Family: Lampoctenidae

Lampocteis cruentiventer

Lampocteis sp.

Phylum: Mollusca

Class: Gastropoda

Order: Vetifastropoda

Superfamily: Patelloidea

PATELLOIDEA sp.

Order: Caenogastropoda

Suborder: Neogastropoda

Superfamily: Conoidea

Family: Turridae

TURRIDAE sp.

Subclass: Opisthobranchia

Order: Nudibranchia

NUDIBRANCHIA sp. nov.

Family: Tritoniidae

Tritonia diomedea (cf. *T. diomedea* or sp. nov.)

Family: Bathydoridae

BATHYDORIDIDAE sp.

Class: Polyplacophora

Order: Neoloricata

NEOLORICATA sp.

Class: Bivalvia

Subclass: Pteriomorphia

Order: Limoida

Family: Limidae

Acesta mori

Order: Ostreoida

Superfamily: Pecinoidea

Family: Pectinidae

?PECTINIDAE sp.

Class: Cephalopoda

Subclass: Coleoidea

Superorder: Decabrachia

Order: Teuthida

Suborder: Myopsina

Family: Loliginidae

Loligo (= *Doryteuthis*) *opalescens*

Suborder: Oegopsina

Family: Cranchiidae

Subfamily: Taoniinae

Galiteuthis sp.

Family: Gonatidae

Gonatus onyx

Family: Ommastrephidae

Subfamily: Ommastrephinae

Dosidicus gigas

Superorder: Octobranchia

Order: Octopoda

Suborder: Cirrina

Family: Opisthoteuthidae

Opisthoteuthis sp.

Suborder: Incirrina

Family: Bolitaenidae

Japetella sp.

Family: Octopodidae

Subfamily: Bathypolypodinae

Benthoctopus spp.

Subfamily: Graneledoninae

Graneledone boreopacifica (*pacifica*)

Phylum: Annelida

Class: Polychaeta

Subclass: Palpata

Order: Aciculata

Suborder: Phyllodocida

Family: Tomopteridae

Tomopteris sp.

Family: Aphroditidae

Laetmonice sp.

Family: Polynoidae

POLYNOIDAE sp.

Order: Canalipalpata

Suborder: Sabellida

Family: Sabellidae

Euchone sp. nov.

Family: Serpulidae

SERPULIDAE spp.

Suborder: Terebellida

Family: Poeobiidae

Poeobius meseres

Family: Fauveliopsidae

Flota sp.

Phylum: Arthropoda
Subphylum: Chelicerata
Class: Pycnogonida
PYCNOGONIDA sp.

Subphylum: Crustacea
Class: Maxillopoda
Subclass: Thecostraca
Infraclass: Cirripedia
Superorder: Thoracica
Order: Pedunculata
Suborder: Scalpellomorpha
SCALPELLOMORPHA sp.

Order: Sessilia
Suborder: Verrucomorpha
VERRUCOMORPHA sp.

Class: Malacostraca
Subclass: Eumalacostraca
Superorder: Eucarida
Order: Decapoda
Suborder: Dendrobrachiata
Superfamily: Sergestoidea
Family: Sergestidae
Sergestes similis

Suborder: Pleocyemata
Infraorder: Caridea
CARIDEA spp.
Superfamily: Pandaloidea
Family: Pandalidae
Pandalopsis ampla

Infraorder: Anomura
Superfamily: Paguroidea
Family: Lithodidae
LITHODIDAE sp.
Neolithodes diomedaeae
Neolithodes sp.
Paralomis multispina
Paralomis verrilli

Superfamily: Galattheoidea
Family: Galatheidae
Munida sp.
Munidopsis spp.

Infraorder: Brachyura
BRACHYURA sp.
Family: Pisidae
Chorilia longipes
Superorder: Peracarida
Order: Mysida
MYSIDA spp.

Order: Amphipoda
AMPHIPODA spp.
Suborder: Caprellidea
Infraorder: Caprellida
Superfamily: Caprelloidea
Family: Caprellidae
CAPRELLIDAE spp.

Order: Isopoda
ISOPODA spp.
Suborder: Asellota
Superfamily: Janiroidea
Family: Munnopsidae
MUNNOPSIDAE spp.

Phylum: Ectoprocta
ECTOPROCTA sp. 1
ECTOPROCTA sp. 2

Phylum: Echinodermata
Class: Crinoidea
Subclass: Articulata
Order: Millericrinida
Family: Hyocrinidae
Hyocrinus sp.

Order: Bourgueticrinida
Family: Bathyrcrinidae
BATHYCRINIDAE sp.

Order: Comatulida
Suborder: Macrophreata
Family: Antedonidae
Florometra serratissima

Class: Asteroidea
Order: Paxillosida
Suborder: Notomyotina
Family: Benthopectinidae
Benthopecten sp. (possibly *B. claviger*)

Order: Valvatida
Suborder: Granulosina
Family: Goniasteridae
Ceramaster patagonicus
Ceramaster sp.
Evoplosoma sp.
Hippasteria californica
Hippasteria spinosa
Mediaster spp.

Order: Velatida
Suborder: Eugnathina
Family: Pterasteridae
Hymenaster koehleri
?Pteraster sp. 1
Pteraster sp. 2 (possibly *Hymenaster* sp.)
Pteraster sp. 3 (possibly *Hymenaster* sp.)
Pteraster sp. 4
Pteraster sp. 5
Family: Solasteridae
Lophaster furcilliger
Solaster spp.

Order: Spinulosida
Suborder: Leptognathina
Family: Echinasteridae
Henricia sp.

Order: Forcipulatida
Family: Asteriidae
?Anteliaster sp.

Family: Zoroasteridae
Myxoderma sacculatum
ZOROASTERIDAE sp.

Order: Brisingida
BRISINGIDA spp.

Class: Ophiuroidea
OPHIUROIDEA spp.
Order: Phrynophiurida
Suborder: Euralina
Family: Gorgonocephalidae
Gorgonocephalus sp.

Order: Ophiurida
Suborder: Laemophiurina
Family: Ophiacanthidae
OPHIACANTHIDAE sp.

Class: Echinoidea - urchins
ECHINOIDEA sp.
Subclass: Perischoechnoidea
Order: Cidaroida
Family: Cidaridae
Aporocidaris milleri

Subclass: Euechinoidea
Superorder: Diadematacea
Order: Echinothurioida
Family: Echinothuriidae
Subfamily: Sperosomatinae
Tromikosoma panamense
Tromikosoma sp.

Superorder: Atelostomata
Order: Holasteroida
Suborder: Meridosternata
Infraorder: Urechinina
Family: Pourtalesiidae
Cystocrepis setigera

Class: Holothuroidea
HOLOTHUROIDEA sp. 1

HOLOTHUROIDEA sp. 2

Order: Dendrochirotida

Family: Cucumariidae

Abyssocucumis abyssorum

Family: Psolidae

Psolus sp.

Order: Aspidochirotida

Family: Synallactidae

Paelopatides confundus

SYNALLACTIDAE sp.

Order: Elasipodida

Family: Deimatidae

Oneirophanta mutabilis

Family: Elpidiidae

Peniagone sp.

Scotoplanes globosa

Family: Laetmogonidae

Pannychia moseleyi

Family: Psychropotidae

Benthodytes sp. 1

Benthodytes sp. 2

Phylum: Chaetognatha

CHAETOGNATHA spp.

Phylum: Hemichordata

Class: Enteropneusta

ENTEROPNEUSTA sp.

Phylum: Chordata

Subphylum: Tunicata

Class: Ascidiacea

Order: Pleurogona

Suborder: Stolidobranchia

Family: Pyuridae

Culeolus sp.

Class: Thaliacea

Order: Salpida

SALPIDA spp.

Order: Doliolida

Doliolenetta sp. nov.

DOLIOLIDA spp.

Class: Appendicularia

APPENDICULARIA spp.

Order: Copelata

Family: Oikopleuridae

Subfamily: Bathochordaeinae

Bathochordaeus sp.

Subphylum: Vertebrata

Class: Chondrichthyes

Subclass: Elasmobranchii

Superorder: Euselachii

Order: Rajiformes

Suborder: Rajoidei

RAJOIDEI spp. (egg cases)

Superfamily: Rajoidea

Family: Arhynchobatidae

Subfamily: Arhynchobatinae

Bathyraja abyssicola

Family: Rajidae

Amblyraja badia

Superclass: Osteichthyes

Class: Actinopterygii

Subclass: Neopterygii

Infraclass: Teleostei

Superorder: Elopomorpha

Order: Notacanthiformes

Suborder: Notacanthoidei

Family: Halosauridae

Aldrovandia sp.

Order: Anguilliformes

Suborder: Congroidei

Family: Synphobranchidae

SYNAPHOBRANCHIDAE sp.

Family: Nettastomatidae

Venefica tentaculata

Family: Serrivomeridae
Serrivomer sp. (possibly *S. sector*)

Order: Saccopharyngiformes

Suborder: Cyematoidei

Family: Cyematidae

Cyema atrum

Superorder: Protacanthopterygii

Order: Osmeriformes (Argentiniiformes)

Family: Bathylagidae

BATHYLAGIDAE spp.

Order: Osmeriformes

Suborder: Argentinoidei

Superfamily: Alepocephaloidea

Family: Alepocephalidae

ALEPOCEPHALIDAE sp.

(possibly *Conocara salmoneum*)

Superorder: Stenopterygii

Order: Stomiiformes

Suborder: Gonostomatoidei

Family: Gonostomatidae

Cyclothone sp.

Superorder: Scopelomorpha

Order: Aulopiformes

Family: Synodontidae

Subfamily: Synodontinae

Bathysaurus mollis

Order: Myctophiformes

Family: Myctophidae

MYCTOPHIDAE spp.

Superorder: Paracanthopterygii

Order: Ophidiiformes

Suborder: Ophidioidi

Family: Ophidiidae

Subfamily: Neobythitinae

Luciobrotula sp.

Spectrunculus grandis

Order: Gadiformes

Family: Macrouridae

Subfamily: Macrourinae

Albatrossia pectoralis

Coryphaenoides acrolepis

Coryphaenoides armatus/yaquinae

Coryphaenoides filifer

Coryphaenoides leptolepis

Family: Moridae

Antimora microlepis

MORIDAE sp. (*Lepidion* sp. or possibly *Laemonema* sp.)

Order: Lophiiformes

Suborder: Ogocephaloidei

Superfamily: Chaunacioidea

Family: Chaunacidae

Bathychaunax (Chaunax) coloratus

Superorder: Acanthopterygii

Order: Scorpaeniformes

Suborder: Scorpaenoidei

Family: Scorpaenidae

Sebastolobus alascanus

Suborder: Cottoidei

Family: Psychrolutidae

Psychrolutes phrictus

Family: Liparidae

Careproctus ovigerus (juvenile)

LIPARIDAE sp.

Order: Perciformes

Suborder: Zoarcoidei

Family: Zoarcidae

Bothrocara brunneum

Lycenchelys spp.

Lycodapus fierasfer

Lycodapus mandibularis

Pachycara bulbiceps

ZOARCIDAE spp.

ONMS CONSERVATION SERIES PUBLICATIONS

To date, the following reports have been published in the Marine Sanctuaries Conservation Series. All publications are available on the Office of National Marine Sanctuaries website (<http://www.sanctuaries.noaa.gov/>).

Caribbean Connectivity: Implications for Marine Protected Area Management (ONMS-08-07)

Knowledge, Attitudes and Perceptions of Management Strategies and Regulations of FKNMS by Commercial Fishers, Dive Operators, and Environmental Group Members: A Baseline Characterization and 10-year Comparison (ONMS-08-06)

First Biennial Ocean Climate Summit: Finding Solutions for San Francisco Bay Area's Coast and Ocean (ONMS-08-05)

A Scientific Forum on the Gulf of Mexico: The Islands in the Stream Concept (NMSP-08-04)

M/V *ELPIS* Coral Reef Restoration Monitoring Report Monitoring Events 2004-2007 Florida Keys National Marine Sanctuary Monroe County, Florida (NMSP-08-03)

CONNECTIVITY Science, People and Policy in the Florida Keys National Marine Sanctuary (NMSP-08-02)

M/V *ALEC OWEN MAITLAND* Coral Reef Restoration Monitoring Report Monitoring Events 2004-2007 Florida Keys National Marine Sanctuary Monroe County, Florida (NMSP-08-01)

Automated, objective texture segmentation of multibeam echosounder data - Seafloor survey and substrate maps from James Island to Ozette Lake, Washington Outer Coast. (NMSP-07-05)

Observations of Deep Coral and Sponge Assemblages in Olympic Coast National Marine Sanctuary, Washington (NMSP-07-04)

A Bioregional Classification of the Continental Shelf of Northeastern North America for Conservation Analysis and Planning Based on Representation (NMSP-07-03)

M/V *WELLWOOD* Coral Reef Restoration Monitoring Report Monitoring Events 2004-2006 Florida Keys National Marine Sanctuary Monroe County, Florida (NMSP-07-02)

Survey report of NOAA Ship McArthur II cruises AR-04-04, AR-05-05 and AR-06-03: Habitat classification of side scan sonar imagery in support of deep-sea coral/sponge explorations at the Olympic Coast National Marine Sanctuary (NMSP-07-01)

2002 - 03 Florida Keys National Marine Sanctuary Science Report: An Ecosystem Report Card After Five Years of Marine Zoning (NMSP-06-12)

Habitat Mapping Effort at the Olympic Coast National Marine Sanctuary - Current Status and Future Needs (NMSP-06-11)

M/V *CONNECTED* Coral Reef Restoration Monitoring Report Monitoring Events 2004-2005
Florida Keys National Marine Sanctuary Monroe County, Florida (NMSP-06-010)

M/V *JACQUELYN L* Coral Reef Restoration Monitoring Report Monitoring Events 2004-2005
Florida Keys National Marine Sanctuary Monroe County, Florida (NMSP-06-09)

M/V *WAVE WALKER* Coral Reef Restoration Baseline Monitoring Report - 2004 Florida Keys
National Marine Sanctuary Monroe County, Florida (NMSP-06-08)

Olympic Coast National Marine Sanctuary Habitat Mapping: Survey report and classification of
side scan sonar data from surveys HMPR-114-2004-02 and HMPR-116-2005-01 (NMSP-06-07)

A Pilot Study of Hogfish (*Lachnolaimus maximus* Walbaum 1792) Movement in the Conch Reef
Research Only Area (Northern Florida Keys) (NMSP-06-06)

Comments on Hydrographic and Topographic LIDAR Acquisition and Merging with Multibeam
Sounding Data Acquired in the Olympic Coast National Marine Sanctuary (ONMS-06-05)

Conservation Science in NOAA's National Marine Sanctuaries: Description and Recent
Accomplishments (ONMS-06-04)

Normalization and characterization of multibeam backscatter: Koitlah Point to Point of the Arches,
Olympic Coast National Marine Sanctuary - Survey HMPR-115-2004-03 (ONMS-06-03)

Developing Alternatives for Optimal Representation of Seafloor Habitats and Associated
Communities in Stellwagen Bank National Marine Sanctuary (ONMS-06-02)

Benthic Habitat Mapping in the Olympic Coast National Marine Sanctuary (ONMS-06-01)

Channel Islands Deep Water Monitoring Plan Development Workshop Report (ONMS-05-05)

Movement of yellowtail snapper (*Ocyurus chrysurus* Block 1790) and black grouper (*Mycteroperca
bonaci* Poey 1860) in the northern Florida Keys National Marine Sanctuary as determined by
acoustic telemetry (MSD-05-4)

The Impacts of Coastal Protection Structures in California's Monterey Bay National Marine
Sanctuary (MSD-05-3)

An annotated bibliography of diet studies of fish of the southeast United States and Gray's Reef
National Marine Sanctuary (MSD-05-2)

Noise Levels and Sources in the Stellwagen Bank National Marine Sanctuary and the St. Lawrence
River Estuary (MSD-05-1)

Biogeographic Analysis of the Tortugas Ecological Reserve (MSD-04-1)

A Review of the Ecological Effectiveness of Subtidal Marine Reserves in Central California (MSD-
04-2, MSD-04-3)

Pre-Construction Coral Survey of the M/V Wellwood Grounding Site (MSD-03-1)

Olympic Coast National Marine Sanctuary: Proceedings of the 1998 Research Workshop, Seattle, Washington (MSD-01-04)

Workshop on Marine Mammal Research & Monitoring in the National Marine Sanctuaries (MSD-01-03)

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