

Ike Kai

A Curriculum on Marine Resource Rules for the Makai Watch Program

CONTENTS

- Introduction
- Identifying regulated Marine Life
 - Fish
 - Silvery Fish
 - Weke - Goatfish
 - Surgeonfish
 - Uhu - Parrotfish
 - Ulua - Jacks
 - Invertebrates
 - Protected Species
- **Mālama Kai – Managing Ocean Resources**
 - Size Limits
 - Closed and Open Seasons
 - Bag Limits
 - Gear and Fishing Method Restrictions
 - Permits and Licenses
 - Marine Managed Areas (MMAs)





PURPOSE

The purpose of this guidebook is to introduce Makai Watch volunteers to identifying regulated marine life and providing an overview of Division of Aquatic Resources (DAR) rules related to marine life and fishing.

This guidebook is part of a larger project that includes an in-person training covering site-specific elements of the book and a toolkit with materials to support the volunteers from each Makai Watch group.

This information directly supports the Awareness-Raising and Outreach and the Observation and Incident Reporting components of the Makai Watch program.

PROJECT TEAM

The `Ike Kai project was made possible through a grant from the National Oceanic and Atmospheric Administration – National Marine Fisheries Service (NOAA-NMFS) Marine Education and Training program. Anne Rosinski (DAR) and Luna Kekoa (DOCARE, State Makai Watch Coordinator) provided substantial project contributions to the content and delivery of the curriculum. The Hawaii Coral Reef Initiative (HCRI) also provided staff expertise and feedback on the content and format of the curriculum.

Input on project scope and content was provided by staff from the Hawaii Division of Aquatic Resources (DAR) and Division of Conservation and Resource Enforcement (DOCARE), the Makai Watch Advisory Group, Makai Watch site coordinators, and several additional partners.

Photos of regulated species were generously provided by Keoki Stender (www.marinelifephotography.com).

Graphic design and formatting was developed by Nicholas Jones of Nicholas Jones Design. (<http://nicholasjonesdesign.com/>).

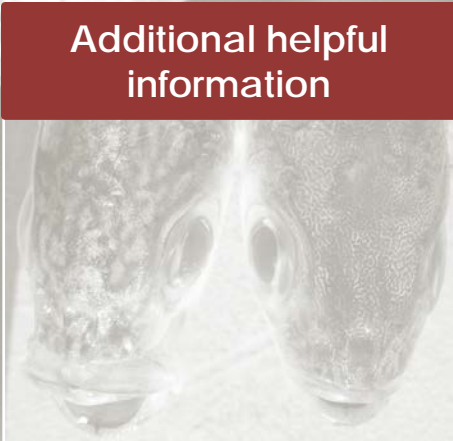
Photo credit: David Sakoda (DAR)



Hawaiian Name	Common Name	Scientific Name (Genus, species)
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Quick, commonly known information to help you identify each species



State Rules (effective statewide)

Site-Specific Rules (effective only in certain places)

Minimum Size	Closed Season	Bag limit	Gear Restrictions	Permits and Licenses

Hawaiian Name

Common Name

Scientific Name (Genus, species)

Local Knowledge

ʻŌlelo

Name Translation

Hawaiian proverbs that feature this species

English translation of the Hawaiian name

Biology

Endemic?

Spawning Season

Reproductive size (L50)

Max Length

Endemic species are only found in Hawaii

When the species reproduces

The length a fish will be when it has a 50% chance to have reproduced at least once, equation used to determine minimum sizes

Maximum size of the species

Ecology

Feeding

Habitat

Kumulipo

What the species eats

Type of environment where you will find this species

A Hawaiian Cosmogonic and genealogical chant. The curriculum includes the relevant text and translations.

Notes:

Please add more information or personal stories that help you remember this species.



Identifying Regulated Marine Life



SECTION ONE

I'A
(FISH)

SILVERY FISH

- These fish share a silvery color
- Can be easily confused for one another
- Many live in waters close to shore
- Highly-prized for eating

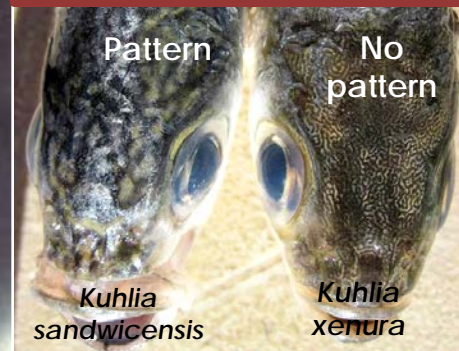




Deep notch in tail

Large eye

2 species
Both regulated



Pattern

No pattern

Kuhlia sandwicensis

Kuhlia xenura

Photo credit: Keoki Stender

Photo credit (right): Kim Morishige

- Found in large schools
- Minimum size (5") is about palm- sized
- Caught with spear, net
- Common to eat, sometimes fried

State Rules:

Minimum Size	Closed Season	Bag limit	Gear Restrictions	Permits and Licenses
5"	-	-	-	-

Local Knowledge

ʻŌlelo

He āhole ka i`a, hole ke aloha.
Like the fish āhole, love is restless.

Name Translation

ʻhole means to pry out,
āholehole were used in ceremonies to pry out or remove evil spirits

Biology

Endemic?

Yes, only *Kuhlia xenura*

Spawning Season

Jan – Apr (Hanalei, Maunaloa, Mo`omomi)

Reproductive size (L50)

5"

Max Length

8"

Ecology

Feeding

Crustaceans

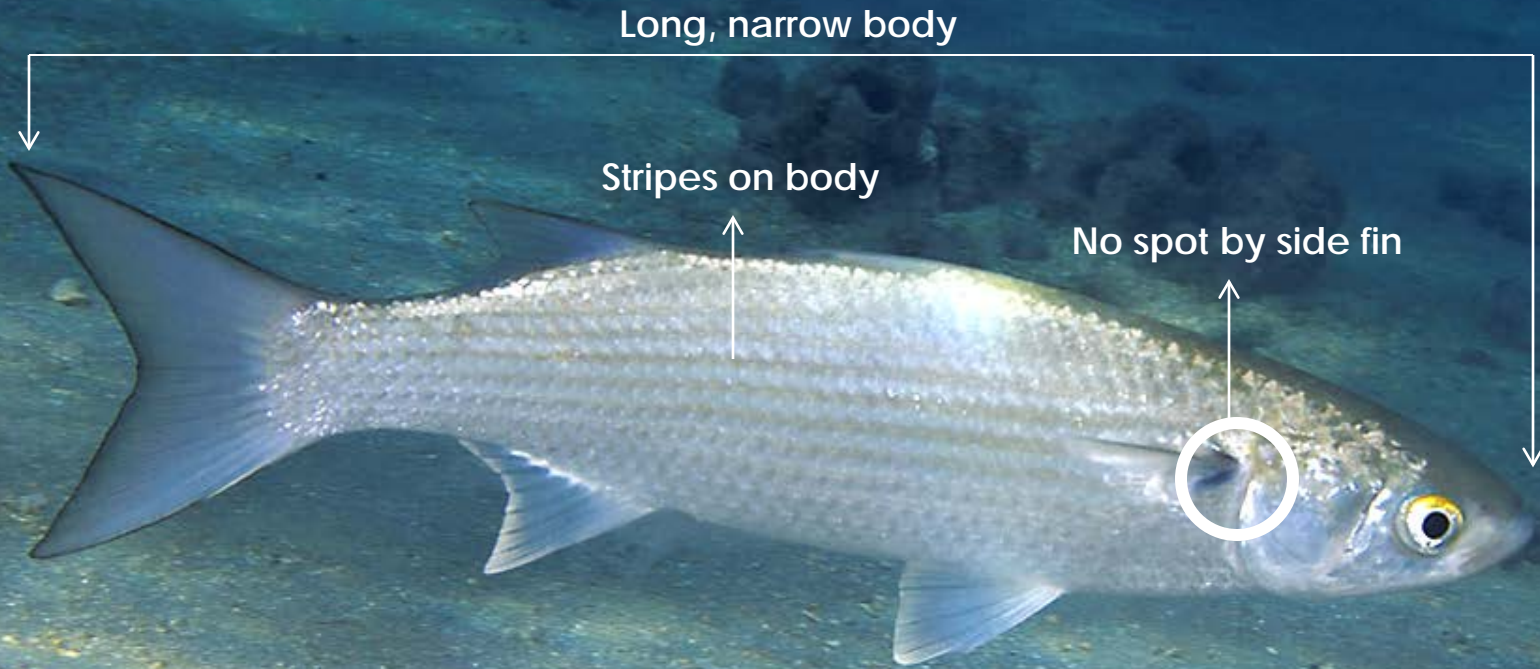
Habitat

Tide pool, estuary, reef flat

Notes:

[Empty rounded rectangular box for notes]

Regulated:



- Long, narrow silver fish
- Found in schools in shallows, fishponds
- Known to leap out of water
- Caught with net

Photo credit: Keoki Stender

Not regulated:

Neomyxus leuciscus /uouoa



Photo: Keoki Stender

Moolgarda engeli/kandra mullet



Dark spot by side fin

State Rules

Minimum Size	Closed Season	Bag limit	Gear Restrictions	Permits and Licenses	Similar but not regulated species
11"	Dec - Mar	-	-	-	uouoa/sharppnose mullet/ <i>Neomyxus leuciscus</i> , <i>Moolgarda engeli</i> /kandra mullet

Local Knowledge

`Ōlelo

Ka i`a kā wāwae o Hīlia
 The fish of Hīlia, kicked by the feet;
 To gather mullet, people wade into the water in Hīlia
 (Moloka`i) and kick mullet ashore for others to gather

Name Translation

`ama`ama can be used in slang to mean an easy
 mark, `ama also means light, bright

Biology

Endemic?

No

Spawning Season

Dec - Mar

Reproductive size (L50)

11-12"

Max Length

1.5 ft

Ecology

Feeding

Algae, small
 plants

Habitat

Tide pool, estuary, reef flat.
 Known to migrate long distances

Kumulipo

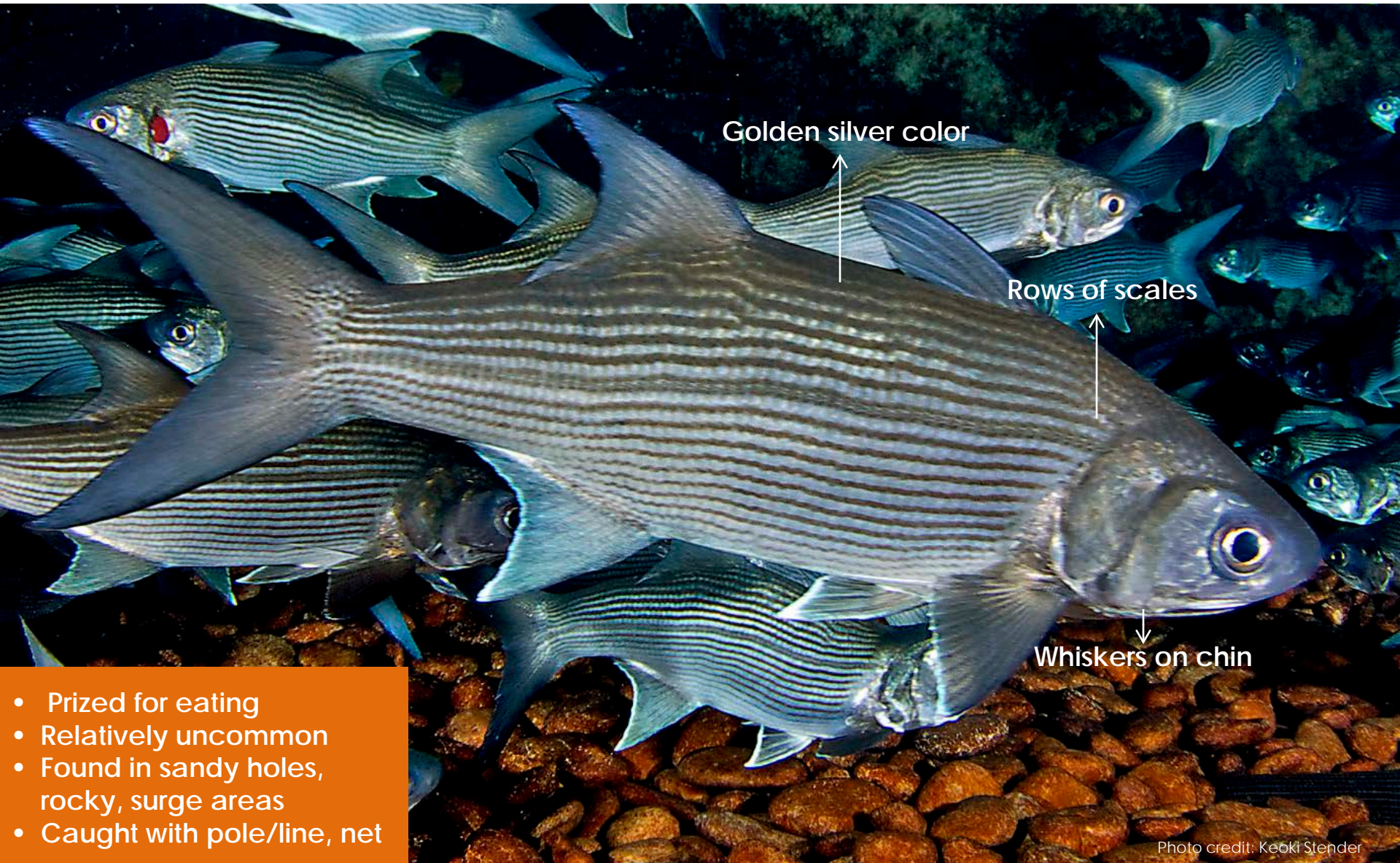
Hanau ka `Ama`ama, hanai ka `Anaee I ke kai la, holo
`Ama`ama are born, `Anaee (adult mullet) are born in the
sea, swim

Notes:

Moi

Threadfin

Polydactylus sexfilis



- Prized for eating
- Relatively uncommon
- Found in sandy holes, rocky, surge areas
- Caught with pole/line, net

Photo credit: Keoki Stender

State Rules

Minimum Size	Closed Season	Bag limit	Gear Restrictions	Permits and Licenses
11"	June - Aug	15	-	-

Local Knowledge

`Ōlelo

Ehuehu kai, noho ka moi;
Where the sea broils, there the moi fish dwell

Name Translation

Moi means a white birthmark, also a variety of taro and sweet potato

Biology

Endemic?	Spawning Season	Reproductive size (L50)	Max Length
No	Jun - Aug	9-11"	2 ft

Ecology

Feeding	Habitat	Kumulipo
Crustaceans	Estuary, reef flat, rough coastlines with wave action	<i>Hanau ka `Ahi Kananā, Hanau ka Manamoi I ke kai la `Ahi Kananā</i> (young tuna) are born, <i>moi</i> are born

Notes:

Dark spot on nose

No yellow spot near fin

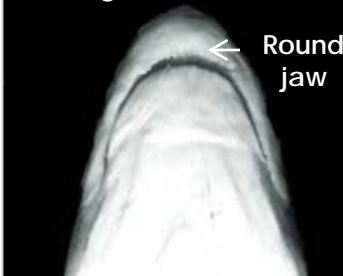
Rounded jaw



- Relatively large, silver fish
- Active at night (nocturnal)
- Caught with pole/line, net
- Meat spooned out for fishcake

Photo credit: Keoki Stender

Albula glossodonta

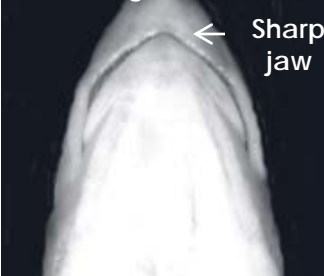


Round jaw

Regulated

- No yellow spot by side fin
- Found on reef flat

Albula virgata



Sharp jaw

Not regulated

- Yellow spot by side fin
- Found in deep water

State Rules

Minimum Size	Closed Season	Bag limit	Gear Restrictions	Permits and Licenses	Similar but not regulated species
14"	-	-	-	-	ʻŌʻiō/Bonefish/ <i>Albula virgata</i>

Local Knowledge

Name Translation

`ō`io is the term for the soft, jelly-like coconut flesh (perhaps like the flesh of the `ō`io fish)
 Also a kind of braid used in hat bands, resembling the back of the `ō`io fish
 Stone used for polishing and as a lure for fishing *he`e* (octopus)

Biology

Endemic?	Spawning Season	Reproductive size (L50)	Max Length
No	Jun – Aug Nov – April (West Maui)	14"	3 ft

Ecology

Feeding	Habitat
Crustaceans, small fish	Reef flat

Notes:

Small,
toothless
mouth

Olive green color

Deep
notch in
tail

- Swims just below surface
- Caught with pole/line, net
- Used to make fishcake
- Typical size = 18-24 inch, 40 lbs

Photo credit: Keoki Stender

State Rules

Minimum Size	Closed Season	Bag limit	Gear Restrictions	Permits and Licenses
9" (spearing and sale)	-	-	-	-

Local Knowledge

`Ōlelo

He loko kapu ia, he awa ka i`a noho; eia ka ua komo `ia e ka `ā kōkokī;
It was a pond reserved only for awa fish, but now a bait-stealing ā fish has gotten into it;
A high ranking woman is having intimate relations with a lower ranking man.

Name Translation

Awa also means port/harbor and a channel or passage through a reef

Biology

Endemic?

No

Reproductive size (L50)

9"

Max Length

3 ft

Ecology

Feeding

Algae, plankton

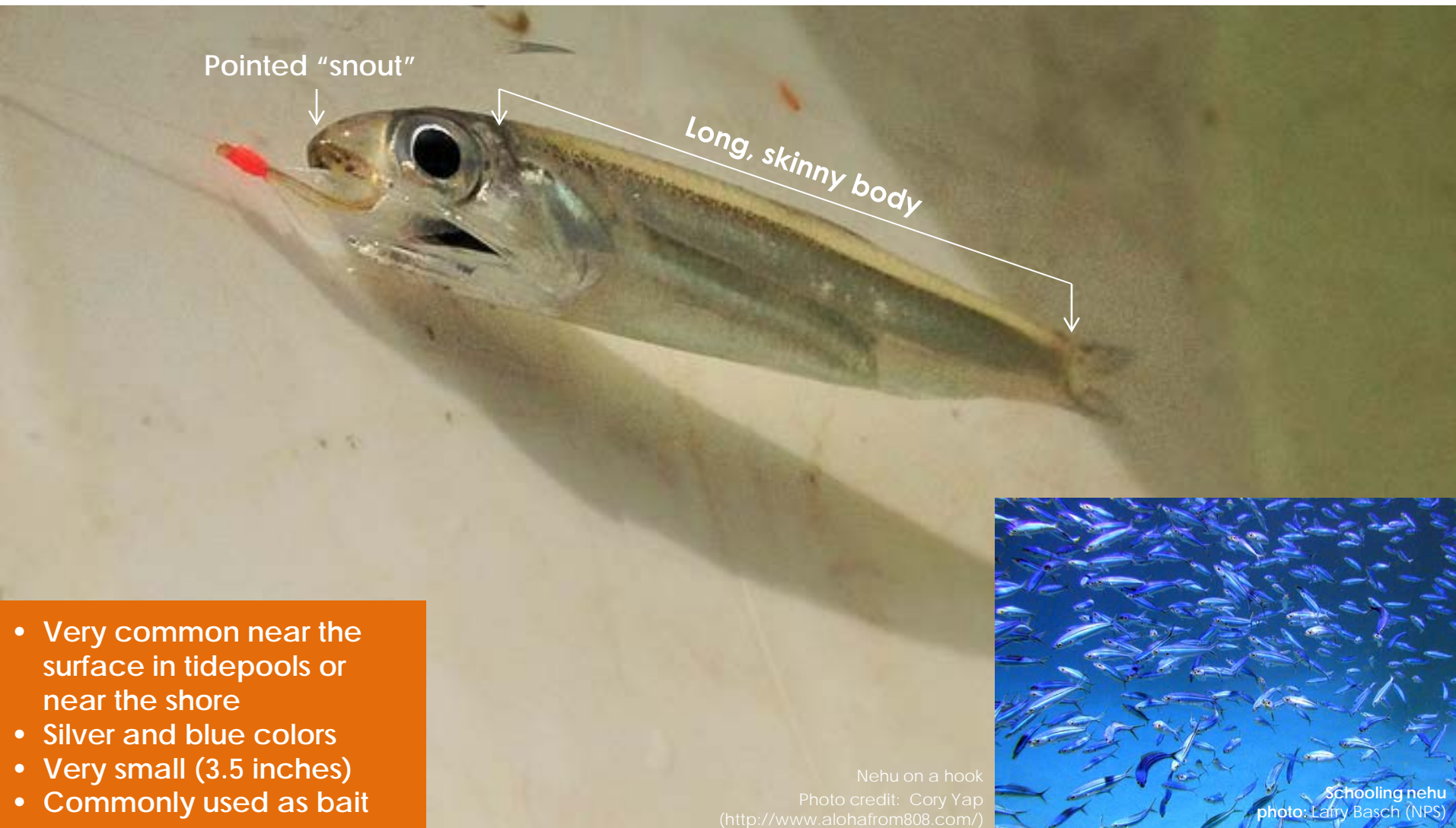
Habitat

Estuary, reef flat

Kumulipo

Hanau ke Ao, hanau ke Awa i ke kai la, holo
Ao (unknown fish) is born, awa is born

Notes:



- Very common near the surface in tidepools or near the shore
- Silver and blue colors
- Very small (3.5 inches)
- Commonly used as bait

Nehu on a hook
 Photo credit: Cory Yap
 (<http://www.alohafrom808.com/>)



Schooling nehū
 photo: Larry Basch (NPS)

State Rules

Minimum Size	Closed Season	Bag limit	Gear Restrictions	Permits and Licenses
-	-	1 gallon (home consumption)	Can only use net 50 ft or more for commercial use	Bait license needed for commercial sale; unlawful to sell dried or cured

Local Knowledge

`Ōlelo

He ua he`e nehu no ka lawai`a;
It is the rain that brings *nehu* for the fishermen

Biology

Endemic?

Yes

Max Length

3 inch

Ecology

Feeding

Habitat

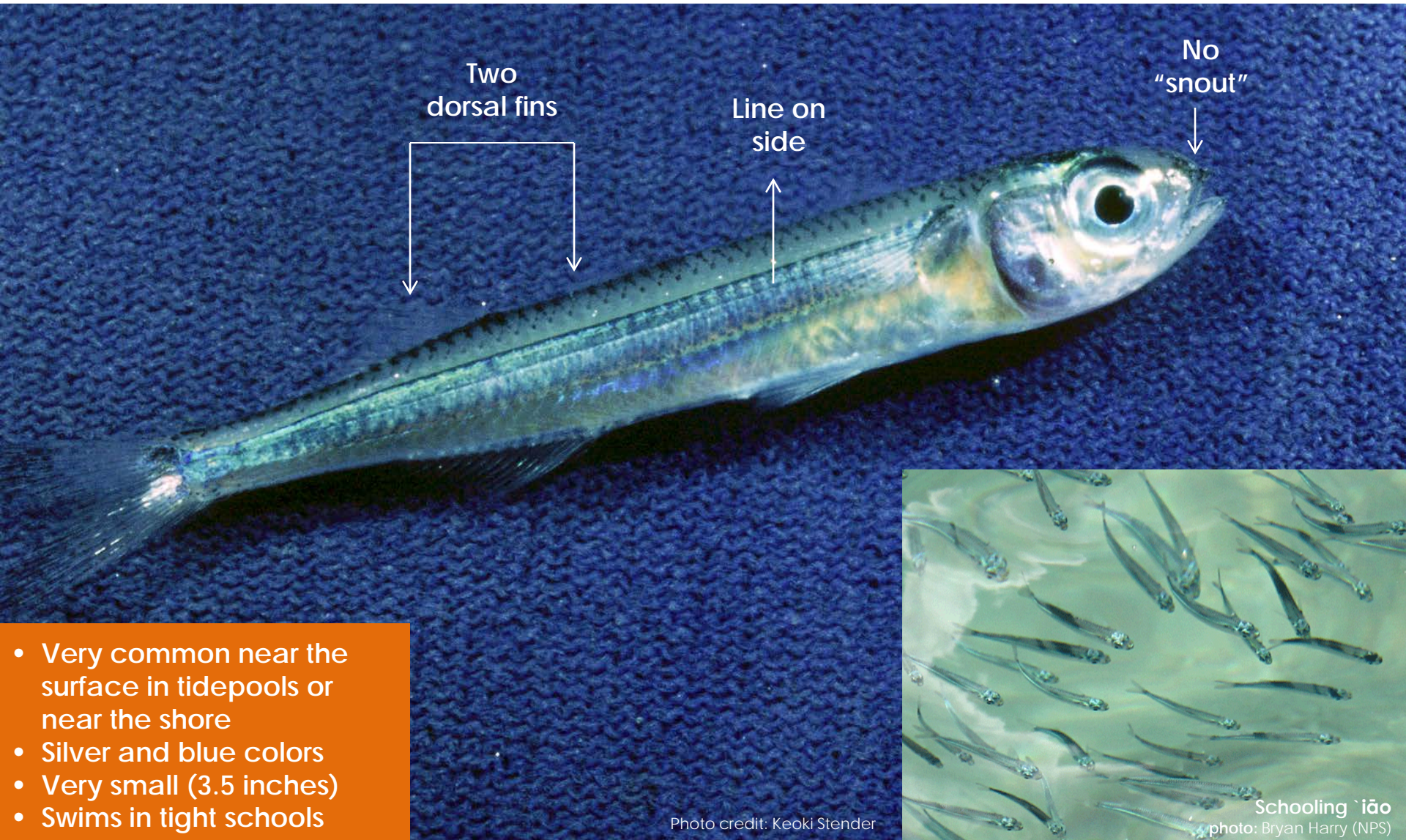
Kumulipo

Plankton

Common in shallow waters, estuary,
tide pool, reef flat

Hanau ka `Ehu, hanau ka Nehu i ke kai la, holo
`Ehu (red snapper) are born, Nehu are born in the sea, swim

Notes:



- Very common near the surface in tidepools or near the shore
- Silver and blue colors
- Very small (3.5 inches)
- Swims in tight schools

Photo credit: Keoki Stender



Schooling ʻiāo
photo: Bryan Harry (NPS)

State Rules

Minimum Size	Closed Season	Bag limit	Gear Restrictions	Permits and Licenses
-	-	-	-	Bait license needed for commercial sale; unlawful to sell dried or cured

Local Knowledge

`Ōlelo

Hānai `ia I ka `iao;
Fed with the `iao fish;
The `iao was used as bait for larger fish

Name Translation

`lāo also figuratively means dawn,
also the name of an endemic bird said to resemble the
moho

Biology

Endemic?

Yes

Max length

3.5"

Ecology

Feeding

Plankton

Habitat

Tide pools, reef flat

Kumulipo

Hanau ka `lāo, hanau ka `Ao`ao I ke kai , holo
`lāo are born, `Ao`ao (a star) are born in the sea, swim

Notes:

Ōpelu

Mackarel Scad/Kusayamoro

Decapterus macarellus



Ōpelu in a net
photo: Cory Yap (www.alohafrom808.com)

© CORY YAP
alohafrom808.com

Dark spot near gills

- Seen near coast and middle of water column
- Caught with handlines at night, with special lift nets during the day
- Considered excellent food fish and for bait for large fish

Photo credit: Keoki Stender

State Rules

Minimum Size	Closed Season	Bag limit	Gear Restrictions	Permits and Licenses
-	Only open Aug and Sept (Waimea Bay ONLY)	-	No minimum mesh size for nets Cannot use animal bait (except with hook and line in certain South Kona waters)	-

ʻŌpelu

Mackarel Scad/Kusayamoro

Decapterus macarellus

Local Knowledge

ʻŌlelo

Name Translation

ʻŌpelu haʻalili I ke kai;
ʻŌpelu that make the sea ripple

ʻŌpelu is also a variety of taro,
A plant (*Lobelia hypoleuca*) whose leafs resemble the fish

Biology

Endemic?

Spawning Season

Reproductive size (L50)

Max Length

No

Apr - Aug

9.5"

1.8 ft

Ecology

Feeding

Habitat

Kumulipo

Plankton, small crustaceans

Outer reef

*Hanau ka ʻŌpelu, hanau ke Akule I ke kai la, holo
ʻŌpelu are born, akule are born*

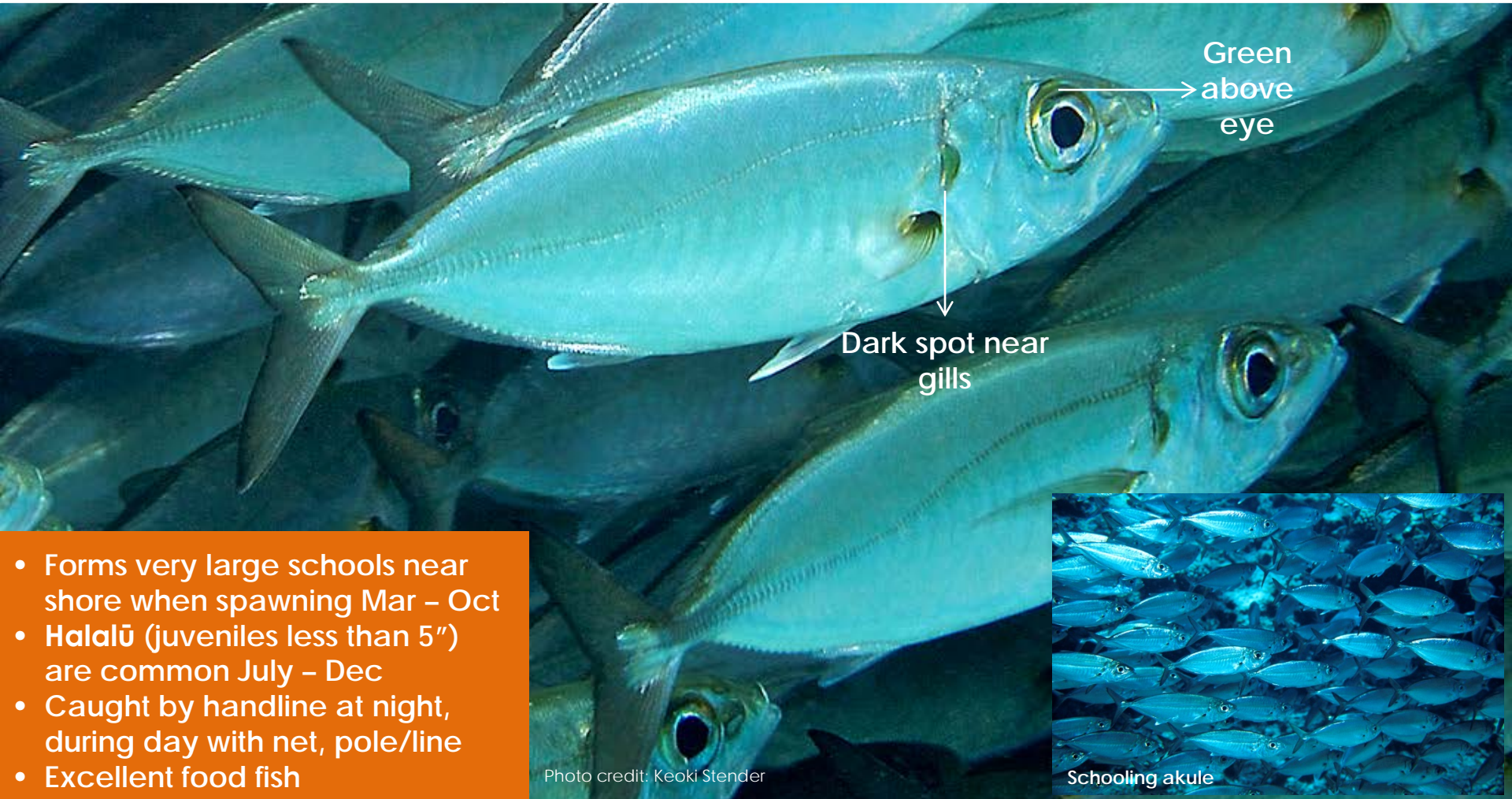
Notes:

Large grey rounded rectangular area for notes.

Akule, halalū

Bigeye Scad/aji

Selar crumenophthalmus



Green above eye

Dark spot near gills



Schooling akule

Photo credit: Keoki Stender

- Forms very large schools near shore when spawning Mar – Oct
- Halalū (juveniles less than 5”) are common July – Dec
- Caught by handline at night, during day with net, pole/line
- Excellent food fish

State Rules

Minimum Size	Closed Season	Bag limit	Gear Restrictions	Permits and Licenses
-	Unlawful to take akule under 8.5 inches with net July - October, or possess or sell more than 200 lbs of akule under 8.5 inches per day from July – October Only open Nov and Dec (Waimea Bay ONLY)	-	Cannot use animal bait (except with hook and line in certain South Kona waters) Several net rules (see DAR reg. book and gear section)	-

Local Knowledge

`Ōlelo

Wehe ke akule i ka hohonu;
The akule fish takes off to the deep

Name Translation

Halalū also means to rumble or strum like an instrument

Biology

Endemic?	Spawning Season	Reproductive size (L50)	Max Length
No	Apr – Oct (Hanalei), June – July (Oahu), Apr - Jun (West Maui)	8.5"	2.3 ft

Ecology

Feeding	Habitat	Kumulipo
Small crustaceans	Found seasonally in bays; form large schools	<i>Hanau ka `Ōpelu, hanau ke Akule I ke kai la, holo `Ōpelu are born, akule are born</i>

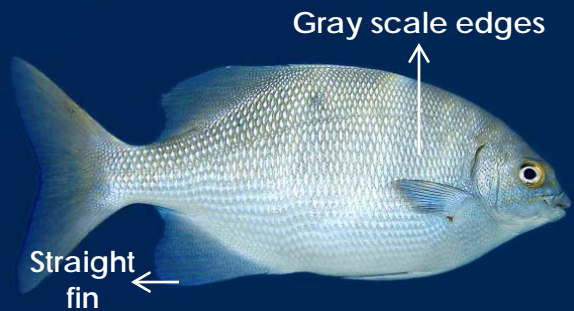
Notes:

Nenuke/Enenuke

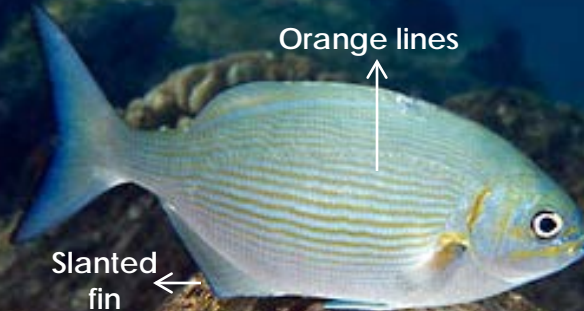
Chub/Rudderfish/Tenjiku/saki/Isuzumi/

Kyphosus spp.

Kyphosus cinerascens/Highfin chub



Kyphosus vaigiensis/Lowfin chub



Sectator ocyurus/Blue striped chub

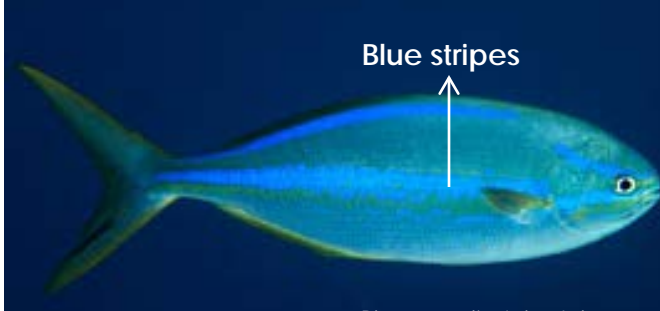


Photo credit: John Johnson

Kyphosus sandwicensis/Gray or Pacific chub

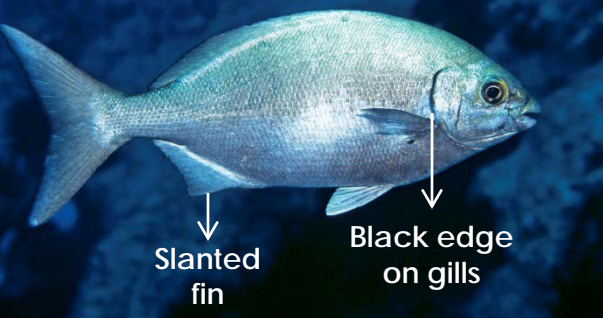
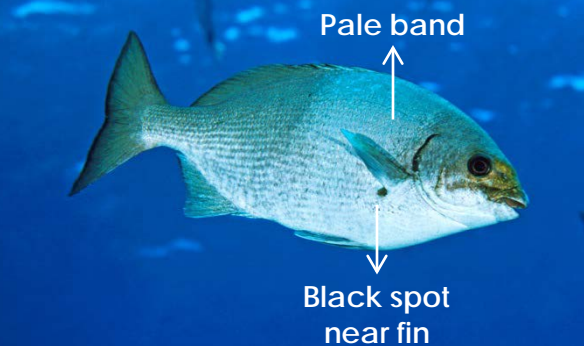
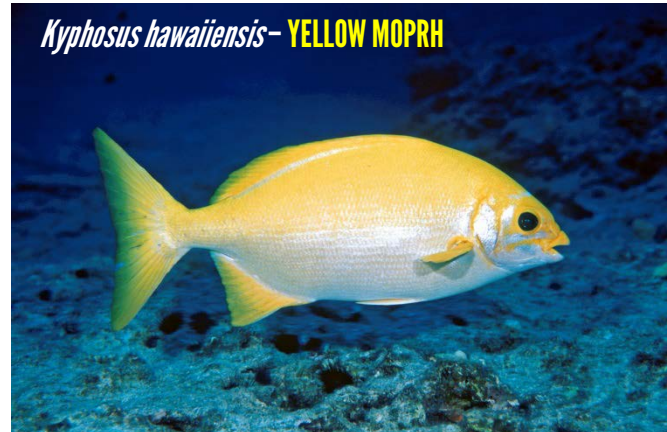


Photo credit: Keoki Stender

Kyphosus hawaiiensis



Kyphosus hawaiiensis - **YELLOW MORPH**



- Football-shaped body
- Gather in rocky, nearshore areas
- Yellow morph is rare to see

Kahekili Herbivore Fisheries Management Area (KHfMA) ONLY

Illegal injure, kill, possess, or remove any nenuke/rudderfish within the boundaries in the KHfMA

Local Knowledge

Name Translation

Nenue is a variety of seaweed,
also a type of paddle with a broad blade

Biology

Endemic?

Yes,
Kyphosus sandwicensis and *Kyphosus hawaiiensis* only

Max Length

Range in size from 15-30 inches

Ecology

Feeding

Habitat

Kumulipo

Algae

Found in rocky areas, coral reefs

Hanau ka Nenue noho i kai, kiai ia e ka Lauhue noho i uka
Nenue are born in the sea, guarded by the *Lauhue* (poisonous gourd)

Notes:

WEKE - GOAT FISH

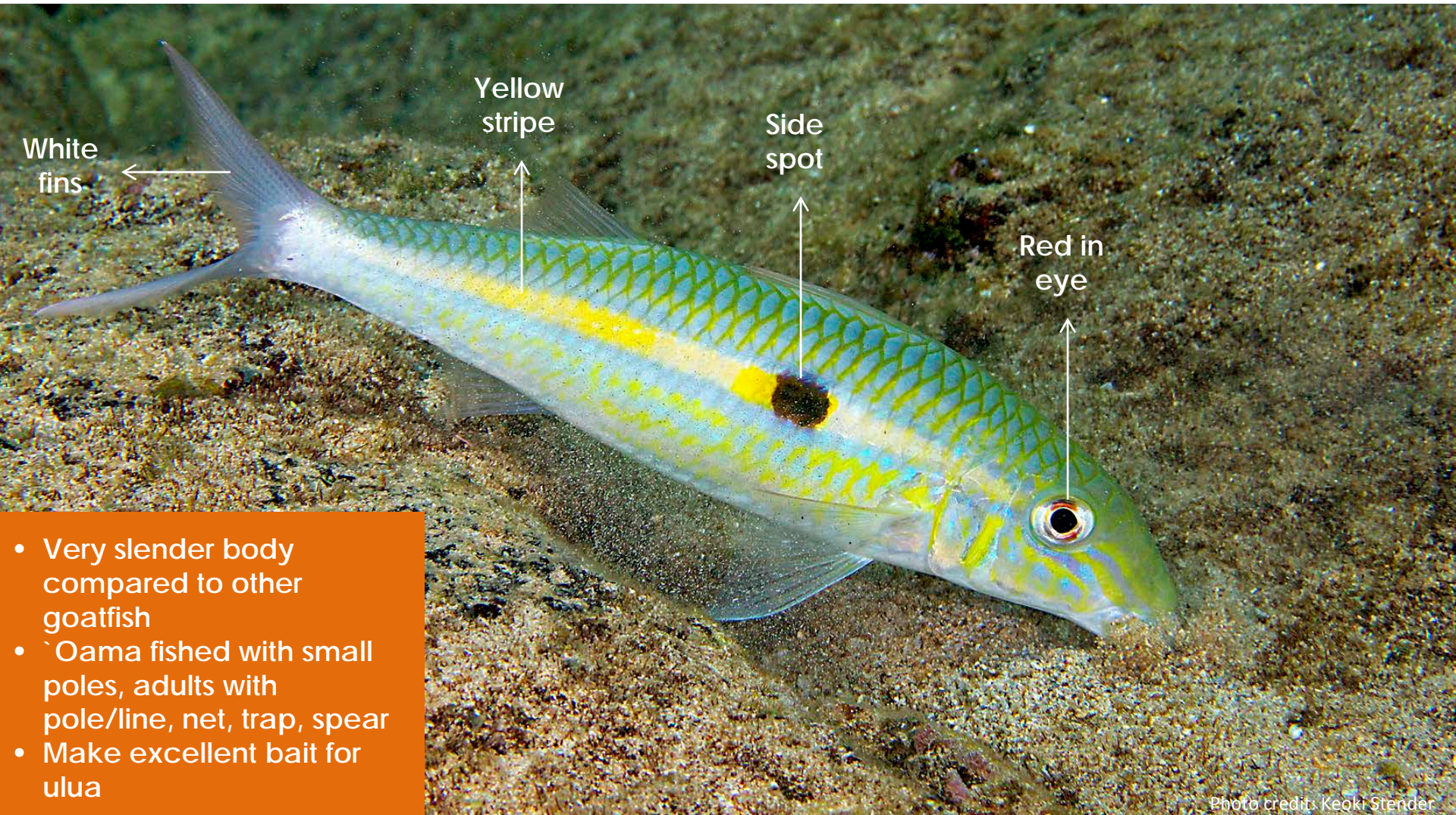
- Goatfish have a long, narrow body and a forked tail
- Known for a pair of chin whiskers that help the fish detect food in the sand
- Usually found in large groups
- Highly prized for eating because of their shrimp-like taste and red color



Weke `ā, `oama

Yellowstripe goatfish

Mulloidichthys flavolineatus



- Very slender body compared to other goatfish
- `Oama fished with small poles, adults with pole/line, net, trap, spear
- Make excellent bait for ulua

Photo credit: Keoki Stender

State Rules

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
7" for sale 8" (Maui only, for sale or home consumption)	-	50 for `oama (weke under 7", 5" on Maui)	Pole and line only for `oama (Maui only)	-

Local Knowledge

`Ōlelo

He weke, he i`a pahulu;
It is a weke, the fish that produces nightmares;
The head of the weke is known to cause hallucinations if eaten

Name Translation

Weke means to open, crack open, or loosen

Biology

Endemic?

No

Spawning Season

Apr – Jun (West Maui)

Reproductive size
(L50)

6.6 – 6.8"

Max Length

10"

Ecology

Feeding

Crustaceans,
worms

Habitat

Found on shallow reef flats, shallow
and deeper reefs

Kumulipo

Hanau ka Weke noho i kai, kiai ia e ka Wauke noho i uka
Weke are in the sea, guarded by Wauka (mulberry) on
land

Notes:

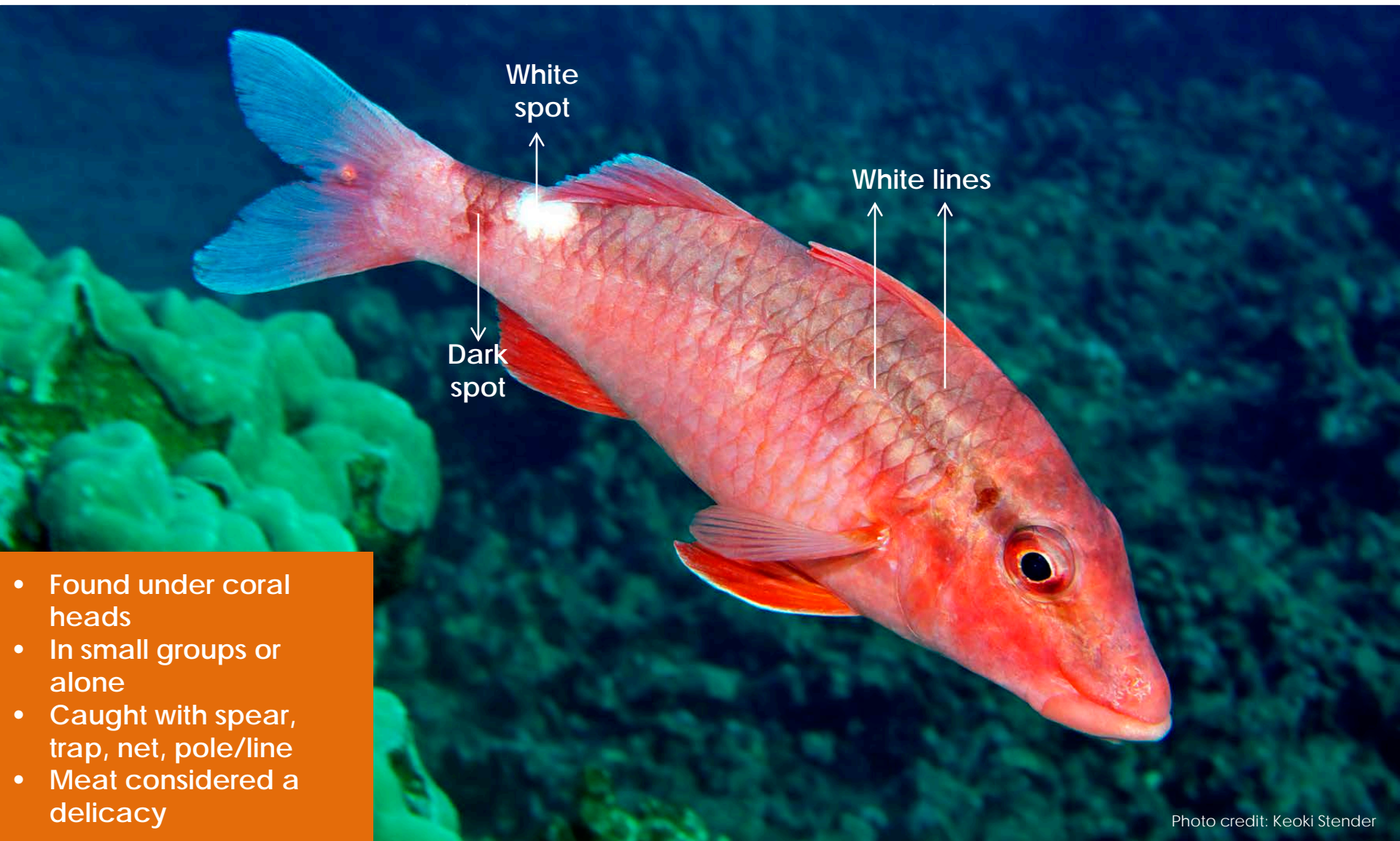


Photo credit: Keoki Stender

- Found under coral heads
- In small groups or alone
- Caught with spear, trap, net, pole/line
- Meat considered a delicacy

State Rules

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
10", 12" (Maui only)	-	1 fish (Maui only)	-	-

Local Knowledge

`Ōlelo

*He kūmū ka i`a mu`emu`a;
Kūmū is the fish, bitter is love
An expression used in *hana aloha* sorcery*

Name Translation

Kūmū is also a type of red-colored taro plant

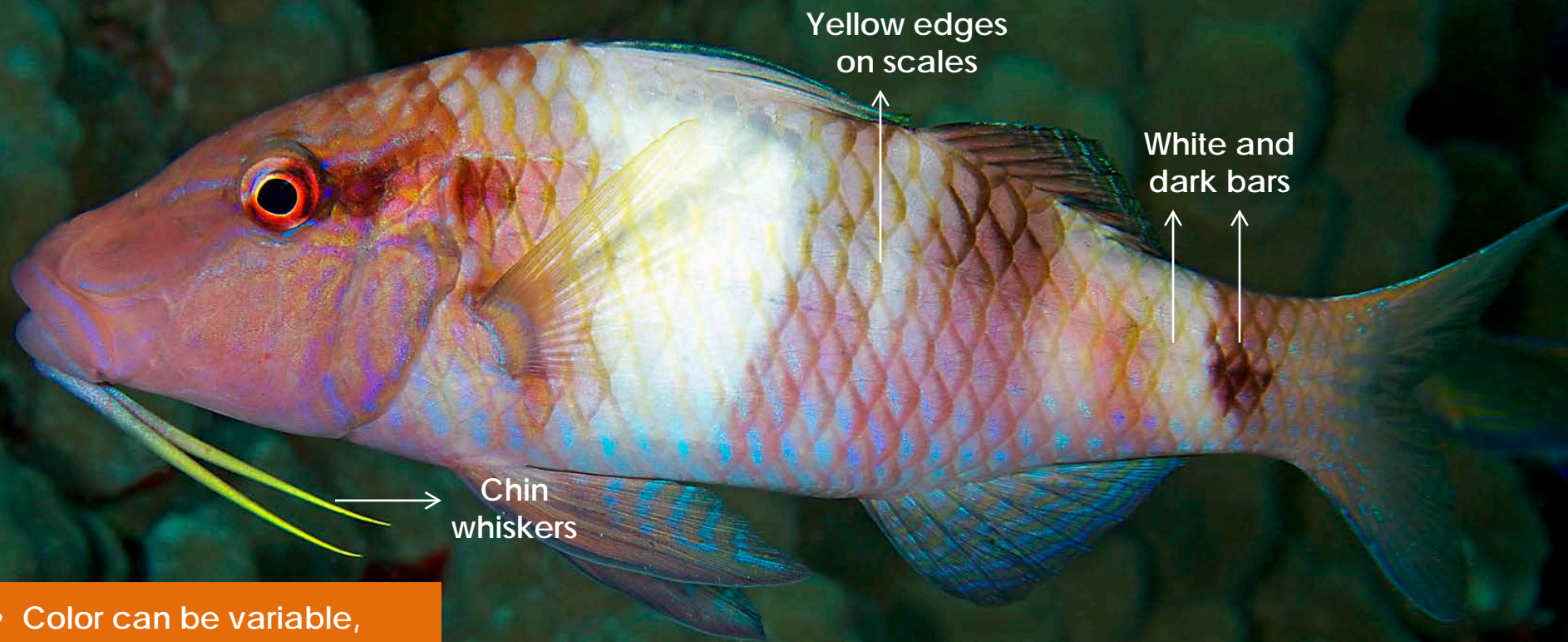
Biology

Endemic?	Spawning Season	Reproductive size (L50)	Max Length
Yes	Nov - Aug Jan - Mar (Mo`omomi)	10 - 11"	1.5 ft

Ecology

Feeding	Habitat
Crustaceans	Reef flat, outer reef, under ledges and coral heads

Notes:



Chin
whiskers

Yellow edges
on scales

White and
dark bars

- Color can be variable, reddish with shades of yellow and white
- Found in sandy bottom near coral heads
- Caught with trap, spear, pole/line

Photo credit: Keoki Stender

State Rules

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses	Similar but not regulated species
7", 8" (Maui only)	-	-	-	-	-

Local Knowledge

`Ōlelo

Ku`u `ia ka palu l pi`l ka moano;
To use a mashed fish lure so that the moano fish rises to the surface;
To tell lies to attract gullible people

Name Translation

Moano is also a pale red color, like the *Moano* fish
Figuratively means to bloom (a flower turns red when in bloom)
A variety of sugar cane that is red, becoming dark purple
A variety of taro

Biology

Endemic?

No

Reproductive size (L50)

7"

Max Length

1 ft

Ecology

Feeding

Crustaceans, small fish

Habitat

Reef flat, outer reef

Kumulipo

Hanau ka Manō, hanau ka Moano
Manō (sharks) are born, *moano* are born

Notes:

Malu

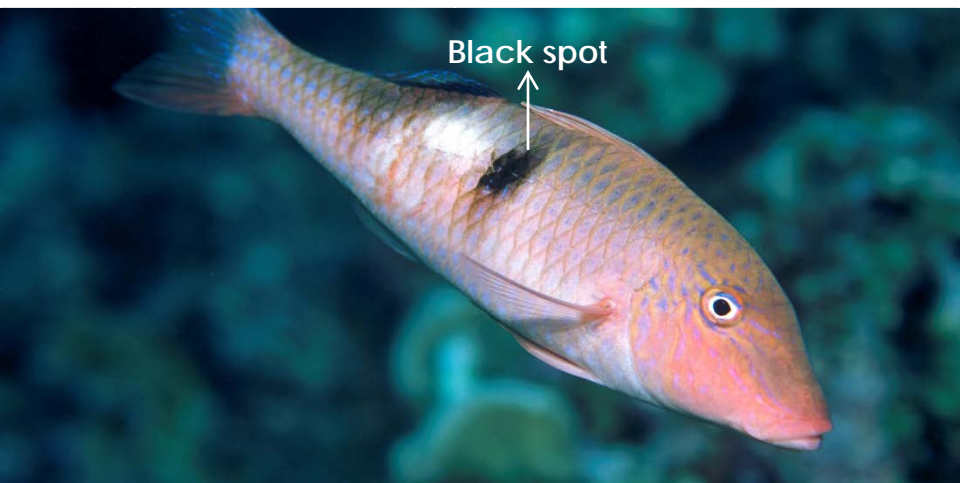
Sidespot Goatfish

Parupeneus pluerostigma

Munu

Doublebar Goatfish

Parupeneus insularis



Black spot



White band

Weke
ula

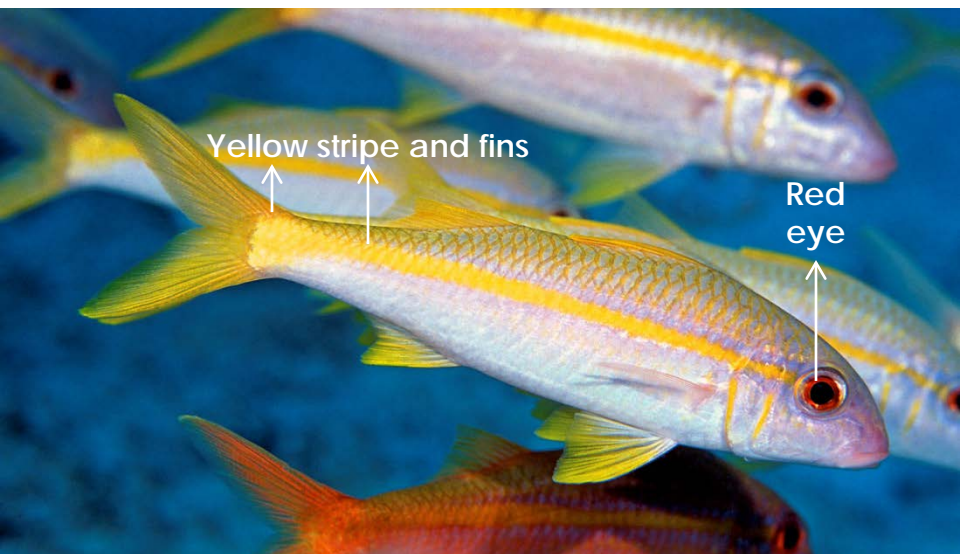
Yellowfin Goatfish/
Aka-himeji/red weke

Mulloidichthys vaicolensis

Weke pueo

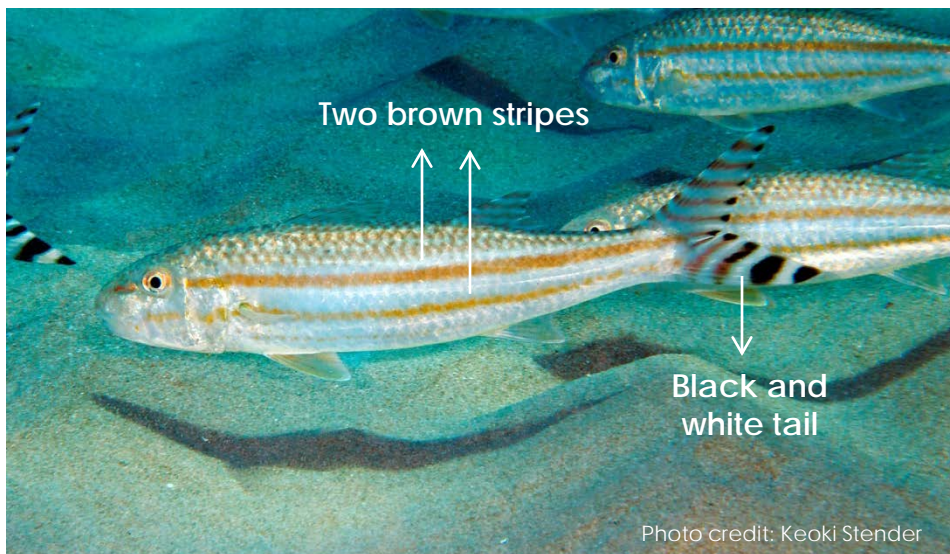
Bandtail Goatfish

Upeneus spp.



Yellow stripe and fins

Red eye



Two brown stripes

Black and white tail

Photo credit: Keoki Stender

Maui Rules ONLY

Minimum Size

Bag Limit

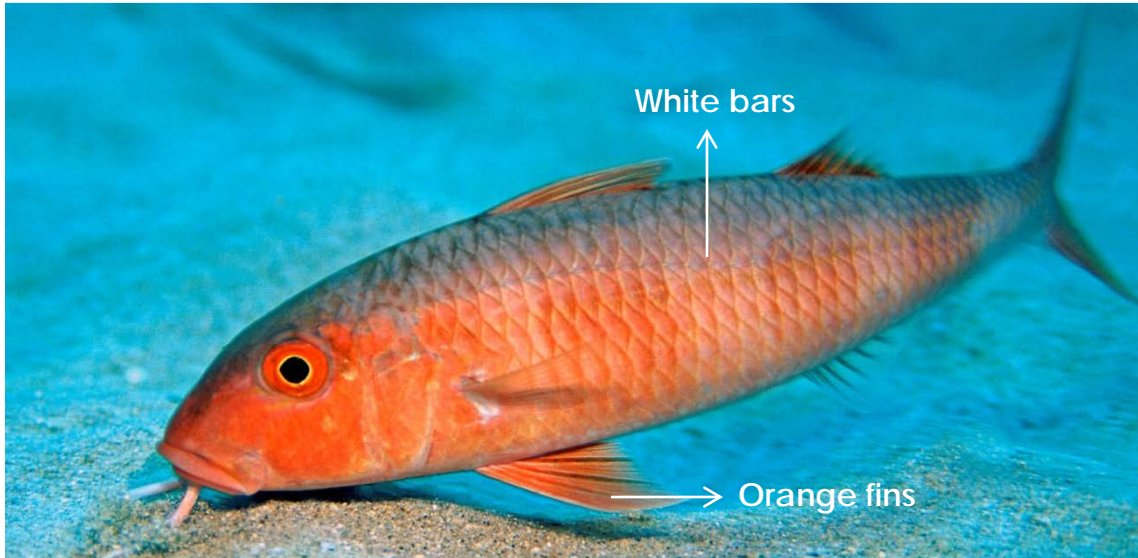
8"

2 fish (*Munu* only)

Weke `ula/weke nono/moe lua

Pflueger's or Orange Goatfish

Mulloidichthys pfluegeri



Moano kea/Moano kali

Blue Goatfish

Parupeneus cyclostomus

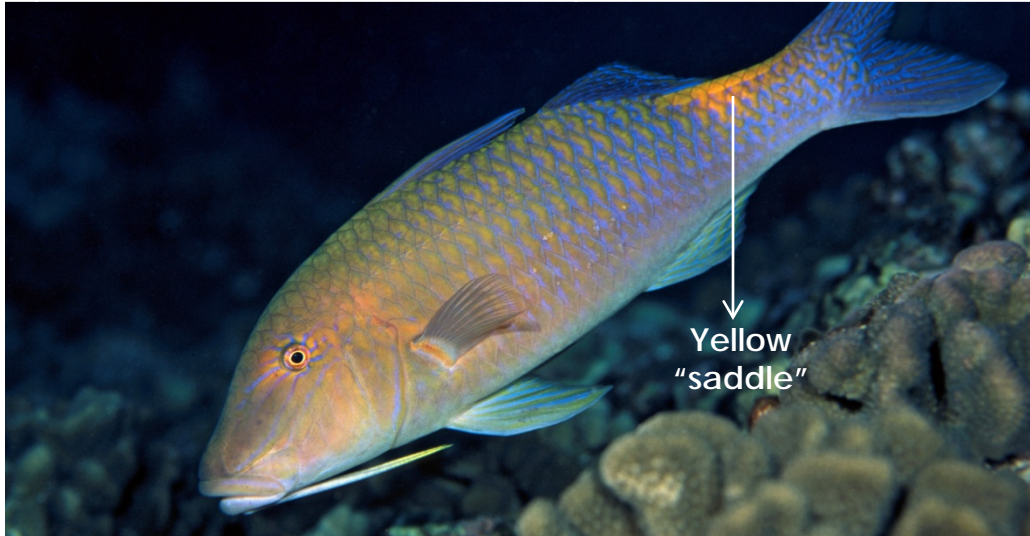


Photo credit: Keoki Stender

Maui Rules ONLY

Minimum Size

12"

Bag Limit

2 fish (*Moano kea* only)

SURGEON FISH

- Named for their blade-like tail spine
- Disc-shaped body
- Many species are herbivorous, these fish play an important role on coral reefs feeding on algae
- One species (Goldring Surgeonfish) is endemic to Hawai'i



Manini

Convict Tang/Shima-hagi

Acanthurus triostegus



4 vertical stripes

Stripe through eye

Curved bar under fin

- Very commonly seen, most abundant surgeonfish species in Hawaii
- Form very large feeding schools
- Caught with net, spear

Photo credit: Keoki Stender



Not regulated:

No stripe

Abudefduf vaigiensis

State Rules

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses	Similar but not regulated species
5"	-	-	-	-	Mamo (<i>Abudefduf vaigiensis</i>)

Local Knowledge

`Ōlelo

Ka i`a a ke kualau I lawe mai ai;
The fish brought in by the rain at sea

Name Translation

Manini means to be stingy, also to pour or spill
Also a variety of banana (with green and white stripes), sugar
cane, and dryland taro (also with stripes)

Biology

Endemic?	Spawning Season	Reproductive size (L50)	Max Length
No	Mar- Jun (Hanalei), Jan - July (Maunaloa), Feb - Apr (Mo`omomi) Mar - Jun (West Maui)	5"	10.5"

Ecology

Feeding	Habitat
Algae	Reef flat, outer reef

Notes:

Lau'ipala

Yellow Tang

Zebrasoma flavescens

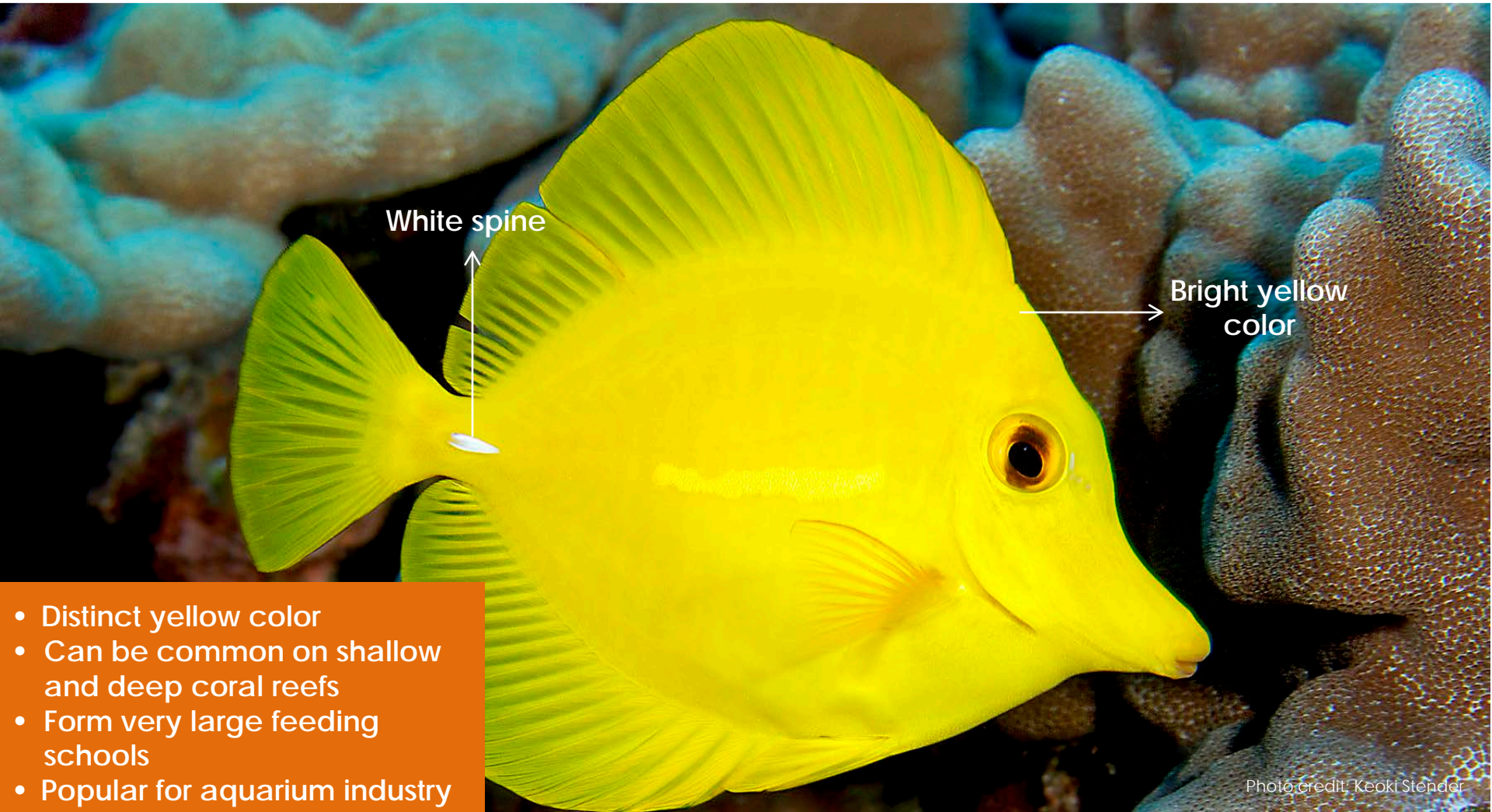


Photo Credit: Keoki Stender

- Distinct yellow color
- Can be common on shallow and deep coral reefs
- Form very large feeding schools
- Popular for aquarium industry

West Hawaii Fisheries Management Area ONLY

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
-	-	If between 2 – 4.5 inches, no bag limit 5 fish larger than 4.5 inches or smaller than 2 inches	-	If for aquarium sale, West Hawaii Aquarium Permit

Local Knowledge

Name Translation

Lau'ipala also means a yellow ti leaf (*lau* means leaf)

Biology

Endemic?	Spawning Season	Reproductive size (L50)	Max Length
No	June - August	5"	8"

Ecology

Feeding	Habitat	Kumulipo
Algae	Coral reef	<i>Hanau ka Pala, hanau ke Kala i ke kai la, holo Lau'ipala are born, Kala are born in the sea, swim</i>

Notes:

Pāku'iku'i

Achilles tang

Acanthurus achilles



Orange teardrop-shaped spot near tail

Photo credit: Ryan Murphy

- Common on shallow reefs
- Popular for aquarium collectors

West Hawaii FMA ONLY

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
-	-	10 fish (aquarium collectors only)	-	If for aquarium sale, West Hawaii Aquarium Permit

Local Knowledge

Name Translation

Pāku'iku'i refers to a method of fishing where fish are herded by beating the surface of the water

Biology

Endemic?

No

Max Length

10"

Ecology

Feeding

Habitat

Kumulipo

Algae

Coral reef

Hanau ka Pāku'iku'i noho i kai, kiai ia e ke Kukui noho i uka
Pāku'iku'i are born dwelling in the sea, guarded by the Kukui
 (candlenut tree) that dwells upland

Notes:

Kole

Goldring Surgeonfish

Ctenochaetus strigosus

Gold ring
around eye



- Common on shallow reefs
- Popular to eat and for aquarium collectors

West Hawaii FMA ONLY

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
-	-	5 fish >4" (aquarium collectors only)	-	If for aquarium sale, West Hawaii Aquarium Permit

Local Knowledge

`Ōlelo

He nanea o ka lawai`a kole
It is interesting to gather and tell stories

Name Translation

Kole means raw
Kole maka onaona, a phrase said of attractive people,
as the eye of this fish is considered beautiful

Biology

Endemic?

Yes

Reproductive size (L50)

5"

Max Length

6"

Ecology

Feeding

Algae

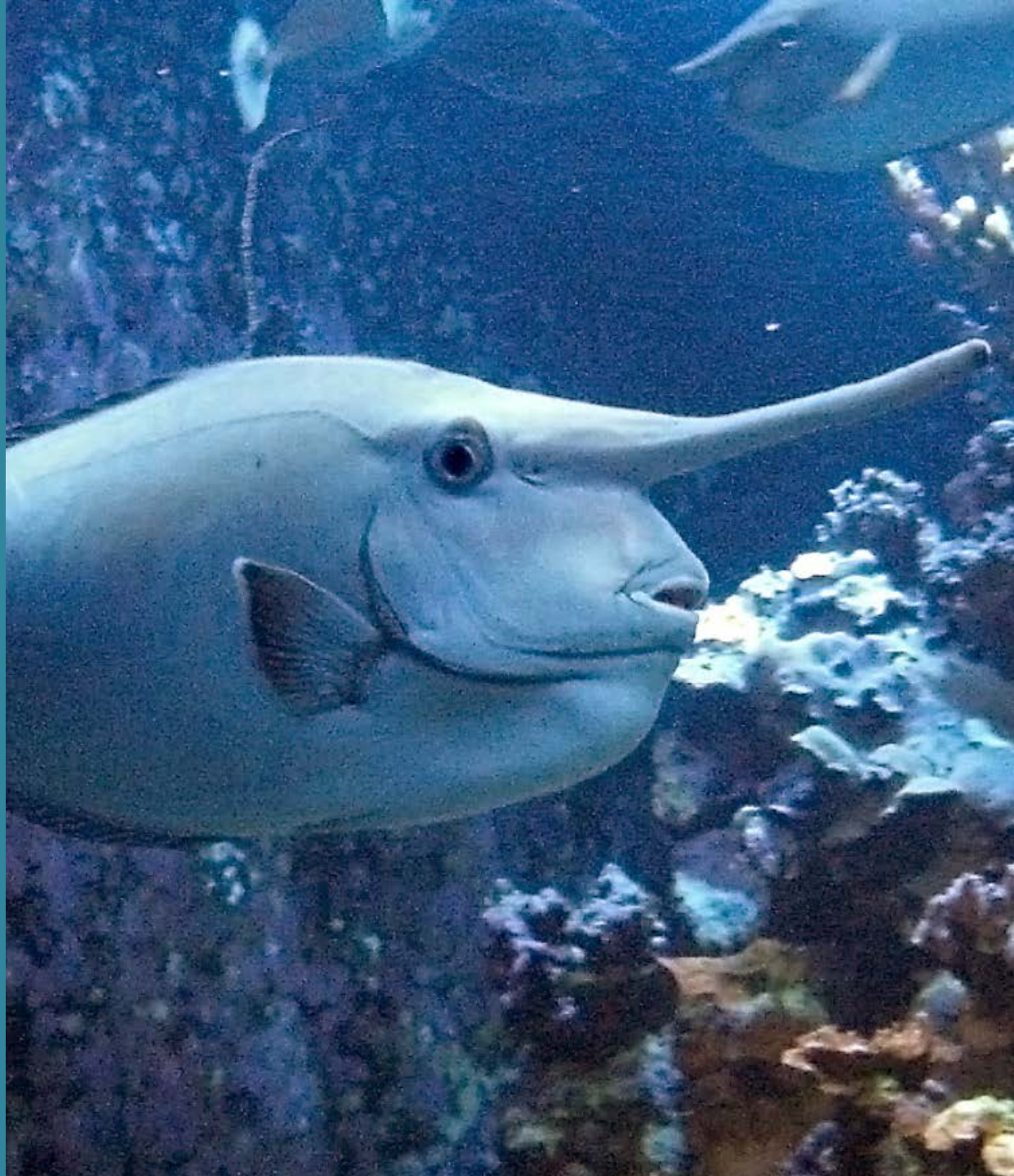
Habitat

Coral reef

Notes:

KALA (UNICORN FISH)

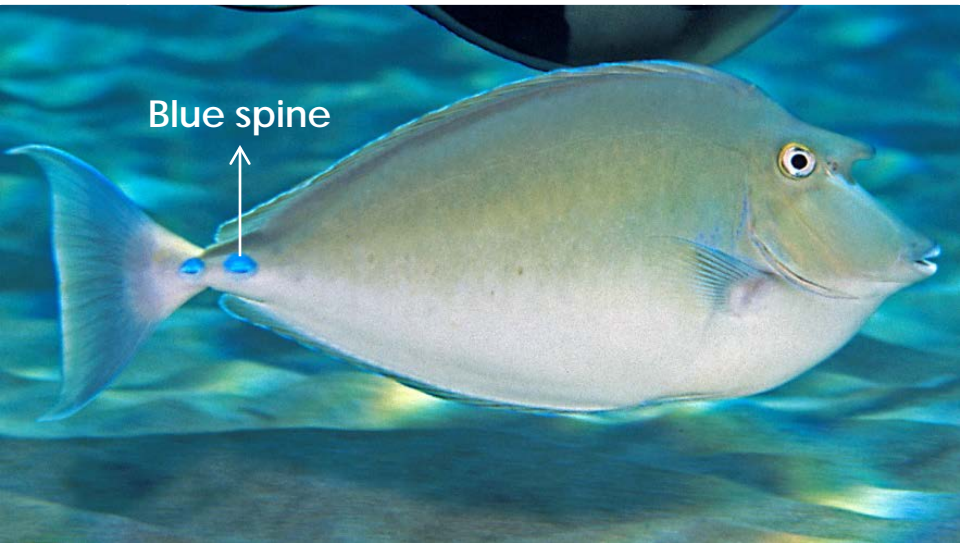
- Named for the large horn on their forehead
- All HORNED species are regulated
- Kala have 2 spines on each side of their tail
- Typically caught with net, spear, pole/line



Kala

Bluespine Unicornfish/Tenguhagi

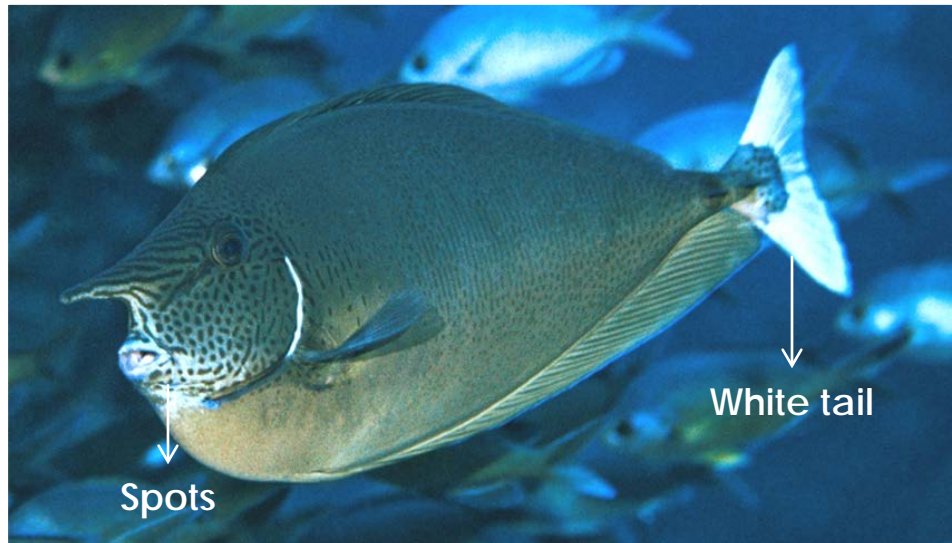
Naso unicornis



Kala lōlō

Paletail Unicornfish/Tsuma ri-tenguhagi

Naso brevirostis



Kala

Whitemargin Unicornfish

Naso annulatus



State Rules

No Take – Kahekili KHfMA ONLY

Minimum Size

Seasonal closures

Bag limit

Gear Restrictions

Permits and Licenses

14"

-

-

-

-

Local Knowledge

`Ōlelo	Name Translation
<p><i>Mālama I ke kala ka i`a hi`u `oi;</i> What out for the kala, the fish with a sharp tail; Referring to a sharp spine near the kala's tail, also a warning to beware of a person able to defend themselves</p>	<p><i>Kala</i> means rough, referring to its rough skin</p>

Biology

Endemic?	Reproductive size (L50)	Max Length
No	14"	2 ft

Ecology

Feeding	Habitat	Kumulipo
Algae, especially leafy varieties	Reef flat, outer reef	<p><i>Hanau ka Lā`ipala, hanau ke kala I ke kai la, holo Lā`ipala (yellow tang) is born, kala is born</i></p>

Notes:

Opelu kala

Sleek Unicornfish

Naso hexacanthus



Photo credit: Keoki Stender

- Color can vary
- Found mainly in deeper (30-50ft) water
- Forms large schools
- Caught with spear, pole/line

State Rules

No Take – Maui KHfMA Only

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
16"	-	-	-	-

Local Knowledge

Name Translation

Kala means rough, referring to its rough skin

Biology

Endemic?	Reproductive size (L50)	Max Length
No	16"	2.5 ft

Ecology

Feeding	Habitat
Plankton	Outer reef

Notes:

UHU (PARROTFISH)

- Regulated species have parrot-like beaks and red/brown-colored females
- Sleep in bubbles (mucus shield) at night
- Can be heard scraping algae off coral, rocks
- Juveniles found in schools
- Females are red-colored (certain species brown), males are blue-colored
- Typically caught with spear

Regulated



Not regulated



Uhu `ahu` ula (F), Uhu uliuli (M)

Spectacled Parrotfish

Chlorurus perspicillatus

Female



Male

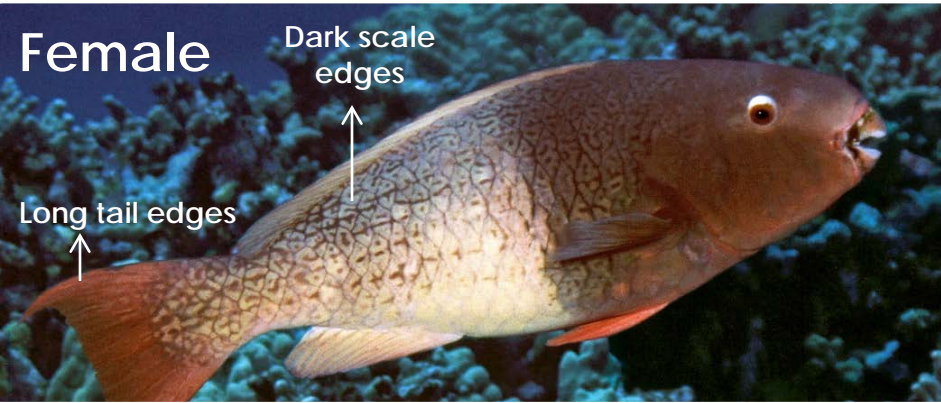


Uhu pālupaluka (F), Uhu `ele`ele (M)

Redlip Parrotfish

Scarus rubroviolaceus

Female



Male



State Rules

No Take – Kahekili KHfMA ONLY

Minimum Size	Seasonal closures	Prohibited to take	Bag limit	Gear Restrictions	Permits and Licenses	Similar but not regulated species
12", 14" (Maui only)		Blue males (Maui only)	2 fish (Maui only)	-	-	-

Uhu

Bullethead Parrotfish/ Budai

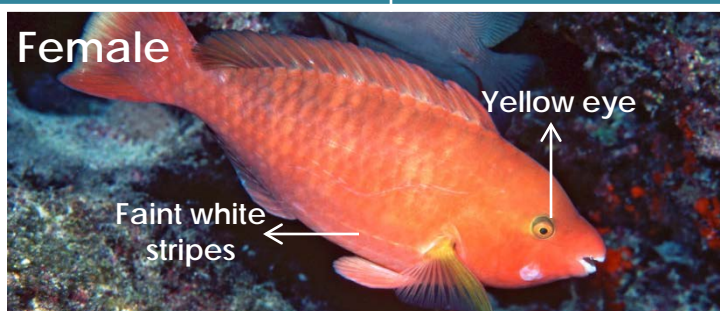
Chlorurus spilurus



Lauia

Regal Parrotfish

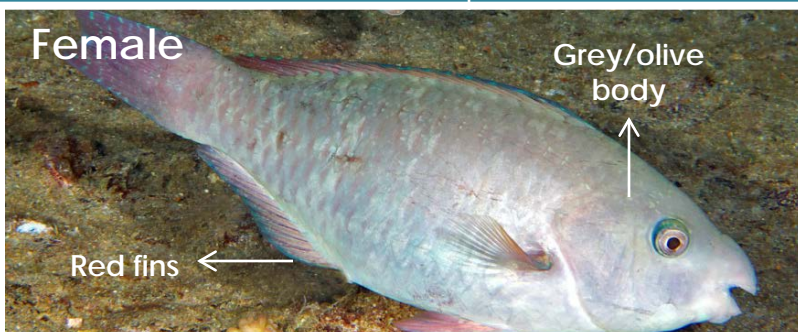
Scarus dubius



Uhu

Palenose Parrotfish/ Budai

Scarus psittacus



State Rules

No Take - Kahekili KHfMA ONLY

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
12', 10" (Maui only)	-	2 fish (Maui only)	-	-

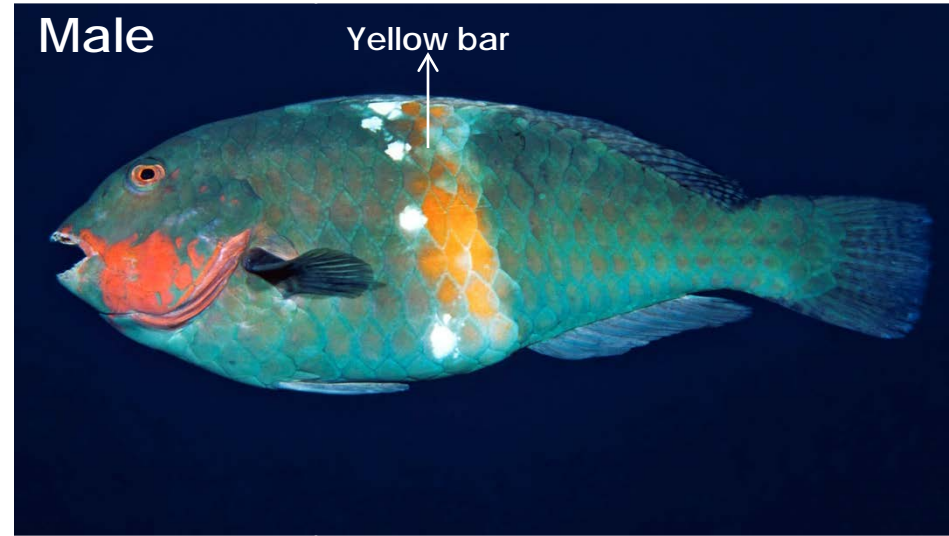
Yellowbar parrotfish

Calotomus zonarchus

Female



Male

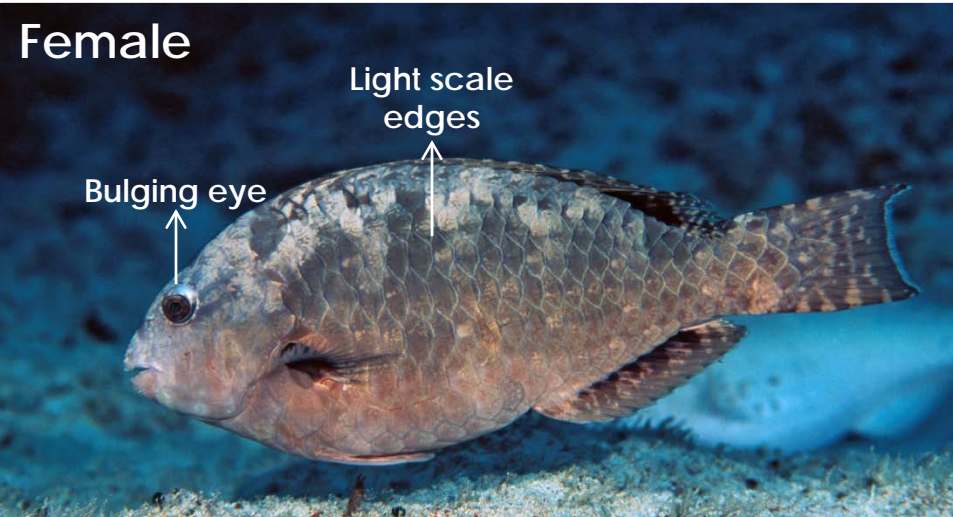


Pōnuhunu

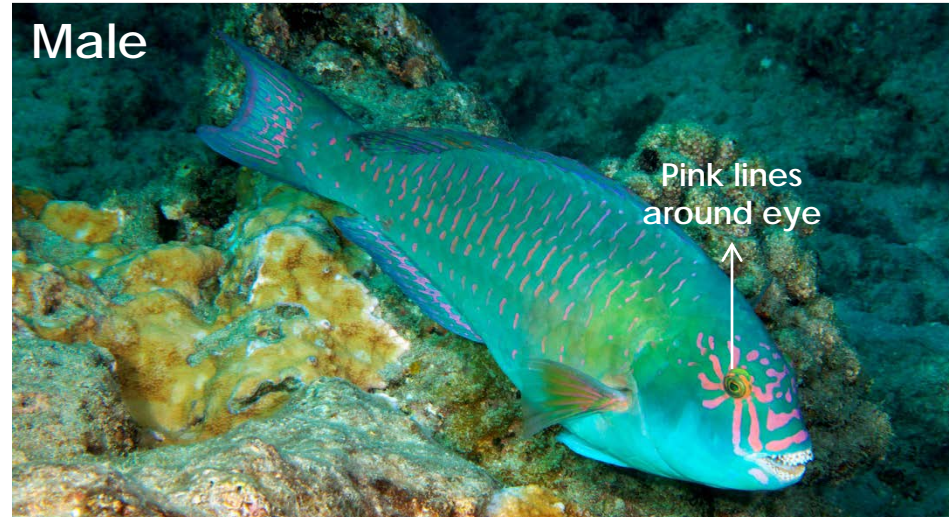
Star-eye parrotfish

Calotomus carolinus

Female



Male



Maui Rules Only

No Take - Kahekili KHFM

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
10"	-	2 fish	-	-

Local Knowledge

`Ōlelo

Akāhi ho`i ku`u `ono I ka uhu ka`alo I ku`u maka;
 Now I long for the uhu fish that passes before my eyes;
 Said of handsome men, the uhu is bright, beautiful to look at, and tasty

Name Translation

Uhu means persistent in going ahead willfully

Biology

Endemic?	Spawning Season	Reproductive size (L50)	Max Length
Yes (<i>Calotomus zonarchus</i> , <i>Scarus dubius</i> , <i>Chlorurus perspicillatus</i>)	May – Aug (Mo`omomi)	Varies by species, 8" – 12"	Varies, 1 – 2ft

Ecology

Feeding	Habitat
Algae, crustaceans	Reef flat, outer reef

Notes:

ULUA (JACKS)

- Ulua is the name for a family of fishes that includes several species
- The term ulua refers to adult fish, the term pōpio means smaller, juvenile ulua
- Can grow to be very large (5ft max)
- One of top predators on the reef
- Extremely popular gamefish, very good to eat
- Caught with pole/line from shore, spear



Ulua aukea

Giant trevally/white ulua/Ronin-aji

Caranx ignobilis

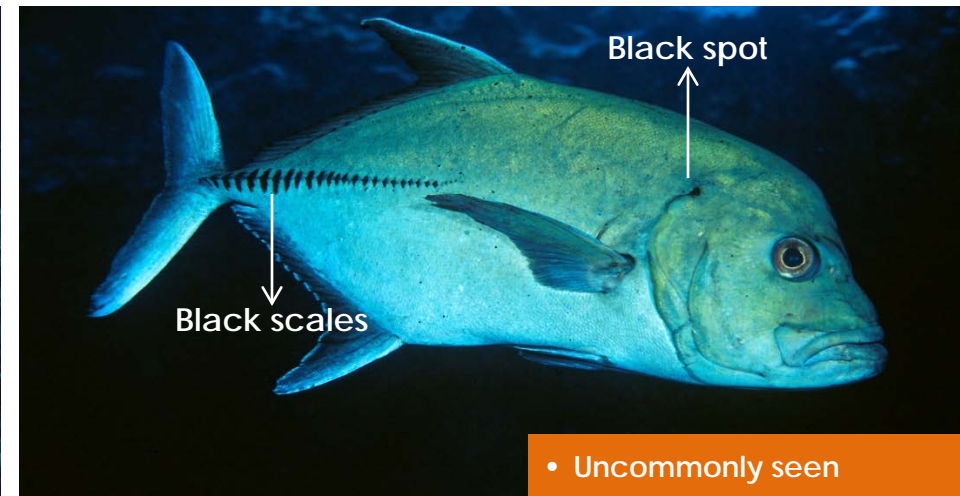


- Most popular and common shoreline gamefish

Ulua lā`uli

Black Trevally/ulua

Caranx lugubris

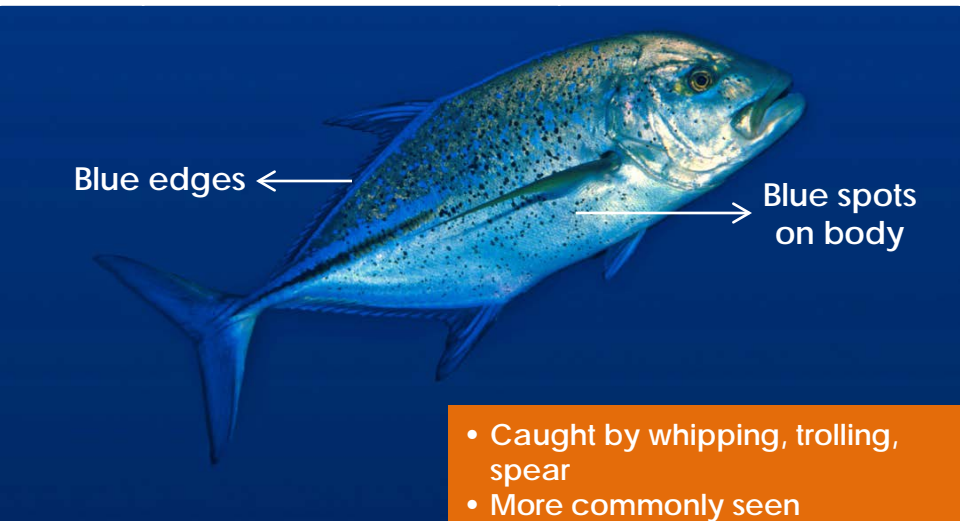


- Uncommonly seen

Ōmilu

Bluefin trevally/kasumi-aji/hoshi ulua

Caranx melampygus

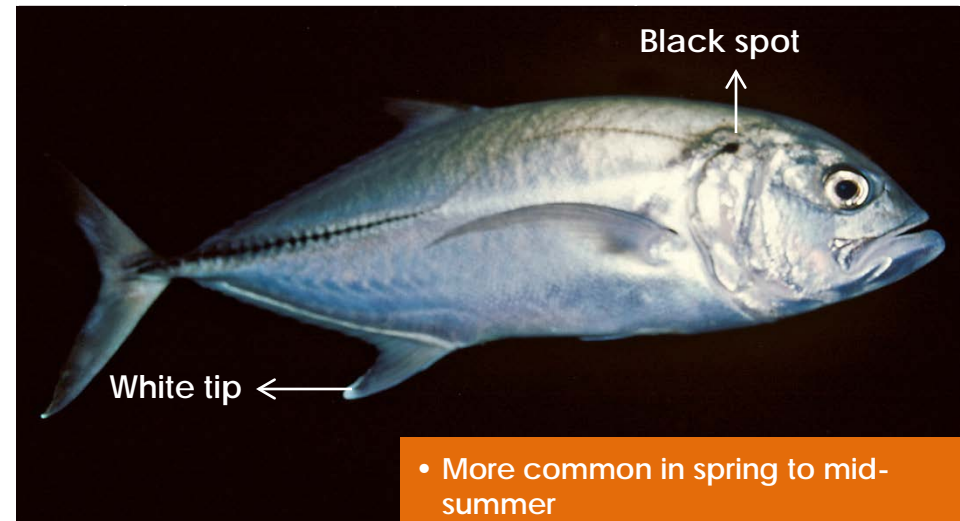


- Caught by whipping, trolling, spear
- More commonly seen

Ulua

Bigeye Jack/Pake ulua/Gingame-aji/menpachi ulua/sasa

Caranx sexfasciatus



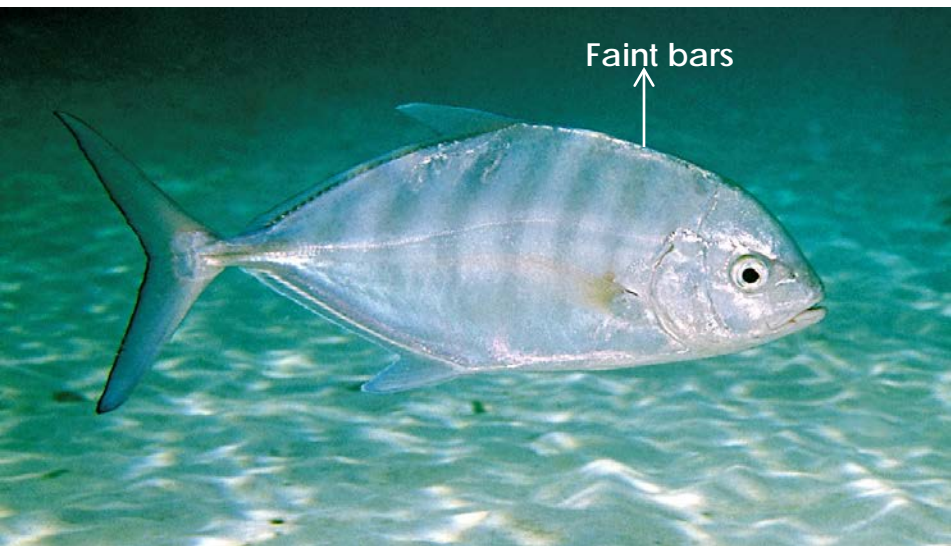
- More common in spring to mid-summer

State Rules

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
Home: 10" Sale: 16"	-	20 (all species)	-	-

Barred Jack

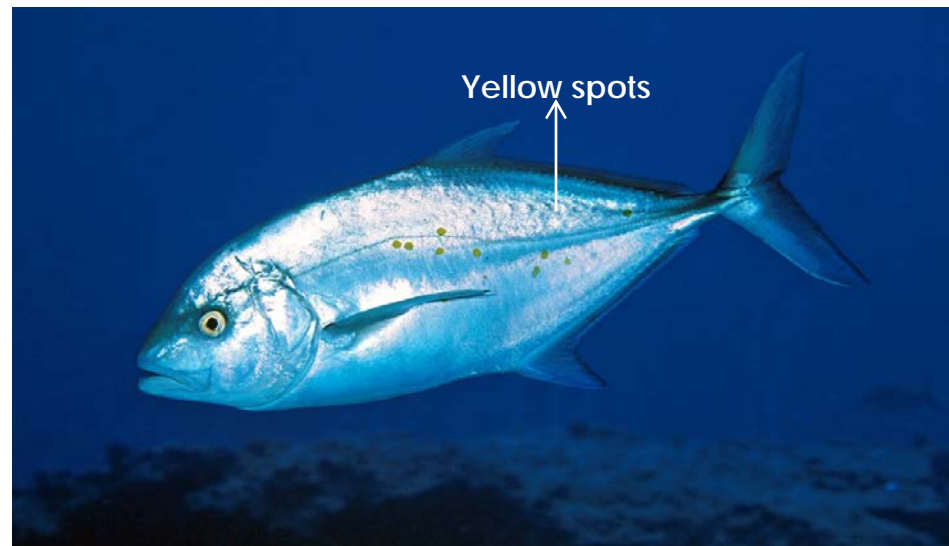
Carangoides ferdau



Papa ulua

Yellowspot/Island Jack/papa

Carangoides orthogramamus



Horse Jack/White fin ulua

Carangoides equula



State Rules				
Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
Home: 10" Sale: 16"	-	20 (all species)	-	-

Ulua – Not Regulated

Ulua kihikihi

Threadfin Jack/
Kagami Ulua

Alectis ciliaris

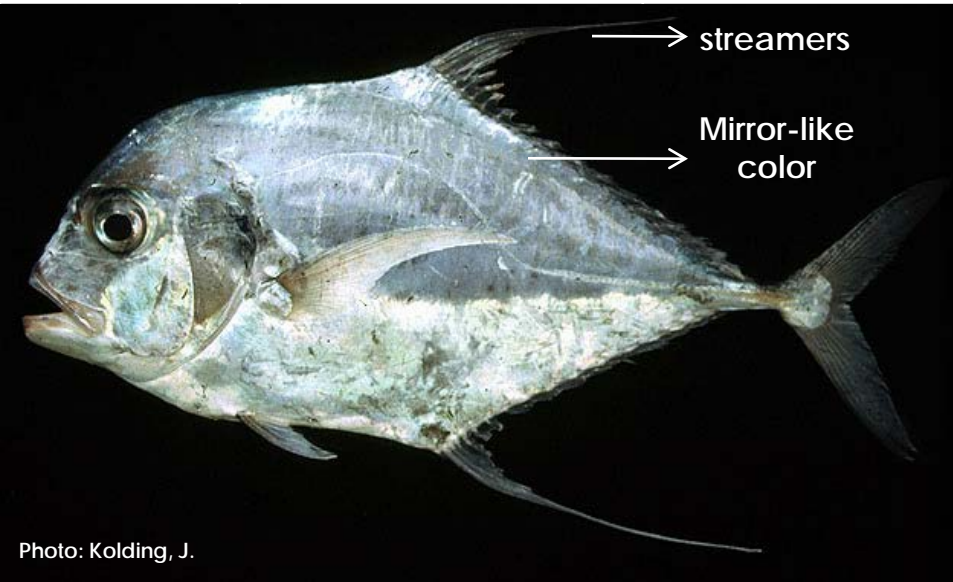


Photo: Kolding, J.

Ulua pa'opa'o

Yellow trevally

Gnathanodon speciosus

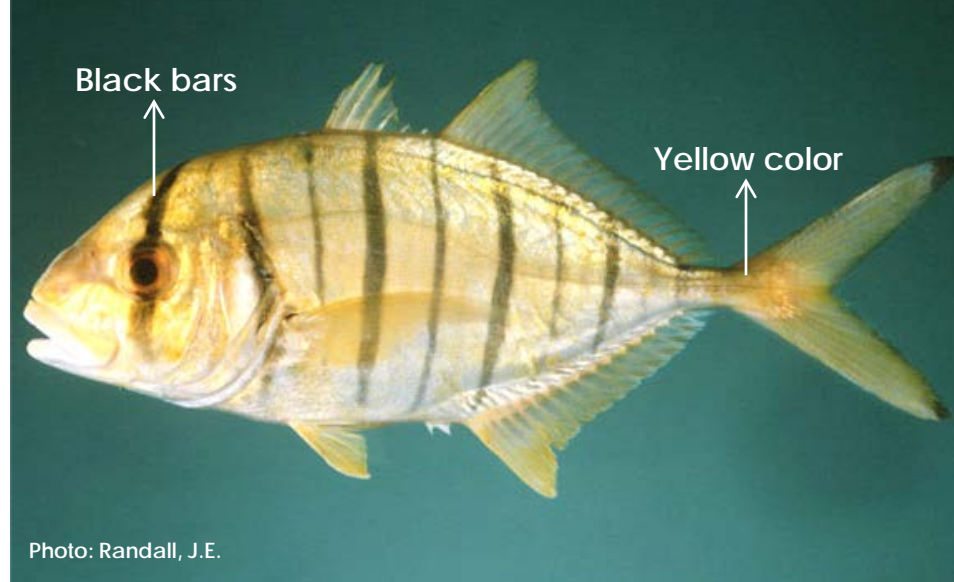


Photo: Randall, J.E.

Kamanu

Rainbow Runner/
Tsumu-buri

Elagatis bipinnulata

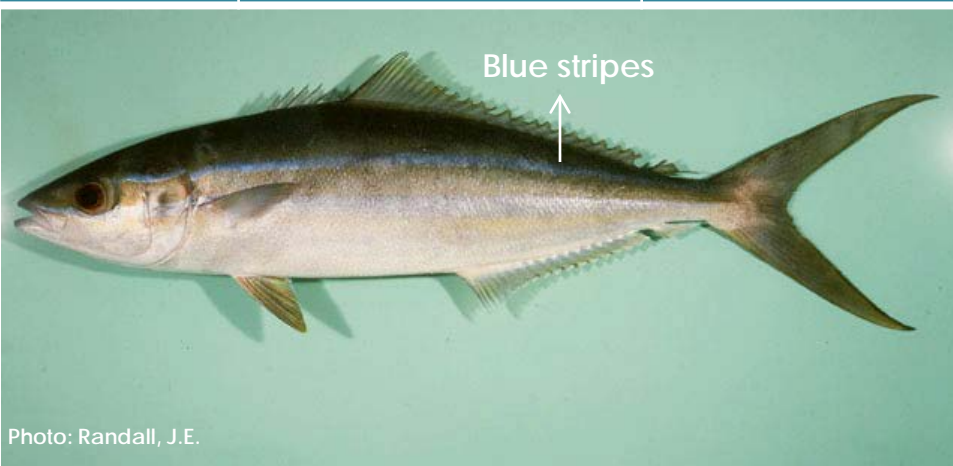


Photo: Randall, J.E.

Kāhala

Amberjack/Kampachi

Seriola dumerili



Photo: Flescher, D.

Local Knowledge

`Ōlelo

Ka i`a kāohi aho o na kai uli
The fish of the deep that pulls the line taut

Name Translation

Ulua also means 'man' or 'sweetheart', especially used in love songs

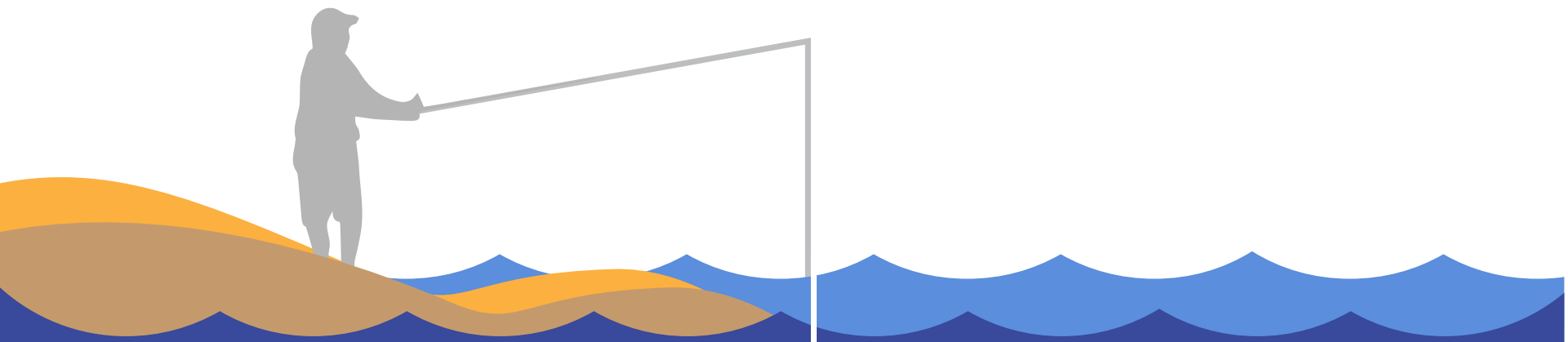
Biology

Endemic?	Spawning Season	Reproductive size (L50)	Max Length
No	Jun – Aug (Mo`omomi) Jul – Aug (West Maui)	Varies by species Omilu: 14", Ulua aukea: 21-32"	5.5 ft, average: 3 ft

Ecology

Feeding	Habitat	Kumulipo
Fish, octopus, crustaceans	Reef flat, outer reef	<i>Hanau ka Ulua, hanau ka Hahalau I ke kai la, holo Ulua</i> are born, <i>Hāhālua</i> (manta rays) are born in the sea

Notes:



SECTION TWO

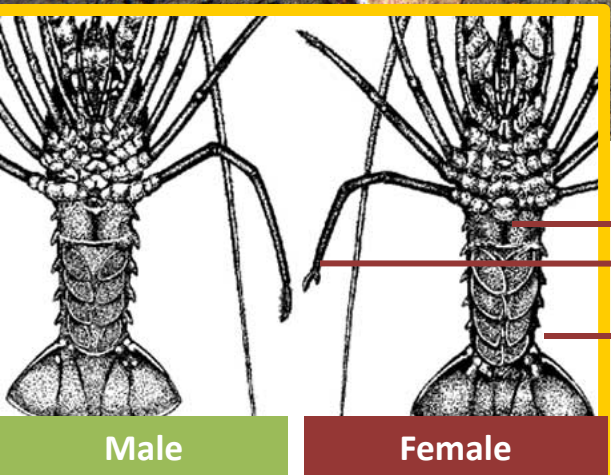
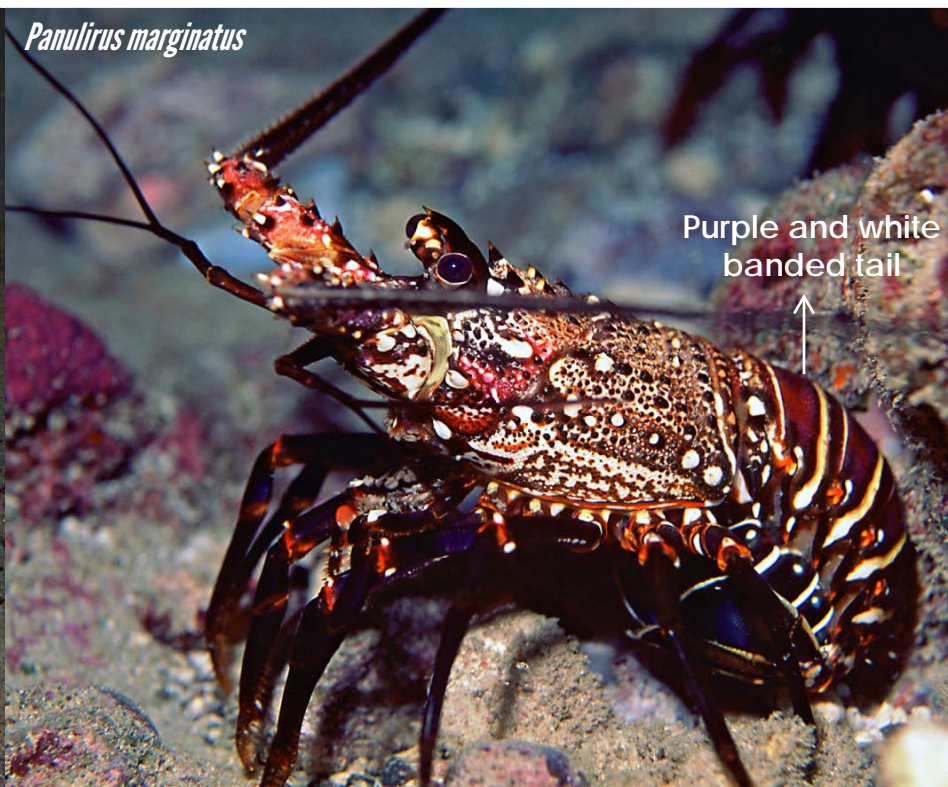
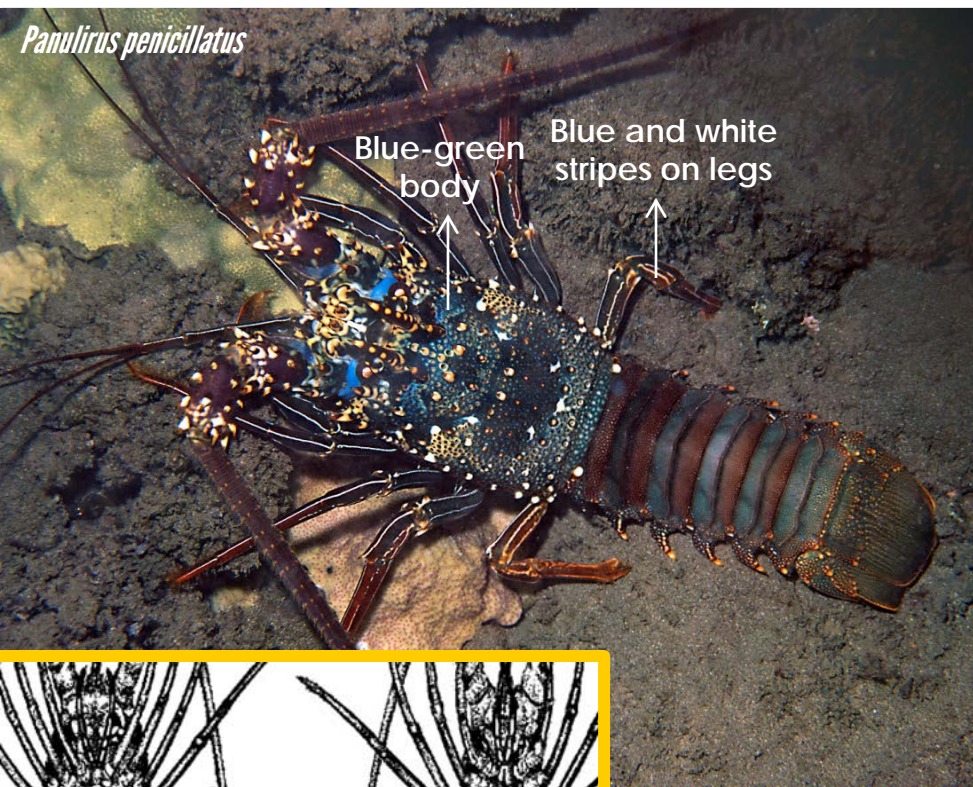
KOLO

(INVERTEBRATES)

Ula

Spiny Lobster/Isebi

Panulirus penicillatu and *Panulirus marginatus*



- Dark sperm plate
- Claw-shaped legs
- Large, overlapping 'Swimmerets'

- Found under ledges
- Nocturnal
- *penicillatus* is common in shallow water, *marginatus* in deep water
- Popular to eat

State Rules				
Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
3.25" (carapace length)	May - Aug	-	No spearing, Whole only (not mutilated); No taking females	-

Ula

Spiny Lobster/Isebi

Panulirus penicillatus, Panulirus marginatus

Local Knowledge

ʻŌlelo

He ula, he i`a noho I ka naele;
A lobster, the creature that stays in sea caves

Name Translation

Ula also means a flame, or to flame

Biology

Endemic?

Yes – only *Panulirus marginatus*

Spawning Season

May – Aug, Nov - Dec

Max Length

16"

Ecology

Feeding

Reef invertebrates

Habitat

Reef flat, outer reef

Notes:

Large empty rounded rectangular area for notes.

Scyllarides squamosus

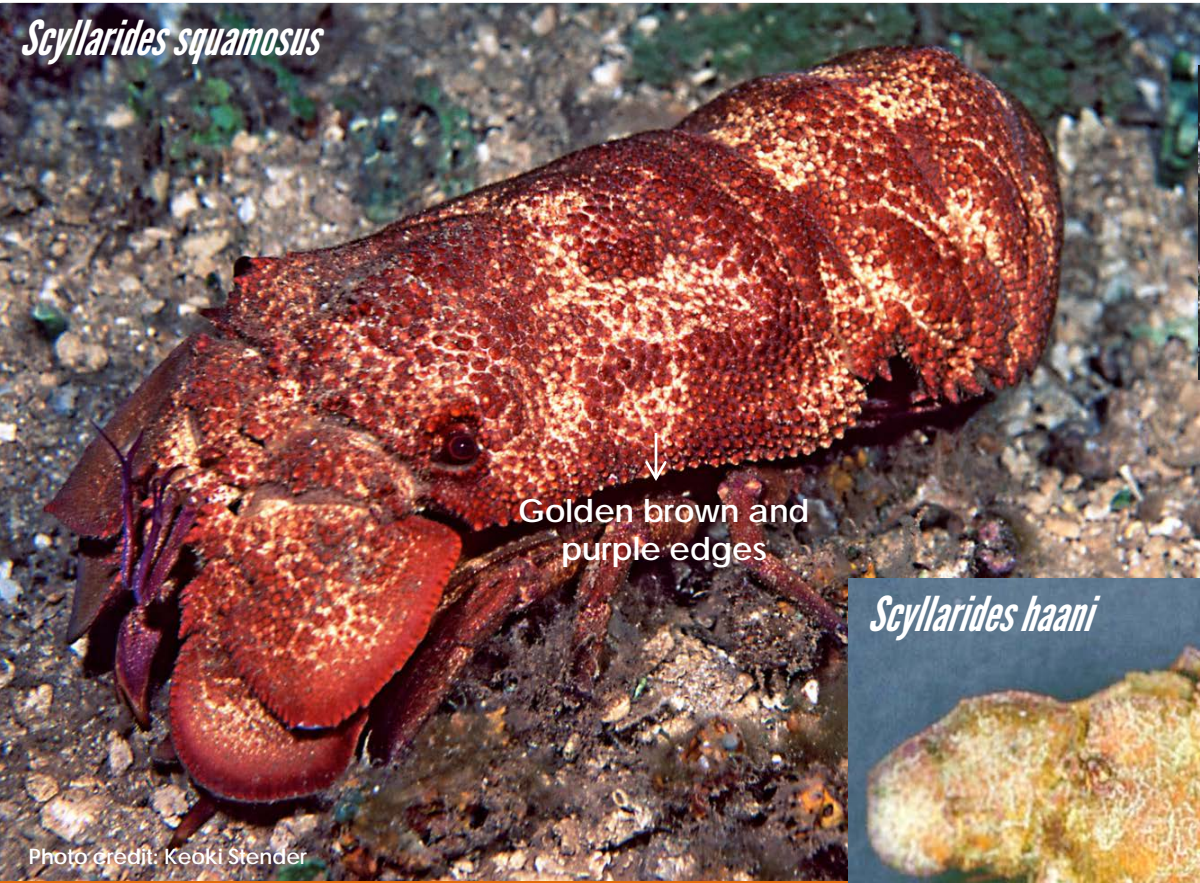
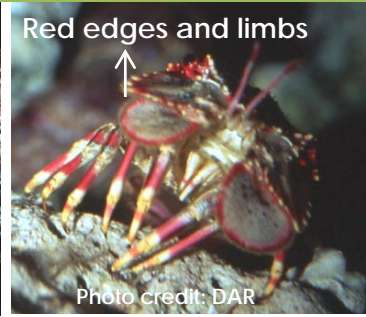
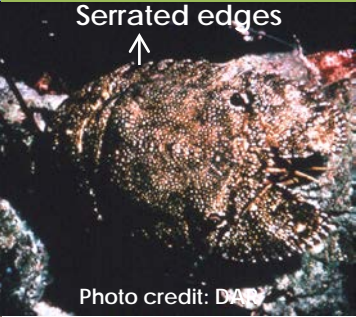


Photo credit: Keoki Stender

Not regulated



Scyllarides haani

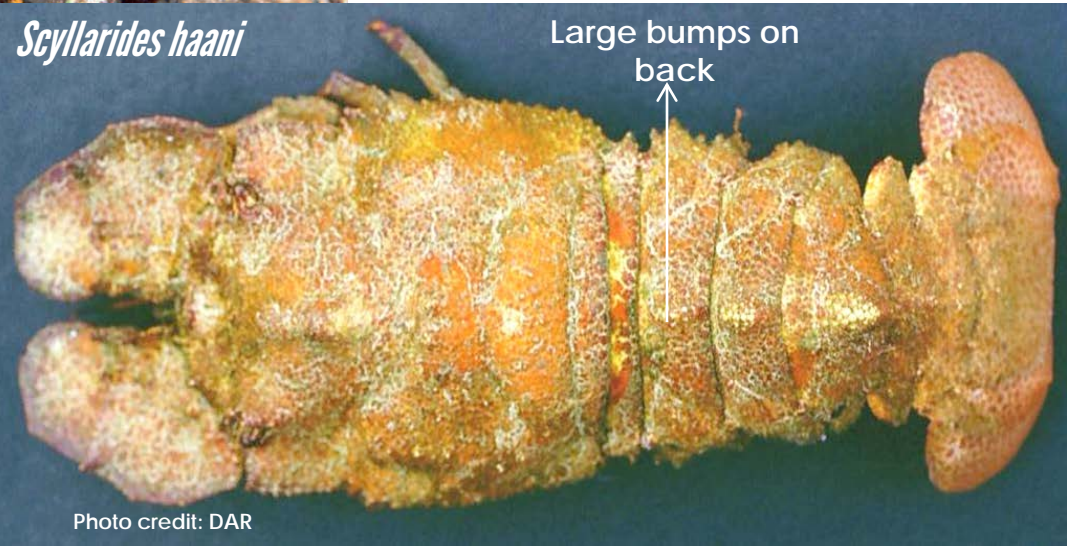


Photo credit: DAR

- Rare to see
- Nocturnal, found in dark caverns during the day
- Long, flat bodies

State Rules

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
2.75" (tail width)	May - Aug	-	No spearing, Whole only (not mutilated); No taking with eggs	-

Local Knowledge

Name Translation

Pāpapa means low or flat

Biology

Endemic?

No

Spawning Season

May - Aug

Max Length

~15 inches

Ecology

Feeding

Reef Invertebrates

Habitat

Surf zone to deeper water

Notes:

Pāpa`i kualoa

Kona crab/Ashi gani

Ranina ranina



- Uncommon in sandy areas
- Excellent eating
- Usually buried in sand, except for eyes

State Rules

Minimum Size	Closed Season	Bag limit	Gear Restrictions	Permits and Licenses
4" (carapace length)	May - Aug	-	No spearing, No taking females	-

Local Knowledge

Hawaiian `Ōlelo

Kekē ka niho a ka pāpa`i;
The crab exposes its teeth;
Refers to a threat that is said, but never acted on

Name Translation

Pāpa`i is a general name for crabs,
also means small hut or shelter

Biology

Endemic?

No

Spawning Season

May - Aug

Maximum Size

9 inches (carapace length)

Ecology

Feeding

Small, bottom-dwelling fish

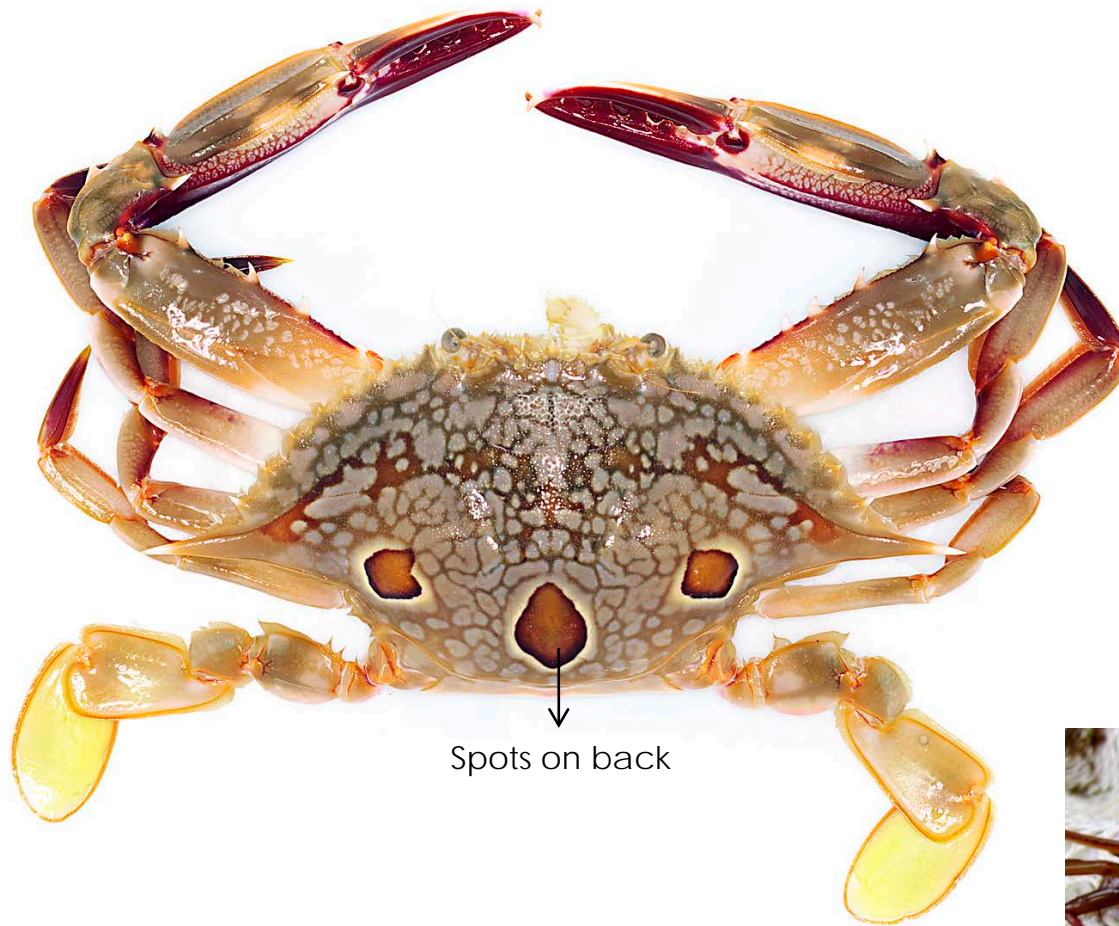
Habitat

Sandy areas in outer reef

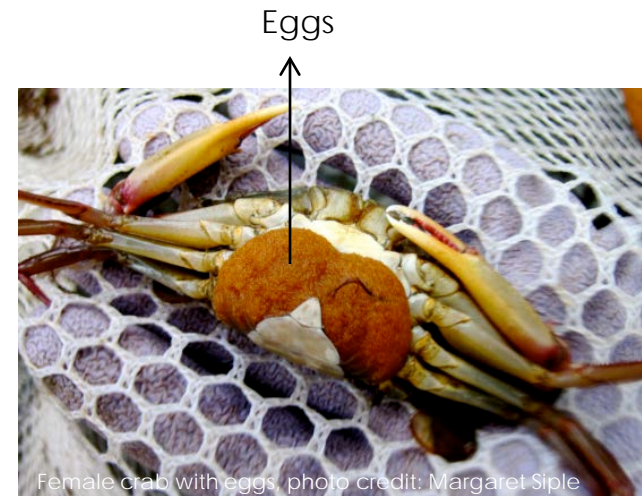
Kumulipo

Hanau ka Paka, hanau ka Pāpā i ke kai, holo
Eels are born, Crabs are born in the sea, swim

Notes:



Spots on back



Eggs

Female crab with eggs, photo credit: Margaret Siple

- Common in muddy sand and deeper water

Photo credit: Keoki Stender

State Rules

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
4" (carapace length or width)	-	-	No spearing, No taking with eggs	-

Local Knowledge

Name Etymology

Kua honu means a turtles back,
it is also a pattern used in quilting

Biology

Endemic?

Yes – Hawaiian crabs are an endemic subspecies

Maximum Size

6 inches (carapace length)

Ecology

Feeding

Small reef invertebrates

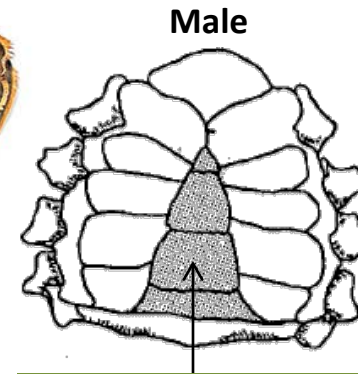
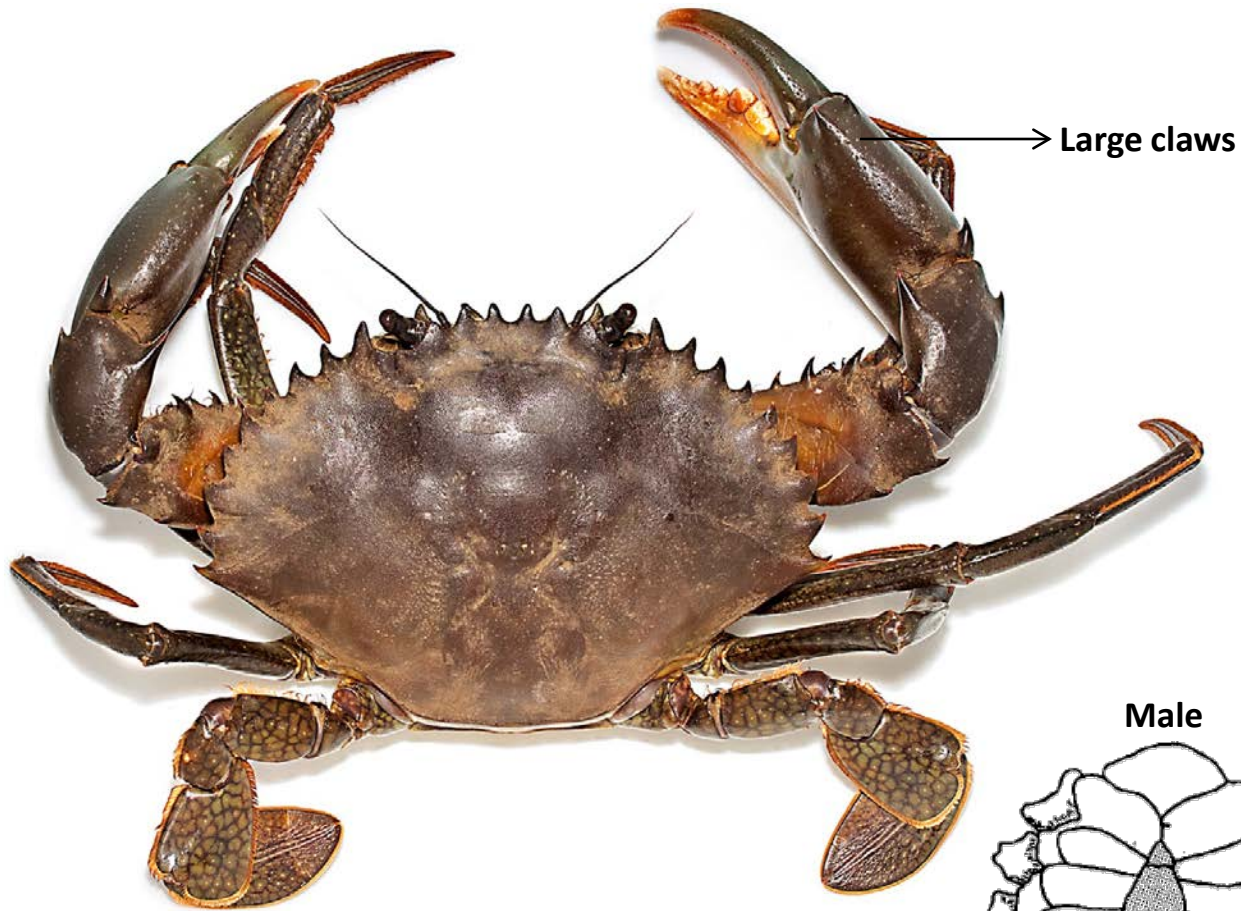
Habitat

Estuary, mud and sand areas

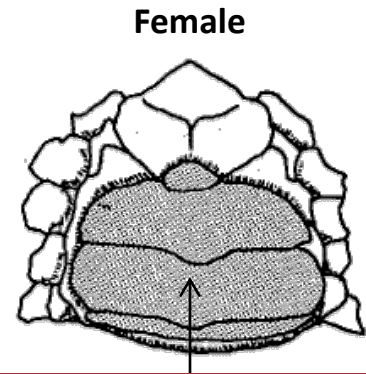
Kumulipo

Hanau ka Paka, hanau ka Pāpā i ke kai, holo
Eels are born, Crabs are born in the sea, swim

Notes:



Narrow tail



Wide tail

- Can grow very large
- Claws very powerful and painful

State Rules

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
6" (width across back)	-	-	No spearing, No taking females	-

-

Samoa/Mangrove crab

Scylla serrata

Biology

Endemic?

Spawning Season

Maximum Size

No – *species introduced to Hawaii in 1926*

May - Aug

Current state record is over 7lbs

Ecology

Feeding

Habitat

Kumulipo

Invertebrates

Estuary, river mouths, mangrove areas

Hanau ka Paka, hanau ka Pāpā i ke kai, holo
Eels are born, Crabs are born in the sea, swim

Notes:

Large empty rounded rectangular box for notes.

Octopus cyanea

- Found hidden in small holes and crevices on reef flat
- Feeds on snails, lobster, fish

Octopus orantus

Large spots
with white
dots

- Seen commonly at night
- Long arms with white dots

State Rules

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
1lb	-	-	-	-

He`e

Day/Night Octopus/Tako

Octopus cyanea, Octopus ornatus

Local Knowledge

Hawaiian `Ōlelo

Ka i`a mana nui;
The fish of many divided parts

Name Translation

he`e means to flee, slide, or melt

Biology

Endemic?

No

Maximum Size

~2.5 feet including arms

Ecology

Feeding

Snails, lobsters, small fish

Habitat

Reef flat, outer reef

Connections

Hanau ka he`e noho i kai, Kia`i ia e ka walahe`e noho i uka
He`e are born in the sea, guarded by the *alahe`e* on land
Pua ke kō, ku ka he`e
When the sugar can tassels (late Oct/Nov), the *he`e* season is here

Notes:

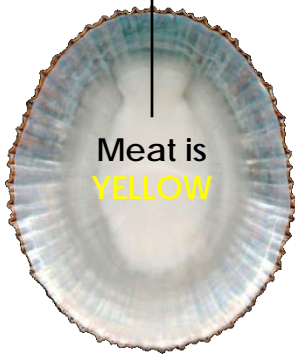
Large rounded rectangular area for notes.

Round shell



Opihi ko`ele/Talc limpet/*Cellana talcosa*

White shell inside



Meat is **YELLOW**

Narrow rib between thicker ribs



Opihi maka-ia-uli/Dark-foot limpet/*Cellana exarata*

Meat is **GREY**

Ribs extend past shell



Opihi alinalina/Hawaiian limpet/*Cellana sandwicensis*

Meat is **YELLOW**

- Found in wave-washed, rocky, coastal areas
- Prized for eating
- Hawaiian limpet most common

State Rules

Minimum Size	Seasonal closures	Bag limit	Gear Restrictions	Permits and Licenses
1.25" (shell diameter)	-	-	-	-
0.5" (meat diameter)	-	-	-	-

Local Knowledge

Hawaiian ʻŌlelo

He i`a make ka `opihī;
 `Opihī is a fish of death;
 `Opihī are found on rocks where the sea is rough

Name Translation

`Opihī is also a design for tapa (fabric) and mats made of small triangles (like the shell of the *`opihī*)

Biology

Endemic?

Yes (all 3 regulated species)

Maximum Size

~2.5 inches (shell diameter)

Ecology

Feeding

Algae

Habitat

Wave-washed rocky areas, tide pools

Notes:



Horn-shaped shell

- Usually in deeper water
- Adults can be covered in algae
- Horn used to create trumpets

West Hawaii Regional FMA ONLY

Illegal to take, kill, possess, sell, or offer for sale

Local Knowledge

Name Translation

Pū is a general name for trumpets, or a wind instrument

Biology

Endemic?

No

Maximum Size

~ 12 inches

Ecology

Feeding

Small invertebrates, including Crown-Of-Thorns-Starfish (COTS)

Habitat

Coral Reef

Notes:

Pū

Triton's Trumpet

Charonia tritonis



Spiral-shaped shell

- Tip of shell used to create trumpet known as *pū*
- Eats Crown-Of-Thorns-Starfish (COTS)

West Hawaii Regional FMA ONLY

Illegal to take, kill, possess, sell, or offer for sale

Local Knowledge**Name Translation**

Pū is a general name for trumpets, or a wind instrument

Biology**Endemic?**

No

Maximum Size

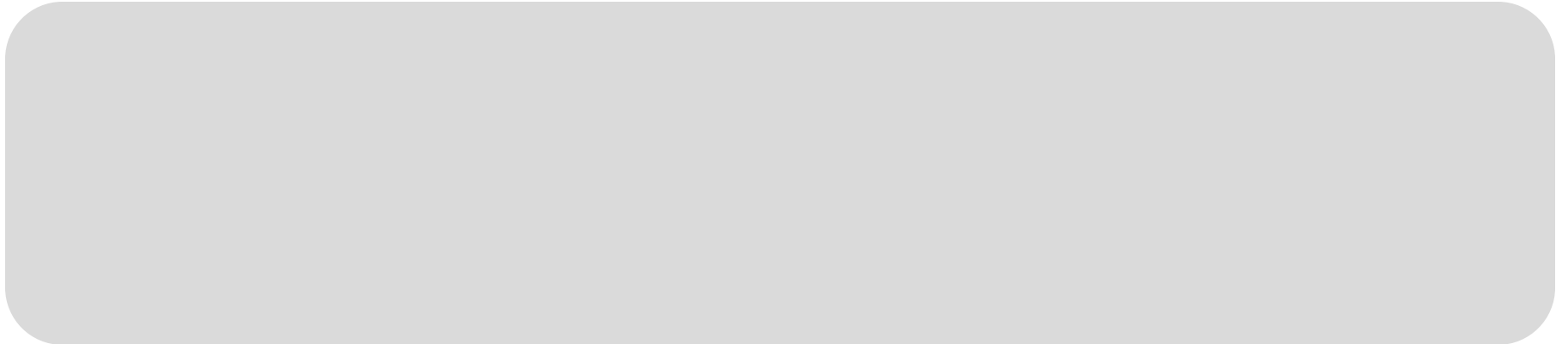
16 inches

Ecology**Feeding**

Small invertebrates, including Crown-Of-Thorns-Starfish (COTS)

Habitat

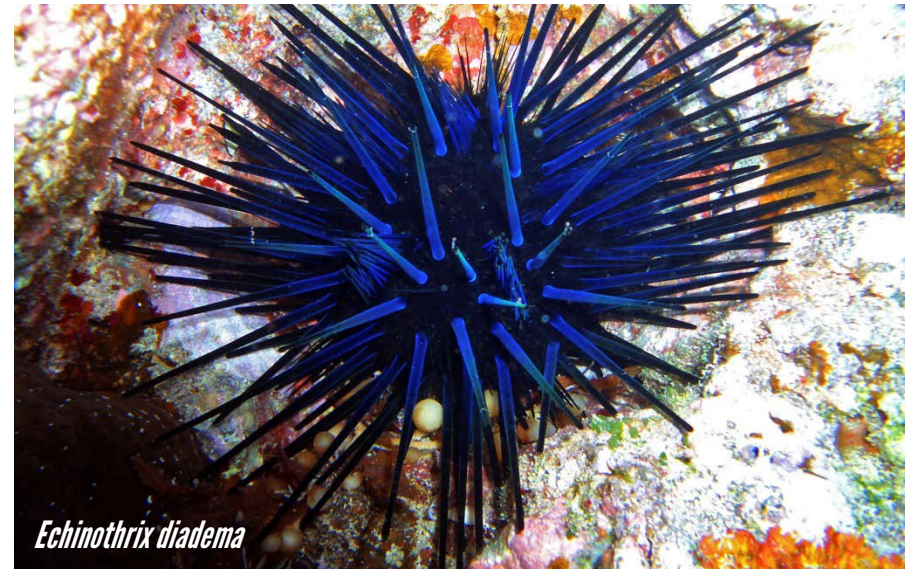
Coral Reef

Notes:

Wana

Sea Urchin

All species



Kahekili Herbivore Fisheries Management Area (KHfMA) ONLY

Illegal injure, kill, possess, or remove any wana within the boundaries in the KHfMA

Local Knowledge

Hawaiian `Ōlelo

Ka i`a hō`eha lima
The fish that can hurt the hands

Name Etymology

Wana means sharp, spike

Biology

Endemic?

Yes - only *Actinocidaris thomasi* (Thomas' urchin), *Prionocidaris hawaiiensis* (Hawaiian thorny urchin), and *Acanthocidaris hastigera* (Spear urchin)

Ecology

Feeding

Algae

Habitat

Wave-washed rocky areas, tide pools

Notes:

CORAL AND LIVE ROCK

- There are over 70 species of hard coral found in Hawai'i
- Coral is an animal, a coral colony is made of thousands of coral 'polyps'
- Coral polyps have algae living within their tissue called 'zooxanthellae', which gives them their color
- Live rock is any rock with marine life attached



Cauliflower Coral

Example: Pocillopora meandrina

Shape:



Cauliflower coral

Cauliflower coral

Photo credit: Keoki Stender

- Found on reefs with wave action
- Can be yellow, purple, green, pink, brown

State Rules

Unlawful to take, break, damage, or sell corals (dead or alive)
Damage includes: sediments, pollutants, and vessel groundings

Rice Coral

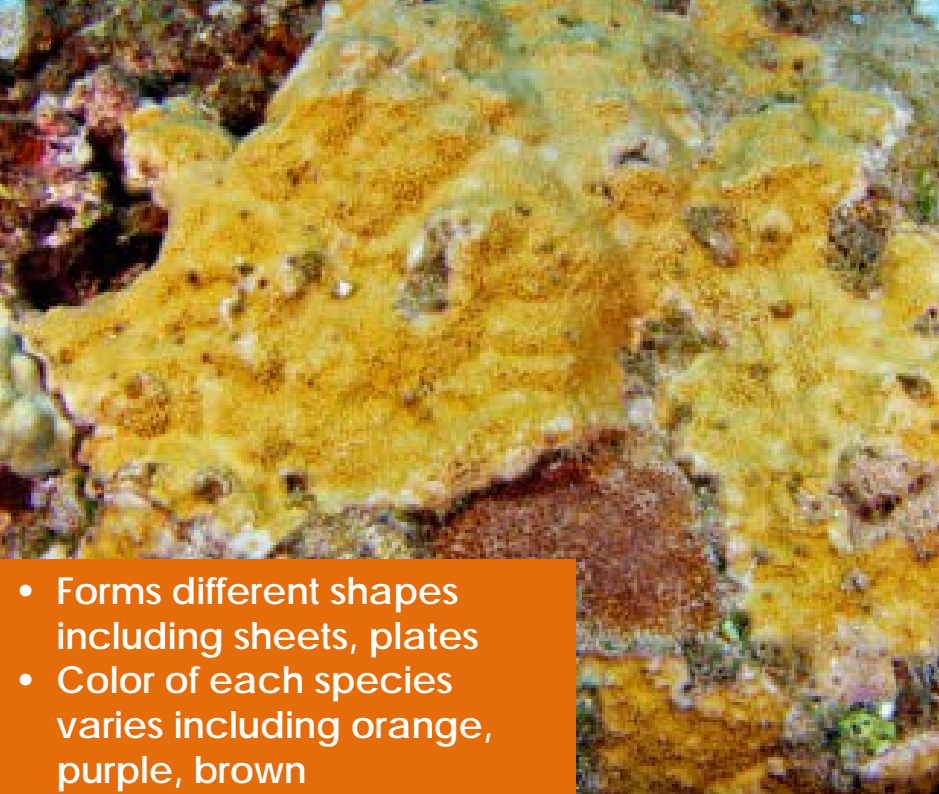
Examples: Montipora patula, Montipora flabellata

Shape:



Montipora patula

Rice coral



- Forms different shapes including sheets, plates
- Color of each species varies including orange, purple, brown

Montipora flabellata

Rice coral

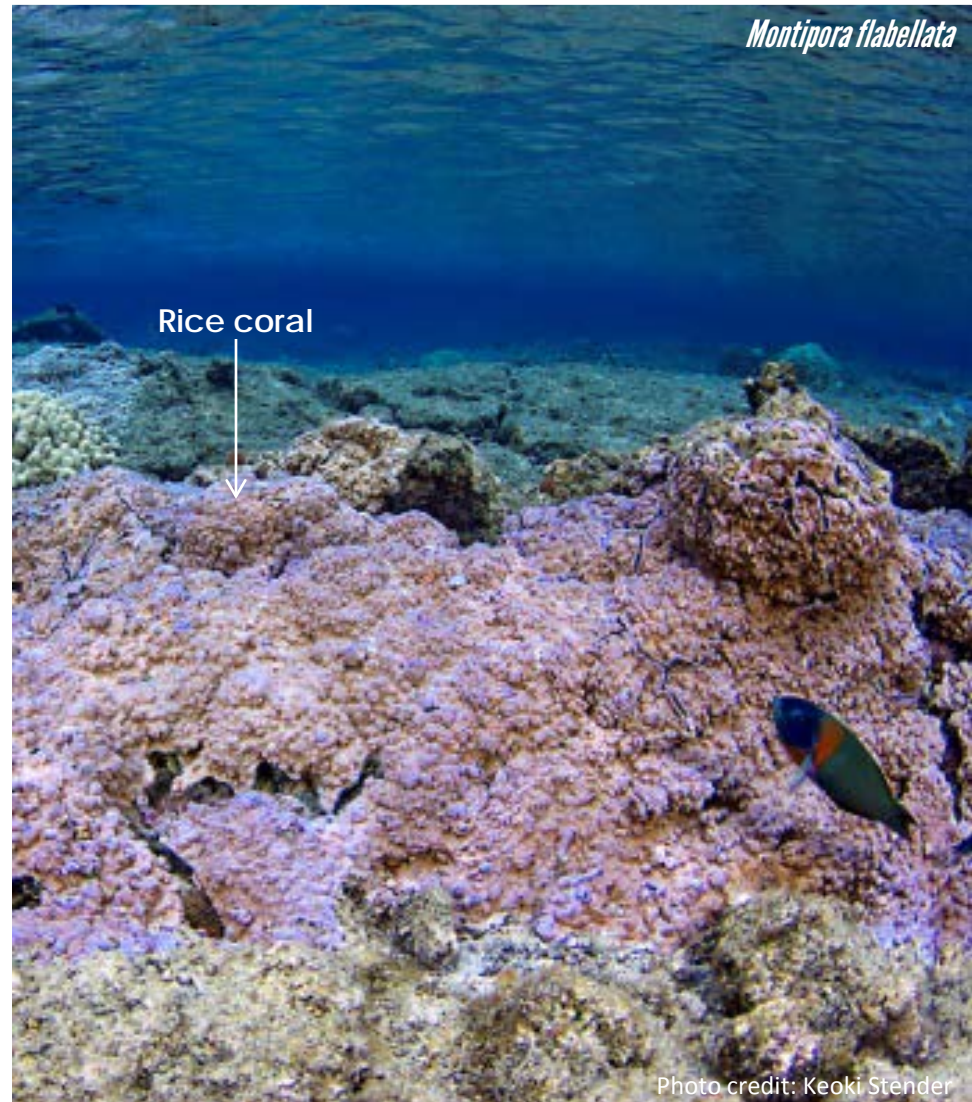
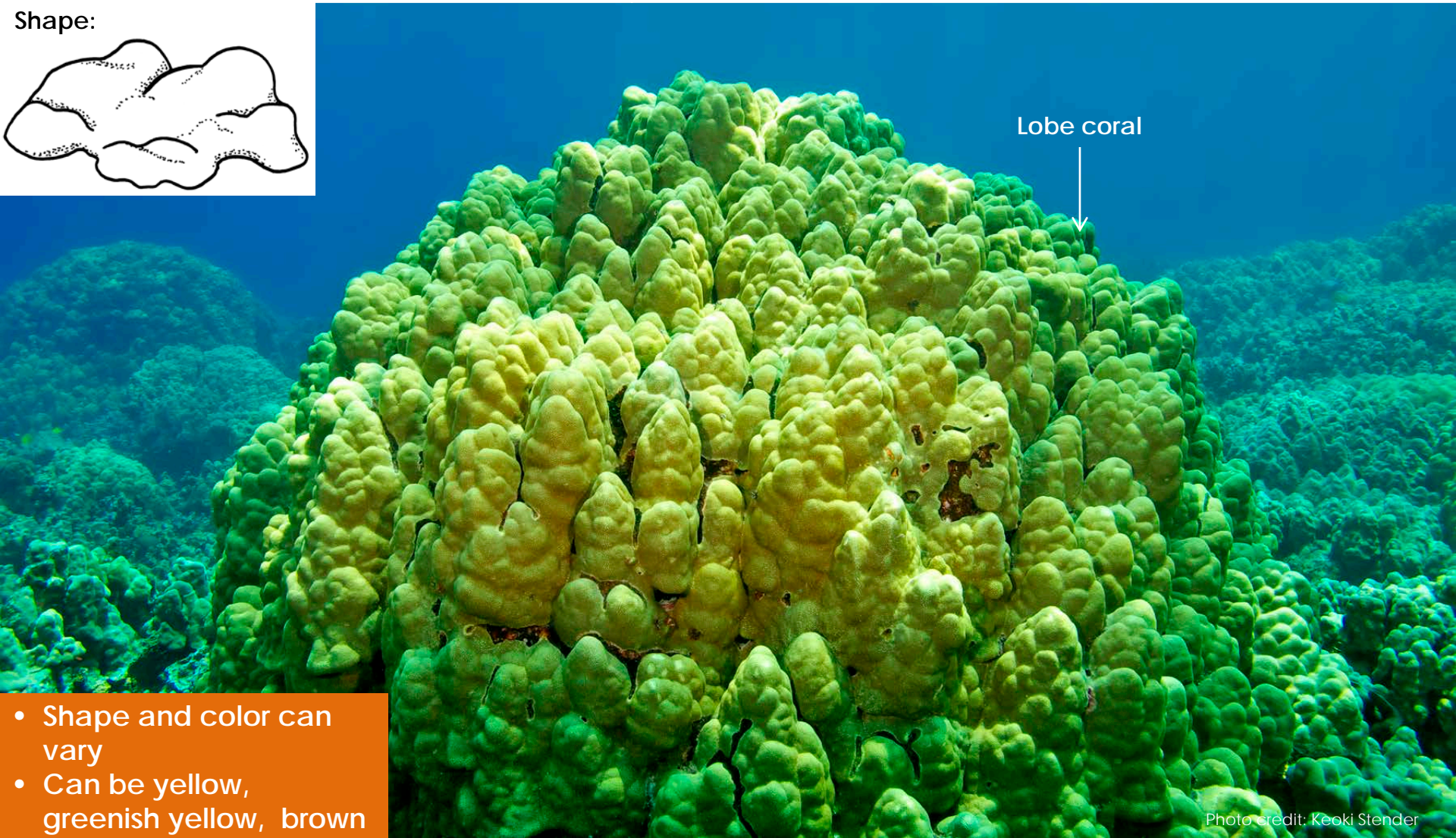


Photo credit: Keoki Stender

State Rules

Unlawful to take, break, damage, or sell corals (dead or alive)
Damage includes: sediments, pollutants, and vessel groundings

Shape:



Lobe coral



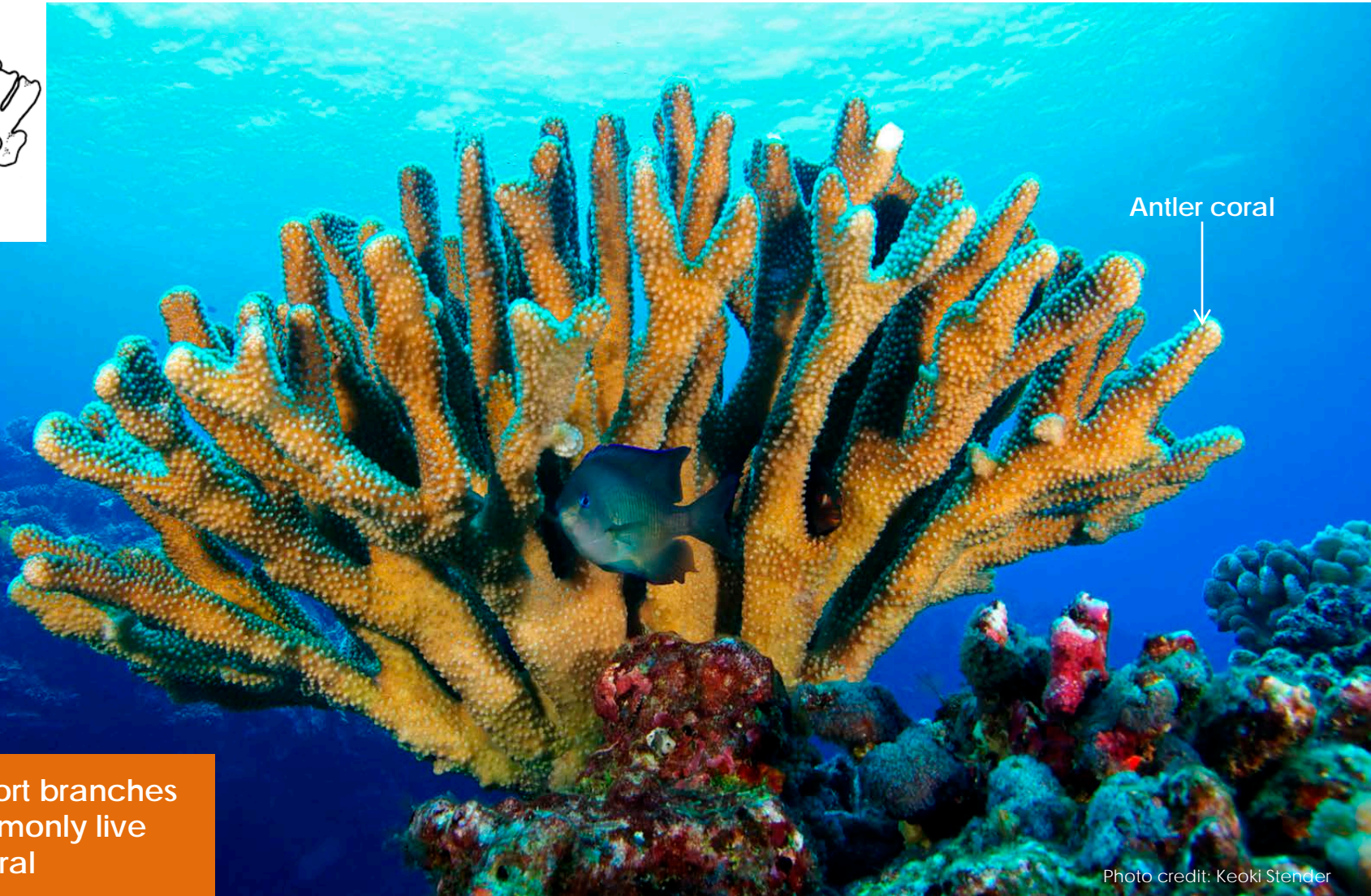
Photo credit: Keoki Stender

- Shape and color can vary
- Can be yellow, greenish yellow, brown

State Rules

Unlawful to take, break, damage, or sell corals (dead or alive)
Damage includes: sediments, pollutants, and vessel groundings

Shape:



Antler coral

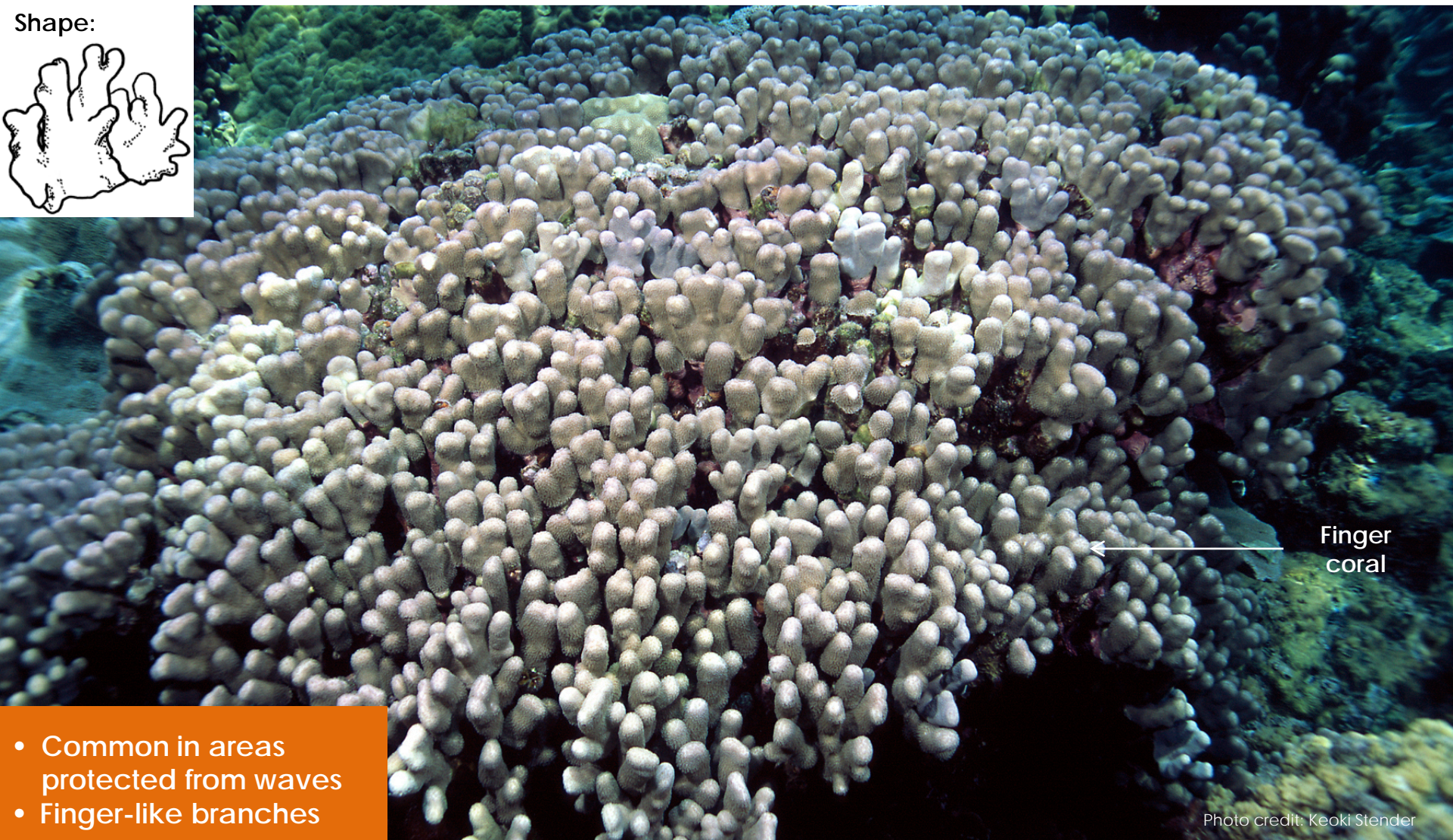
Photo credit: Keoki Stender

- Forms short branches
- Fish commonly live within coral

State Rules

Unlawful to take, break, damage, or sell corals (dead or alive)
Damage includes: sediments, pollutants, and vessel groundings

Shape:



Finger coral

Photo credit: Keoki Stender

- Common in areas protected from waves
- Finger-like branches

State Rules

Unlawful to take, break, damage, or sell corals (dead or alive)
Damage includes: sediments, pollutants, and vessel groundings

Local Knowledge

Kumulipo

Hanau ka 'uku-ko'ako'a, hanau kana, he 'ako'ako'a, puka;
Born was the coral polyp, born was the coral, came forth

Biology

Endemic?

Yes (some species)

Spawning Season

various

Ecology

Feeding

Plankton, an algae called zooxanthellae also provides energy to the coral animal by living within its tissue

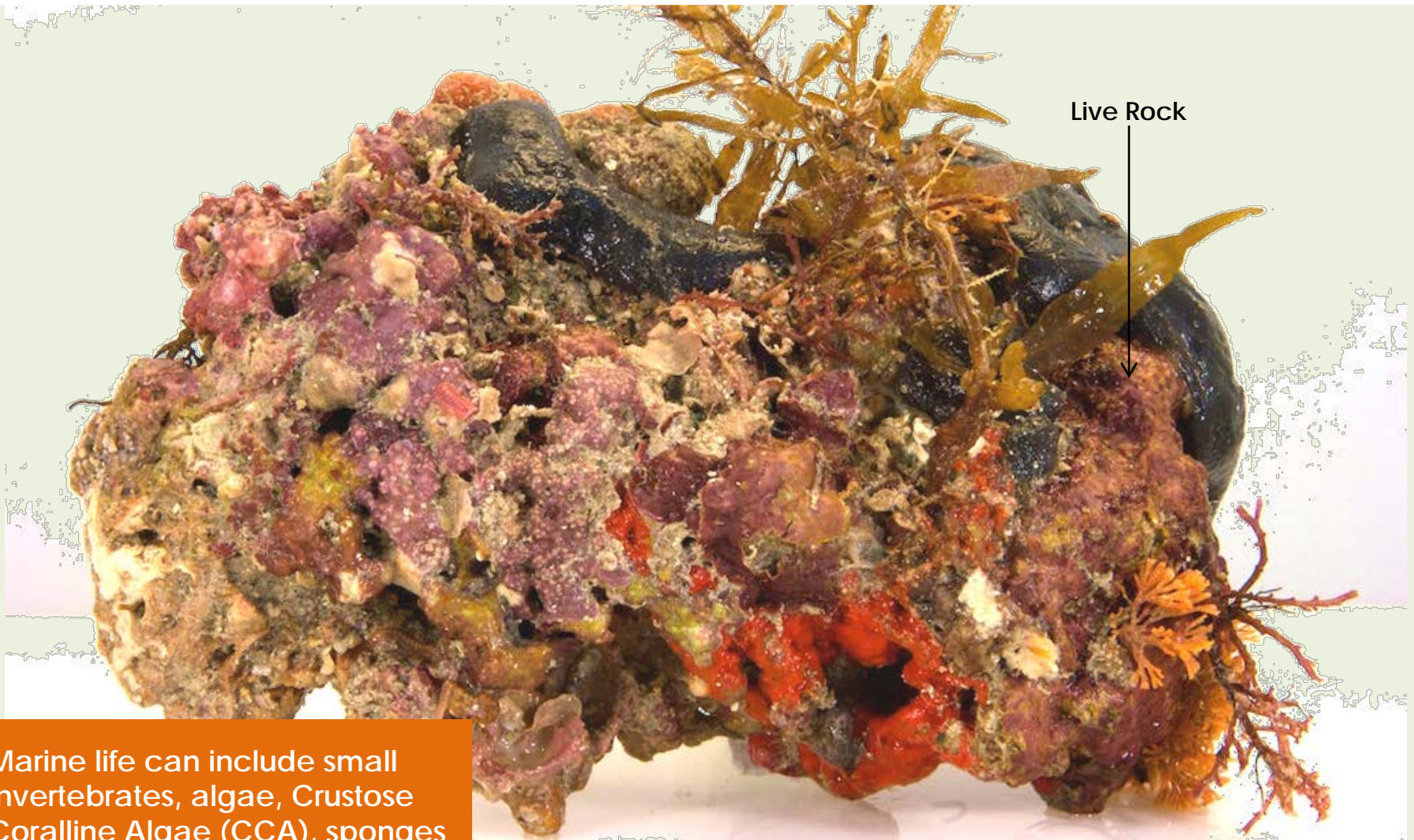
Habitat

Warm, clear, relatively shallow areas away from fresh water inputs

Notes:

Live Rock

Any hard rock with marine life visibly attached



Live Rock

- Marine life can include small invertebrates, algae, Crustose Coralline Algae (CCA), sponges

Prohibited to take

Unlawful to take, break, damage, or sell live rocks
Damage includes: sediments, pollutants, and vessel groundings

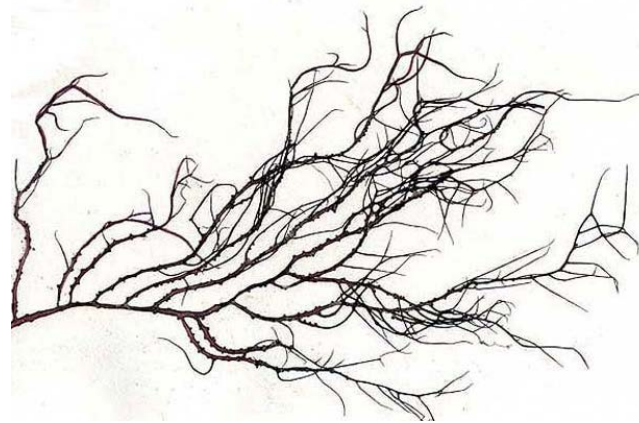


SECTION THREE

LIMU
(ALGAE)



G. coronopifolia

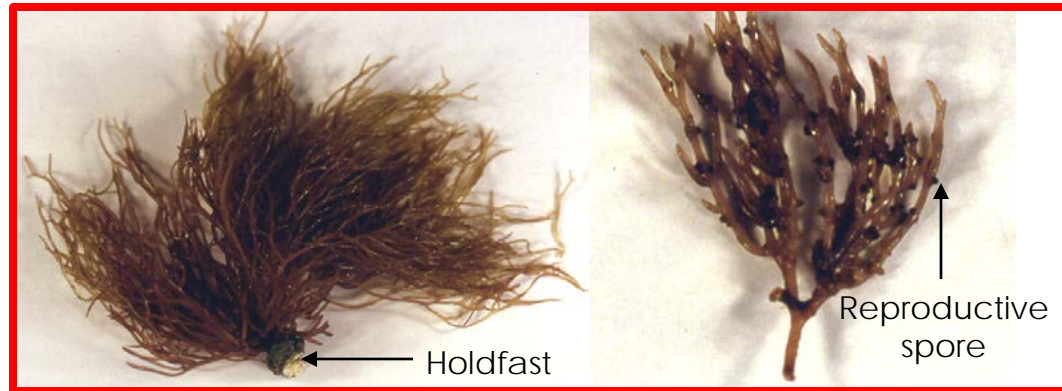


G. Parvispora (ogo)



G. Salicornia (gorilla ogo)

- Harvested from shallow, sandy reefs
- Y-branching arms
- Red to brown color



State Rules

Minimum Size	Seasonal closures	Bag limit	Prohibited to take	Permits and Licenses
-	-	1 lb (home consumption); 10 lb (with commercial marine license)	No take with holdfast attached; No take with reproductive spores No commercial take (Maui Only)	-

Local Knowledge

`Ōlelo	Name Translation
<p><i>Ka i`a maewa I ke kai;</i> The fish (<i>limu</i>/seaweed) that sways in the sea</p>	<p><i>Manaua</i> is also a variety of taro, <i>Mana</i> can mean branch or limb, <i>uea</i> means wire</p>

Biology

Endemic?

Yes (*Gracillaria coronopifolia*, *Gracilaria parvispora*)
Gracilaria salincornia is an introduced species, which is now invasive

Ecology

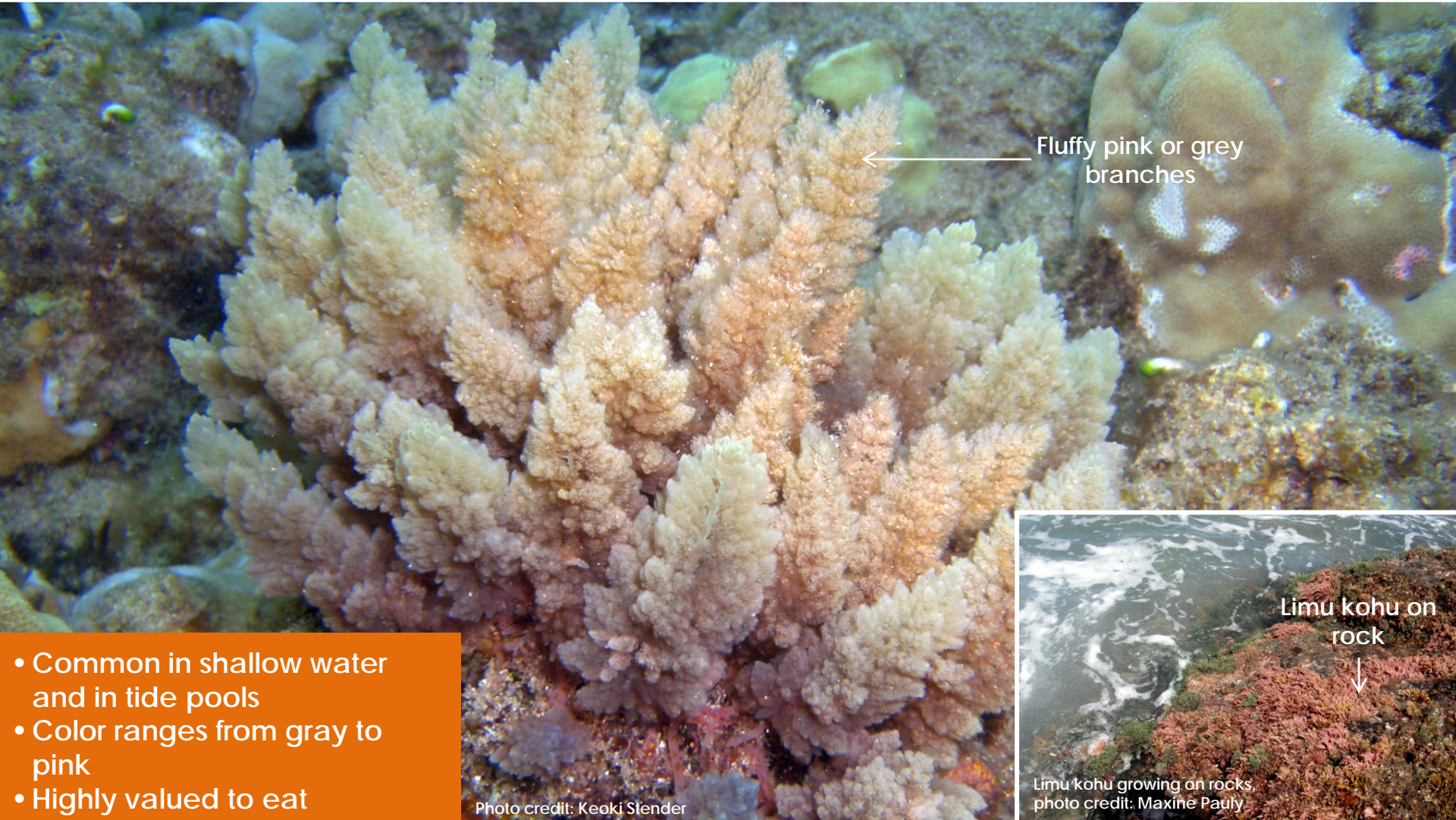
Habitat	Kumulipo
<p>Reef flat</p>	<p><i>Hanau ka Manaua noho i ke kai;</i> <i>Kia`i ia e ke Kalo-manaua noho i uka</i> The <i>manaua</i> was born and lived in the sea; guarded by the <i>kalo-manaua</i> living on land</p>

Notes:

Limu kohu

Asparagus seaweed

Asparagopsis taxiformis



Fluffy pink or grey branches

Limu kohu on rock

Limu kohu growing on rocks, photo credit: Maxine Pauly

- Common in shallow water and in tide pools
- Color ranges from gray to pink
- Highly valued to eat

Photo credit: Keoki Stender

Pūpūkea Marine Life Conservation District (MLCD) rules ONLY

Minimum Size	Seasonal closures	Bag limit	Gear restrictions	Permits and Licenses
-	-	2 lbs (combined total dried and squeezed)	Hand harvest only, do not remove holdfast	-

Local Knowledge

`Ōlelo

Ka i`a maewa I ke kai;
The fish (*limu*/seaweed) that sways in the sea

Name Translation

Manauea is also a variety of taro,
Mana can mean branch or limb,
uea means wire

Biology

Endemic?

Yes (*Gracillaria coronopifolia*, *Gracilaria parvispora*)
Gracilaria salincornia is an introduced species, which is now invasive

Ecology

Habitat

Shallow water, wave-washed areas, tide pools

Notes:



- Common in shallow, wave exposed areas
- Grows in clumps
- With red tips, or entirely red

Photo credit: Beth Deacy

Pūpūkea Marine Life Conservation District (MLCD) rules ONLY

Minimum Size	Seasonal closures	Bag limit	Gear restrictions	Permits and Licenses
-	-	2 lbs (combined total dried and squeezed)	Hand harvest only, do not remove holdfast	-

Local Knowledge**Name Translation**

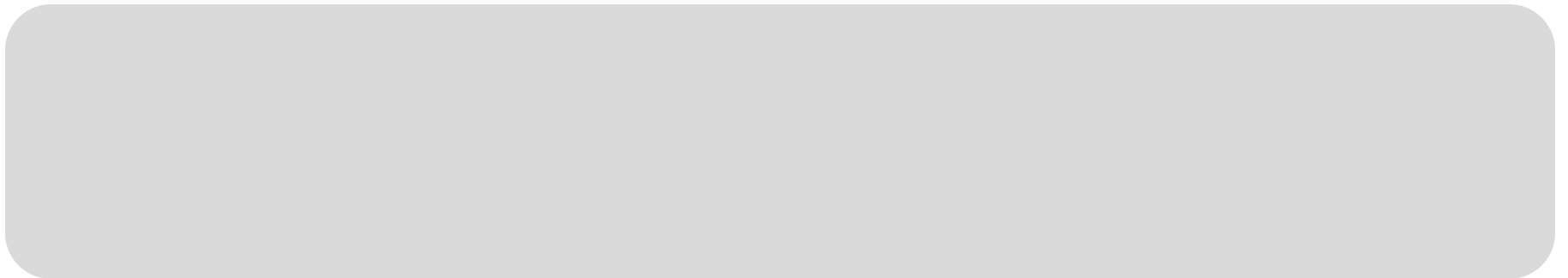
Pe`e can mean to hide, also coarse or thick

Biology**Endemic?**

Yes (*Laurencia mcdermidae*)

Ecology**Habitat**

Shallow water, wave-washed areas, tide pools

Notes:



SECTION FOUR

PROTECTED SPECIES

Honu

Green Turtle/Kame

Chelonia mydas



Smooth shell
edges

Blunt
nose

- Very commonly seen on reefs and basking on beaches
- Sometimes seen with Fibropapilloma tumors

Photo credit: Keoki Stender

Rules

Federally protected under the Endangered Species Act (ESA) where it is listed as threatened
No open season in state waters

Honu`ea

Hawksbill Turtle

Eretmochelys imbricata

Sharp
beak-like
jaw

Serrated,
knife-like
shell edges

- Known for its beautiful shell
- Nest on Hawaii Island and sometimes Maui
- Very rarely seen, endangered population in Hawaii

Photo credit: Keoki Stender

Rules

Federally protected under the Endangered Species Act (ESA) where it is listed as endangered
No open season in state waters

Local Knowledge

Hawaiian `Ōlelo	Name Translation
<i>He honu ka `āina he mea pane`e wale;</i> Land is like a turtle, it moves on	<i>Honu</i> is also the name of a woven mat design and a hula, which imitate the shapes and movements of the turtles; <i>`ea</i> is a reddish-brown color, as the color of the <i>honu`ea</i> shell

Biology

Endemic?	Nesting Season
No	Summer, every 2-4 years

Ecology

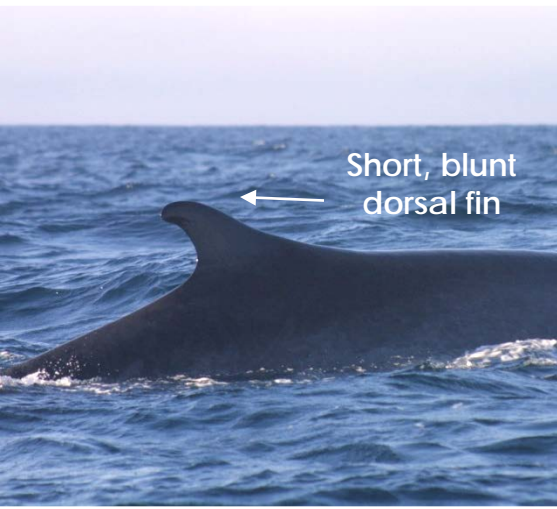
Feeding	Habitat	Kumulipo
Honu: algae and seagrasses Honu`ea: sponges, stinging jellies, algae	Beaches (nesting, resting), open ocean, reef flats, outer reefs	<i>Hanau ka po ia honu kua nanaka;</i> <i>Kulia ka po ia `ea kua neneke</i> The night gives birth to rough-backed turtles; The night produces horn-billed turtles

Notes:

Koholā

Humpback whale

Megaptera novaeangliae



Short, blunt
dorsal fin



Photo credit: Keoki Stender



Large,
distinct
fluke fin

Photo: The Dolphin Institute
NMFS permit #1071-1770-00

- Commonly seen in certain areas during winter months (Nov – Mar)
- Often seen at surface splashing, breaching

Prohibited

No take under State rules,
Protected by Federal Marine Mammal Protection Act (MMPA), Endangered Species Act (ESA)
Must remain at least 100 yds away within Hawaiian Islands Humpback Whale National Marine Sanctuary waters

Local Knowledge**Name Translation**

Koho is the tip of a paddle blade, *lā* is a fin

Biology**Endemic?**

No

Mating/Calving season

Winter

Ecology**Feeding**

Small fish, crustaceans

Habitat

deep ocean (migration),
shallow water near reefs (calving),
cold coastal waters (feeding)

Notes:



Photo credit: Keoki Stender

Photo credit: James Watt

- Only seal species in Hawaii
- Rare to see resting on beaches or swimming close to shore
- Roughly 1,200 individuals remaining

Prohibited

Illegal to molest, kill, capture, or possess at any time
Protected under the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA)

Local Knowledge**Name Translation**

ʻi lio means dog
literal translation is 'dog running through rough seas'

Biology**Endemic?**

No

Pupping Season

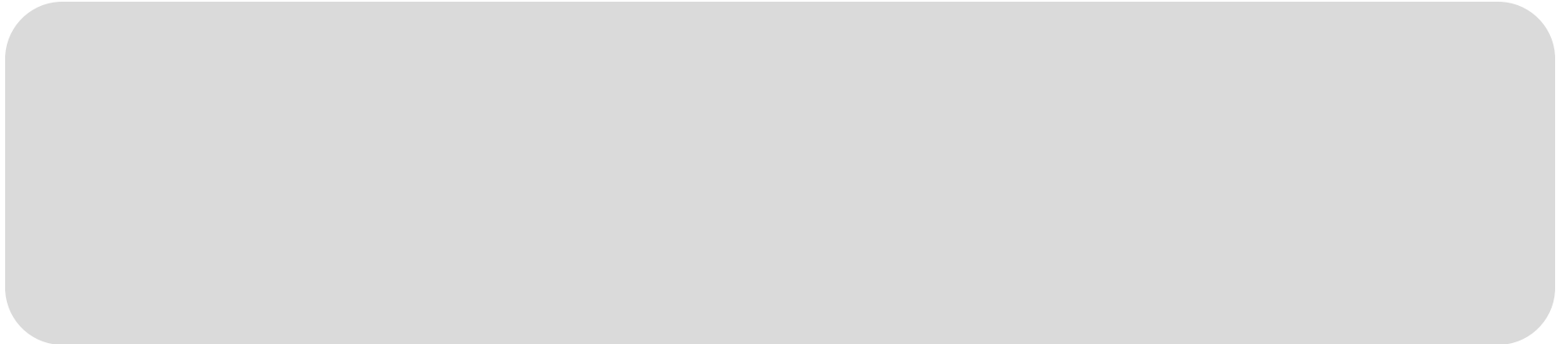
Most during late March, early April, can be year-round

Ecology**Feeding**

Fish and lobster

Habitat

Sandy beaches, reef flat, outer reef, deep ocean

Notes:

Nai`a

Spinner Dolphin

Stenella longirostris



← Triangular dorsal fin

Long, narrow nose →



← Dark and light grey banded coloring

Photo credit: James Watt

Photo credit: Keoki Stender

- Found in calm, sandy bays during the day and move to open water at night
- Often seen "spinning" at surface

Prohibited

No take under state rules,
protected by Federal Marine Mammal Protection Act (MMPA)

Local Knowledge

Hawaiian `Ōlelo

It is the nai`a, he i`a lele
 It is the *nai`a*, the leaping fish
 Said of one who jumps to conclusions

Biology

Endemic?

No

Mating/Calving Season

Year-round

Ecology

Ecosystem Role	Habitat	Kumulipo
Predator	Sandy bays during the day (resting), deep ocean at night (feeding)	<i>Hanau ka i`a, hanau ka Nai`a i ke kai la holo</i> Born is the fish, born is the <i>nai`a</i> in the sea swimming

Notes:

Manō lālākea

Whitetip Reef Shark/Nemuribuka

Triaenodon obesus



White tip on fin →

- Commonly seen resting in caverns and caves during day

Manō kihikihi

Scalloped Hammerhead Shark

Sphyrna lewini

- Rarely seen in murky bays, harbors

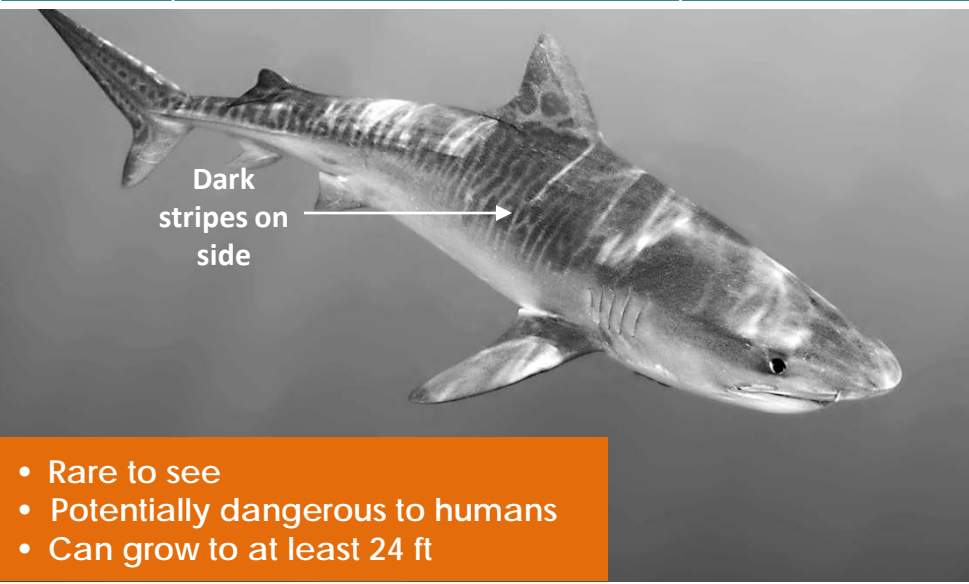


↑ Hammer-shaped head

Manō

Tiger shark/Itachizame

Galeocerdo cuvier



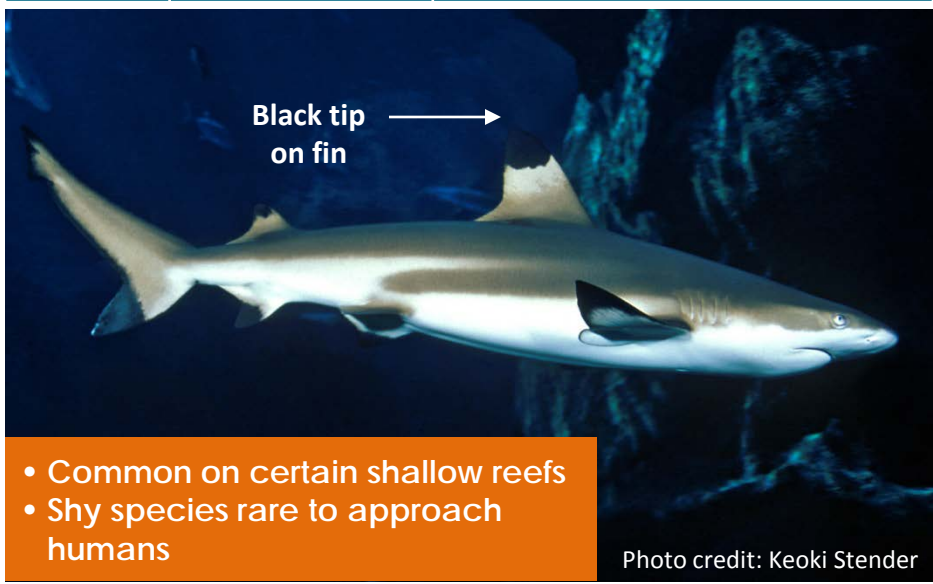
Dark stripes on side →

- Rare to see
- Potentially dangerous to humans
- Can grow to at least 24 ft

Manō Paele

Blacktip Reef Shark

Carcharhinus melanopterus



Black tip on fin →

- Common on certain shallow reefs
- Shy species rare to approach humans

Photo credit: Keoki Stender

State Rules

Illegal to feed in state waters, Illegal to possess, sell, or trade shark (any species) FINS

West Hawaii Regional Fishery Management Area (FMA)

Illegal to take, kill, possess, sell, or offer for sale, ANY specimen of blacktip reef shark, whitetip reef shark, tiger shark

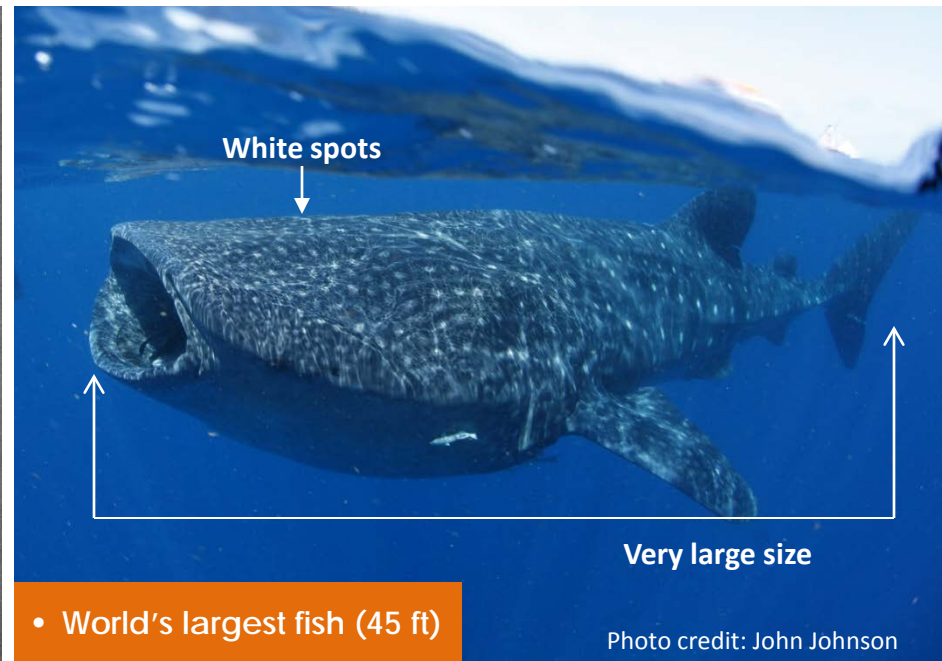
Mano

Gray reef shark

Carcharhinus amblyrhynchos

Whale Shark

Rhincodon typus



State Rules

Illegal to feed in state waters, Illegal to possess, sell, or trade shark (any species) FINS

West Hawaii Regional Fishery Management Area (FMA)

Illegal to take, kill, possess, sell, or offer for sale, ANY specimen of gray reef shark, whale shark

Local Knowledge

Hawaiian `Ōlelo

Pua ka wiliwili nanahu ka manō
 When the *wiliwili* tree blooms, the sharks bite
 The *wiliwili* trees blooms during the shark mating season

Name Translation

Manō was also used figuratively to mean a passionate lover

Biology

Endemic?

No

Pupping Season

Varies by species, late summer/fall

Max Length

Varies, 5 ft – 16 ft

Ecology

Feeding

Fish, sea turtles, birds, sharks, marine mammals,
 plankton (whale sharks)

Habitat

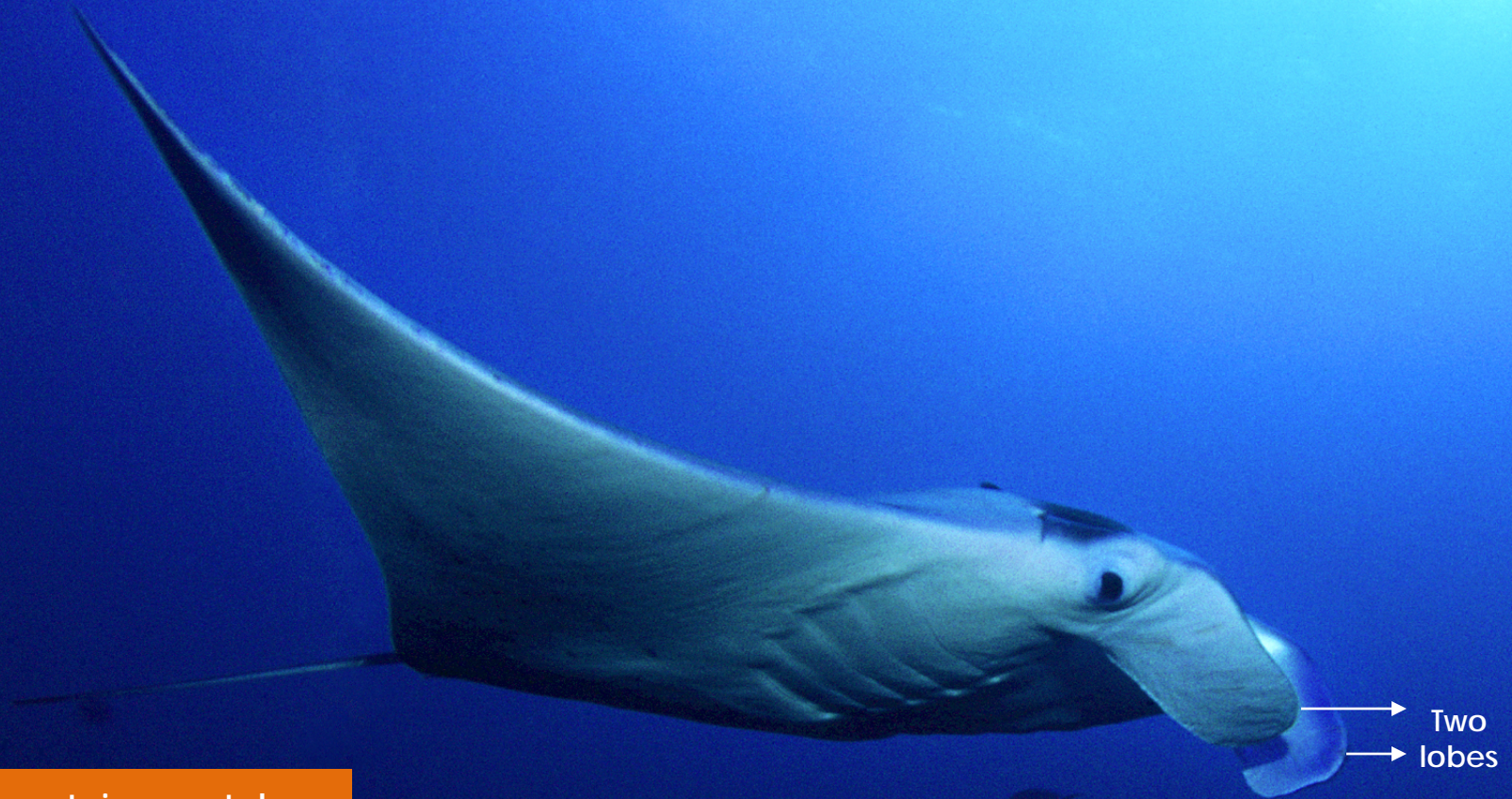
Reef flat, outer reef, deep ocean

Notes:

Hāhālua

Manta Ray

Manta alfredi



Two lobes

- Common in certain coastal areas
- Feed at night on plankton
- Typical size can range from 6 – 12 ft

Photo credit: Keoki Stender

State Rules

Illegal to capture or kill

Local Knowledge

Name Translation

Hāhālua means two mouths or stalks, referring to the two appendages by its mouth

Biology

Endemic?	Pupping Season	Max length
No	Give birth to one pup every two to three years	16 ft

Ecology

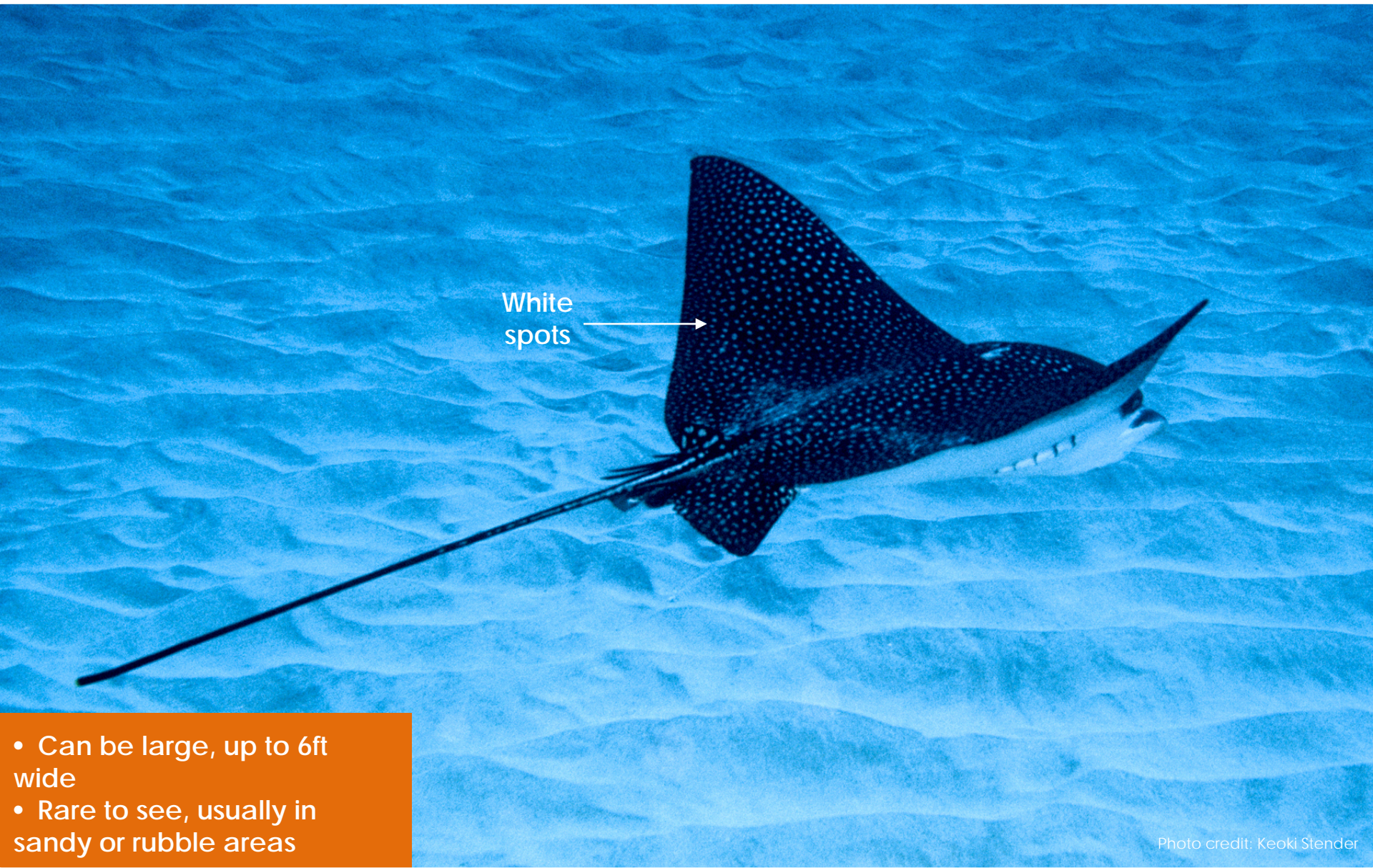
Feeding	Habitat	Kumulipo
Plankton	Outer reef	<i>Hanau ka ulua, hanau ka Hāhālua i ke kai la holo</i> Born is the <i>ulua</i> , born is the <i>hāhālua</i> in the sea swimming

Notes:

Hihimanu/lupe/pe`a

Spotted Eagle Ray

Aetobatus ocellatus



White spots →

- Can be large, up to 6ft wide
- Rare to see, usually in sandy or rubble areas

Photo credit: Keoki Stender

West Hawaii Regional FMA ONLY

Illegal to take, kill, possess, sell, or offer for sale

Local Knowledge

Name Translation

Hihimanu means lavish, magnificent, elegant.
Lupe means kite
Pe`a means bat

Biology

Endemic?

No

Max length

6 ft

Ecology

Feeding

Marine snails, worms, octopuses, and fishes

Habitat

Coastal waters

Kumulipo

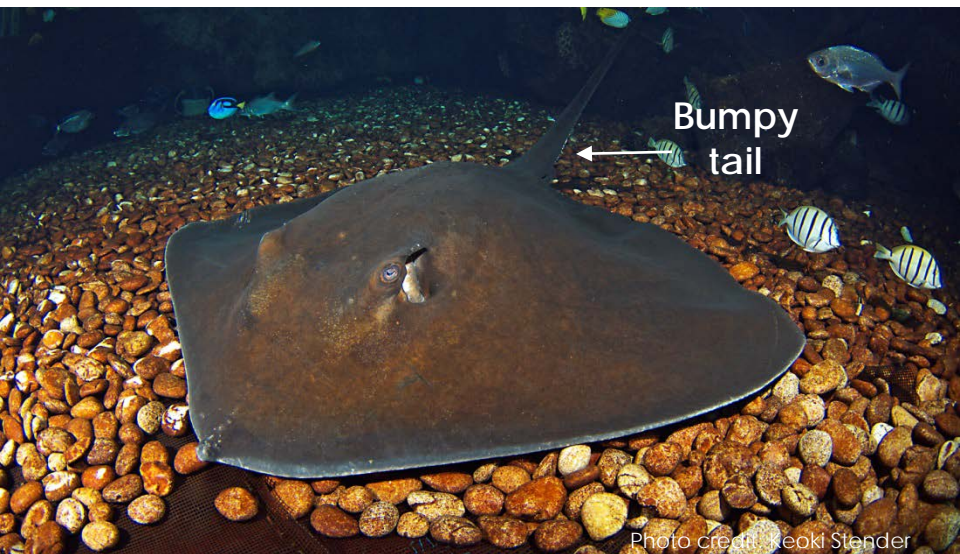
Hanau ka Pe`a, hanau ka Lupe I ke kai la, holo
 Eagle Rays are born, stingrays are born in the sea, swim

Notes:

Lupe/Pe`a

Broad Stingray

Dasyatis lata



Lupe/Pe`a

Hawaiian Stingray

Dasyatis hawaiiensis



Lupe/Pe`a

Pelagic Stingray

Pteroplatytrygon violacea



- Uncommon to see, usually buried in sand, mud, or rubble
- Seen frequently in deeper water

West Hawaii Regional FMA ONLY

Illegal to take, kill, possess, sell, or offer for sale

Local Knowledge

Name Translation

Hihimanu means lavish, magnificent, elegant.
Lupe means kite
Pe`a means bat

Biology

Endemic?

Yes

Max length

Approximately 3 ft

Ecology

Feeding

Crabs, shrimps living on the bottom

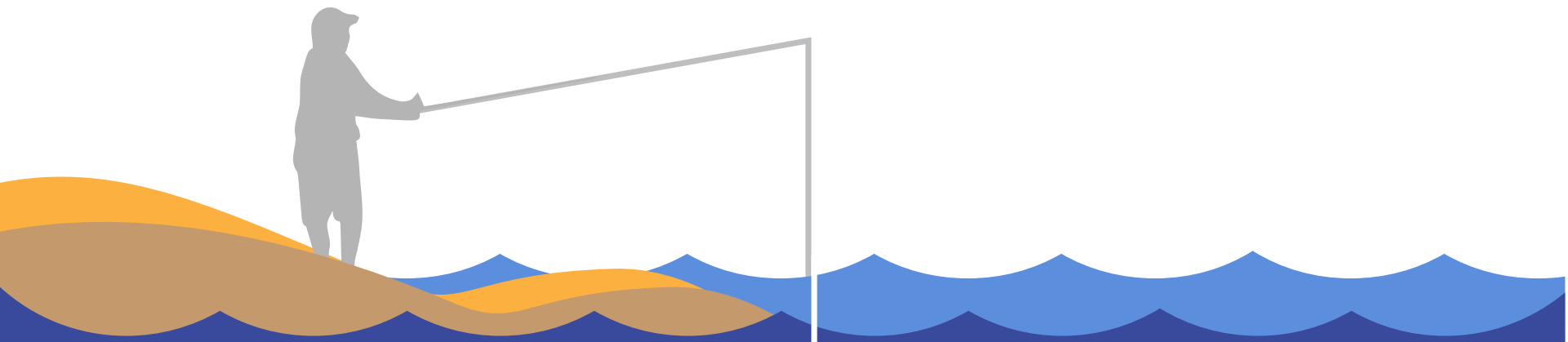
Habitat

Sand, mud, rubble

Kumulipo

Hanau ka Pe`a, hanau ka Lupe I ke kai la, holo
 Eagle Rays are born, stingrays are born in the sea, swim

Notes:



SECTION FIVE

**MALAMA
KAI**

MALAMA KAI

Managing Ocean Resources

What Marine Life Need

1. Time to Reproduce
2. A Large Population
3. A Home Range

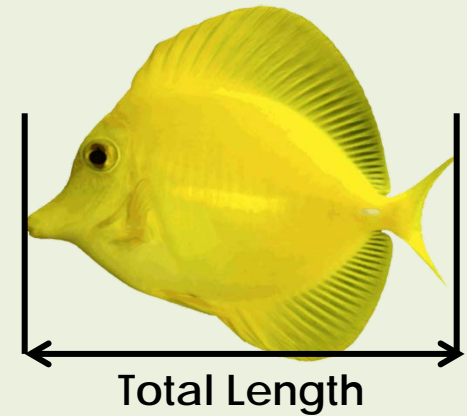
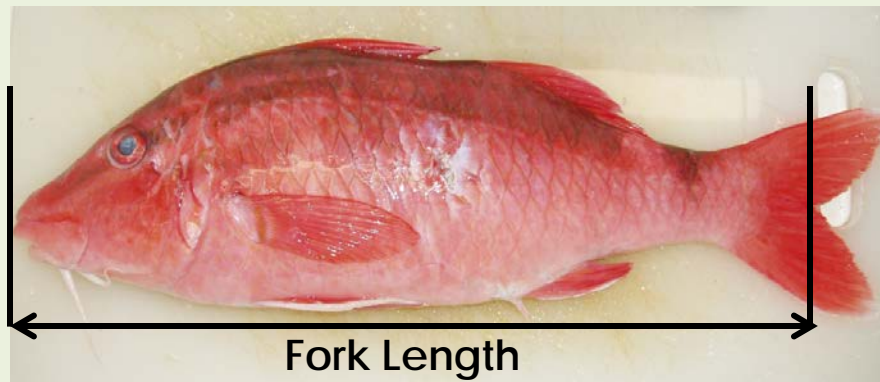
What We Can Manage

1. Minimum Size
2. Closed/Open Seasons
3. Bag Limits
4. Gear Restrictions
5. Permits
6. Marine Managed Areas (MMAs)

MINIMUM SIZE LIMITS

What is it?	Why?	Hawaiian Method	Example
The minimum size a species must be for a fisher to keep.	Time to Reproduce: So that marine life has had a chance to reproduce before being caught.	<i>Kapu</i> on certain species at stages in their life cycle	If a fisher catches a 8" kumu, they must release it

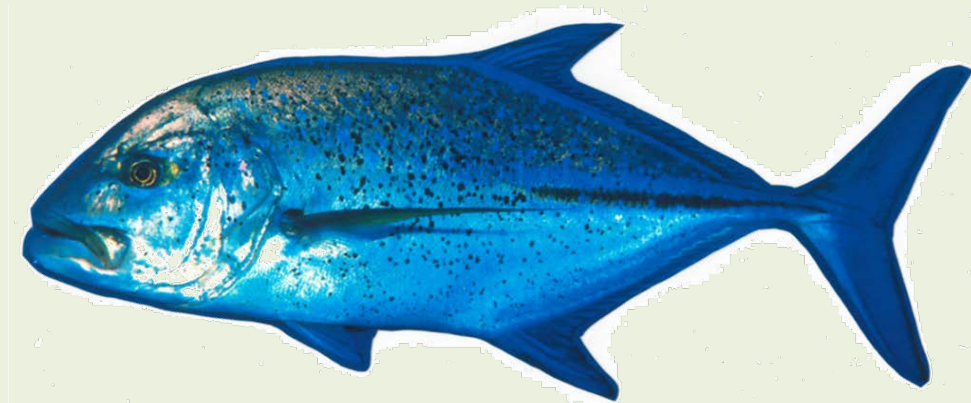
How do I measure minimum size?



SIZE MATTERS



A 12 inch *ōmilu* lays 49,000 eggs



A 27 inch *ōmilu* lays 4,000,000 eggs (8 times as many!)








MINIMUM SIZE LIMITS



Notes:



CLOSED AND OPEN SEASONS

Definition	Why?	Hawaiian Method	Example
The time of year when it is legal (open) or illegal (closed) to fish for certain species.	To protect animals during vulnerable life stages (usually spawning seasons) Or to allow for a rest period from human activities.	<i>Kapu</i> to restrict harvest during certain times	It is illegal to take `ama`ama (mullet) between December and March

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
 `Ama`ama (mullet)	Closed	Closed	Closed	Open	Open	Open	Open	Open	Open	Open	Open	Closed
 Moi	Open	Open	Open	Open	Closed	Closed	Closed	Closed	Open	Open	Open	Open
 Ula (spiny lobster)	Open	Open	Open	Open	Closed	Closed	Closed	Closed	Open	Open	Open	Open
 Ula papapa (slipper lobster)	Open	Open	Open	Open	Closed	Closed	Closed	Closed	Open	Open	Open	Open
 Kona Crab	Open	Open	Open	Open	Closed	Closed	Closed	Closed	Open	Open	Open	Open
 `Opelu (Waimea Bay only)	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Open	Open	Closed	Closed	Closed
 Akule (Waimea Bay only)	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Open	Open

 Open
  Closed

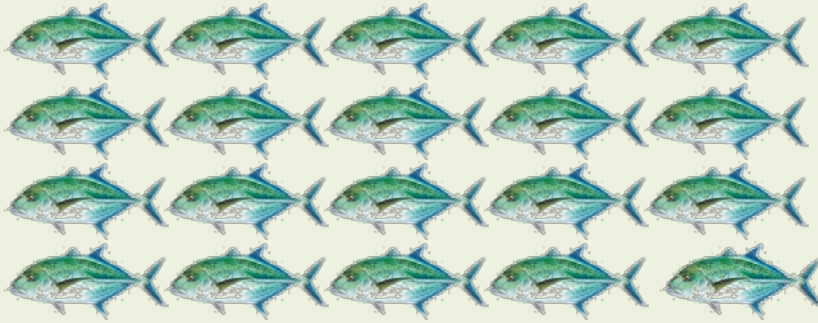
CLOSED AND OPEN SEASONS

Notes:

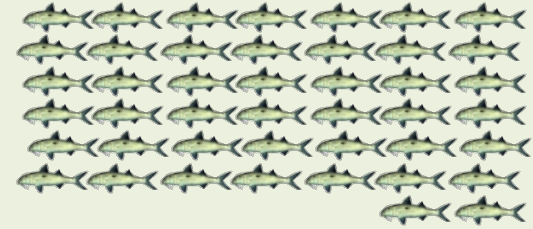


BAG LIMITS

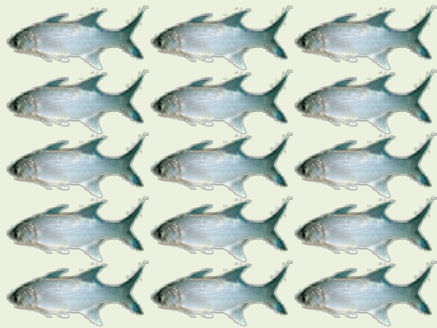
What is it?	Why?	Hawaiian Method	Example
The maximum amount of the species that fishers are allowed to keep per day.	So that a sustainable number of animals are left in the population.	Restraint, take only what you need	A fishermen can take no more than 15 <i>moi</i> per day.



20 *ulua* (total all species)



50 *oama* (weke under 7")



15 *moi*



Nehu: 1 gallon
(for home consumption)



Limu manauea:
1 lb - home consumption
10 lb - commercial with license



Akule: 200 lbs
(for sale)

Maui Only



2 *uhu*



1 *kumu*



2 *munu*



2 *moano kea*

West Hawaii Only



5 yellow tang




5 *kole* <4" (Aquarium Only)



10 *achilles tang* (Aquarium Only)

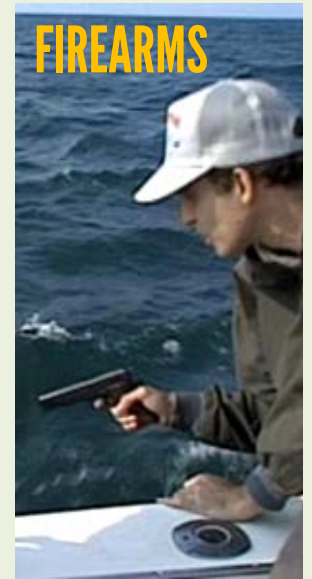
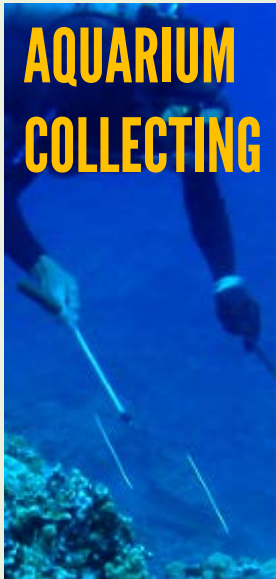
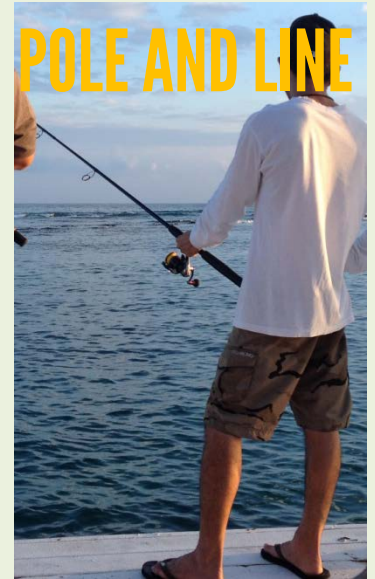
BAG LIMITS

Notes:



Gear and Fishing Method Restrictions

Definition	Why?	Hawaiian Method	Example
Certain types of fishing methods or gear types that are illegal	To reduce catching certain species unintentionally, prevent over-take of juvenile fish, prevent damage to habitat	<i>Alli'i</i> restrictions on certain harvesting techniques	A throw net must have a mesh size of at least 2 inches.



THROW NETS



Measuring stretched
mesh size



State rules

Illegal to possess or sell nets with stretched mesh size of less than 2 inches
Illegal to possess illegal size net in or near the water where fish may be taken

THORW NETS

Notes:



LAY NETTING

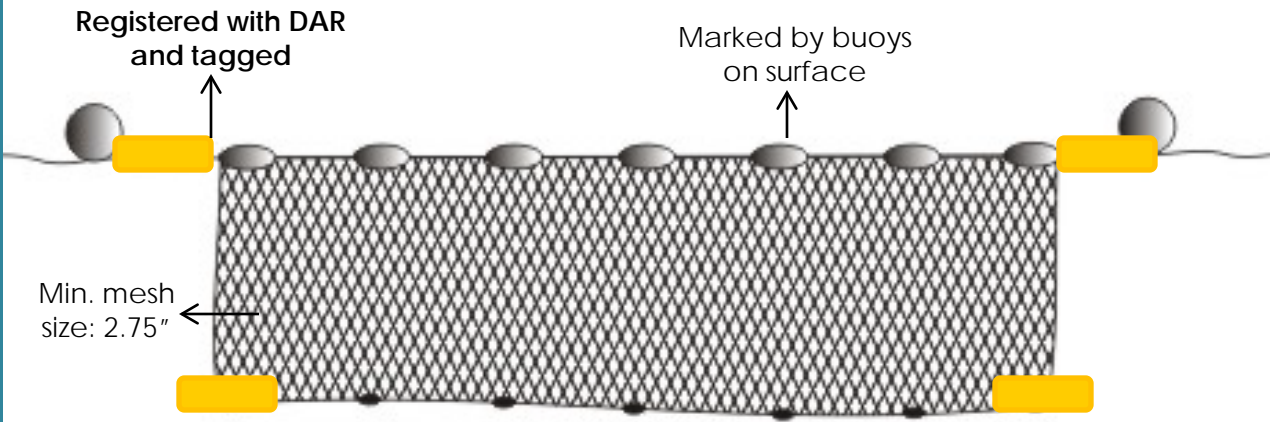


Photo credits: DLNR, Star Advertiser

State Rules

Illegal method in certain areas, net must be registered and tagged by DAR, minimum mesh size = 2.75 inches
Additional rules apply, please see DAR regulations book or dlnr.hawaii.gov/dar

LAY NETTING

Notes:



POLE AND LINE FISHING



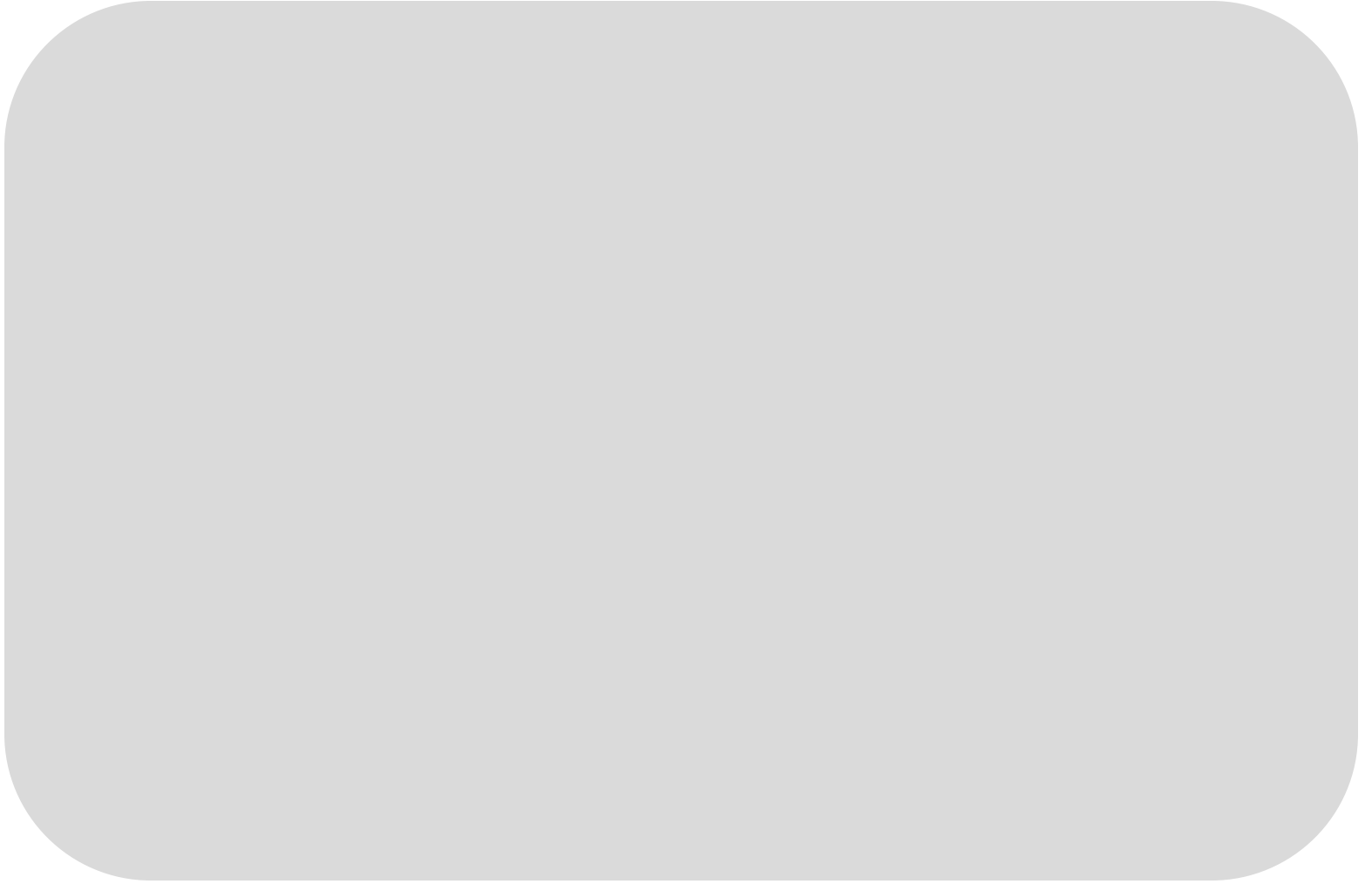
Photo credit: Anne Rosinski

Waimea Bay ONLY

To take and possess any finfish with hook-and-line from the shoreline, with not more than 2 poles per person and 1 line per pole, with no more than 2 hooks per line

POLE AND LINE FISHING

Notes:



SPEAR FISHING



3-prong/
pole spear



Spear gun

Photo credit: David Sakoda

State Rules

Spears are allowed for all fishes, not allowed for any crustacean (lobsters, crabs). Spearfishers must mark their position with a dive flag while diving in navigable waters, and may not surface more than 100 ft from dive flag (except in emergency). Spearfishers must follow all other fishing rules.

West Hawaii Regional FMA ONLY

Illegal to engage in SCUBA spearfishing, possess both SCUBA gear and a spear at the same time, or possess SCUBA gear and any specimen of spear aquatic life at the same time

SPEARFISHING

Notes:

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AQUARIUM COLLECTING



State Rules

Must have state Aquarium Permit, may use fine mesh nets (except thrownets), non-commercial aquarium collectors are limited to a combined total of 5 fish or aquatic life per person per day

West Hawaii Regional FMA- including Puako-'Anaeho'omalua and Ka'upulehu Fisheries Replenishment Area

Must have West Hawaii aquarium permit in addition to state permit
Collectors may only take certain 'white list' species, full list and restrictions available at Kona DAR office
Must register vessel with DLNR and display letters "AQ" on both sides

Fly stiffened flag with letter "A"

Display dive flag when divers are in the water

Illegal to possess aquarium collecting gear, or take or possess any specimen of aquatic life for aquarium purposes between sunset and sunrise, without a valid aquarium permit or in violation of its conditions, or while on a vessel that does not conform to registration requirements.

AQUARIUM COLLECTING

Notes:

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Gear and Method Restrictions



Kahekili HFMA ONLY

To feed or deliberately introduce any attractant, directly to or in the vicinity of any marine life, except while fishing for permitted marine life.

Puako Bay and Puako Reef FMA and Puako-‘Anaeho‘omalulu - FRA

Illegal to engage or attempt to engage in fish feeding

FISH FEEDING

Notes:

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OTHER FISHING METHODS

Explosives



Poisons



Firearms



State Rules

Firearms: Illegal to pursue, take, or kill any fish, crustacean, mollusk, turtle, or marine mammal with firearms, except tuna and billfish that have been gaffed, and sharks

Explosives, electro-fishing devices, chemicals, poisons, and intoxicants: Illegal to fish with, attempt with, or to possess on or near the shore where fish can be taken

OTHER FISHING METHODS

Notes:

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PERMITS AND LICENSES

Definition	Why?	Hawaiian Method	Example
Documents needed for certain ocean activities	To manage the number of people participating in activities that affect marine resources	<i>Ali'i</i> limits on who could harvest, use certain gear, fish certain areas and species	To collect coral for a research project, a person needs a Special Activity Permit



<http://dlnr.hawaii.gov/dar/licenses-permits/>

Relevant Permits and Licenses	Who needs this?	Cost	Where can I get one?
Aquarium Permit	Anyone person using fine mesh net to collect marine (or stream) life for an aquarium	None	Online or at DAR office
Special Activity Permit	Any individual associated with any research, educational, or management institution to collect aquatic life, or use certain fishing gear or methods, that are prohibited or restricted by regulations	None	At DAR office or by mail
Commercial Marine License	Anyone taking marine life for commercial purposes	Varies	Online or at DAR office
Bait License	Commercial fishers using a small mesh net to take certain bait species including nehu and `lāo for use as live bait	\$50	Online or at DAR office

PERMITS AND LICENSES

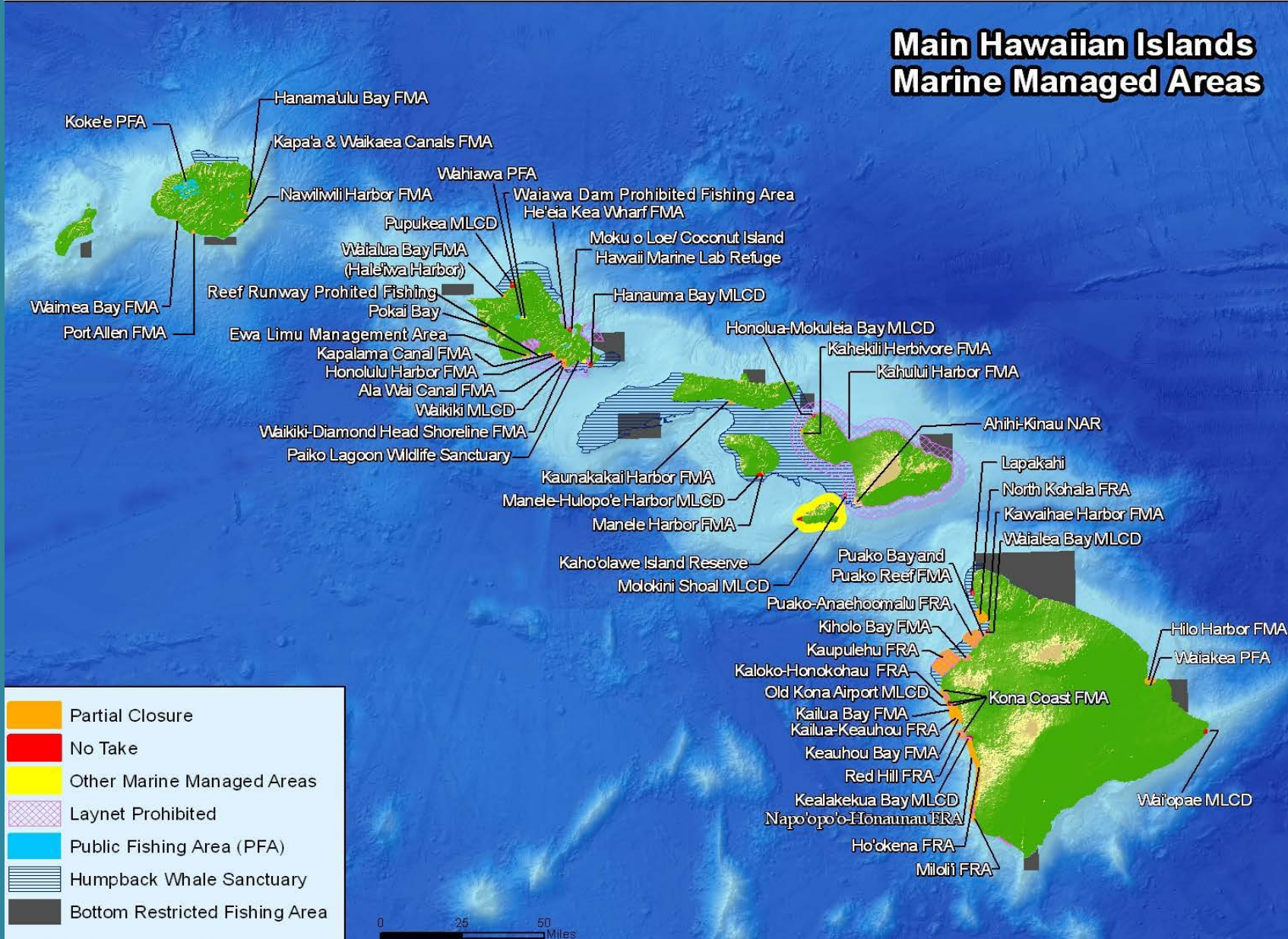
Notes:



Marine Managed Areas (MMAs)

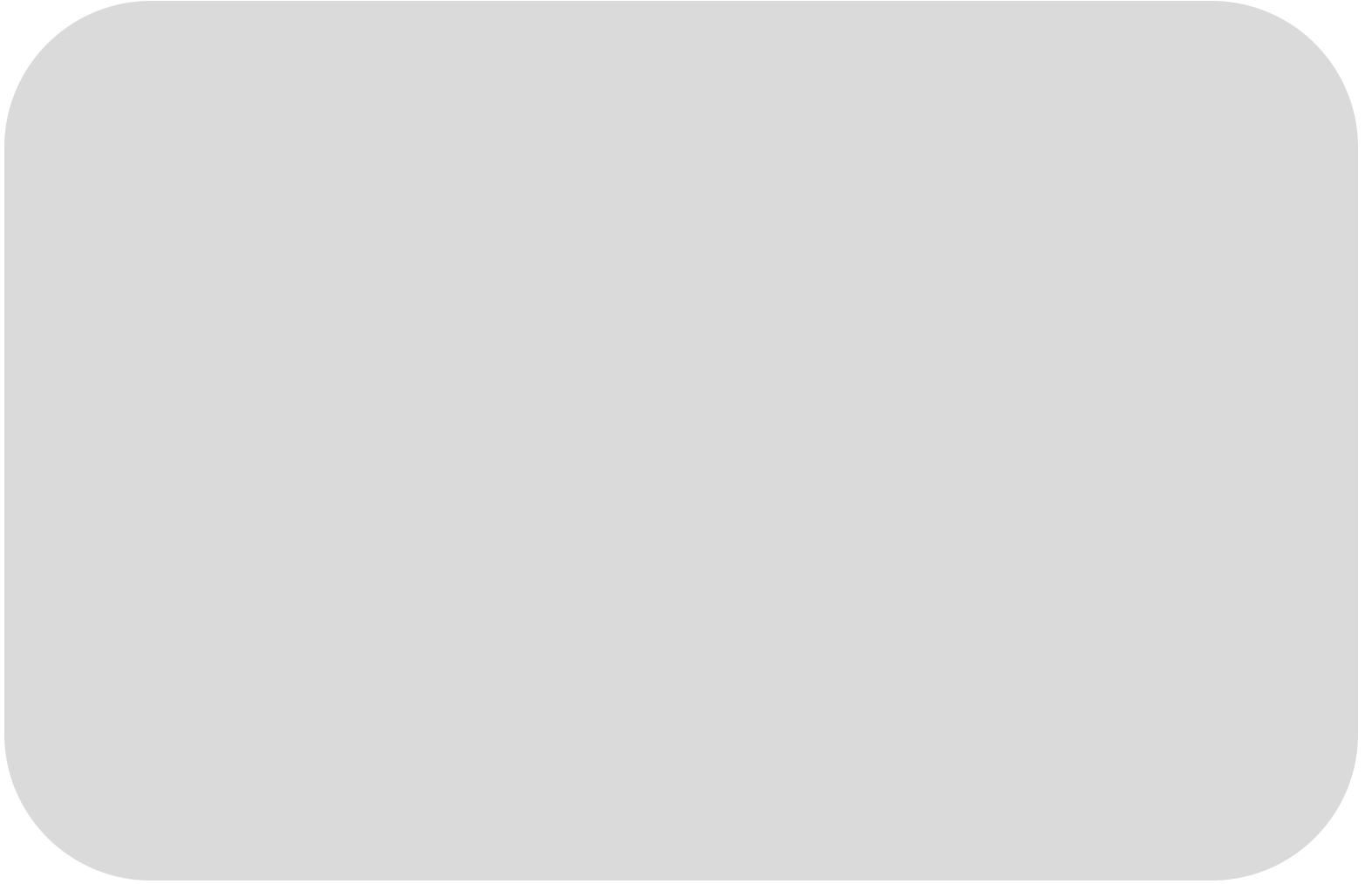
Definition	Why?	Example
An area of the ocean with specific rules	To protect or enhance the natural and cultural resources or to reduce conflict about the area	You cannot fish within the boundaries of the Pūpūkea MLCD

Main Hawaiian Islands Marine Managed Areas



Marine Managed Areas (MMAs)

Notes:





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