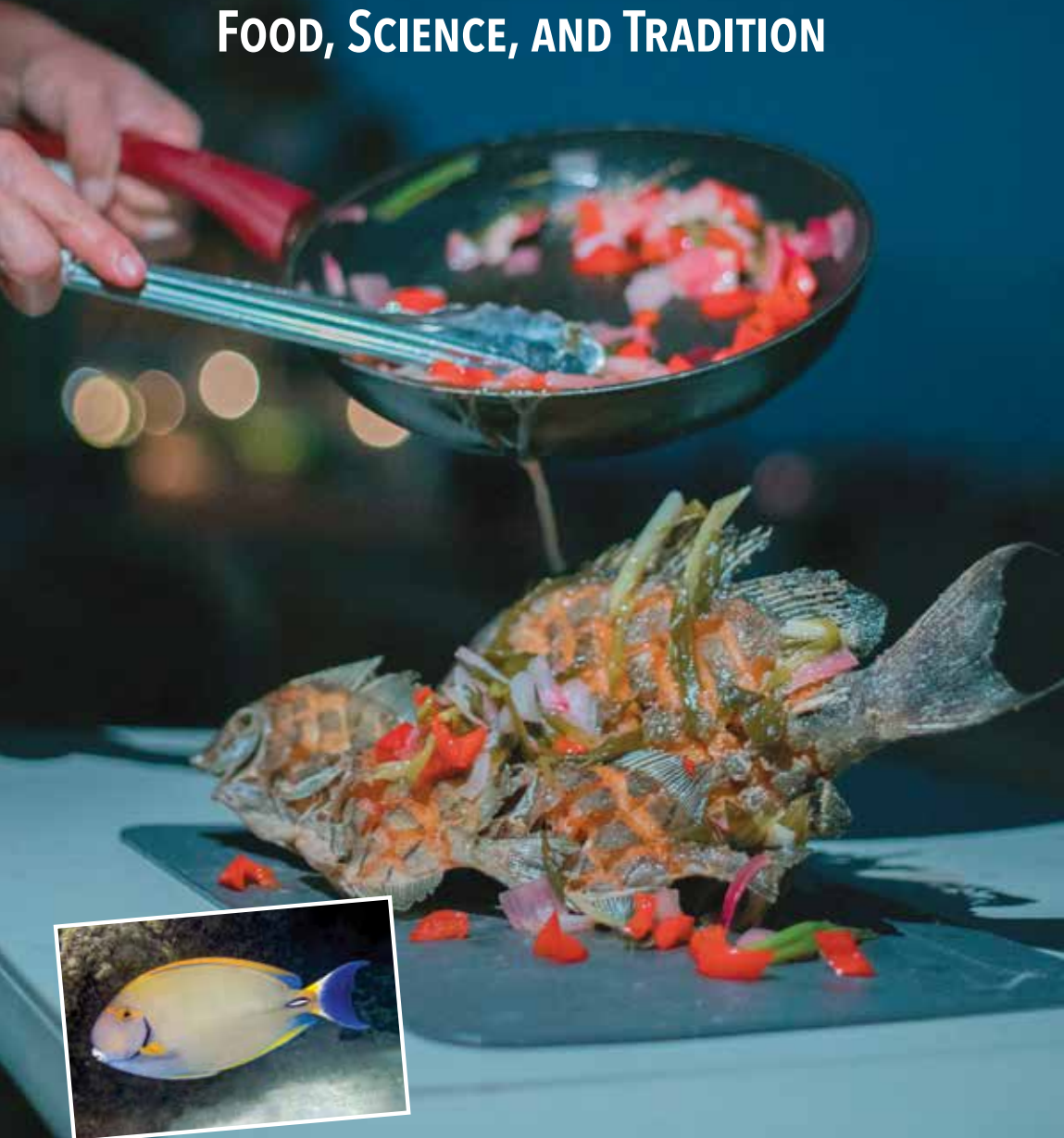


HAWAII'S REEF FISH

FOOD, SCIENCE, AND TRADITION



CASSANDRA PARDEE and CRAIG OMORI

HAWAII'S REEF FISH

FOOD, SCIENCE, AND TRADITION

HAWAII'S REEF FISH

FOOD, SCIENCE, AND TRADITION

Cassandra Pardee and Craig Omori

With *Fish Prep 101* by Bricyn Kale
and Recipes from the Lawai'a of Hawai'i



© 2023 Cassandra Pardee

All rights reserved. No part of this book may be reproduced in any form or by any electronic or mechanical means, including information retrieval systems, without prior written permission from the publisher, except for brief passages quoted in reviews.

ISBN 978-1-958701-03-4

Library of Congress Control Number: 2023908132

Front cover photos: Bricyn Kale and Keoki Stender (inset)

Back cover photos: Gen Iinuma and Raymond Boland (inset)

Design and production

Ingrid Lynch

Legacy Isle Publishing

1000 Bishop St., Ste. 806

Honolulu, HI 96813

Telephone 1-808-587-7766

Toll-free 1-866-900-BOOK

www.legacyislepublishing.net

info@legacyislepublishing.net

Printed in Korea

This book was a community effort. It was created by Poseidon Fisheries Research and made possible through a NOAA Marine Education and Training Grant (NA21NMF4520517).



NOAA
FISHERIES

Mālama i ke kai, a mālama ke kai ia 'oe

This cookbook is dedicated to all of Hawai'i's lawai'a who fish to connect with their 'ohana, to connect with their kūpuna, and to connect with the kai that connects us all. Mahalo nui loa for sharing your recipes with me. Special thanks to my kumu Gen Inuma for taking me under your wing and teaching me how to spearfish.

—*Cassandra Pardee*



Photo by Andy Yank

Contents

About the Authors	10
Useful Information for This Book	11
Tips for Intuitive Cooking	11
Background on the Fish Information	12
Fish Prep 101	13
Beginner Kine Fish: Kole and Manini	16
Manini Fast Facts	16
Kole Fast Facts	16
Fried Kole/Manini	18
Palani and Pualu	21
Palani Fast Facts	20
Pualu Fast Facts	20
Fire-Grilled Palani/Pualu	22
Palani Ceviche	23
Beer Battered Palani	24
Palani Chowder	26
Palani Soup	27
Poisson Cru	28
Sweet and Sour Palani/Pualu	30
Kala	32
Kala Fast Facts	32
'Ōpelu Kala Fast Facts	32
Grilled Kala	34
Kala with Oyster Sauce	35
Kala Ceviche	37

Uhu	38
Uhu 'ele'ele/ Uhu pālupaluka Fast Facts	38
Pōnuhunuhu Fast Facts	38
Uhu uliuli/ Uhu 'ahu 'ula Fast Facts	38
Bullethead Parrotfish Fast Facts	40
Black Bean Ginger Garlic Uhu	41
Baked Uhu, Three Ways	42
Uhu Katsu	45
Sweet and Sour Uhu	46
Steamed Uhu	48
Pananu Potpie	50
'A'awa	52
'A'awa Fast Facts	52
Butter 'A'awa	54
Stuffed and Baked 'A'awa	54
Orange 'A'awa	55
Nenu	56
Nenu (Highfin) Fast Facts	56
Nenu (Lowfin) Fast Facts	56
Nenu Poke Bowl	58
Nenu Katsu	60
Nenu Burgers	62
Lemongrass Roasted Nenu	63

Weke	64
Weke Fast Facts	64
Panko Weke with Korean Sauce	66
Chinese Style Steamed Weke	66
Steamed and Stuffed Weke, Two Ways	67
Big Goats: Kūmū, Weke 'ula, Moano, Munu, Moana kali	68
Kūmū Fast Facts	68
Weke 'ula or Weke nono Fast Facts	68
Moano Fast Facts	70
Munu Fast Facts	70
Moana kali or Moano kea Fast Facts	71
Stuffed Goatfish, Ti Leaf Wrap	72
Butter Garlic Goat	73
Lemon Shoyu Goatfish	74
Sweet Ginger Joes	75
½ and ½ Kali	76
Chinese Style Goatfish	78
Red Fish	80
'Ala'ihī Fast Facts	80
'Āweoweo Fast Facts	80
Ū'ū Fast Facts	82
Poisson Cru	83
Fried Red Fish	84
Steamed 'Ala'ihī	86
Āholehole	88
Āholehole Fast Facts	88

Steamed Āholehole	90
Chinese Style Āholehole	91
Fried Āholehole	92
Mū	94
Mū Fast Facts	94
Spicy Mū Poke	96
Steamed Mū with Black Bean Sauce	98
Spicy Jerk Mū	100
Mū Sliders	101
Ulua and 'Ōmilu	102
Ulua aukea Fast Facts	102
'Ōmilu Fast Facts	102
Papa ulua/Island Jack Fast Facts	104
'Ōmilu Lau Lau	105
Lily's Crispy Panko 'Ōmilu Fish Sticks	105
Lemon Grilled 'Ōmilu	106
Smoked Ulua	108
Seared Ulua MacNut Pasta	109
The Invasives: Ta'ape, To'au, and Roi	110
Roi Fast Facts	110
Ta'ape Fast Facts	110
To'au Fast Facts	112
Fried Invasives	113
Seared To'au	114
Invasive Nuggets	115
Bibliography	116

About the Authors



Cassandra Pardee

Cassie is a fisheries biologist and co-founder of Poseidon Fisheries Research in Hawai‘i. She loves working with the fishing community to determine life history information on popular coral reef fish. She has worked with fishers in Mexico, in the Philippines as a Peace Corps Volunteer, in Hawai‘i, and in American Samoa. Cassie is also a mom to a wild toddler and a rambunctious dog. Her loving husband serves in the US Coast Guard. Cassie loves trying new recipes, ocean swimming, snorkeling, and as a novice spear fisher, bringing home reef fish to cook with the recipes shared in this book.



Craig Omori

Craig is the culinary arts program coordinator at the University of Hawai‘i Maui College, where he has been a chef instructor for 12 years. He is also the faculty advisor for the campus culinary club, ‘Umeke Kā‘eo. Craig grew up in the Kaimukī area of O‘ahu and has enjoyed fishing (shore and spear) throughout his life. As a chef and instructor, Craig has developed and executed hundreds of fish dishes and he treasures the traditions and cultures that are passed down through generations via recipes such as the ones in this cookbook.

Useful Information for This Book

All recipes came from people in Hawai‘i. People submitted recipes from each of the main islands: O‘ahu, Maui, Kaua‘i, Moloka‘i, Lāna‘i, and Hawai‘i. Each recipe has the name and a short mini bio of the person who submitted the recipe.

Tips for Intuitive Cooking

Many of the recipes in this book, along with those taught to us by our parents or grandparents, are written without the amounts of ingredients listed. My popo (grandma in Chinese) would tell me to put a “bunch” of this and a “pinch” of that into the foods we were making. I’d watch as she would pour liquids out of bottles straight into the pot without measuring, and the results would always come out perfectly. As an instructor, I try to teach our students how to cook intuitively like my popo did, and it all comes down to our understanding of the ingredients we are using.

- Flavor volume: Imagine every individual ingredient has a “flavor volume” just like one on a stereo/radio. Ingredients that would be considered having low volume would be ones like potatoes, rice, lettuce, and cabbage. Ingredients such as onions, celery, carrots could be considered having medium volume. High volume ingredients would be ones like ginger, garlic, anchovies, and chili peppers. The same can be said for liquids that we use. Water would be a 0 in regard to flavor, while high volume liquids might be ones like vinegar, fish sauce, and shoyu. Liquids like wines and beer would fall somewhere in between. When recipes do not list amounts, know that we can be generous with low volume ingredients but should be more cautious when using high volume ones.
- When in doubt, taste it by itself: There are many occasions when we are cooking that we are introduced to a new ingredient we’ve never used before. To prevent using too much or too little, taste a small portion of that ingredient to assess its “volume”.
- Season carefully: Seasoning refers to the addition of ingredients that enhance the flavor of the existing dish. This includes adding salts (could be in the form of shoyu, fish sauce, oyster sauce, etc.), sugars (honey, fruit preserves,

or agave), and acids (vinegars, citrus juices). Know that these items are typically “high” volume ones and cannot be removed from a dish once added. I recommend adding seasonings in small portions at a time and tasting your foods as you do so.



Some of the recipes were tested at University of Hawai‘i Maui College Culinary Arts Program and ‘Umeke Kā‘eo: UHMC Gastronomy Club. If you see the icon on the left, it means the recipe was tested in the test kitchen.

Background on the Fish Information

When possible, fish life history traits are from Hawai‘i, but many reef fish are missing age, growth, and maturity information for Hawai‘i as a region. Age and maturity can change by region, so the size at maturity of fish in Japan is not necessarily the same for a fish in Hawai‘i. If available, I put the life history information from other regions, but I always mention if the information comes from a different area.

Size at maturity is when 50% of the population is mature; this is the size that is most often used in fishery science and management to describe and compare fish.

a If you see this symbol by a species name, it means the species is endemic to Hawai‘i—meaning it is found only in Hawai‘i and nowhere else.

The traditional Hawaiian knowledge comes from Margaret Titcomb’s book *Native Use of Fish in Hawaii*.

Because I am a scientist first, all the life history information is cited, and you can look up the article in the bibliography at the end of the book.

Fishing regulations in this book are current as of 2023. For updated fishing regulations go to the DAR website: dlnr.hawaii.gov/dar/fishing/fishing-regulations.

State records are constantly changing. You can find the most up-to-date state records at <http://www.hawaiifishingnews.com/records.cfm>.

All the photos come from people in Hawai‘i and have the name and island of the photographer next to each photograph.

Fish Prep 101

This section was written by Chef Bricyn Kale of Hawaii's Only. You can follow more recipes from Chef Kale on his YouTube channel: <https://www.youtube.com/hawaiisonly>.

“I live on O’ahu. I love the ocean because as a young child, it was my favorite hobby to do with my dad. As I got older, I went through hard times and had zero money. I turned to the ocean to provide meals for me and my family. For that I’m forever thankful and share a special bond with the ocean.”

There are different ways to clean, skin, and filet fish. Here is just one of the basic ways to get you started.

CLEANING FISH:

1. Remove scales. Use spoon, fork, knife, shell, or flat rock. Scrape scales from tail towards the head. When pau, rinse scales off fish.



2. Slice open stomach. Start at anal puka and slice all the way towards lips.



3. Spread open stomach and gill plates. Grab gills, rip out. The rest of the stomach and internal organs should follow. If the stomach breaks from the gills, that's okay. Just use your fingers or spoon to scrape out the remaining organs. Rinse fish out.



FILET FISH: To filet fish, there are four basic cuts and one last slice to remove the filet off bone. After step three, you will have an option to remove the skin from the fish. There are many variations to filet or remove skin. This is just one simple way to do it.



1. Insert first cut of the outline.
From top of head next to gill plate,
slice down towards belly.



2. Slice from head along
pectoral fin down towards tail.



3. Slice from belly (near the now cut anal puka) towards tail.

4. Optional: At this time, you can remove skin.



a) Tear back the corner of the skin near the head of filet.



b) Tear skin off while holding head down



5. Take knife, insert at tail. Keep knife flat, riding alongside tail bone. Cut from tail to head.



Filet will come off the bone and look like picture above. Repeat process on other side.

MANINI FAST FACTS

- **Regulations:** Minimum size, 5 inches
- **Size at maturity:** Between 4.8–6.5 inches depending on the area
- **Maximum age:** Unknown
- **State record:** 1.98 pounds, Jonah Ng, O'ahu, 04/02/2021

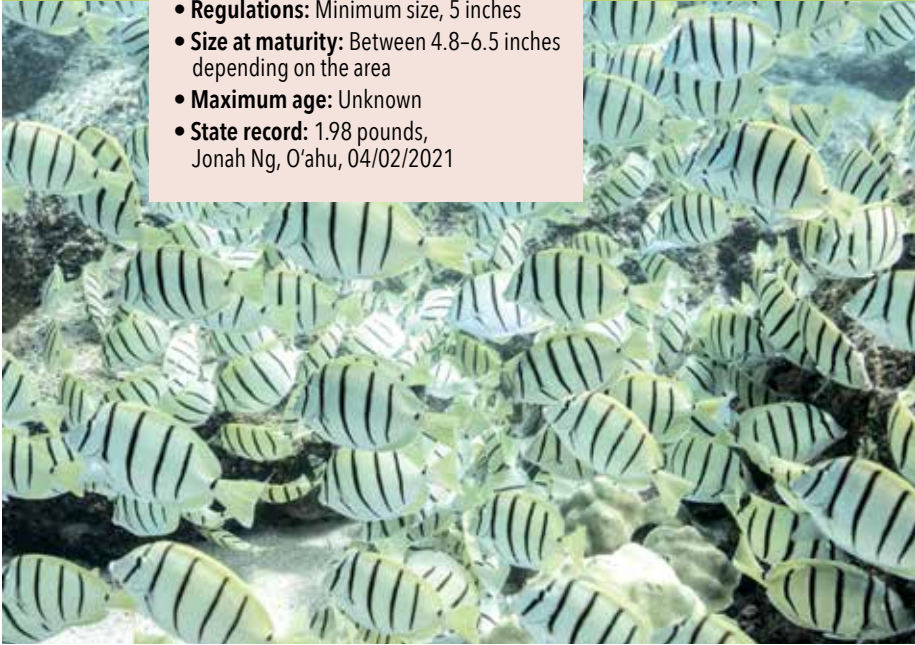


Photo by Toby Matthews, O'ahu

Manini/Acanthurus triostegus

KOLE FAST FACTS

- **Regulations:** None
- **Size at maturity:**
Females, 3.3 inches
Males, 3.9 inches
- **Maximum age:** 18 years
- **State record:** 1.05 pounds, Tyston Enos, Hawai'i Island, 12/06/2008



Kole/Ctenochaetus strigosus

Photo by John Wiley, O'ahu

Beginner Kine Fish: Kole and Manini

Scientific and common names: *Ctenochaetus strigosus*/Kole/Goldring Bristletooth^a
Acanthurus triostegus/Manini/Convict Surgeonfish

Fishery: Kole and Manini represent the two most harvested herbivorous reef fish in Hawai‘i.¹ Both Manini and Kole are commonly targeted by spear fishers as they are abundant and easy to capture.

Regulations: Kole: None
 Manini: Minimum size, 5 inches²

Life history: Kole and Manini generally grow to about 10 inches.³ Kole reach maturity around 3.3 inches for females and 3.9 inches for males.⁴ Kole can live up to 18 years.⁴ Manini reach maturity at a larger size, between 4.8–6.5 inches depending on the area.⁵ Both species have peak spawning from March to June.⁶ Peak spawning activity for Manini occurs around the new and full moon.⁵

Ecology: Manini are the most abundant surgeonfish in Hawai‘i. They serve as grazers, keeping seaweeds and algae cropped down to keep algae from overgrowing areas where corals grow.^{7,8} Kole are detritivores, feeding on sediments and decaying plant and animal matter and preventing those sediments from covering coral.⁸

In Hawaiian culture: When building a house, people would bury Kole in the ground where the east-facing posts would go.⁹

Traditional cooking methods: Manini was one of the most popular fishes among both chiefs and commoners. Both Kole and Manini were eaten raw: “You have never eaten Manini until you have eaten it whole, that is, not cleaned of entrails.”⁹

Fried Kole/Manini

Recipe provided by
Grant Pagarigan, O'ahu

“I'm a Coast Guardsman and Honolulu First Responder. As an aspiring waterman, I enjoy surfing, spearfishing, boating, and learning all types of rod and reel fishing. I love fishing as a hobby and as a source of natural, whole foods for my family.”

Alternative recipe provided
by Gil Perez, Hawai'i Island

“Spearfishing is both a life-style and for consumption.”



Photos by Grant Pagarigan, O'ahu

Scored Kole

Ingredients

- Kole or Manini, gutted and scaled
- Oil for frying
- Spices: Hawaiian salt, garlic salt, pepper, paprika
- Shoyu, chili pepper water, or vinegar (for dipping)

Preparation

1. Score fish on both sides.
2. Season with your choice of spices: Hawaiian salt, garlic salt, pepper, paprika.
3. Fry in a wok with hot oil.
4. Mix 1 tablespoon of oil from the pan with shoyu and/or chili pepper water/vinegar for dipping the cooked fish in.

Alternative ingredients

- 6 cloves garlic, chopped
- 1 teaspoon sugar
- ¼ cup of water
- Green onions
- Rice

Alternative Preparation

1. After step 3 (left): Add garlic, shoyu, sugar, and water in the pan with the oil that you used to fry the fish.
2. Simmer about 20–25 minutes to reduce.
3. Pour sauce over fish, add green onions, and serve over rice.



Fried Kole



PALANI FAST FACTS

- Regulations: None
- Size at maturity:
Females, 10 inches
Males, 8 inches
- Maximum age: 30 years
- State record: 13.2 pounds,
Nathan Hillen, Maui,
11/22/2011

Photo by Keoki Stender, O'ahu

Palani/*Acanthurus dussumieri*

PUALU FAST FACTS

- Regulations: None
- Size at maturity:
Yellowfin: Females, 12 inches
Males, 10 inches
Ringtail: Females, 9 inches
Males, 8 inches
- Maximum age:
Yellowfin: 29 years
Ringtail: 26 years
- State record: 10.75 pounds,
Jonathan Barretto, O'ahu,
12/14/2004



Photo by Raymond Boland, O'ahu



Photo by Keoki Stender, O'ahu

Top: Pualu (Yellowfin)/*Acanthurus xanthopterus*

Bottom: Pualu (Ringtail)/*Acanthurus blochii*

Palani and Pualu

Scientific and common names: *Acanthurus blochii*/Pualu/Ringtail Surgeonfish
Acanthurus dussumieri/Palani/Eyestripe Surgeonfish
Acanthurus xanthopterus/Pualu/Yellowfin Surgeonfish

Fishery: Palani and Pualu represent the largest commercial catch in pounds for surgeonfish with over 370,000 pounds of fish landed between 2010–2019.¹⁰ They are primarily caught with spear, seine net, and gill net.

Regulations: None

Life history: Palani and Pualu are large-bodied surgeonfish reaching lengths between 17–24 inches.³ They have long lifespans, living up to 25–30 years.¹¹ The size at maturity varies between 8–10 inches depending on the species, with females reaching maturity at a larger size than the males.¹¹

Ecology: Found over reefs and sandy bottoms feeding on filamentous algae and cleaning the bottom of sediments and decaying plant and animal matter.¹²

In Hawaiian culture: “Ku’u i’a i ka lani” (My fish whose odor reaches heaven). To get rid of the odor, lay the fish across the palms of the hands with the fish head in the left hand and the tail in the right. Inhale over the fish from left to right, and then expel the breath violently. Turn the fish over and repeat.⁹

The mythical origin of how the Palani got its smell comes from the story of Ke’emalu. As she floated in the sea, Ke’emalu called to her ancestor Palani-nui-mahao’o. While she was riding on Palani-nui-mahao’o’s back, she had a strong urge to pee. She couldn’t help it and peed all over her ancestor. Palani-nui-mahao’o was very angry and left Ke’emalu out at sea.⁹

Traditional cooking methods: Eaten raw, boiled, or cooked in a calabash with the skin always removed.⁹

Fire-Grilled Palani/Pualu

Recipe provided by La'akea Day, Maui

“I like fishing because I was born into it. I used to watch my dad provide from mauka to makai for the 'ohana. Now that I'm older, it's my turn to take over and be a provider for my 'ohana. U'a lawa mākou i ka pōhaku. (We're satisfied with stones. We don't need money or material items. We can live off the land).”



Photo by Cassandra Parolee, Maui

Grilled Palani

Alternative recipe provided by Blake Fisher, O'ahu.

“I love fishing and diving because it lets me escape to another world where my senses and my focus are heightened by a singular purpose. I came up with the recipe as I would teach my friends and family the joys of diving to let them taste the fruits of their labors on a relatively easy fish to get.”

Ingredients

- Palani or Pualu, gutted and scaled
- Chili pepper water, shoyu, and vinegar (for dipping)

Preparation

1. Burn down wood or charcoal until just hot coals remain.
2. Grill fish till skin crisps.
3. Peel back skin and peel the meat off the bones. Dip meat in shoyu, vinegar, and chili pepper water.

This is a very popular method of cooking. Many people had similar recipes with different dipping sauces.

Alternative ingredients

- Butter or mayonnaise (enough to cover fish)
- ½ onion, sliced
- Lemon slices

Alternative Preparation

1. Burn down wood or charcoal until just hot coals remain.
2. Grill fish close to coals until the bottom side skin begins to blister. Flip.
3. Peel back blistered skin and baste meat with butter or mayonnaise. When the other side blisters, flip the fish and and baste the second side. Grill onions until soft and aromatic.
4. Top fish with grilled onions and a twist of lemon.

Palani Ceviche

Recipe provided by Darrell Tanaka, Maui

“I’m a lifelong fisherman on Maui. Fishing is for putting food on our table. I utilize Palani because other more desirable reef species have been depleted, and this is one way we can let more desirable species rest and repopulate. Palani is the other white meat.”

Ingredients

- Palani or Pualu, fileted and skinless
- Enough lime juice to cover half of the fish
- Handful of cilantro
- 1-2 tomatoes, diced
- 1 cucumber, diced
- ½ red onion, chopped
- Salt, to taste

Preparation

1. Cut filets into small, thin pieces. Avoid having the knife touch any part of the stomach lining and discard all stomach lining or it will stink up the dish.
2. Put pieces in a bowl.
3. Mix in lime juice, cilantro, tomatoes, cucumbers, and red onions.
4. Add salt to taste, mix, and serve.



Photos by Craig Omori, Maui

Frying Beer Battered Palani

Beer Battered Palani

Recipe provided by Clyde Kaaiakamanu, O'ahu

“I'm from a little place on O'ahu called Hau'ula. Fishing, to my family, is a way of life. It's a huge part of our culture, and yes, we're willing to share the mana'o to keep our waters filled with fish to feed everyone.”



Beer Battered Palani

Ingredients

- 1 pound Palani or Pualu, fileted and skinless
- Salt and pepper, to taste
- 1 cup flour
- 2 tablespoons garlic powder
- 2 tablespoons paprika
- ½ teaspoon cayenne pepper
- 2 teaspoons ground black pepper
- 1 egg, beaten
- 1 can or bottle of beer (or substitute club soda)
- 1 box of Jiffy cornbread mix
- Chili pepper water, optional

Preparation

1. Heat oil to 375 degrees.
2. Filet fish and cut into strips.
3. Mix all dry ingredients, minus cornbread mix.
4. Add beer or club soda to dry ingredients.
5. Mix in egg, set aside.
6. Pour cornbread mix into a bowl for dredging.
7. Pat the fish dry. Salt and pepper each side lightly.
8. Dredge the fish in the cornbread mix, then dunk it fully into the beer batter to coat and place it gently into the oil.
9. Cook 3–4 minutes per side, until batter is slightly golden.
10. When the fish is done, place on a paper towel to cool.
11. Chili pepper water is a perfect condiment for this recipe.

Palani Chowder

Recipe provided
by Xavier
Solmirin, O'ahu



“I love spear-fishing because I love to bring food from the ocean to the table for my 'ohana. And the rewards are good grinds and the excitement from my kids and wife when I do catch. I grew up with my dad and unkos bringing fish home, and now it's my turn.”



Photo by Craig Omori, Maui

Palani Chowder

Ingredients

- 1 pound Palani or Pualu filet, skinless, cut in to ½-inch cubes
- ¼ cup butter
- 4 strips of bacon (raw), chopped
- 2 cloves garlic, minced
- 1 cup onion, diced
- ½ cup celery, diced
- 6 tablespoons flour
- 1 bay leaf
- 2 large Yukon gold potatoes, diced
- 1 quart chicken broth or stock
- 12 ounces half-and-half
- Salt, to taste
- Toppings, optional: chives and bacon bits

Preparation

1. Over medium heat, melt butter in a large sauce pot and add bacon. Cook until bacon fat is rendered, about 5 minutes.
2. Add onions and garlic and cook until translucent.
3. Add flour to the pot and evenly mix it into the vegetables.
4. Add potatoes, bay leaf, and chicken broth and simmer until potatoes are fork tender.
5. Add half-and-half and cook on low, stirring to prevent burning, for about 15 minutes.
6. Add Palani cubes into the soup and let simmer for 15–20 minutes, stirring occasionally.
7. Once fish is cooked, adjust seasoning as needed and serve with optional toppings if desired.

Palani Soup

Recipe provided by Kalani Johnston, Moloka'i

“I was born and raised on Moloka'i. My mom is one of the last true, pure, 100 percent Hawaiians left. We lived a hard lifestyle, so we use what we have and utilize all of the fish. I have a saying that I tell my kids and now my eight mo'opuna: 'Sometimes it's good to be poor, so you can humbly live life. How much do you really need?' God bless!”

Ingredients

- Palani or Pualu meat, cut into medium chunks
- 1 whole onion, sliced
- 2 whole ripe tomatoes, diced
- 2 fingers of ginger, sliced thin
- 4 whole garlic cloves
- 1 bundle of lemongrass, tied whole
- 2 tablespoon fish sauce such as Patis
- 5 cups water
- 2 teaspoons brown sugar
- 2 pinches Hawaiian salt
- 2 tablespoons shoyu

Preparation

1. Bring water to a boil, add garlic and ginger, and cook for 4 minutes.
2. Reduce heat to medium. Add salt, tomatoes, onions, and lemongrass and simmer for about 4 minutes.
3. Add fish sauce to taste, along with sugar and shoyu.
4. Cut up Palani into medium chunks, including the head, skin and 'ōpū (belly) for more flavor.
5. Taste broth. If it's just right, then add fish chunks. Cover pot, lower heat to medium low, and cook for 5 minutes without stirring.



Photo by Kamalu Kaluiohalani, O'ahu

Poisson Cru

Poisson Cru

Recipe provided by Kamalu Kaluhiokalani, O'ahu

“By no means am I an expert diver, but I love the ability to provide food for my family. I enjoy finding great recipes for each fish species.”

Ingredients

- 1 pound Palani or Pualu filet, cubed
- 1 cup cucumber, diced
- 1 cup sweet onion, diced
- 1 cup cherry tomatoes, diced
- Juice of 2-3 lemons
- ¾ can of coconut milk
- 1 teaspoon salt
- Chili pepper, chili pepper water, or Cajun seasoning

Preparation

1. Soak fish and diced vegetables in lemon juice for a couple hours.
2. Right before serving, add coconut milk and salt.
3. Eat with some Hawaiian chili pepper, chili pepper water, or Cajun seasoning.

Friggin' 'ono! Takes away most of the fishy flavor.



Photo by Bircyn Kale, O'ahu

Sweet and Sour Palani

Sweet and Sour Palani/Pualu

Recipe provided by Chef Kale of Hawaii's Only, O'ahu

“I live on O'ahu. I love the ocean because as a young child, it was my favorite hobby to do with my dad. As I got older, I went through hard times and had zero money. I turned to the ocean to provide meals for me and my family. For that I'm forever thankful and share a special bond with the ocean.”

You can follow more recipes from Chef Kale on his YouTube channel: <https://www.youtube.com/hawaiisonly>

Ingredients

- 3 pounds Palani or Pualu, gutted and scaled (adjust recipe depending on fish size)
- Oil for frying
- 1 white onion, chopped
- 1 bell pepper, chopped
- 1 carrot, julienned or thinly cut
- Sliced green onion, 1-inch cuts
- For sweet and sour sauce: equal parts water, sugar, and vinegar

Preparation

1. Preheat wok to 350 degrees.
2. Score the Palani with long strokes from head to stomach and long strokes from head to tail to create a checkerboard effect (this allows flesh to be exposed and crisp up in little sections).
3. Deep-fry in wok for 7–9 minutes per side.
4. Drain fish on rack or paper towel.
5. While your fish cooks, we can work on sauce.
6. Combine equal parts water, sugar, and vinegar.
7. Cook carrots on medium with a little oil or butter for 3–5 minutes.
8. Add white onion and cook 3–5 minutes.
9. Add bell pepper and cook 2–3 minutes.
10. Add in green onion and turn off heat.
11. Place fish on big plate or platter, topped with veggies and sweet and sour sauce.
Serve with rice.

KALA FAST FACTS

- **Regulations:** Minimum size, 14 inches
- **Size at maturity:**
Females, 14 inches
Males, 12 inches
- **Maximum age:** 50 years
- **State record:** 12.7 pounds, Carl Hillen, O'ahu, 12/15/2005



Kala/Naso unicornis

Photo by Keoki Sterner, O'ahu

'ŌPELU KALA FAST FACTS

- **Regulations:** Minimum size 16 inches
- **Size at maturity:** 20 inches*
- **Maximum age:** 44 years*
- **State record:** 12.8 pounds, Layne Kimura, Maui, 12/07/2013

* Age and maturity information from Australia, and may differ in Hawai'i.

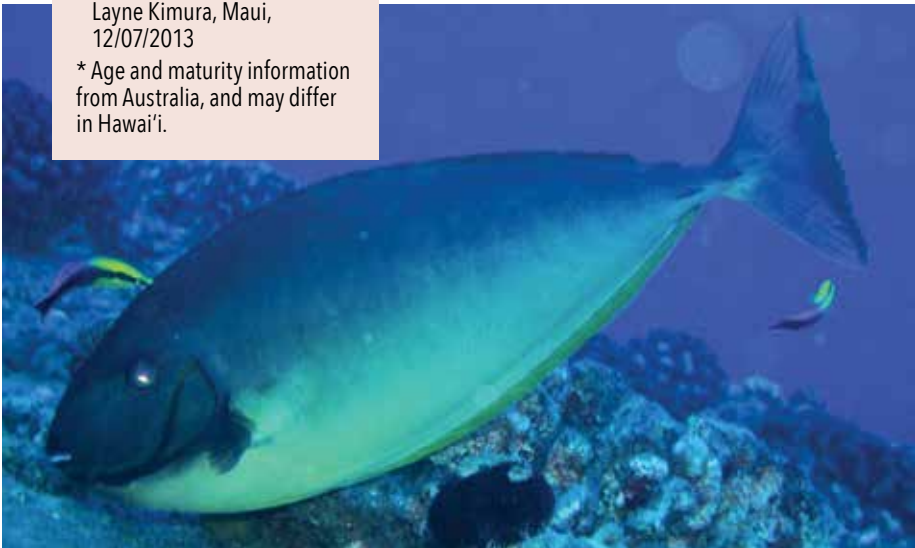


Photo by Raymond Boland, O'ahu

'Ōpele Kala/*Naso hexacanthus*

Kala

Scientific and common names: *Naso unicornis*/Kala/Bluespine Unicornfish
Naso hexacanthus/'Ōpelu Kala/Sleek Unicornfish

Fishery: Kala is a very popular noncommercial herbivorous fish, and is mainly caught using gill net and spear.¹ It also is commonly targeted in the commercial fishery with an average of 15,000 pounds per year being commercially caught from 2015–2019. However, commercial catch of Kala has been decreasing since 2012. A stock assessment from 2016 said that Kala was most likely experiencing overfishing.¹³

Regulations: Kala: Minimum size, 14 inches
 'Ōpelu Kala: Minimum size, 16 inches

Life history: Kala can reach up to 27 inches in Hawai'i,³ and live more than 50 years.¹⁴ Females reach maturity around 14 inches while males reach maturity at a smaller size of 12 inches.¹⁵ Kala has a spawning season from May to June.¹⁵

Ecology: Kala graze on large leafy macroalgae like limu kala (*Sargassum sp.*), and play an important role in keeping algae grazed down, allowing corals to grow.^{15,16} They are usually found in shallow water and can be found in schools or solo.⁷

In Hawaiian culture: The skin of Kala is so tough that it was used for the tops of small coconut shell knee drums.⁹ Kala has a strong odor like Palani and Pualu, and to get rid of the odor it was treated similarly; see Palani section for details.

Traditional cooking methods: The fish was so abundant that it was commonly eaten, usually broiled or dried with sea salt.^{9,17}

Grilled Kala

Recipe provided by Kristy Kahananui (Medeiros), Kaua'i

“We are a longtime Kaua'i fishing family. My father, brothers, and nephew all commercial fish for a living. I love everything about it! The ocean, the space, being able to cook what you caught and truly appreciate it. Even when we don't catch anything, it's still a great day!”

Ingredients

- Kala, whole
- 1 part vinegar
- 2 parts shoyu
- Chili pepper water, as spicy as you like it

Preparation

1. No gut, no clean; straight on the grill. It steams itself in its own skin!
2. For dip, mix two parts shoyu with one part vinegar, adding as much chili pepper water as you want.
3. When done, peel open and eat with dip.

Alternative Ingredients

- Garlic salt
- Butter

Alternative Preparation

1. Cut slices in the skin.
2. Sprinkle with garlic salt and rub with butter.
3. Cook on the grill.



Grilled Kala

Kala with Oyster Sauce

Recipe provided by Bertram Kats Kikuchi, Maui

“I was born and raised on Maui. Been freediving since 1992. My favorite thing about freediving is the tranquility and freedom I feel when in the water. It’s a whole other world down there!”

Ingredients

- Kala, gutted and scaled
- Salt and pepper
- Oyster sauce
- Mayonnaise

Preparation

1. Cut shallow slices in skin. Season with salt and pepper, then coat with oyster sauce. (Can also mix oyster sauce and mayo and cover both sides.)
2. Grill until cooked all the way through. Serve over rice.



Photo by Craig Omori, Maui

Kala Ceviche

Kala Ceviche

Recipe provided by Norton Chan, O'ahu

“The ocean has always been part of my life. My dad took me fishing with him from when I was little and as I grew older, I started fishing with neighborhood friends. I started diving in high school and haven't stopped. I've worked a lot of my professional career as a biologist; first, at the Waikiki Aquarium and now at my current position as a coral specialist with the Division of Aquatic Resources. Fishing and diving allows me to enjoy, interact, manage, and to hopefully educate others about our marine life. Oh yeah, and I like to eat fish.”



Ingredients

- 1 pound Kala filets, skinless, cut into ½-inch cubes
- ½ red onion, sliced thin
- 2½ teaspoons salt, or to taste
- ¾ cup fresh lime juice
- 1 cup cucumber, diced
- 1 cup cherry tomatoes
- ½ cup Chinese parsley, chopped
- 2 cloves garlic, minced
- 1 avocado, diced
- Black pepper, to taste
- 1 jalapeño, minced
- Tortilla chips

Preparation

1. Combine sliced red onion, salt, and fresh squeezed lime juice in a bowl. Let it sit for a bit.
2. Add Kala meat to the bowl.
3. Add cut cucumber, tomatoes, Chinese parsley, and minced garlic, and mix.
4. Refrigerate for at least an hour.
5. Add avocado and black pepper to taste.
6. Add jalapeño for more spice.
7. Serve with tortilla chips.

UHU 'ELE'ELE/UHU PĀLUKALUKA FAST FACTS

- **Regulations:**
State minimum size, 12 inches
Maui minimum size, 14 inches
for females (Uhu pālukaluka).
No take of blue terminal-
phase male individuals
(Uhu 'ele'ele). Bag limit of
2 total, regardless of species.
- **Size at maturity:** 14 inches
- **Maximum age:** 20 years
- **State record:** 18.06 pounds,
William C. Mahin, Maui,
03/18/2001

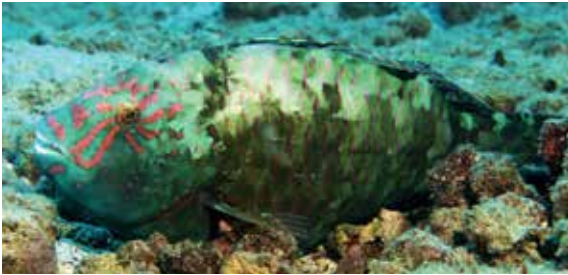


Uhu 'ele'ele (male)/*Scarus rubroviolaceus*

Photo by Raymond Boland, O'ahu

PÖNUHUNUHU FAST FACTS

- **Regulations:**
State minimum size, 12 inches
Maui minimum size,
10 inches for small bodied
species. Bag limit of 2 total,
regardless of species.
- **Size at maturity:** 10 inches
- **Maximum age:** 6 years
- **State record:** 8.25 pounds,
Shane Hamamoto, O'ahu,
09/16/2001



Pönuhunuhu (male)/*Calotomus carolinus*

Photo by Raymond Boland, O'ahu

UHU ULIULI/UHU 'AHU 'ULA FAST FACTS

- **Regulations:**
State minimum size, 12 inches
Maui minimum size, 14 inches
for females (Uhu 'ahu 'ula). No
take of blue terminal-phase
male individuals (Uhu uliuli).
Bag limit of 2 total, regardless
of species.
- **Size at maturity:** 14 inches
- **Maximum age:** 19 years
- **State record:** 14.56 pounds,
Henry S. Blas, O'ahu,
01/19/2003



Uhu uliuli (male)/*Chlorurus perspicillatus*

Photo by Keoki Stender, O'ahu

Uhu

Scientific and common names: *Scarus rubroviolaceus*/Uhu ‘ele‘ele (male);
 Uhu pālupaluka (female)/Redlip Parrotfish
Calotomus carolinus/Pōnuhunuhu/Stareye Parrotfish
Chlorurus perspicillatus/Uhu uliuli (male);
 uhu ‘ahu ‘ula (female)/Spectacled Parrotfish^a
Chlorurus spilurus/Uhu/Bullethead Parrotfish

There are three other species found in Hawai‘i, but they are not commonly captured.

Fishery: Uhu are the most commonly caught herbivore by commercial fishers, with 531,456 pounds landed between 2011–2020.¹ They are mostly caught with spears but are also targeted by surround nets and fish traps.¹

Regulations: State minimum size, 12 inches

Maui, no take of blue terminal-phase male individuals of the large-bodied species (Uhu ‘ele‘ele or Uhu uliuli). Minimum size of 14 inches for female large-bodied species of Parrotfish (Uhu pālupaluka or any Uhu ‘ahu ‘ula); and minimum size of 10 inches for small-bodied species both male and female. Bag limit of 2 total, regardless of species.

Life history: There are seven species of Uhu in Hawai‘i, three of which are endemic. Parrotfish are protogynous hermaphrodites, meaning individuals start as females (with red coloration) and can change sex to a male (with blue coloration). Transition between sexes depends on environmental conditions and size.¹⁸ In Hawai‘i the species have a large size difference ranging in maximum length from 12 inches for the smallest species to over 28 inches for Uhu ‘ele‘ele.¹⁹ The maximum ages also range from 6 years for the Pōnuhunuhu to 20 years for the Uhu ‘ele‘ele.²⁰ Size at maturity differs between species: the smallest two species (Palenose Parrotfish and Bullethead Parrotfish) reach maturity around 6–7 inches while Pōnuhunuhu reaches maturity at 10 inches, and the two large-bodied Uhu (Uhu uliuli and Uhu ‘ele‘ele) reach maturity

much larger, around 14 inches.²⁰

Ecology: Large-bodied Uhu are excavators. They bite through the different layers of algae, exposing the reef substrate and leaving areas for new crustose coralline algae to settle and grow.²¹ The smaller-bodied species are scrapers, clearing off turf algae and coralline algae from the reef.²¹

In Hawaiian culture: The Uhu would reveal what was happening at a fisherman's home. If two Uhu were rubbing noses, it was a sign that his wife was flirting with someone at home, and the fisherman's only course of action was to stop fishing and go home to punish his wife.⁹

Traditional cooking methods: Uhu was a favorite fish, eaten dried or broiled but usually eaten raw. It was preferred when combined with the liver.⁹ The Red Uhu (Uhu 'ula) was the more choice ones for eating raw.²²

UHU FAST FACTS

- **Regulations:**
State minimum size, 12 inches
Maui minimum size, 10 inches
for small-bodied species. Bag
limit of 2 total, regardless of
species.
- **Size at maturity:** 7 inches
- **Maximum age:** 11 years
- **State record:** 2.8 pounds,
Fasil Bizuneh, Hawai'i Island,
11/23/2021

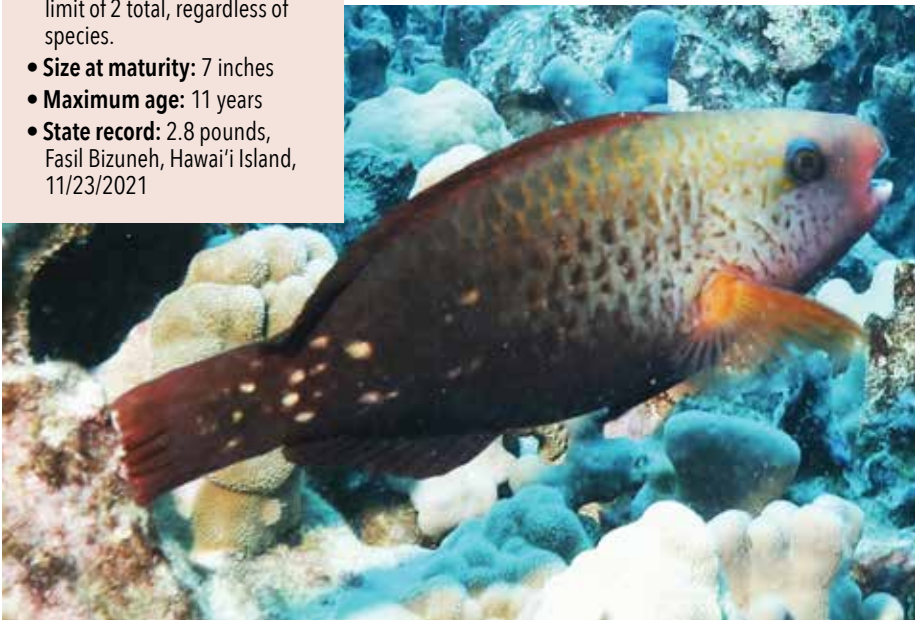


Photo by Raymond Boland, Oahu

Uhu (female)/*Chlorurus spilurus*

Black Bean Ginger Garlic Uhu

Recipe provided by Keahi Omerod-Pak, O'ahu

“I was born and raised on the island of O'ahu. I grew up fishing and my family is all fishermen. I love to fish to just get outside and enjoy the beauty of Hawai'i, release stress, hopefully catch dinner, and just make memories and unwind.”

Ingredients

- 1-2 pounds of Uhu, gutted and scaled
- 6-7 cloves garlic, minced
- 2-3 tablespoons ginger, minced
- Black bean paste
- 1-2 tablespoons oyster sauce
- 1-2 tablespoons shoyu
- 1-2 tablespoons sesame oil
- 1 teaspoon sugar
- ½ cup cilantro, chopped
- 1 bunch green onions, chopped
- 1 cup peanut oil

Preparation

1. Preheat oven to 350 degrees.
2. In a bowl add minced garlic, minced ginger (can add more depending on the size of the Uhu), black bean paste (enough to lightly cover fish), oyster sauce, shoyu, sesame oil, and sugar (can add more if needed).
3. Cut slits into the Uhu and pour the sauce onto the Uhu and massage.
4. Slice up ginger, chop up cilantro and green onions. Stuff the vegetables into the Uhu and stick pieces of ginger into the slits.
5. Bake for 30 minutes.
6. Heat peanut oil and pour over fish and cilantro to crisp the skin.

Baked Uhu, Three Ways

PREPARATION 1

Recipe provided by Craig Rice, Hawai'i Island

“I love to cook and am an avid spear fisherman as well as hook and line. I've always got fish in the freezer. I've been 'hooked' on fishing since I was a boy. There's nothing quite like it and you get to enjoy the prize with your family.”

Ingredients 1

- Uhu
- Cooking oil
- Mayonnaise
- Garlic, chopped
- Oregano
- Fresh basil
- Green onion
- Lime juice
- Hawaiian chili pepper, optional
- Grated cheese
- Sherry wine

1. Preheat oven to 350 degrees.
2. Filet Uhu.
3. Put a little oil on the bottom of the baking pan.
4. Salt and pepper Uhu filets and put in pan.
5. In a bowl, mix mayonnaise, garlic, oregano, fresh basil, green onion, a little lime juice, and a little Hawaiian chili pepper (optional).
6. Pour mixture over fish.
7. Top with grated cheese of choice.
8. Sprinkle a little sherry wine over the whole thing.
9. Bake with a foil cover till pau.

PREPARATION 2

Recipe provided by Erik Smith, O'ahu

“I've lived on O'ahu for 26 years and have been spearfishing for almost all of them. I enjoy spearfishing for the thrill of it, the peace and calm and beauty of it, and I love providing for my family. My kids and wife are all smiles when I bring fish home to them.”

Ingredients 2

- Uhu
- Garlic
- Ginger
- Thai basil leaves
- Thai pepper sauce
- Coconut milk

1. Preheat oven to 350 degrees.
2. Make slits on both sides of Uhu.
3. Add a small amount of garlic and a small amount of ginger (don't overpower it).
4. Add Thai basil leaves and Thai pepper sauce (not Sriracha—the real deal kine).
5. Pour coconut milk over Uhu.
6. Wrap in tinfoil and bake. Can throw in campfire too.



Baked Uhu Preparation 3

PREPARATION 3

Recipe provided by Leandro Tagudin, Maui

“Born and raised on Maui. Freediver/fisherman for 12 years. I enjoy recreational fishing because of the possibility of also bringing a meal home.”



Ingredients 3

- 2 Uhu filets (8–10 ounces each)
- 1/3 cup mayonnaise
- 2 tablespoons diced onions
- 2 tablespoons chopped green onion
- 1 tablespoon Sriracha
- 1 tablespoon Yoshida's marinade
- 1 piece Portuguese sausage

1. Preheat the oven to 350 degrees.
2. Lay the Uhu filets skin side down in a baking pan, add your seasoning of choice.
3. In a bowl, combine the mayonnaise, diced onions, green onions, Sriracha, and Yoshida's to your liking.
4. Coat the filets with mixture.
5. Cut the Portuguese sausage in 1/4-inch rounds and coat filets (like pepperoni on a pizza).
6. Cover in foil and bake until filets are tender, about 25–30 minutes.
7. Once cooked, remove foil then broil until the sausage start to crisp, 2–3 minutes.



Baked Uhu 3 plated

Uhu Katsu

Recipe provided by Troy Maeda, O'ahu

“I was born and raised on O'ahu and have been fishing/diving most of my life. It plays/has played a big part of my family and my family's life since before I was born.”

Ingredients

- Uhu, gutted and scaled
- 2 cups flour
- 2 eggs, beaten
- ½ bag of panko
- Oil for frying
- Tartar sauce or sweet chili sauce for dipping

Preparation

1. Filet and skin Uhu.* Take out the center bone.
2. Cut filets against the grain into ¼-inch thick pieces.
3. Dust in flour, dunk in egg wash, bread with panko.
4. Pan fry until golden on both sides, flipping when necessary.
5. Drain pieces on rack or paper towel.
6. Serve with tartar sauce or sweet chili sauce.

* Taking off the skin is the most important part. We've seen that the skin causes the fish to "curl." We usually use this cooking style with bigger Uhu.

Sweet and Sour Uhu

Recipe provided by Max Renigado, Lānaʻi

“Born and raised on Maui, now living on Lānaʻi. Avid outdoor person who has learned from others the skills needed to get ‘wild-caught/free-range’ to table. Fishing to me is a way of reconnecting with my heritage, stress relief, and enjoying what God has created. A good day out fishing doesn’t have to end with fish in the cooler.”



Ingredients

- Smaller Uhu (under 3 pounds)*
- ¼ cup corn starch
- ¾ cup flour
- 1 teaspoon salt
- 1 teaspoon pepper
- 1 teaspoon onion powder
- 1 teaspoon garlic powder
- Oil for frying
- 1 small can crushed pineapple w/liquid
- Apple vinegar to taste (about 1 tablespoon)
- 2 tablespoon brown sugar
- ½ cup water
- ¼ cup shoyu
- 1/3 cup water mixed with 1 tablespoon cornstarch
- 3 cups of veggies for stir-fry, julienne cut to be same length
- Ginger
- Lime wedges for plating

Preparation

1. Clean, scale, and crosshatch Uhu. Pat dry and let rest.
2. Mix flour, cornstarch, salt, pepper, onion powder, and garlic powder to create a dredge. Dredge fish completely and set aside while you prep the veggies.
3. Dredge Uhu one more time.
4. Deep-fry Uhu until crispy, drain, and set aside.
5. Add 2 tablespoons of the deep-fried fish oil to stir-fry the veggies. First, cook ginger till hot, then add remaining veggies.
6. Make sweet and sour sauce (see below).
7. Once sauce is to your liking, add 1 cup sauce to the cooked veggies.
8. Mix well and remove from heat.

NOTE: Recipe tested and photographed with frying filets, as opposed to the whole fish.



Photo by Craig Omori, Maui

Sweet and Sour Uhu

Sweet and Sour Sauce

1. Combine water, shoyu, the crushed pineapple with its liquid, and sugar.
2. Bring to a boil, then lower heat.
3. Taste sauce: If not salty enough, add more shoyu; if not sweet enough, add more sugar; if not sour enough, add more vinegar at the end.
4. Once the sauce taste is good, add the cornstarch slurry to thicken.

Plating: Place crispy fried Uhu on top of stir-fried veggies. Slowly coat Uhu with remainder of sweet and sour sauce. Seasoned quinoa, cauliflower rice, and sweet potato mash are excellent starch options.

* Use the smaller Uhu species for this recipe, as it will make for a better plating presentation.

Steamed Uhu

Recipe provided by Kamalu Kaluhiokalani, O'ahu

“By no means am I an expert diver, but I love the ability to provide food for my family. I enjoy finding great recipes for each fish species.”



Photos by Kamalu Kaluhiokalani, O'ahu

Steamed Uhu

Ingredients

- Whole Uhu (Pananu), gutted and scaled
- 1/4 cup garlic powder
- Half pack of lop chong
- 1 bunch green onion
- 1 tablespoon ginger, minced
- 1 bunch cilantro (enough to cover steamed fish)
- 3 heads bok choy
- 1-2 cups peanut oil
- 3 tablespoons sesame oil
- Half block of butter
- 1/2 cup shoyu



Finished Steamed Uhu

Preparation

1. Remove fish scales, cut slits into sides.
2. Stuff the fish belly with cooked lop chong. Salt both sides and stuff the slits with minced ginger.
3. Steam for about 10 minutes, depending on size of fish.
4. While the fish is steaming, cut up some bok choy. Fry with sesame oil.
5. Remove steamed fish to a plate. Drop half a block of butter in the pan and add shoyu and garlic powder to taste. Once cooked down, place in a pan.
6. Chop green onion and cilantro (enough to cover steamed fish) then place on cooked fish.
7. Heat up peanut oil and pour on top the greens and fish.
8. Enjoy with rice.

If you're lazy, you can filet the fish beforehand and then steam the filets. They will cook a lot faster, 3-5 minutes per side. You can also bake the Uhu filets skin side down on a baking pan, adding your seasoning of choice.

Pananu Potpie

Recipe provided by Brian Fern and Gina Fern, Kaua'i

“I was raised on the island of Kaua'i and have been spearfishing since the age of 10. The joy of hunting in the ocean and providing sustainably sourced food for my family keeps me coming back for more. Learn about your favorite fish, their habits, and most importantly how to best enjoy them. My wife, Gina Fern, created this recipe. I'm the hunter and she's the chef—it's a team effort.”



Photo by Craig Omori, Maui

Finished Pananu Potpie

Ingredients

Filling

- 1 pound Pananu/Uhu, gutted and scaled
- 3 tablespoons butter
- ½ cup carrots, chopped
- ½ cup celery, chopped
- ¾ cup red onion, diced
- 1 russet potato, peeled and diced
- 1 teaspoon Old Bay Seasoning
- 2 tablespoons flour
- ½ cup chicken bone broth (or stock)
- ¼ cup white chardonnay
- ½ cup whole milk
- ½ cup cream
- Salt and pepper, to taste

Crust

- 2 sticks butter
- 2½ cups flour
- 1 teaspoon salt
- 2 teaspoon sugar
- ¾ cup cold water
- 1 egg for egg wash

Preparation

1. Preheat oven to 350 degrees.
2. Skin and filet fish, then dice into poke-sized chunks.
3. Melt butter in a pot. Add carrots, celery, red onion, potatoes, and Old Bay Seasoning.
4. Cook till veggies are translucent. Stir in the flour and cook the mixture for one minute.
5. Stir in the chicken bone broth (or stock) and white wine.
6. Add in fish and bring the mixture to a simmer.
7. Add the whole milk and cream. Stir to combine and simmer the mixture until it has thickened.
Season with salt and pepper to taste.
8. For dough: Cut the 2 sticks of butter into thin slices and mix with the flour, salt, and sugar in a bowl. Once mixed, add in 1 cup of cold water slowly and mix to form dough.
9. Mash half of the dough in the bottom of a pie pan to make the pie shell.
10. Brush the pie shell with egg wash and parbake the crust for 10 minutes.
11. Add the fish filling to the crust. Roll out the rest of the dough in a circle to cover the fish.
Pinch the crust edges together to seal and use a fork to make vent holes on top.
12. Bake the pie 20 minutes.
13. Brush the remaining egg wash over the top of the pie, then bake for 10 more minutes or until the crust is golden brown. Enjoy!



Photo by Raymond Boland, O'ahu

'A'awa (female)/*Bodianus albotaeniatus*

'A'AWA FAST FACTS

- **Regulations:** None
- **Size at maturity:** 9 inches
- **Maximum age:** 22 years
- **State record:** 6.31 pounds, Kip Harworth, Hawai'i Island 12/03/2000

'A'awa

Scientific and common names: *Bodianus albotaeeniatus*/'A'awa/Table Boss/
Hawaiian Hogfish^a

Fishery: Around 3,000 pounds of 'A'awa are caught commercially per year. However, commercial catch declined in 2018 and 2019, with less than 2,000 pounds being landed annually.¹⁰ 'A'awa are mainly caught through handline, casting, and spearfishing.

Regulations: None

Life history: 'A'awa are endemic to Hawai'i and can reach up to 20 inches.³ They are hermaphrodites, like Parrotfish, and switch from female (yellow) to male (purple) around 15 inches in size or 7 years in age.²³ Females reach maturity at 9 inches (4.5 years), which means that all males are already mature.²³ 'A'awa can live up to 22 years old.²³

Ecology: 'A'awa are low-level carnivores, feeding mainly on small fish, sea urchins, mollusks, and crustaceans.^{3,24}

In Hawaiian culture: The 'A'awa is mentioned in the *Kumulipo*, a Hawaiian creation chant: "Hanau ka 'A'awa noho i kai. Kia'i ia e ka 'Awa noho i uka" (Born is the 'A'awa fish living in the sea, guarded by the 'Awa plant living on land).²⁵

Traditional cooking methods: 'A'awa is usually eaten broiled or dried.

Butter A'awa

Recipe provided by Brian Fern and Gina Fern, Kaua'i

“I was raised on the island of Kaua'i and have been spearfishing since the age of 10. The joy of hunting in the ocean and providing sustainably sourced food for my family keeps me coming back for more. Learn about your favorite fish, their habits, and most importantly how to best enjoy them. My wife, Gina Fern, created this recipe. I'm the hunter and she's the chef—it's a team effort.”

Ingredients

- 'A'awa, filleted*
- Garlic salt and pepper, to taste
- Butter

Preparation

1. Sprinkle filets with garlic salt and pepper.
2. Sauté in butter until the spatula easily pushes through the heat seal between the meat and the pan.

Tastes just like lobster!

* I enjoy targeting the males (the large purple ones).

Stuffed and Baked 'A'awa

Recipe provided by Ian Tierney, Kaua'i

“I am a sustainability coordinator by day, so I try to practice what I preach in my personal life. I got into spearfishing last year and have been trying to harvest fish that are non-native or invasive to the Islands. My wife makes the sauces, which take the dishes to the next level.”

Ingredients

- 'A'awa, gutted and scaled
- 1–2 cloves of garlic, minced
- 1 knob of ginger, minced
- Half a lemon, sliced
- Salt and pepper to taste

Preparation

1. Preheat the oven to 350 degrees.
2. Sauté the ginger and garlic until fragrant.
3. Stuff the sautéed garlic and ginger and the lemon into the belly of the 'A'awa. Season with salt and pepper.
4. Wrap fish in foil and bake for about 20 minutes.

Caution: This fish is bony so need to eat slow.

Orange 'A'awa

Recipe provided by Skee Saplan,
Hawai'i Island

“I am the maker of Skeeprong three-prong carbon fiber spears. I enjoy fishing and diving as a way to reset myself and provide peaceful moments to enjoy our island lifestyle. I enjoy the friendship and memories made while fishing and diving, and lastly being able to provide food for our table.”



Orange 'A'awa

Photo by Skee Saplan, Hawai'i Island

Ingredients

- Large 'A'awa, fileted
- 1 tablespoon oil
- ½ tablespoon ginger, minced
- 1½ tablespoon chili paste or ½ chili pepper, diced
- 1 tablespoon garlic, minced
- ¼ cup brown sugar
- ¼ cup white sugar
- ¼ cup orange juice (fresh is best)
- 1½ cup shoyu
- ¼ cup vinegar

Batter

- Salt and pepper, to taste
- ½ tablespoon powdered sugar
- ½ cup cornstarch
- 1 cup flour
- 1 tablespoon oil
- 1 egg, beaten
- 1¼ cup water

Garnish

- Green onion, sliced
- Sesame seeds

Preparation

1. Cube 'A'awa filets into 1- to 1½-inch pieces and pat dry.
2. Mix the batter ingredients together in a bowl. Coat the fish pieces in the batter.
3. Pan fry the fish until crispy. Remove from heat and leave to the side.
4. In a pan over medium low heat, combine oil, ginger, chili paste, garlic, brown and white sugars, orange juice, shoyu, and vinegar.
5. Combine cornstarch and water to form a slurry. Add slurry to pan to thicken sauce.
6. Add fish back to pan and toss till evenly coated with sauce.
7. Garnish with green onions and sesame seeds.

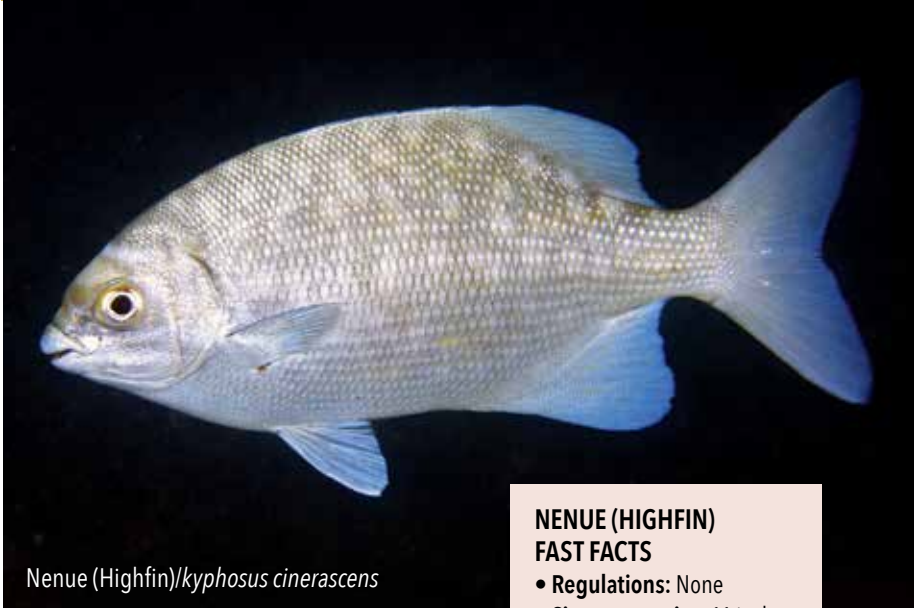


Photo by Keniki Stender, O'ahu

Nenuke (Highfin)/*Kyphosus cinerascens*

**NENUKE (HIGHFIN)
FAST FACTS**

- **Regulations:** None
- **Size at maturity:** 11 inches
- **Maximum age:** 25 years
- **State record:** 9 pounds, Kai-Po Kanui, Hawai'i Island 10/04/2017

NENUKE (LOWFIN) FAST FACTS

- **Regulations:** None
- **Size at maturity:** 12.1 inches
- **Maximum age:** 24 years
- **State record:** 12.1 pounds, Brad De Rego, Maui, 03/05/2003

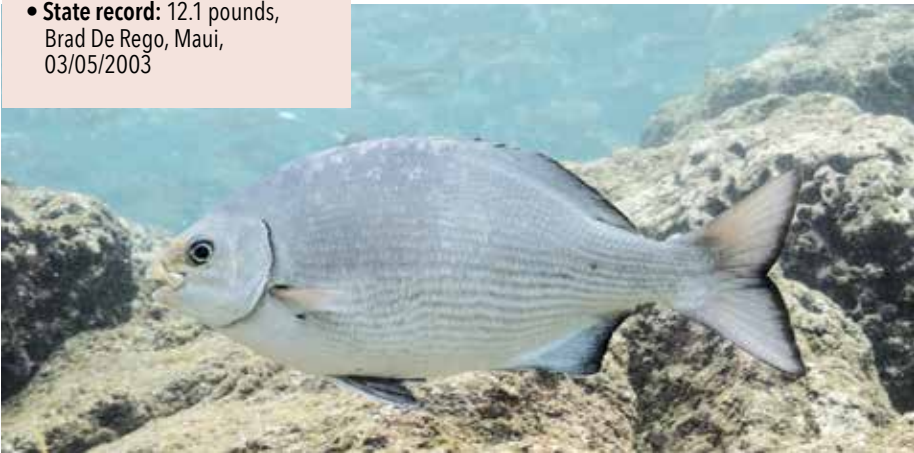


Photo by Toby Matthews, O'ahu

Nenuke (Lowfin)/*Kyphosus vaigiensis*

Nenu

Scientific and common names: *Kyphosus cinreascens*/Neneue or Eneue/Highfin Chub
Kyphosus hawaiiensis/Neneue or Eneue/
 Hawaiian Chub^a
Kyphosus sectatrix/Neneue or Eneue/Bermuda Chub
Kyphosus vaigiensis/Neneue or Eneue/Lowfin Chub

Fishery: The commercial fishery normally targets Nenu through nets due to their schooling nature.¹ On average, around 18,500 pounds of Nenu are caught in the commercial fishery annually, the majority of which is the Lowfin Chub.¹⁰ In the non-commercial fishery, Nenu is mostly caught by hook and line, spear, and throw net.¹ Nenu is also a popular bait for Uluu fishing.

Regulations: None

Life history: The different species of Nenu are very difficult to tell apart. They can live over 20 years and reach maturity between 10–12 inches depending on the species.²⁶ Nenu can get up to 20 inches in size.³

Ecology: Nenu usually occur in large schools of mixed species found along coastal rocky bottoms or coral reefs.³ They use their strong jaws to feed on large algae, providing space for coral growth and acting as a control for invasive algae.²⁷⁻²⁹

In Hawaiian culture: Nenu was one of the most popular fishes with the Hawaiians, and it was reserved for the chiefs.⁹ The yellow fish in a school was regarded as the makua, or protector or queen. In the *Kumulipo*, the Nenu is guarded by the Lauhue (a poisonous gourd) that grows on land.²⁵

Traditional cooking methods: Nenu was usually served raw; if cooked, it was wrapped in ti leaves, then broiled.⁹

Nenue Poke Bowl

Recipe provided by Spice Prince, Maui

“My name is Spice Prince and I live on the magical island of Maui. I am a deep generation medicine man and help lots of people with health issues and more. I'm also a perfumer, photographer and so much more, which includes hand making bows and arrows as well as having an herbal product line and logo wear. Spearfishing for me is so much more than getting blessed to know where your food comes from. It's always an amazing whole new world to explore. But for me, it's a much-needed therapy—dealing with severe health issues of others all the time, doing breath holds—and spearfishing helps me release built up energy I take on from others. Life is magic.”

Ingredients

- 1 cup Nenue meat, cubed
- Cooked rice
- Pepper, to taste
- Hawaiian sea salt, to taste
- 2-3 different hot sauces, 3-5 drops of 2-3 different hot sauces (Chalula, Tapatio, Tobasco)
- Furikake flakes
- Shoyu
- Wonton chips
- Seaweed salad

Preparation

1. Prepare a bowl of hot rice.
2. Mix raw cubed Nenue with black pepper, Hawaiian sea salt, a few drops of 2-3 different types of hot sauce, shoyu, and furikake flakes. Add on top of rice.
3. Top poke with wonton chips and seaweed salad.



Nenuke Poke

Nenu Katsu

Recipe provided by Jon Kanno, O'ahu

“I started fishing with my uncle when I was around 7 years old. I always loved the thrill of a catch and chasing certain fish, especially the elusive ones. Fishing was always an escape from reality, and it's great to go out even if you don't catch much. If you bring something home, then it's a bonus.

“I always preferred Nenu as a catch and to cook since they're abundant, put up a great fight, and you only really need bread to catch them. The hard part is finding them! Oh, and they have very little bone structure, which means plenty of meat. I hope that others can find a new light to this overlooked reef fish and be able to enjoy something new.”



Photos by Craig Omori, Maui

Frying Nenu Katsu

Ingredients

- 1 pound Nenu, fileted and skinned
- 3 tablespoons shoyu
- 1 tablespoon sugar
- ¼ cup flour
- ¼ cup cornstarch
- 1 egg, beaten
- 1–2 packages of panko
- Vegetable oil



Frying Nenu Katsu



Finished Nenu Katsu

Sauce ingredients

- Unagi sauce, to taste
- ½ cup mayonnaise
- 1 tablespoon shoyu

Preparation

1. Debone Nenu filets and cut into strips.
2. Combine the shoyu and brown sugar in a bowl, then marinate the fish strips for at least an hour or overnight. Reserve the marinade.
3. Preheat oil over medium-high heat. A deep fryer is ideal, but a high-sided pot is fine.
4. For the batter: Combine and mix the flour, egg, and cornstarch in a large mixing bowl. Mix in the liquid from the marinated fish into the batter. The batter should be thick.
5. Add all the marinated fish to the batter and gently mix by hand.
6. Take the coated fish pieces out of the batter and dredge them in the panko till fully coated.
7. Drop the breaded fish into the oil and let fry until golden brown.
8. For the sauce: Mix 1 tablespoon of shoyu with ½ cup of mayonnaise and drizzle over cooked fish. Finally, drizzle unagi sauce over the fish and serve.

Nenue Burgers

Recipe provided by Darrell Tanaka, Maui

“I targeted Nenue for simple protein. There was a time in my life when buying the groceries I wanted wasn't always affordable, so I turned to the ocean to supplement our grocery list. I needed meat, and Nenue has that bulk value, but I also needed a practical way to make it more palatable for people who weren't used to that 'flavor' Nenue has, so I invented this recipe.”



Ingredients

- 2 pounds Nenue filet, skin and bones removed
- 2 cups breadcrumbs
- 2 eggs
- 6 tablespoons teriyaki sauce
- 1 tablespoon ginger, grated
- 1 tablespoon garlic, minced
- ½ cup green onions, chopped
- 1½ teaspoon salt

Preparation

1. Cut Nenue into ½-inch cubes, then grind in a meat grinder or food processor.
2. Mix the fish and the remaining ingredients in a large mixing bowl until thoroughly combined.
3. Test a small portion for seasoning by making a small patty and frying it in a sauté pan. Adjust seasoning if needed.
4. Allow the fish mixture to sit for 1–2 hours in the refrigerator.
5. Portion the fish mixture into 10–12 patties and pan fry prior to serving.



Nenue Burger



Nenue Burger

Lemongrass Roasted Nenu

Recipe provided by Mel Ruaboro, O'ahu

“I'm from Kīlauea, Kaua'i, currently a chef instructor for a branch of the Salvation Army in Honolulu. Fishing has always been a passion for me in younger days, full of adventure, challenges, memories.”

Ingredients

- Large whole Nenu, gutted and scaled
(Caution: Do not break the guts or your fish will smell and taste like limu)
- Lemon juice, optional
- Salt and pepper
- 2 stalks lemongrass, smashed
- 1 ounce ginger, peeled and julienned
- Pandan leaves, optional
- 1 bunch of cilantro
- 1 cup canola oil

Ponzu Sauce

- 1 cup shoyu
- Juice from 1 lime
- 1 tablespoon Tabasco
- 2 Hawaiian chili peppers, chopped

Preparation

1. Preheat the oven to 400 degrees.
2. Remove the gills from the Nenu.
3. Wash the fish with lemon juice (optional).
4. Salt and pepper the fish well, inside and out.
5. In the cavity of the fish, stuff the smashed lemongrass, ginger, pandan leaves if you have.
6. Place fish in a roasting pan lined with ti leaf. A foil pan is fine.
7. Roast the fish for 20 minutes or longer, given fish size.
8. To prepare the ponzu sauce, combine 1 cup shoyu, the juice from 1 lime, 1 tablespoon Tabasco, and two chopped Hawaiian chili peppers in a bowl. Mix well and set aside.
9. Prepare the cilantro by cutting off the bottom stems. Dry the tops well to prevent any splash over during the final oil blast.
10. While fish is cooking, heat 1 cup canola oil to the smoking point.
11. When the fish is done, remove from oven and top with cilantro. Carefully pour the smoking oil over the cilantro.
12. Squeeze some lemon juice over top and serve with the ponzu sauce for dipping.



Weke 'ula/*Mulloidichthys vanicolensis*

WEKE FAST FACTS

- **Regulations:**
State minimum size, 7 inches to sell. Bag limit 50 'Oama. Maui minimum size, 8 inches. 'Oama may be taken by hook-and-line only.
 - **Size at maturity:** 6–7 inches*
 - **Maximum age:** 5–7 years*
 - **State record:**
Weke 'ula (Yellowfin Goatfish): 2.01 pounds, Gary Soma Jr., O'ahu, 10/11/1998
- * Information comes from Japan and Guam and may differ for Hawai'i.

Photo by Ruby Matthews, O'ahu

Weke

Scientific and common names: *Mulloidichthys flavolineatus*/Weke ‘ā/Yellowstripe Goatfish
Mulloidichthys vanicolensis/Weke ‘ula/Yellowfin Goatfish
 Juvenile fish (under 7 inches) are called ‘Oama

Fishery: These two species are the most caught Goatfish species in Hawai‘i due to their schooling nature. More than 35,000 pounds are landed annually in the commercial fishery, mostly using gill nets and seine nets. They are also commonly caught in the noncommercial fishery using hook and line and spear. The juvenile fish are extremely popular; expected ‘Oama runs are announced in local newspapers.³⁰

Regulations: State minimum size, 7 inches to sell. Bag limit of 50 ‘Oama.²
 Maui minimum size, 8 inches. ‘Oama hook and line only.²

Life history: Both species reach around 16 inches and form schools during the day.³ They have short life spans between 5–7 years* and reach maturity within the first year of life around 6–7 inches.^{31–34} Spawning peaks April–June.³¹ ‘Oama have seasonal recruitment to nearshore areas during summer months.³⁰

*Age information comes from Japan and Guam, and may differ for Hawai‘i.

Ecology: Weke use their barbels to search the bottom for prey such as shellfish and worms. As “ecosystem engineers,” they help mix the different sediment layers.^{35,36}

In Hawaiian culture: *Weke* means “to open.” Both species were popular as offerings to the gods. A priest might offer Weke along with a prayer to open or release something, to prepare for forgiveness, or to reveal the truth.⁹

Traditional cooking methods: Weke were usually broiled in ti leaf wrapping over hot coals.⁹ ‘Oama were eaten raw after being salted for a few minutes.⁹

Panko Weke with Korean Sauce

Recipe provided by Keoni Kalanui-Manantan, Hawai'i Island

“I learned how to spearfish when I was four years old and fell in love with the sport. For my family it's always been a huge part of our culture as hunters and gatherers. I absolutely love the feeling of a fresh catch and the satisfaction it brings when we are all enjoying it together.”

Ingredients

- Weke, gutted and scaled
- 1-2 cups panko
- 1-2 cups flour
- Oil for frying
- 1 egg, beaten
- Rice for serving

For Korean Sauce

- Shoyu
- Brown sugar
- Garlic
- Ginger
- Chili pepper water, optional

Preparation

1. Add dry ingredients to the flour.
2. Filet Weke.
3. Dredge filets in flour, then coat in egg, then coat in panko.
4. Fry the filets in oil.
5. For Korean sauce, add shoyu, brown sugar, garlic, and ginger and bring to a boil.
6. Stir generously and bring it all down to a thick syrup consistency.
7. Serve over rice.

Chinese Style Steamed Weke

Recipe provided by Robert Haines, O'ahu

“My wife, son, and I currently live on O'ahu. The ocean has always been my getaway from the real world. From baby days to now, I've always fished and dove. I grew up knowing the ocean could always provide food for us.”

Ingredients

- Weke, gutted and scaled
- Shoyu
- Cilantro
- Garlic black bean sauce
- Ginger
- Baby bok choy
- Oyster sauce
- Green onion
- Peanut oil

Preparation

1. Preheat oven to 400 degrees.
2. Stuff fish with ginger, green onion, cilantro, and baby bok choy.
3. Cover fish with tinfoil.
4. Bake 13-15 minutes.
5. While fish is baking, heat up peanut oil on stove.
6. Once the fish is done baking, take it out of the oven, open the foil, and pour the hot peanut oil over the fish to crisp up the skin.

Steamed and Stuffed Weke, Two Ways

Recipe provided by Nikola Rodriquez, Hawai'i Island

“I am doing my master's thesis on ciguatera fish poisoning and how climate change may affect its prevalence. This recipe was created by me, my boyfriend Nelson Crabbe, and his son Naupaka Crabbe. We want to teach our kids to give respect to the fish we catch and to only catch fish to feed your family and friends.”

Alternative recipe provided by WillowMae Wise, O'ahu

“I've been diving in some capacity since I was about 10 years old, and moved to the Islands to pursue professional freediving. I've always been interested in sustainability and seasonal living, so spearfishing was a sort of natural progression for me. I love to be in the water in any capacity and being able to feed myself and my friends and family is wonderful.”

Ingredients

- Weke, whole
- Butter, enough to put into slits and inside the belly
- Onion, chopped
- Tomato, chopped
- 1–2 Hawaiian chili peppers depending on spice level desired, cut up

Preparation

1. Cut slits on the sides of the Weke.
2. Mix butter, onion, tomato, and Hawaiian chili pepper. Stuff mixture into slits and inside the belly.
3. Wrap and steam.

Alternate ingredients

- Weke, whole
- 1 bunch of collard greens or taro greens
- 1 tablespoon butter
- 2 cloves garlic, diced
- 2 sprigs of dill, chopped
- Peanut oil, optional

Alternate preparation

1. Arrange half of the greens in a baking pan and put the Weke on top.
2. Slice slits in fish on both sides and stuff with butter, garlic, and dill.
3. Cover the stuffed fish with the rest of the greens, then cover the pan with foil.
4. Bake in the oven.
5. Depending on how healthy you're feeling, you can pour hot oil over the fish afterward.



Kūmū/*Parupeneus porphyreus*

Photo by Raymond Boland, O'ahu

KŪMŪ FAST FACTS

- **Regulations:** State minimum size, 10 inches
Maui minimum size, 12 inches.
Bag limit of 1.
 - **Size at maturity:** 10.4 inches*
 - **Maximum age:** 6 years*
 - **State record:** 6.88 pounds,
John D. Hirokane, O'ahu, 10/11/1998
- * These estimates of size at maturity and maximum age were calculated based on maximum size.³⁸ These numbers have not been validated though life-history studies.

WEKE 'ULA OR WEKE NONO FAST FACTS

- **Regulations:** Maui minimum size, 12 inches
 - **Size at maturity:** 10.6 inches*
 - **Maximum age:** 6 years*
 - **State record:** 8.1 pounds,
Maka Lawai'a Puulei, Kaua'i, 08/18/2020
- * These estimates of size at maturity and maximum age were calculated based on maximum size.³⁸ These numbers have not been validated though life-history studies.

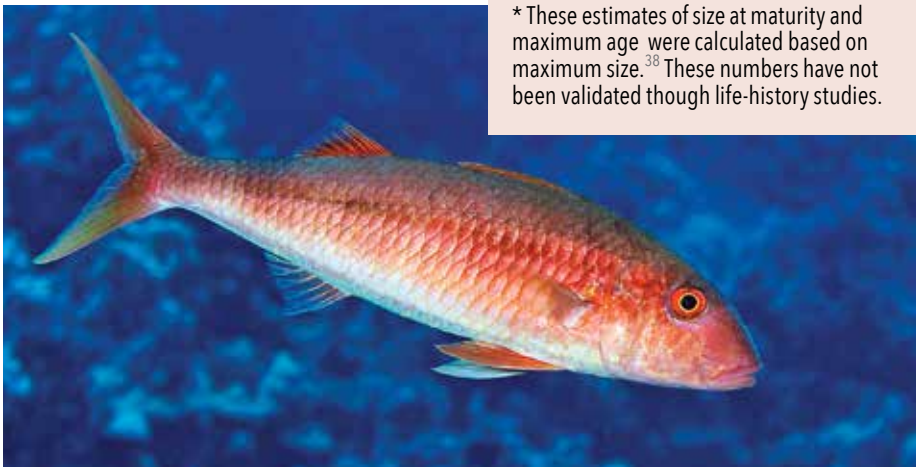


Photo by Keoki Stender, O'ahu

Weke 'ula or Weke Nono/*Mulloidichthys pfluegeri*

Big Goats: Kūmū, Weke 'ula, Moano, Munu, Moana kali

Scientific and common names: *Parupeneus porphyreus*/Kūmū/Whitesaddle Goatfish^a
Mulloidichthys pfluegeri/Weke 'ula or Weke nono/
 Pfluger's Goatfish
Parupeneus multifasciatus/Moano/Manybar Goatfish
Parupeneus insularis/Munu/Joe Lewis Kumu/-
 Doublebar Goatfish
Parupeneus cyclostomus/Moana kali or Moano kea/
 Blue Goatfish

Fishery: Around 10,800 pounds of goatfish are caught commercially each year (this number does not consider commercially caught Weke; see the Weke section). The five different large goatfish species are mainly caught via spearfishing and handline, with a small amount caught by fish traps and seine nets. A 2017 stock assessment indicated that both Moana kali and Kūmū could be experiencing overfishing.¹³

Regulations: State, Kūmū: minimum size, 10 inches; Moano: minimum size, 7 inches.²

Maui, Kūmū, Moana kali, and Weke nono: minimum size, 12 inches.

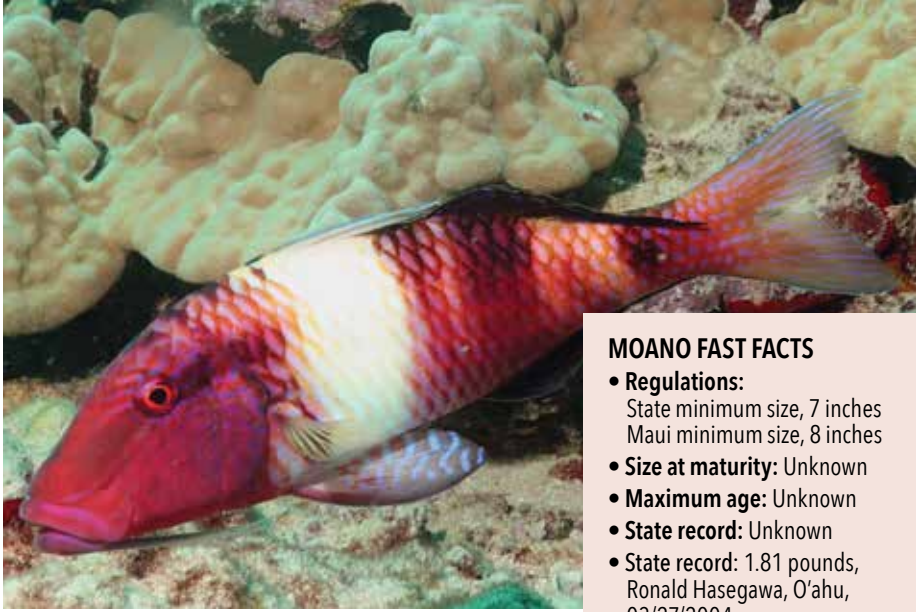
Kūmū has a bag limit of 1. Moana kali has a bag limit of 2.

Moano and Munu both have a minimum size of 8 inches.

Munu has a bag limit of 2.²

Life history: These goatfish range in size from 11 inches for Moano to 21 inches for Weke 'ula.³ Only one life history study has been conducted, for Kūmū, but size at maturity and maximum age have been estimated for the other species based on maximum size. These estimates should be used as best guesses until actual age and maturity studies have been done. It is estimated that these species can live up to 6 years and reach maturity between 10–11 inches.^{13,37}

Photo by Raymond Boland, O'ahu



Moano/*Parupeneus multifasciatus*

MOANO FAST FACTS

- **Regulations:**
State minimum size, 7 inches
Maui minimum size, 8 inches
- **Size at maturity:** Unknown
- **Maximum age:** Unknown
- **State record:** Unknown
- **State record:** 1.81 pounds,
Ronald Hasegawa, O'ahu,
03/27/2004

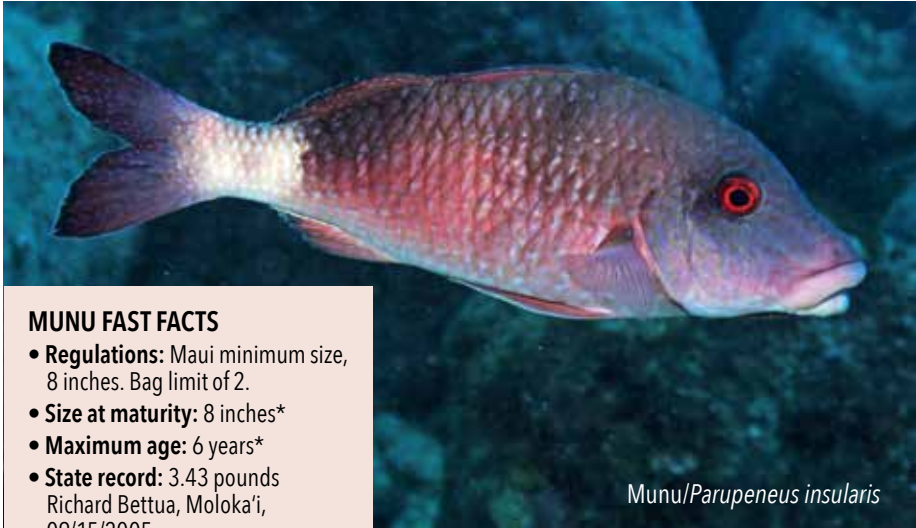


Photo by Raymond Boland, O'ahu

MUNU FAST FACTS

- **Regulations:** Maui minimum size, 8 inches. Bag limit of 2.
- **Size at maturity:** 8 inches*
- **Maximum age:** 6 years*
- **State record:** 3.43 pounds
Richard Bettua, Moloka'i,
09/15/2005

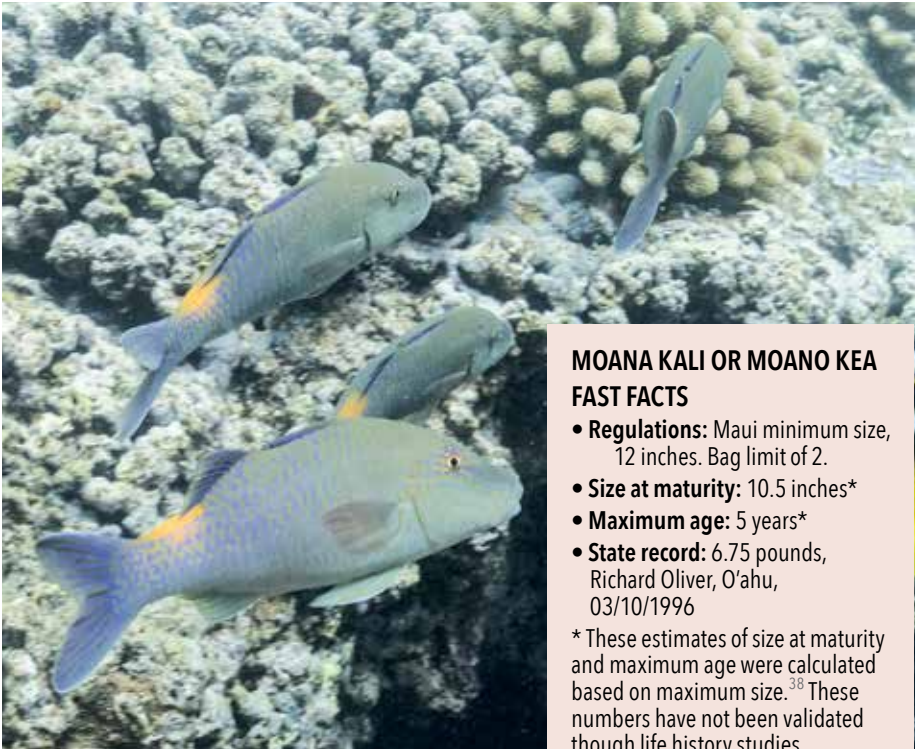
* These estimates of size at maturity and maximum age were calculated based on maximum size.³⁸ These numbers have not been validated through life history studies.

Munu/*Parupeneus insularis*

Ecology: Goatfish use their barbels to forage on the seafloor for invertebrates such as crabs, snails, worms, shellfish, and sometimes small fish. Goatfish are ecosystem engineers, helping to mix the different layers of sediments.³⁵⁻³⁶ Goatfish, a nuclear species, are usually followed by other reef fish that catch small food items flushed out of the sand by the goatfish.³⁵

In Hawaiian culture: Kūmū, Weke 'ula, and Moano were used as offerings for any undertaking such as the launching of a canoe, the dedication of a hula school, or as an atonement for sin.⁹ The Kūmū could only be eaten by men because the red color was suggestive of the menstrual period when women were set apart.⁹ Hawaiians believed that the Moano ate lehua blossoms to get its bright red color.⁹

Traditional cooking methods: Traditionally, Goatfish were broiled in ti leaves but were also eaten raw or lightly salted and dried. Kūmū was sometimes kept in pools to be available to eat after drinking 'awa (kava).⁹



MOANA KALI OR MOANO KEA FAST FACTS

- **Regulations:** Maui minimum size, 12 inches. Bag limit of 2.
- **Size at maturity:** 10.5 inches*
- **Maximum age:** 5 years*
- **State record:** 6.75 pounds, Richard Oliver, O'ahu, 03/10/1996

* These estimates of size at maturity and maximum age were calculated based on maximum size.³⁸ These numbers have not been validated though life history studies.

Moana kali or Moano kea/*Parupeneus cyclostomus*

Stuffed Goatfish, Ti Leaf Wrap

Recipe provided by Bradley Watanabe, O'ahu

“I'm originally from Hilo but have been living on O'ahu for 18 years. My father taught me how to fish and dive for both recreation and food. It remains a passion to this day and I believe I'll be a lifelong fisherman and diver.”



Photo by Craig Omori, Maui

Baked Goatfish

Ingredients

- 1 pound whole Goatfish, gutted and scaled
- ½ cup mayonnaise
- ½ piece chung choy (salted turnip), minced
- 1 clove garlic, minced
- ¼ onion, chopped
- Salt and pepper, to taste
- Ti leaf

Preparation

1. Preheat oven to 400 degrees.
2. Make crosscuts in the fish skin.
3. Mix the mayonnaise, chung choy, minced garlic, chopped onion, and salt and pepper in a bowl.
4. Lay aluminum foil down on a sheet pan then place a ti leaf on the foil.
5. Spread a spoonful of the mayo mix on the ti leaf (about the length of the fish).
6. Place the fish on the mayo.
7. Stuff the belly cavity with most of the mayo mix, then cover the top of the fish with the remainder (about the same amount as the bottom).
8. Place another ti leaf over the fish, then seal the foil.
9. Bake for about 45 minutes.
10. Serve with white rice and you're done!

Butter Garlic Goat

Recipe provided by Saudi Matagiase, O'ahu

“I was born and raised on Kaua'i and now I reside on O'ahu. I'm an avid 'spearfisherman' with a passion for the ocean and cooking.”

Ingredients

- Goatfish, fileted

Butter Garlic Sauce

- 1 whole clove garlic, peeled and chopped
- 1 white onion, chopped
- ½ stick of unsalted butter
- Shrimp stock
- Salt and pepper, to taste
- ½ to 1 cup heavy cream
- Mussels, optional

Preparation

1. Combine the garlic, onion, butter, and shrimp stock in in a sauté pan and let it reduce.
2. Season the sauce with salt and pepper, then add heavy cream and reduce the heat to medium, cooking for another 5-10 minutes.
3. You can add the filets in the sauce to poach or steam them separately, and finish with the sauce on top.

Lemon Shoyu Goatfish

Recipe provided by Michael DeLong, Hawai'i Island

“I am originally from Ohio and have lived on the Big Island for 17 years. I love spearfishing. It is a relaxing and peaceful experience. The beauty of the ocean is always different and amazing! Being able to provide a healthy dinner while getting good exercise is a no brainer.”

Ingredients

- Whole Goatfish, gutted and scaled
- 1-2 lemons, sliced thin
- Shoyu
- ½ onion, sliced

Preparation

1. Preheat the oven to 400 degrees.
2. Make crosscuts in the fish sides. Arrange on a piece of foil large enough to wrap the fish.
3. Stuff the belly with lemon and onion slices, reserving some to put on top of the fish.
4. Drizzle the fish with shoyu.
5. Wrap the fish in the foil and place in an ovenproof pan. Steam in the oven.

Sweet Ginger Joes

Recipe provided by Brian Fern and Gina Fern, Kaua'i

“I was raised on the island of Kaua'i and have been spearfishing since the age of 10. The joy of hunting in the ocean and providing sustainably sourced food for my family keeps me coming back for more. Learn about your favorite fish, their habits, and most importantly how to best enjoy them. My wife, Gina Fern, created this recipe. I'm the hunter and she's the chef—it's a team effort.”



Photo by Brian Fern, Kaua'i

Sweet Ginger Joes

Ingredients

- Munu or Moana Kali, gutted and scaled
- Sesame oil, to taste
- Sesame seeds, to taste

Marinade

- 1 cup shoyu
- 2 tablespoons rice vinegar
- ¼ cup brown sugar
- 1 cup water
- Salt
- 2 inches ginger, sliced

Preparation

1. Mix the marinade ingredients together.
2. Diamond score the fish skin.
3. Marinate the fish in the refrigerator overnight.
4. Flip the fish over in the marinade in the morning and cook that night.
5. Preheat oven to 350 degrees.
6. Put fish in a glass pan covered with foil and bake for 30 minutes.
7. Remove the foil and broil on high for 10 minutes to make the skin crispy.
8. Spoon the drippings over the fish and add sesame oil and sesame seeds on top.

½ and ½ Kali

Recipe provided by Mike Moody, Hawai'i Island

“I love spearfishing. First, because it's selective and sustainable, but also because it's the ultimate challenge. Your breath hold, knowledge, and hunting ability all must come together to land the fish you're looking for. This is the recipe I use for fish a little too big to steam so they don't come out overcooked.”



Photos by Mike Moody, Hawai'i Island

Steamed Kali

Ingredients

- 2-3 pounds Moana Kali (or any fish that's a little too big to steam)
- 1 cup shoyu
- 1 cup water
- 2 tablespoons sugar
- 1 teaspoon mirin
- Ginger, sliced
- ½ cup peanut oil
- 1 teaspoon sesame oil
- Green onion, for garnish

Preparation

1. Clean, gut, and scale the Moana Kali. Filet one half of the fish and reserve.
2. For the on-the-bone half, cut slits in the skin and stuff the slits with ginger slices.
3. On medium-high heat, mix the shoyu, water, sugar, and mirin. Bring to a slow boil and remove from heat.
4. Steam fish 10 minutes for a 2- to 3-pound Moana Kali.
5. Remove steamed ginger.
6. Combine the peanut oil and sesame oil and heat until the mixture just starts to smoke. Drizzle the oil over the fish, add the shoyu mixture, and garnish with green onions.
7. For the reserved filet, slice and serve alongside as sashimi.



Sashimi

Chinese Style Goatfish



Photo by Norton Chan, O'ahu

Chinese Style Goatfish

Recipe provided by Norton Chan, O'ahu

“The ocean has always been part of my life. My dad took me fishing with him from when I was little and as I grew older, I started fishing with neighborhood friends. I started diving in high school and haven't stopped. I've worked a lot of my professional career as a biologist; first, at the Waikiki Aquarium and now at my current position as a coral specialist with the Division of Aquatic Resources. Fishing and diving allow me to enjoy, interact, manage, and to hopefully educate others about our marine life. Oh yeah, and I like to eat fish.”

Ingredients

- Whole goatfish, gutted and scaled
- Ginger, sliced thin
- Green onions, sliced thinly on the diagonal
- Cilantro, chopped to 1-inch lengths
- ½-¾ cup vegetable oil

The seasoning ratio is to your personal taste. I like a lot of all three.

Preparation

1. Put water on the stove to boil in a pot large enough to accommodate a steamer.
2. Cut slits into the sides of the fish.
3. Place some ginger into slits, belly, and head.
4. Place fish in the steamer when the water is full-on boiling. Cover the pot and steam the fish, 8 minutes per pound of fish, then turn off the burner and leave the pot covered for about 10 minutes more.
5. Remove the fish from the steamer and plate.
6. Heat vegetable oil.
7. Cover the plated fish with the rest of the sliced ginger, green onions, and cilantro.
8. When the oil is hot, carefully pour over the fish and greens. The sizzling oil will release all the aromatics into the fish.
9. Finish by pouring shoyu all over to taste and a sprinkling of white pepper.
10. Make lots of rice because you'll want to put that sauce all over it even when the fish is all gone!

This is how my mom made fresh caught fish when I was growing up.



Photo by Raymond Boland, O'ahu

'Ala'ihī/*Sargocentron xantherythrum*

'ALA'IHI FAST FACTS

- **Regulations:** None
- **Size at maturity:** Unknown
- **Maximum age:** Unknown
- **State record:** 8.04 pounds, Eddie Carvalho Jr., Hawai'i Island 09/02/1994

'ĀWEOWEO FAST FACTS

- **Regulations:** None
- **Size at maturity:** Unknown
- **Maximum age:** Unknown
- **State record:**
Hawaiian Bigeye: 1.90 pounds, Lundie Fleming, Maui, 06/20/2020
Glasseye: 1 pound, Mikey Decoito II, Hawai'i Island 07/12/2019



Photo by Raymond Boland, O'ahu

'Āweoweo (Hawaiian Bigeye)/*Priacanthus meeki*

Red Fish

Scientific and common names: *Sargocentron xantherythrum*/‘Ala‘ihi/Hawaiian Squirrelfish^a
Sargocentron tierel/‘Ala‘ihi/Tahitian Squirrelfish
Sargocentron spiniferum/‘Ala‘ihi mama/Saber Squirrelfish
Priacanthus meekii/‘Āweoweo/Hawaiian Bigeye^a
Heteropriacanthus cruentatus/‘Āweoweo/Glasseye
Myripristis berndtii/Ū‘ū/Menpachi/Bigscale Soldierfish
Myripristis amaena/Ū‘ū/Menpachi/Brick Soldierfish

There are 3 more species of Ū‘ū (Soldierfish) and 4 more species of ‘Ala‘ihi (Squirrelfish), but these are the most common ones.

Fishery: All four genera are mainly caught by hook and line and spearfishing for both the commercial and noncommercial fisheries. Over 50,000 pounds of Ū‘ū are commercially caught each year, since 2010. Around 3,000 pounds of ‘Āweoweo are caught commercially each year, and less than 1,000 of ‘Ala‘ihi are caught commercially each year.¹⁰

Regulations: None

Life history: There are multiple species of Ū‘ū (Soldierfish) and ‘Ala‘ihi (Squirrelfish) found in Hawai‘i. Both Ū‘ū and ‘Ala‘ihi are part of the same larger family, the Holocentridae. Ū‘ū can reach up to 10 inches long and are found in large schools. They can live to be up to 27 years old in Hawai‘i.³⁹ There have been no other studies on age, growth, or maturity for any other species. The ‘Ala‘ihi mama (Saber Squirrelfish) is the largest species of the Squirrelfish subfamily and can reach up to 18 inches long.^{3,40} The other ‘Ala‘ihi species range from 6–13 inches in length. The spine of the ‘Ala‘ihi can be venomous.^{3,40} The ‘Āweoweo can reach up to 12 inches long.³



Photo by Raymond Boland, Oahu

Ū'Ū FAST FACTS

- **Regulations:** None
- **Size at maturity:** Unknown
- **Maximum age:** 27 years
- **State record:** 1.84 pounds, Brian Chang, Maui, 06/25/2000

Ū'ū/Myripristis berndti

Ecology: All of these species are nocturnal, spending most of the day hidden in caves, rock crevices, and under ledges.³ They use their large eyes to hunt for prey at night. The Ū'ū and Āweoweo mainly feed on larger zooplankton (small animals and the immature stages of larger animals floating in the water) such as crab larvae, while the Āla'ihi mainly eats small crabs and snails on the seafloor.

In Hawaiian culture: The Āla'ihi was the favorite fish of Kamehameha III.⁹ Āweoweo means “glowing red,” and when the Āweoweo would come inshore in large schools their arrival was thought to foreshadow the death of a high chief.^{9,17}

Traditional cooking methods: All of these fish were usually eaten either raw or broiled. The Āweoweo was not good for wrapping in ti leaves unless the skin was removed.⁹ The Ū'ū is very difficult to skin so it was easiest to broil and eat the flesh from the skin.⁹

Poisson Cru

Recipe provided by Erick Nelson, Maui

“Born and still being raised in Hāna, Maui. Fishing has been my way of life for this small town on the east side of Maui. As the saying goes, ‘If you know, you know.’ To say fishing is a part of me would be a lie because I am part of it, not it’s a part of me!”

Ingredients

- Ū’ū, gutted and scaled
- 4 limes, juiced
- 1 cucumber, cubed
- 1 tomato, cubed
- 1 onion, sliced
- 1 can coconut milk
- Salt and pepper, to taste

Preparation

1. Filet the Ū’ū and cut into cubes.
2. Place the fish in a bowl. Add the lime juice and mix.
3. Add the cubed cucumber, onion, and tomato to the fish.
4. Add the coconut milk to the fish.
5. Season with salt and pepper to taste.

Fried Red Fish

Recipe provided by TJ Schab, O'ahu

“I've been fishing since I was ten. Grew up fishing in Kailua Bay on O'ahu as a grom, and it wasn't until recently I got serious about fishing. I was lucky enough to land a grander marlin last June on a boat I used to work on as a deckhand in Wai'anae. The fight took over 4.5 hours to get it into the boat. I've also been through culinary school at the Cordon Bleu in St. Louis, Missouri, where I took a 2-year intensive class. Nowadays, all I think about is fishing; constantly checking the moon, tides, currents, and water temps to give myself the best chance of being successful. I'm either getting the lures wet or wishing I was fishing.”



Photo by Craig Omori, Maui

Fried Red Fish

Ingredients

- Your choice of Ū'ū, 'Ala'ihī, or Āweoweo
- Garlic salt, to taste
- Pepper, to taste
- Old Bay Seasoning, to taste
- 4–6 cups of peanut or vegetable oil, enough to submerge the fish

Sauce

- 2 tablespoons sweet chili sauce
- 2 tablespoons shoyu

Preparation

1. Preheat peanut or vegetable oil to 375–400 degrees. Use enough oil to submerge half of the fish.
2. Gut, gill, and scale, then crosscut the sides to form an X.
3. Season the fish with garlic salt, pepper, and Old Bay Seasoning, rubbing them into the cuts you made.
5. Immerse the fish into the hot oil and cook until the skin is golden brown and the fins are crispy, roughly 5–6 minutes a side depending on size of the fish.
6. Mix 2 tablespoons of sweet chili sauce with 2 tablespoons of shoyu.
7. Dip the finished fried fish in the sauce and enjoy!



Fried Red Fish prepped

Steamed 'Ala'ihī

Recipe provided by Justin Leong, O'ahu

“I love to fish, but I love spearfishing more. Just being out in the ocean and selecting the fish I bring home is a game changer. I was taught, growing up, to eat what you kill, and never take more than what you need. Spearfishing allows me to shoot the fish I like to eat and know that I will be able to eat that same fish in the future by not wiping out that entire type of species in one location. I have a passion for cooking, so what better way to cook when you know where your food comes from? In this recipe, I was fortunate to bring home a good-size 'Ala'ihī for the family. I normally gut and scale the fish during my dive so it can be cooked and ready to eat by sundown.”

Ingredients

- 'Ala'ihī, gutted and scaled
- Chili pepper flakes, pinch
- Ginger, to taste
- 1 teaspoon sesame oil
- 8-10 cloves garlic
- Chung choy (salted turnip), to taste
- 1 bunch green onion
- Peanut oil
- Oyster sauce, enough to cover the fish
- Bok choy, optional
- Shoyu, to taste

Preparation

1. Preheat the oven to 375 degrees.
2. Prep the ginger by slicing it into 2-inch sticks.
3. Smash the garlic cloves with the back of your knife.
4. Cut the green onions to the same length as the ginger.
5. Diamond cut the flesh of the fish and rub oyster sauce over the entire fish.
6. Lay the fish in an ovenproof pan and add the shoyu, pinch of chili pepper flakes, sesame oil, and chung choy.
7. Add a little water to the bottom of the pan to help the steaming.
8. Wrap the pan with foil, then throw in the oven for a good 20-30 minutes.
9. Heat up the peanut oil on the stove until very hot. When the fish is done, pour the peanut oil over the skin of the fish.

Bango, dinner is set! You can also add some bok choy to the pan before steaming the fish for some extra veggies.



Steamed 'Ala'ihi



Aholehole/Kuhila sp.

ĀHOLEHOLE FAST FACTS

- **Regulations:** Minimum size, 5 inches²
- **Size at maturity:** 6–7 inches
- **Maximum age:** Unknown
- **State record:** 2.06 pounds, Ryan Okino, Hawai'i Island, 06/24/2003

Photo by Tibby Matthews, Oahu

Āholehole

Scientific and common names: *Kuhila sandvicensis*/Āholehole/Reticulated Flagtail
Kuhila xenura/Āholehole/Hawaiian Flagtail^a

Fishery: This is a very popular noncommercial species, mostly caught with hook and line using bread or shrimp for bait.⁴¹ Around 2,500 pounds are caught annually in the commercial fishery.

Regulations: State minimum size, 5 inches²

Life history: There are two species of Āholehole found in Hawai‘i. Both species can form large schools in shallow rocky areas and can grow up to 11 inches long.³ Not much information is known about the maximum age. Maturity is estimated between 6–7 inches.⁴²

Ecology: As juveniles, both species can be found in fresh water and salt water, in tide pools, estuaries, and fishponds.⁴³ They eat zooplankton and worms.³

In Hawaiian culture: The Āholehole was a “sea pig”; it was used as a substitute for pig in certain ceremonies when pigs were not available.⁹ It was also used in sacrifices when a white fish was needed, such as in a ceremony to keep away evil spirits, because *hole* means “to strip away.”⁹

Traditional cooking methods: Āholehole was eaten broiled on hot coals, dried, or raw.⁹ When eaten raw, the dorsal fin was removed by making a cut on each side of the fin, and then the fin could be gripped in the teeth and pulled off.⁹

Steamed Āholehole

Recipe provided by Craig Ma, O'ahu

“I was born and raised here on O'ahu and have lived here all my life. My grandfather introduced me to fishing when I was about 5 years old, and I have loved it ever since (I'm 53 now). This recipe comes from my grandma, who usually was the one who ended up cooking whatever we caught.”

Ingredients

- Āholehole, gutted and scaled
- 2 parts white miso paste
- 1 part sugar
- Ginger, finely grated, to taste

Preparation

1. Stuff the fish cavity with a mixture of 2 parts white miso paste to 1 part sugar, and ginger to taste.
2. Place the fish on a plate or dish, then place the plate on a circular wire rack in a pot large enough to accommodate it.
3. Add about an inch of water to the bottom of the pot. Bring to a boil over high heat, cover the pot, then turn down the heat to medium and steam the fish for about 10–12 minutes depending on size.

Alternative Preparation

1. Preheat the oven to 350 degrees.
2. Loosely wrap the stuffed fish in foil and place in a shallow baking pan.
3. Bake for around 20–30 minutes depending on size.

Chinese Style Āholehole

Recipe provided by
Norton Chan, O'ahu

“The ocean has always been part of my life. My dad took me fishing with him from when I was little and as I grew older, I started fishing with neighborhood friends. I started diving in high school and haven't stopped. I've worked a lot of my profes-

sional career as a biologist; first, at the Waikiki Aquarium and now at my current position as a coral specialist with the Division of Aquatic Resources. Fishing and diving allow me to enjoy, interact, manage, and to hopefully educate others about our marine life. This is a simple tasty dish taught to me by my mom.”



Steamed Āholehole

Photo by Norton Chan, O'ahu

Ingredients

- Āholehole, gutted and scaled
- Garlic, minced
- Ginger, thinly slivered, to taste
- Green onion, cut on the diagonal, to taste
- Cilantro leaves, to taste
- White pepper, to taste
- Shoyu
- ½ cup vegetable oil

Preparation

1. Preheat the oven to 375–400 degrees.
2. Score the sides of the fish, making 2–3 cuts per side.
3. Place a few slivers of ginger into the cuts.
4. Place the fish into a shallow foil pan or glass dish and cover with foil.
5. Place into the oven for about 5–8 minutes, then turn off the oven and let the fish sit for another 10 minutes.
6. Remove the foil and plate the fish.
7. Heat the oil in a small pan.
8. Cover the fish with more ginger, garlic, green onion, and cilantro.
9. Use a wood chopstick to test the oil by touching the bottom of the pan; it should bubble when ready.
10. Place the plated fish somewhere you can pour the oil over it because it will splatter a little. Pour the oil over the fish, making sure to wilt all the greens so that they can release all the flavors.
11. Cover the fish liberally with shoyu and then sprinkle white pepper all over.
12. Serve. Make sure you spoon all that sauce over hot rice!

Fried Āholehole

Recipe provided by Leka Alatasi, O'ahu

“I am from a small town on O'ahu called Hau'ula. To me, spearfishing is an escape from the real world, an opportunity to clear my head from any stress.”

Ingredients

- Āholehole, gutted and scaled
- Flour
- Salt and pepper, to taste
- Garlic powder, to taste
- Oil for frying
- Chili pepper water, optional
- Mayonnaise, optional

Preparation

1. Heat the oil in a pan on high.
2. Mix the flour, garlic powder, salt, and pepper together.
3. Score both sides of the fish.
4. Coat the fish in the flour mixture.
5. Fry the fish in oil until crispy.
6. You can use chili pepper water or mayonnaise for dipping.



Fried ʻāholehole

Mū/*Monotaxis grandoculis*



MŪ FAST FACTS

- **Regulations:** None
- **Size at maturity:** 12 inches
- **Maximum age:** 23 years
- **State record:** 13 pounds, Rex C. Bigg, Hawai'i Island, 07/12/1992

Photo by Raymond Boland, Oahu

Mū

Scientific and common names: *Monotaxis grandoculis*/Mū/Humpnose Big-eye Bream

Fishery: Commonly targeted with spear, hook and line, and gill nets, Mū is a prized target for noncommercial fishers, while approximately 5,000 pounds are landed annually in the commercial fishery.^{10,17}

Regulations: None

Life history: Mū can grow up to 20 inches long, with males reaching larger sizes than females.^{3,44} Mū can live to be 23 years old, and reach maturity at 12 inches or 3.6 years.⁴⁴ Mū have a distinct spawning season from May through August.⁴⁴

Ecology: Mū is a nocturnal mesopredator. Using its large molar teeth to crush its food, it feeds mainly on snails, clams, hermit crabs, crabs, urchins, and small fish.³

In Hawaiian culture: Because the Mū has similar teeth and jaws to people, the man who was sent to get people to be ritually buried alive beside the body of a deceased chief was given the name Mū.⁹

Traditional cooking methods: Usually broiled, sometimes cooked in the imu.⁹

Spicy Mū Poke

Recipe provided by Alex Matsuyama, Hawai'i Island

“I like spearfishing and fishing on the Big Island. If they don't bite the hook, we can try get 'em with the spear shaft. Mū are tasty and smart fish. I enjoy the challenge and when I cook 'em, everyone enjoys.”

Ingredients

- 2 pounds Mū or the fish of your choice; gutted, cleaned, fileted, and cubed
- ½ cup mayonnaise
- ⅓ cup garlic chili
- 1 tablespoon Kadoya sesame oil
- ½ teaspoon salt, or to taste
- ¼ cup green onion
- ¼ cup sliced onion
- 3 tablespoons tobiko
- 1 tablespoon Sriracha

Preparation

1. Mix all ingredients together.



Spicy Mŭ Poke

Steamed Mū with Black Bean Sauce



Photos by Craig Omori, Maui

Black Bean Steamed Fish

Recipe provided by Raina Pasatiempo

“I was born and raised in Kailua, O’ahu, and come from a family of watermen. Because I was a girl, I only grew up watching and helping the men dive and prepare fish. As much as I wanted to learn, I wasn’t allowed to. So, I didn’t start diving until later in life at the age of 28 years old. I’ve had mentors, but most of it was self-taught. This recipe was inspired by another fellow diver that taught me a few things.”



Ingredients

- 1 pound Mū filets, with or without skin (you can do this with whole fish, gutted and scaled, as well)
- 1 tablespoon shoyu
- 1½ teaspoon sugar
- ½ teaspoon ground white pepper
- 1½ tablespoon garlic black bean sauce
- 2 tablespoons ginger, chopped, and a little extra julienned (optional)
- 1 tablespoon garlic, chopped
- ½ cup green onion, chopped
- ½ cup cilantro leaves
- 3 tablespoons canola oil
- 1 tablespoon sesame oil

Preparation

1. On the plate you're using to steam the fish (make sure the plate has some depth to catch the sauce), combine sugar, shoyu, and white pepper. Stir to dissolve the sugar as much as you can (it won't all be dissolved, that's okay).
2. Place the fish steaks on the plate and flip to coat in the sauce. Cover and marinate for 30 minutes in the fridge, flipping the fish halfway through.
3. Combine the garlic and ginger in a bowl, then add the black bean sauce.
4. Once the fish is done marinating, flip it one more time. Spread the mixture evenly to coat the fish.
5. Place the dish in a bamboo steamer and steam for 10–12 minutes (longer if needed).
6. Remove the dish from the heat and place the green onions and cilantro over the top of the cooked fish.
7. Combine the canola and sesame oil in a small sauté pan and heat carefully until smoking hot. Carefully spoon the hot oil over the cilantro and green onions.
8. Serve the dish hot with steamed rice.



Searing Black Bean Steamed Fish with hot oil

Alternate Baking Preparation (without the bamboo steamer)

1. Preheat the oven to 350 degrees.
2. Complete steps 1–5 but place the fish in an oven-safe Pyrex baking pan.
3. Cover the baking pan with aluminum foil and bake for 20–30 minutes (based on size of fish).
4. Once the fish is cooked through, complete steps 6–8.

(This recipe works with Mū, Weke, Munu, Moana, Kūmū, Uhu and various other Goatfish and Snappers.)



Finished dish Black Bean Steamed Fish

Spicy Jerk Mū

Recipe provided by Brian O'Callaghan



Photo by Brian O'Callaghan, O'ahu

Jerk Mū

Ingredients

- Mū, gutted and cleaned
- 1 Scotch bonnet or habanero pepper
- 4 scallions, chopped
- 3 whole garlic cloves
- 1 shallot, chopped
- ½-inch piece fresh ginger, chopped
- 1 teaspoon thyme, chopped
- 1½ teaspoon sea salt
- 1 teaspoon brown sugar
- ½ teaspoon allspice, ground
- ½ teaspoon pepper, freshly ground
- ¼ teaspoon cinnamon, ground
- 2 tablespoons vegetable oil
- 1 tablespoon dark rum
- 1 tablespoon fresh lime juice
- 1 tablespoon water
- 2 teaspoons shoyu

Preparation

1. For the marinade, place the following ingredients in a food processor and process until a paste forms: Scotch bonnet or habanero pepper, scallions, garlic, shallot, ginger, thyme, sea salt, brown sugar, allspice, pepper, and cinnamon.
2. Add the remaining seasoning ingredients to the paste and process until thoroughly mixed.
3. Cut slices on both sides of the fish.
4. Spread the marinade over the fish and fill in the slits.
5. Let the fish sit in the fridge for 2–3 hours, the longer the better.
6. Light a grill. If using fish baskets, lightly brush one with oil and place the fish inside. If using a fish grate, preheat it and lightly brush with oil. Grill the fish over a medium-hot fire until cooked through.

Mū Sliders

Recipe provided by Tate Yamashita

“Aloha, I’m Tate Yamashita! I grew up on the island of O’ahu and the ocean has always been a big part of my life. I enjoy spearfishing because I am able to provide food for others while also learning respect for the ocean and its inhabitants.”

Ingredients

- Mū, gutted and cleaned
- Panko
- Oil for frying
- Hawaiian King sweet rolls

Sauce

- ¼ cup honey
- 2 tablespoons yellow mustard
- ¼ cup barbeque sauce
- ½ cup mayonnaise

Preparation

1. Heat the oil on high.
2. Filet the Mū, then cut the filets into 2-inch squares.
3. Bread the squares in panko and deep-fry until golden brown.
4. Toast the Hawaiian King sweet rolls.
5. Mix all the sauce ingredients together.
6. Put the sauce and the fried Mū on the sweet rolls and serve as sandwiches.



Photo by Raymond Boland, O'ahu

ULUA AUKEA FAST FACTS

- **Regulations:** Minimum size, 10 inches; Bag limit of 20 for all species.
- **Size at maturity:** 23 inches
- **Maximum age:** 31 years
- **State record:** 191 pounds, Al Gadow, Maui, 01/14/1980

Ulua aukea/Caranx ignobilis

'ŌMILU FAST FACTS

- **Regulations:** Minimum size, 10 inches; Bag limit of 20 for all species.
- **Size at maturity:** 15 inches
- **Maximum age:** 24 years
- **State record:** 28.5 pounds, Pat Orden, O'ahu, 12/31/2007



'Ōmilu/Caranx melampygus

Photo by Raymond Boland, O'ahu

Ulua and 'Ōmilu

Scientific and common names: *Caranx ignobilis*/Ulua aukea/Giant Trevally
Caranx melampygus/'Ōmilu/Bluefin Trevally
Carangoides orthogrammus/Papa ulua/Island Jack
Caranx lugubris/Ulua lāuli/Black Trevally
Caranx sexfasciatus/Pake ulua/Bigeye Trevally
 Small Ulua under 10 pounds are called Pāpio

Fishery: The Ulua fishery represents the most popular noncommercial fishery in Hawai'i, with Ulua aukea and 'Ōmilu representing the most commonly targeted Jack species. Noncommercial fishers strive to enter the 100+ club by catching an Ulua over 100 pounds. Compared to the noncommercial fishery, the commercial catch of Jacks is relatively small, with an average of 41,000 pounds being caught commercially each year from 2010–2019.¹⁰

Regulations: Minimum capture size, 10 inches. Minimum size for sale, 16 inches. Bag limit of 20 for all species, noncommercial only.²

Life history: Twenty-seven species of Jacks are found in Hawai'i. Ulua aukea is the largest of the Jacks and can weigh over 150 pounds. Ulua aukea can live up to 31 years while 'Ōmilu can live to 24 years.⁴⁵ Ulua females reach maturity at a larger size than males at 23 inches, compared to 18 inches for males. For 'Ōmilu, females reach maturity at 15 inches and males at 13 inches.⁴⁵ Both species reach maturity at around 4 years for females and 3 years for males.⁴⁵

Ecology: Along with sharks, Jacks are the most important nearshore predators within Hawaiian coral reefs.⁴⁶ In the Northwestern Hawaiian Islands, predation rates by Ulua and 'Ōmilu are greater than the estimated combined predation for the three major shark species.^{46,47}

In Hawaiian culture: “Ka Ulua kapapa o ke kai loa” (The Ulua fish is a strong

Papa ulua/*Carangoides orthogrammus*

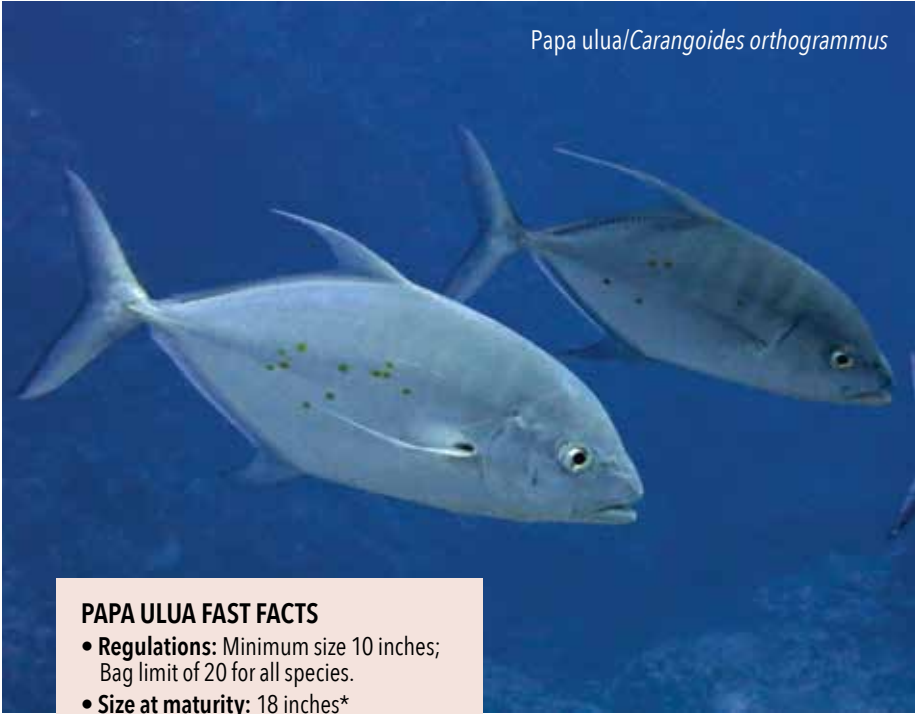


Photo by Raymond Boland, O'ahu

PAPA ULUA FAST FACTS

- **Regulations:** Minimum size 10 inches; Bag limit of 20 for all species.
- **Size at maturity:** 18 inches*
- **Maximum age:** 11 years*
- **State record:** 17.5 pounds, Jasen Nakahashi, Maui, 02/01/2017

* Size at maturity and maximum age were calculated based on maximum size.³⁸ These numbers have not been validated though life history studies.

warrior).⁴⁸ The Ulua was kapu (forbidden) for women to eat.⁹ The Ulua was also used in religious ceremonies as a substitute if a human sacrifice was not available.⁴⁸

Traditional cooking methods: Ulua were eaten raw or cooked. If large, they were usually baked, and if they were small they were broiled.⁹ The eyes were well liked, and stuffed into the belly before the fish was placed in the imu.⁹

'Ōmilu LauLau

Recipe provided by Daniel Pajardo, O'ahu

“I'm from O'ahu. I've been living off the land when I can since I was a child. I like fishing because groceries are expensive.”

Ingredients

- 'Ōmilu, fileted and cut into 2-inch cubes
- 2 slices of bacon, cut into 1-inch pieces
- Kalo leaves
- Hawaiian salt
- 2 ti leaves
- Garlic rice

Preparation

1. Stack three kalo leaves on top of each other with two pinches of Hawaiian salt between each leaf.
2. Lay 4–5 cubes of 'Ōmilu next to each other on the top leaf.
3. Place a few bacon pieces onto each 'Ōmilu cube.
4. Wrap the fish with kalo leaves, then wrap the kalo leaves with two ti leaves.
5. Steam for 4 hours.
6. Remove and discard ti leaves.
7. Serve the laulau on a bed of garlic rice.

Lily's Crispy Panko 'Ōmilu Fish Sticks

Recipe provided by Amanda Padilla, Maui

“Sharing and celebrating the catch with our 'ohana is one of my favorite things about fishing. Enjoy our delicious and simple recipe with your keiki's help.”

Ingredients

- 1 pound 'Ōmilu* filets, cut into 1-inch strips
- 1 cup flour
- 1 teaspoon salt
- ½ teaspoon garlic powder
- ½ teaspoon black pepper
- 2 eggs
- 2 cups panko breadcrumbs

* Can also use: Ōpakapaka, Uku, and Mahimahi

Preparation

1. Preheat the oven to 400 degrees.
2. Mix the flour with the salt, pepper, and garlic powder.
3. Beat the eggs in a separate bowl.
4. Pour the panko in a third bowl.
5. Coat the fish strips in the flour mixture, then dip in the eggs, then coat in the panko.
6. Place the fish strips onto an oiled or lined baking sheet and bake for 12–15 minutes, or until browned.
7. Enjoy with french fries and cucumbers.

Keiki approved!

Lemon Grilled 'Ōmilu

Recipe provided by Jeremy Anderson, Maui

“I have been living on Maui for 15 years, but grew up in Southern California. I got my love of fishing from my pops and my grandfather, spending years fishing off their boats. Once I moved to Hawai'i, I switched it up and became an avid shore caster, enjoying catch and consume of reef fish, especially the Barred Pāpio. I like to keep my fish recipes simple so the flavor of the fish can really shine. Also, I strongly believe in only taking what myself and my family will consume (unless it's gathering for a party) so that my son will have a chance to enjoy fishing these beautiful islands for years also. Mahalo.”

Ingredients

- 'Ōmilu, whole
- 1 large lemon
- Salt and pepper, to taste

Preparation

1. Light a grill and prepare coals.
2. Cut off 'Ōmilu fins and tail, cut open belly cavity, and remove all guts and gills.
3. Rinse and pat dry.
4. Cut half of the large lemon into slices.
5. Squeeze the other half of the lemon all over the fish.
6. Season the the fish all over and inside the belly cavity with generous amounts of salt and pepper.
7. Stuff the lemon slices into the belly cavity.
8. Wrap the entire fish in foil and throw on the grill for 10 minutes a side (adjust for size of fish).
The meat will flake off with a fork when done.



Photo by Jeremy Anderson, Maui

Lemon Grilled 'Ōmilu

Smoked Ulu

Recipe provided by Blake Fisher, O'ahu

“I love fishing and diving because it lets me escape to another world where my senses and my focus is heightened on a singular purpose. I came up with the recipe as I would teach my friends and family the joys of diving to let them taste the fruits of their labors on a relatively easier fish to get.”

Ingredients

- Ulu or 'Ōmilu filets
- Brown sugar, enough to coat the filets
- Salt, enough to coat the filets
- Black pepper, to taste
- Ginger, grated, to taste
- Garlic, minced, to taste

Accompaniments

- Ulu pa'ia'i
- Chili pepper water
- Cream cheese
- Dill
- Olive oil
- Pine nuts
- Lemon juice
- Crackers
- Tomatoes
- Onion
- Green onion

Preparation

1. Cure the filets overnight in salt and brown sugar.
2. Preheat a smoker to 220 degrees.
3. Rinse the filets and sprinkle with black pepper, ginger, and garlic.
4. Smoke for 2 hours.

To Serve:

Eat as is or with a side of Ulu pa'ia'i and chili pepper water. Mix with cream cheese, dill, olive oil, pine nuts, and a splash of lemon juice and eat with your favorite crackers. Or lomi with tomatoes, onions, and green onions, and eat with your favorite local classics.

Seared Ulua MacNut Pesto Pasta

Recipe provided by
Joe Wadahara, O'ahu

“My name is Joe Wadahara. I have four passions in life: family, fishing, firefighting, and food. I'm blessed to be able to enjoy them all here on O'ahu. I just love to catch fish and share 'em with my family and friends.”

For more of Joe's recipes check out his YouTube channel: On Fire Fishing Hawai'i



Omilu Pasta

Photo by Joe Wadahara, O'ahu

Ingredients

- Ulua filet
- Hawaiian salt
- White wine
- Cooked pasta

MacNut Pesto

- $\frac{2}{3}$ cup roasted unsalted macadamia nuts
- 1 cup packed fresh basil
- $\frac{1}{3}$ cup grated parmesan
- $\frac{1}{3}$ cup avocado oil or extra virgin olive oil
- 2 cloves garlic, minced
- $\frac{1}{4}$ teaspoon garlic salt

Preparation

1. Sprinkle a little salt over an Ulua filet.
2. Sear both sides in a hot pan.
3. Add about $\frac{1}{4}$ cup of white wine to the pan and cover with a lid so filets steam for a few minutes.
4. Place the macadamia nuts in a blender and pulse just until nuts have broken down to small pieces. Don't overprocess because you'll process again with the rest of the ingredients.
5. Add the fresh basil, parmesan, oil, minced garlic, and salt to the blender and pulse until all the ingredients have combined and no big pieces of basil remain.
6. When fish is done, place over pasta and coat with MacNut Pesto.

ROI FAST FACTS

- **Regulations:** None
- **Size at maturity:** 8 inches
- **Maximum age:** 25 years
- **State record:** 10.2 pounds, Kaulana Fuhrmann, Hawai'i Island, 01/31/2010

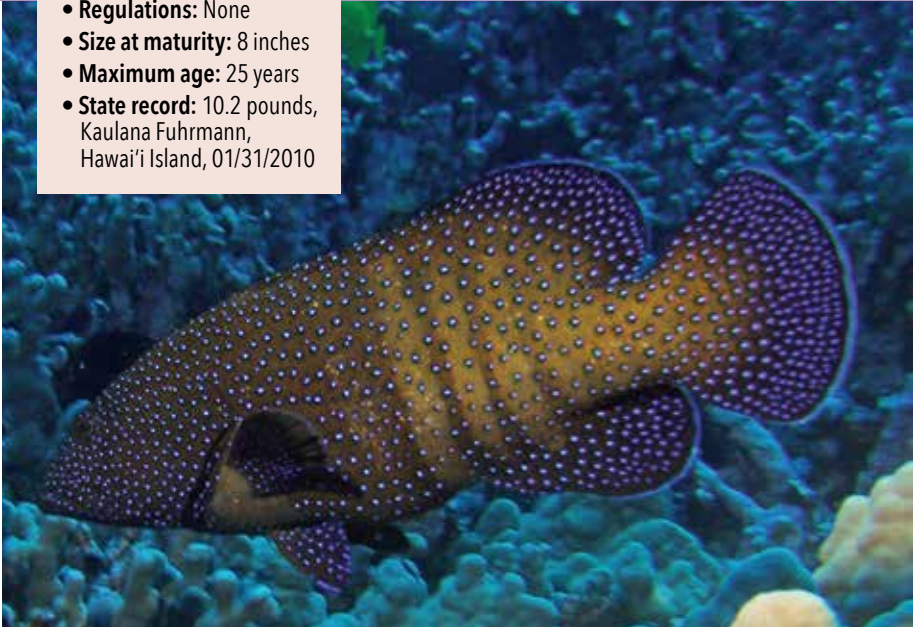


Photo by Raymond Boland, O'ahu

Roi/*Cephalopholis argus*

TA'APE FAST FACTS

- **Regulations:** None
- **Size at maturity:** 8 inches
- **Maximum age:** 10 years
- **State record:** 2.02 pounds, Nelson Kido, Penguin Banks, 02/25/2012



Photo by Toby Matthews, O'ahu

Ta'ape/*Lutjanus Kasmira*

The Invasives: Ta'ape, To'au, and Roi

Scientific and common names: *Lutjanus kasmira*/Ta'ape/Bluelined Snapper
Lutjanus fulvus/To'au/Blacktail Snapper
Cephalopholis argus/Roi/Peacock Grouper

Fishery: Over 40,000 pounds of invasives are commercially caught annually, with most of the catch being Ta'ape.

Regulations: None

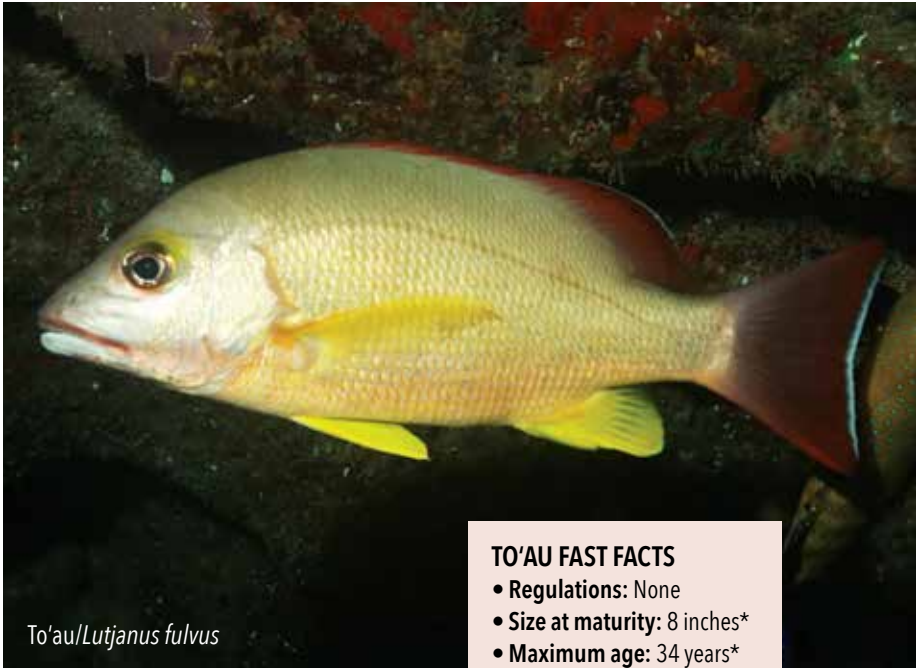
Life history: Roi can live up to 25 years old and reach up to two feet in length.^{3,49} Ta'ape can reach up to 15 inches and live for up to 10 years.^{3,50} To'au can grow up to 13 inches and can live up to 34 years in Japan.^{3,51} Roi, Ta'ape, and To'au all reach maturity around 8 inches.⁵⁰⁻⁵² Roi are hermaphrodites, starting life as females and then switching to males.

Ecology: The population of Roi is increasing alarmingly because the threat of ciguatera (see below) results in low catch rates.³ Approximately 75–95% of a Roi's diet are other native reef fish species, and Roi is now considered the most abundant large predator in Hawai'i.^{3,53} Ta'ape forms large semi-stationary schools during the day and at night they feed on crabs and small fish.³ To'au also feed on crabs and small fish but are usually found solo.³

Introduction to Hawai'i: All three species were introduced to Hawai'i in the mid-1950s to help support recreational fishing and take pressure off of local species.⁵⁴ A total of 2,400 Ta'ape were first introduced from the Marquesas Islands in Kāne'ohe Bay in 1958.¹² Over 2,000 Roi and To'au each were released at different locations on O'ahu between 1956–1961.¹²

Ciguatera concerns: Ciguatera seafood poisoning is caused by eating reef fish that have accumulated ciguatoxin, a microscopic organism that grows on marine algae, seaweed, or coral. The ciguatoxin can build up in the larger predator fish near the top of the food chain.⁵⁵ One in five Roi have been shown to have ciguatoxin.³ There

have been over 1,000 reported cases of ciguatera between 1990–2018, with most of the cases due to Roi.⁵⁶



To'au/*Lutjanus fulvus*

TO'AU FAST FACTS

- **Regulations:** None
- **Size at maturity:** 8 inches*
- **Maximum age:** 34 years*
- **State record:** 4.5 pounds, James Juan, Hawai'i Island 05/15/2007

* Size and age at maturity come from a study in Japan and could differ for Hawai'i.

Fried Invasives



Photo by Norton Chan, O'ahu

Fried Invasives

Recipe provided by Kirk Kamanu, O'ahu

“I am a Waimānalo fisherman, and director of Nāpu'uomalei and the Waimanalo Boat Ramp Papio Tournament. I love to fish and to share the bounties with others!”

Ingredients

- Ta'ape or To'au, gutted and scaled
- Garlic salt
- Coarse black pepper
- Oil for frying
- Green onions, chopped
- Shoyu
- Chili pepper water

Preparation

1. Preheat oil for frying on high.
2. Score each side of the fish generously.
3. Season the fish with garlic salt and coarse black pepper to taste.
4. Deep-fry until golden.
5. Garnish the fish with chopped green onion, and offer with shoyu and chili pepper water for dipping.

Seared To'au

Recipe provided by Titus Salter, O'ahu

“I started fishing as a toddler with my family. It's a nice social activity for me now. It's a break from the day-to-day grind and a good excuse to invite people over for meals.

“I like seared reef fish because it's the best of both worlds. The freshness of sashimi contrasts with the smoky, burnt flavor of the sear, then add in the flavors from the everything bagel seasoning, and it can't be beat. It's also a nice in-between for people who are squeamish about raw fish.”

Ingredients

- To'au or any reef fish, fileted
- Everything bagel seasoning, to taste

Preparation

1. Cut the filets into sashimi pieces.
2. Season the sashimi with everything bagel seasoning.
3. Hit the meat with a torch for a few seconds for a quick sear.

Invasive Nuggets



Photo by Tyler Hodges, O'ahu

Invasive Nuggets

Recipe provided by Tyler Hodges, O'ahu

“I enjoy fishing to get away from the mundane madness of everyday life. It truly is a peace you can't buy. Sometimes you get lucky enough to catch something big enough to take home, but all in all, the tug is the drug.”

Ingredients

- Invasive fish, fileted and cut into bite-sized pieces
- ¼ cup cornstarch
- 1 cup panko
- Garlic salt, to taste
- Pepper, to taste
- 2 eggs
- Oil for frying
- Green onions, for garnish
- Sweet chili sauce for dipping

* Amounts of ingredients will change based on size of fish.

Preparation

1. Preheat the oil for frying on high.
2. Wisk the eggs together into an egg wash.
3. Mix the cornstarch, garlic salt, and pepper together.
4. Dip bite-sized fish pieces into the egg wash.
5. Coat the pieces in the cornstarch mixture.
6. Dip the pieces back into the egg wash, then dip in panko.
7. Fry until golden brown.
8. Serve with sweet chili sauce and garnish with green onions.

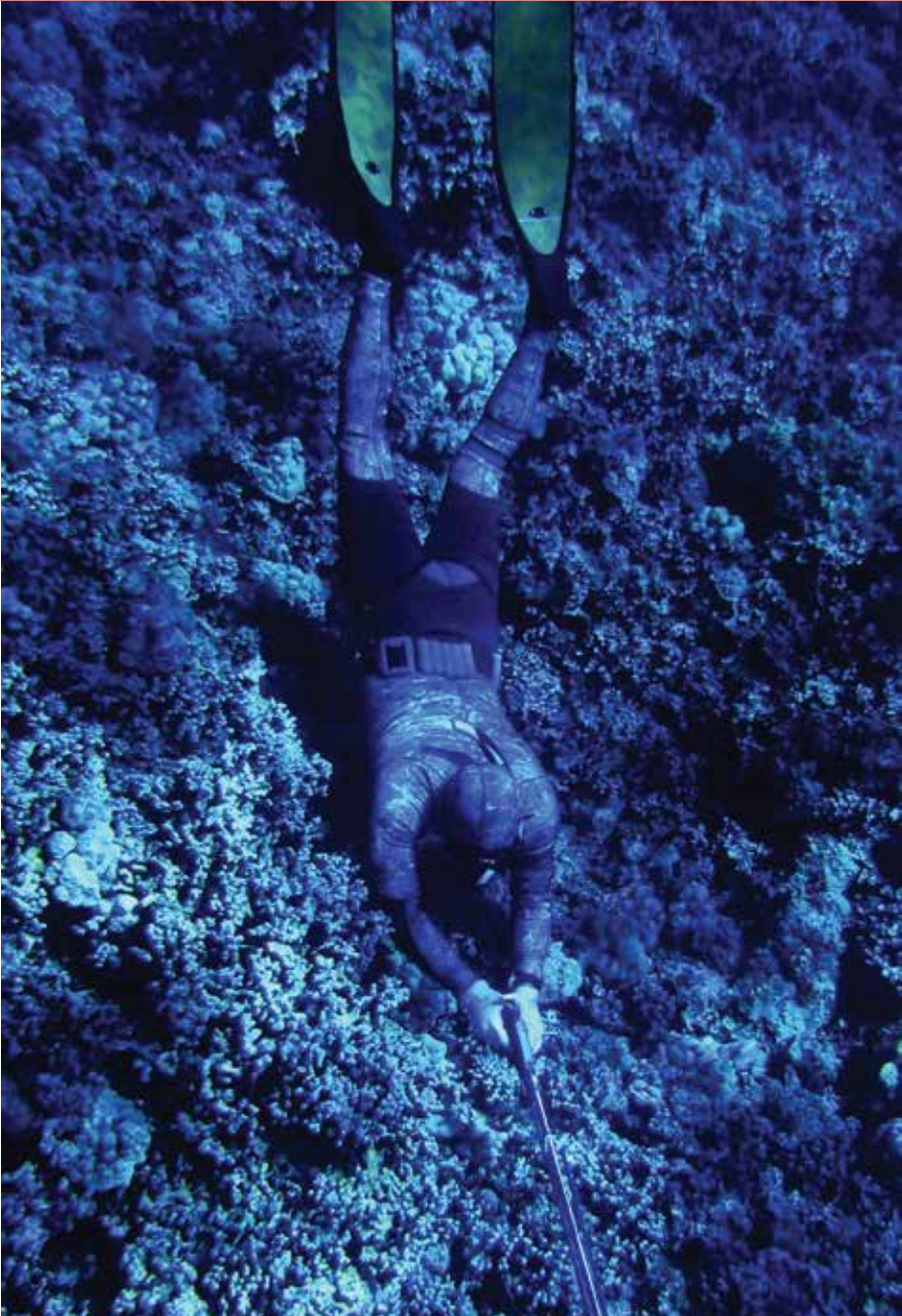


Photo by Dwayne deSerres

Bibliography

1. Kekoa, L. et al. *Holomua: 30x30 Initiative Sustainable Herbivore Management*. (2021).
2. Hawai'i Division of Land and Natural Resources. *Title 13 Subtitle 4 Chapter 95: Rules Regulating the Taking and Selling of Certain Marine Resources*. (2010).
3. Randall, J. E. *Shore Fishes of Hawaii*. (University of Hawai'i Press, 2010).
4. Langston, R., Longenecker, K. & Claisse, J. *Growth, mortality and reproduction of Kole, *Ctenochaetus strigosus**. (2009).
5. Schemmel, E. M. & Friedlander, A. M. Participatory fishery monitoring is successful for understanding the reproductive biology needed for local fisheries management. *Environ. Biol. Fishes* **100**, 171–185 (2017).
6. Schemmel, E. et al. The codevelopment of coastal fisheries monitoring methods to support local management. *Ecol. Soc.* **21**, (2016).
7. Honebrink, R. R. *Fishing in Hawaii-A student manual*. (2016).
8. Green, A. L. & Bellwood, D. R. *Monitoring Functional Groups of Herbivorous Reef Fishes as Indicators of Coral Reef Resilience A practical guide for coral reef managers in the Asia Pacific Region*. Science (IUCN, 2009).
9. Titcomb, M. *Native Use of Fish in Hawaii*. (University of Hawai'i Press, 1972).
10. Hawai'i Division of Aquatic Resources. *Commercial Marine Landings Summary Trend Report*. <http://dlnr.hawaii.gov/dar/files/2016/04/cmlstr2014.pdf> (2020).
11. Pardee, C., Wiley, J., Schemmel, E., Fendrick, T. & Giglio, J. Comparative demography of four large-bodied surgeonfish. *Environ. Biol. Fishes* **105**, 231–245 (2022).
12. Tinker, S. W. *Fishes of Hawaii*. (Hawaiian Service, Inc., 1982).
13. Nadon, M. O. *Stock assessment of the coral reef fishes of Hawaii, 2016*. NOAA Technical Memorandum, NMFS-PIFSC-60. (2017).
14. Andrews, A. H. et al. Age and growth of bluespine unicornfish (*Naso unicornis*): A half-century life-span for a keystone browser, with a novel approach to bomb radiocarbon dating in the Hawaiian Islands. *Can. J. Fish. Aquat. Sci.* **73**, 1575–1586 (2016).
15. DeMartini, E., Langston, R. & Eble, J. Spawning seasonality and body sizes at sexual maturity in the bluespine unicornfish, *Naso unicornis* (Acanthuridae). *Ichthyol. Res.* **61**, 243–251 (2014).
16. Hoey, A. S. & Bellwood, D. R. Limited Functional Redundancy in a High Diversity System: Single Species Dominates Key Ecological Process on Coral Reefs. *Ecosystems* **12**, 1316–1328 (2009).
17. Hosaka, E. Y. *Shore Fishing in Hawaii*. (The Petroglyph Press Ltd., 1973).
18. Choat, J. H. & Robertson, D. R. Age-Based Studies on Coral Reef Fishes. in *Coral Reef Fishes: Dynamics and Diversity in a Complex Ecosystem* (eds. Lieske, E. & Myers, R.) 57–80 (Academic Press, 2002).
19. Howard, K. G., Schumacher, B. D. & Parrish, J. D. Community structure and habitat associations of parrotfishes on O'ahu, Hawaii. *Environ. Biol. Fishes* **85**, 175–186 (2009).

20. DeMartini, E. et al. Comparative growth, age at maturity and sex change and longevity of Hawaiian parrotfishes with bomb radiocarbon validation. *Can. J. Fish. an Aquat. Sci.* **15**, 1–31 (2017).
21. Bonaldo, R. M. & Belwood, D. Size-dependent variation in the functional role of the parrotfish *Scarus rivulatus* on the Great Barrier Reef, Australia. *Mar. Ecol. Prog. Ser.* **360**, 237–244 (2008).
22. Manu, M. & Others. *Hawaiian Fishing Traditions*. (Kalamaku Press, 2006).
23. Wiley, J., Pardee, C. Life history of the endemic Hawaiian hogfish *Bodianus albotaeniatus*: age, growth, and reproduction. *J. Fish Biol* (2023).
24. Tsong, J. J. & Gillespie, J. *Fish in Hawai'i*. (Beach House Publishing LLC, 2017).
25. *Kumulipo A Hawaiian Creation Chant* (University of Chicago Press, 1951).
26. Pardee, C. & Wiley, J. *Filling Gaps in Data for Priority Coral Reef Species-Nenue BioSampling in Hawaii*. (2022).
27. Michael, P. J., Hyndes, G. A., Vanderklift, M. A. & Vergés, A. Identity and behaviour of herbivorous fish influence large-scale spatial patterns of macroalgal herbivory in a coral reef. *Mar. Ecol. Prog. Ser.* **482**, 227–240 (2013).
28. Sakihara, T. S., Nishiura, L. K., Shimoda, T. E., Shindo, T. T. & Nishimoto, R. T. Brassy chubs *Kyphosus vaigiensis* display unexpected trans-island movement along inshore habitats. *Environ. Biol. Fishes* (2014) doi:10.1007/s10641-014-0245-8.
29. Okano, R. L. Potential Influences of Submarine Groundwater Discharge, Nutrients, and Herbivory on Hawaiian Reef Algae. (University of Hawai'i at Mānoa, 2011).
30. Kamikawa, K. T. Insight into Seasonal Recruitment Dynamics of Juvenile *Mulloidichthys vanicolensis* and *M. flavolineatus*. (University of Hawai'i, 2016).
31. Cole, K. S. *Report to the Division of Aquatic Resources Dingell-Johnson Sport Fish Restoration*. https://dlnr.hawaii.gov/coralreefs/files/2015/02/Size-dependent-and-age-based-female-fecundity-and-reproductive-output-for-Mulloidichthys-flavolineatus-M.-vanicolensis-P.porphyreus_July-2009.pdf (2009).
32. Reed, E. M., Taylor, B. M., Reed, E. M. & Taylor, B. M. Life history of two data-poor but commercially valuable tropical reef fishes, *Parupeneus barberinus* and *Mulloidichthys flavolineatus*, from the Saipan fishery, Northern Mariana Islands. *Mar. Freshw. Res.* **72**, 383–397 (2020).
33. Samejima, S. & Tachihara, K. Age, growth and reproductive biology of a widespread coral reef fish, yellowfin goatfish *Mulloidichthys vanicolensis* (Valenciennes, 1831). *J. Fish Biol.* (2022) doi:10.1111/JFB.15033.
34. Samejima, S., Uehara, M. & Tachihara, K. Life-history traits of a widely distributed coral reef fish, *Mulloidichthys flavolineatus* (Mullidae), Okinawa Island, southern Japan. *Environ. Biol. Fishes* **104**, 1559–1574 (2021).
35. Uiblein, F. Goatfishes (Mullidae) as indicators in tropical and temperate coastal habitat monitoring and management. (2007) doi:10.1080/17451000701687129.

36. Krajewski, J. P. & Sazima, I. Foraging activity and behaviour of two goatfish species (Perciformes: Mullidae) at Fernando de Noronha Archipelago, tropical West Atlantic Vertebrate Natural History View project Natural History of Fish of the Bonito and Pantanal-Brazil View project. *Artic. Environ. Biol. Fishes* (2006) doi:10.1007/s10641-006-9046-z.
37. Moffit, R. B. Age, growth, and reproduction of the kumu, *Parupeneus porphyreus* Jenkins. (University of Hawaii, 1979).
38. Nadon, M. O. & Ault, J. S. A stepwise stochastic simulation approach to estimate life history parameters for data-poor fisheries. *Can. J. Fish. Aquat. Sci.* **73**, 1–11 (2016).
39. Craig, M. T. & Franklin, E. C. *Life history of Hawaiian "redfish": a survey of age and growth in āweoweo (Priacanthus meeki) and u'u (Myripristis berndti)*. (2008).
40. Myers, R. *Micronesian Reef Fishes: A Practical Guide to the Identification of the Coral Reef Fishes of the Tropical Central and Western Pacific*. (Coral Graphics, 1991).
41. Yamamoto, M. N. & Tagawa, A. W. *Hawaii's native and exotic freshwater animals*. (Mutual Publishing, 2000).
42. Tester, A. L. & Takata, M. *A contribution to the biology of the āholehole, a potential baitfish*. (1953).
43. Benson, L. K. & Fitzsimons, & J. M. Life history of the Hawaiian fish *Kuhlia sandvicensis* as inferred from daily growth rings of otoliths. *Environ. Biol. Fishes* **65**, 131–137 (2002).
44. Pardee, C. & Wiley, J. Life history of the humpnose big-eye bream *Monotaxis grandoculis*. *J. Fish Biol.* **100**, 1541–1547 (2022).
45. Pardee, C., Wiley, J. & Springer, S. Age, growth and maturity for two highly targeted jack species: *Caranx ignobilis* and *Caranx melampygus*. *J. Fish Biol.* **99**, 1247–1255 (2021).
46. Friedlander, A. M. & DeMartini, E. E. Contrasts in density, size, and biomass of reef fishes between the northwestern and the main Hawaiian islands: the effects of fishing down apex predators. *Mar. Ecol. Prog. Ser.* **230**, 253–264 (2002).
47. Sudekum, A. E., Parrish, J. D., Radtke, R. L. & Ralston, S. Life History and Ecology of Large Jacks in Undisturbed, Shallow, Oceanic Communities*. *Fish. Bull. US* **89**, 493–513 (1991).
48. Gaffney, R. *Evaluation of the status of the recreational fishery for ulua in Hawaii, and recommendations for future management*. (2000).
49. Donovan, M. K. Demographic Patterns in the Peacock Grouper *Cephalopholis argus*, An introduced Hawaiian Reef Fish. (University of Hawai'i at Mānoa, 2012).
50. Ralston, S. & Williams, H. A. *Age and Growth of Lutjanus kasmira, Lethrinus rubrioperculatus, Acanthurus lineatus and Ctenochaetus striatus from American Samoa*. (1988) doi:10.2984/65.3.345.
51. Shimose, T. & Nanami, A. Age, growth, and reproductive biology of blacktail snapper, *Lutjanus fulvus*, around the Yaeyama Islands, Okinawa, Japan. *Ichthyol. Res.* **61**, 322–331 (2014).

52. Schemmel, E. M., Donovan, M. K., Wiggins, C., Anzivino, M. & Friedlander, A. M. Reproductive life history of the introduced peacock grouper *Cephalopholis argus* in Hawaii. *J. Fish Biol.* **89**, 1271–1284 (2016).
53. Dierking, J. & Campora, C. E. Ciguatera in the Introduced Fish *Cephalopholis argus* (Serranidae) in Hawai'i and Implications for Fishery Management1. <https://doi.org/10.2984/049.063.0203> **63**, 193–204 (2009).
54. MacKellar, J. S. *Hawaii Goes Fishing Techniques of Yesterday and Today*. (Graphic Publishing Company, 1956).
55. Hawaii State Department of Health Disease Investigation Branch. Ciguatera Fish Poisoning. https://health.hawaii.gov/docd/files/2013/05/dib_ciguatera.pdf (2018).
56. Loeffler, C. R. et al. Ciguatoxin in Hawai'i: Fisheries forecasting using geospatial and environmental analyses for the invasive *Cephalopholis argus* (Epinephelidae). *Environ. Res.* **207**, 112164 (2022).

A RECIPE FOR SUSTAINABLE FISHING

Hawaiian fishing traditions and the latest marine science—
straight to your kitchen!

What makes this book unique:

- 50-plus 'ono recipes from local lawai'a on each of the main Hawaiian Islands
- Information on size at reproduction, maximum age, and ecosystem function for 34 commonly caught reef fish
- Underwater fish photos from local photographers
- Traditional Native Hawaiian uses and preparation for each species
- Hawai'i fishing regulations and catch records



 **LEGACY ISLE**
PUBLISHING

 90000
9 781958 701034
ISBN 978-1-958701-03-4