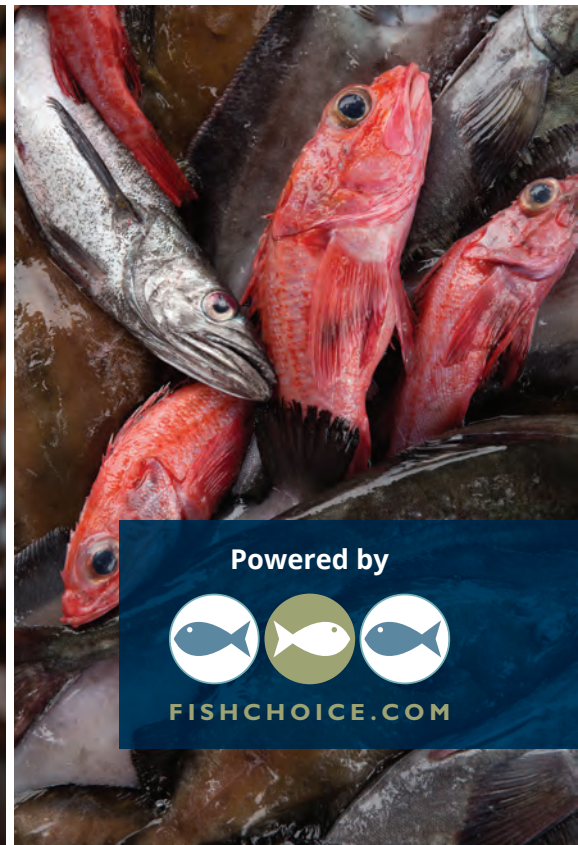




# U.S. WEST COAST GROUNDFISH MANUAL



## The U.S. West Coast groundfish fishery is the backbone of many fishing communities.



Consisting of more than 90 different species of flatfish, rockfish and roundfish caught in waters off of California, Oregon and Washington, the fishery is a true environmental success story. After being declared a federal disaster in 2000, this fishery has made dramatic improvements through full catch accountability, ecosystem protections, incentives to reduce bycatch and avoidance of overfished species. In 2014, the fishery received Marine Stewardship Council certification and Seafood Watch removed 21 species from “Avoid (red)” status and moved them to either “Good Alternative (yellow)” or “Best Choice (green).”

The abundance, variety, and quality of these fish are still under-appreciated in the marketplace, however, and more than half the fishing quota goes uncaught every year. This Groundfish Manual is your guide to some of the West Coast’s most prominent species. Inside, you will find photos of the fish whole and filleted, along with cooking suggestions, flavor profiles, and details on availability, sustainability and more.

We have chosen these 13 species to profile because they are among the best recognized and studied, but keep in mind that many lesser known species from this fishery, including a number of species of rockfish, are also managed sustainably and deserve a place on America’s table.

Help make U.S. West Coast Groundfish a success story for the ocean, American fishing communities and your business.

# TABLE OF CONTENTS

## FLATFISH

Dover Sole .....	4
English Sole .....	6
Pacific Sanddab .....	8
Petrale Sole .....	10
Starry Flounder .....	12

## ROCKFISH

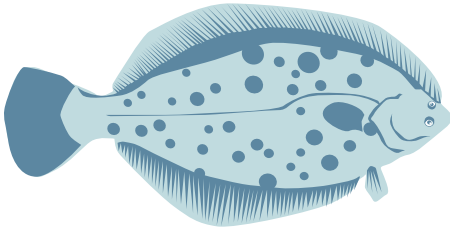
Chilipepper Rockfish .....	14
Longspine Thornyhead .....	16
Shortspine Thornyhead .....	18
Splitnose Rockfish .....	20
Widow Rockfish .....	22
Yellowtail Rockfish .....	24

## OTHER

Lingcod .....	26
Longnose Skate .....	28
Summary tables .....	30



# DOVER SOLE



**DOVER SOLE**  
*Microstomus pacificus*

**MARKET NAMES:**  
slime sole, slippery sole

**Dover sole** is found from Baja California to the Bering Sea and eastern Aleutian Islands. The elongated body has very small scales and the top side of the fish coloration varies from grayish brown to brown and it may include darker spots. Dover sole can reach a maximum of 10 pounds (few are over 2 lbs.), 2.5 feet, and live more than 50 years.



## SOURCING

- Not to be confused with European Dover sole (*Solea vulgaris*), Dover sole from the Pacific has a delicate taste and firm-textured flesh, although it is not as mild as European Dover sole.
- Since flatfish quality can vary immensely, buyers recommend looking for Dover sole that has uniform color and lacks bruises.
- Yellow or gray color fillets indicate old age.
- Fresh fish can last up to 10 days on ice.
- U.S. West Coast fishery is open year-round, but stops when fishers redirect to other target species.
- Dover sole and English sole are often used interchangeably in the market.

## PRODUCT FORMS

PRODUCT	FRESH	FROZEN
FILLETS	X	X
H&G		X
WHOLE	X	X

## COOKING METHODS

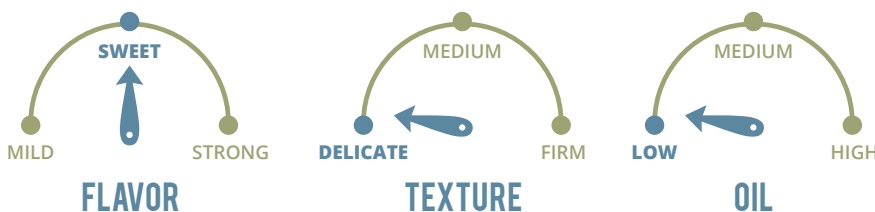


## SELLING POINTS

- Thin, firm fillets that hold well in many preparations
- Cooked meat is a clean, white color
- Forgiving texture and delicate taste makes it popular among American consumers



## CULINARY COMPOSITION

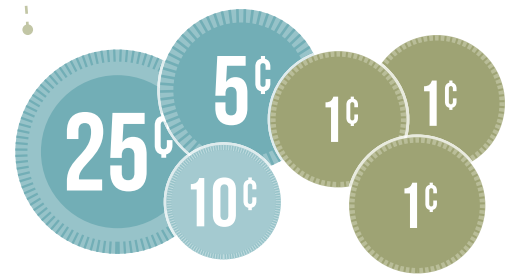
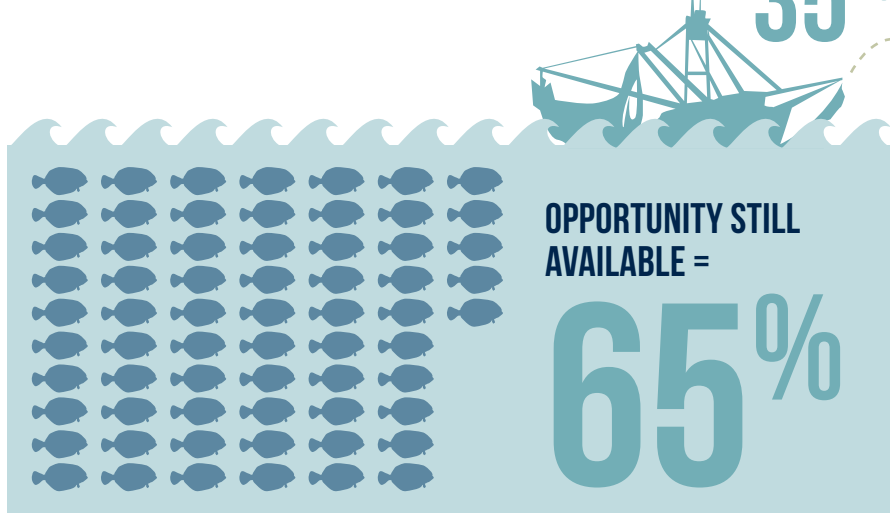


# DOVER SOLE: U.S. WEST COAST

FISHING QUOTA REALIZED 2011 – 2014 = **35%**

AVG. PRICE PAID TO FISHERMEN 2011 – 2014 =

**43¢**  
PER POUND



## SEAFOOD WATCH CONSERVATION SUMMARY

SEAFOOD WATCH RATINGS	IMPACT ON STOCK	HABITAT IMPACTS	BYCATCH	MANAGEMENT	U.S. WEST COAST/CGC*	BRITISH COLUMBIA	ALASKA
					BEST CHOICE	GOOD ALT.	UNRATED
<b>BEST CHOICE</b>	Dover sole, found in the waters off CA, OR, WA, BC, and AK, have variable abundance that is considered healthy overall.	Dover sole are primarily caught using trawls targeting the flatfish in the soft muddy areas where they live, minimizing habitat impacts.	There is little bycatch in the Pacific Dover sole fishery, aided by gear improvements that help trawlers avoid bycatch hotspots.	Dover sole on the U.S. West Coast are managed with other groundfish species and measures include: 100% observer coverage on trawlers, gear restrictions and a catch share program.	●	●	●
<b>GOOD ALTERNATIVE</b>					●	●	●
<b>AVOID</b>					●	●	●
<b>UNRATED</b>					●	●	●

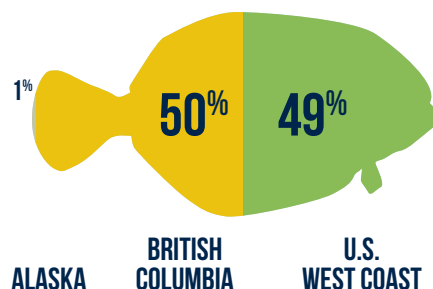
\*California Groundfish Collective

### U.S. WEST COAST DOVER SOLE SUSTAINABILITY

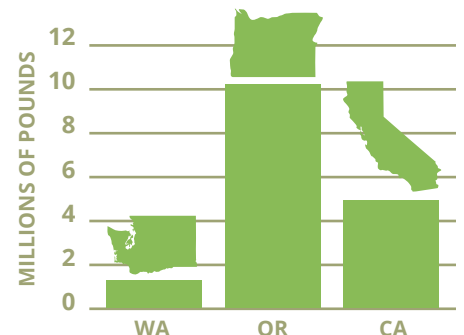
Monterey Bay Aquarium  
**Seafood Watch**



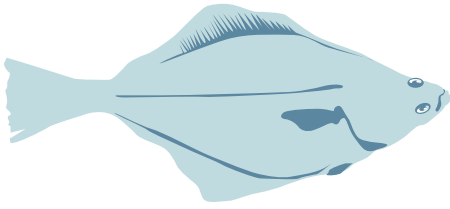
### DOVER SOLE LANDINGS BY REGION 2011 - 2014



### U.S. WEST COAST DOVER SOLE LANDINGS, AVG. 2011 - 2013



# ENGLISH SOLE



**ENGLISH SOLE**  
*Parophrys vetulus*

**MARKET NAMES:**  
lemon sole

**English sole** is found from Baja California to the Bering Sea. The scales on the fish go from smooth to rough from the center of the fish to the edges and coloration of the top side of the fish ranges from an olive brown to reddish brown and may have white spots. The fish can reach lengths of 22 inches (commercial size closer to 14") and weigh 3+ lbs.



## SOURCING

- Usually caught on short trips during spring and summer.
- Fish should have a uniform color and lack bruises.
- Yellow or gray color fillets indicate old age.
- English sole has a distinct iodine smell that isn't as strong when cooked.
- English sole is a smaller flatfish and its smaller fillets can be a good value.
- Fresh fish can last up to 10 days on ice.
- Dover sole and English sole are often used interchangeably in the market.

## PRODUCT FORMS

PRODUCT	FRESH	FROZEN
FILLETS	X	X
H&G		X
WHOLE	X	X

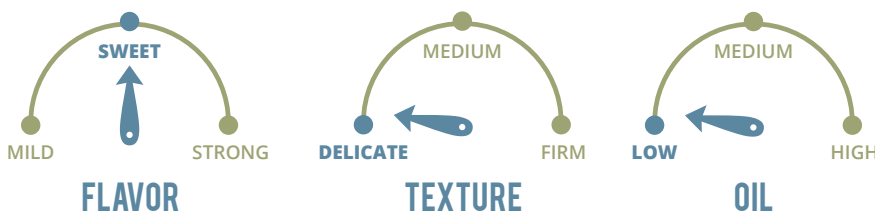
## COOKING METHODS



## SELLING POINTS

- Affordable and available year-round
- Thin fillets that hold well in many preparations
- Cooked meat is a clean, white color
- Forgiving texture and delicate taste makes it popular among American consumers

## CULINARY COMPOSITION

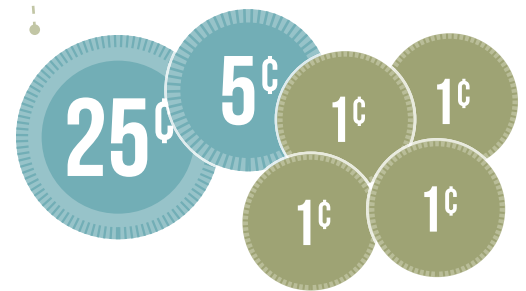
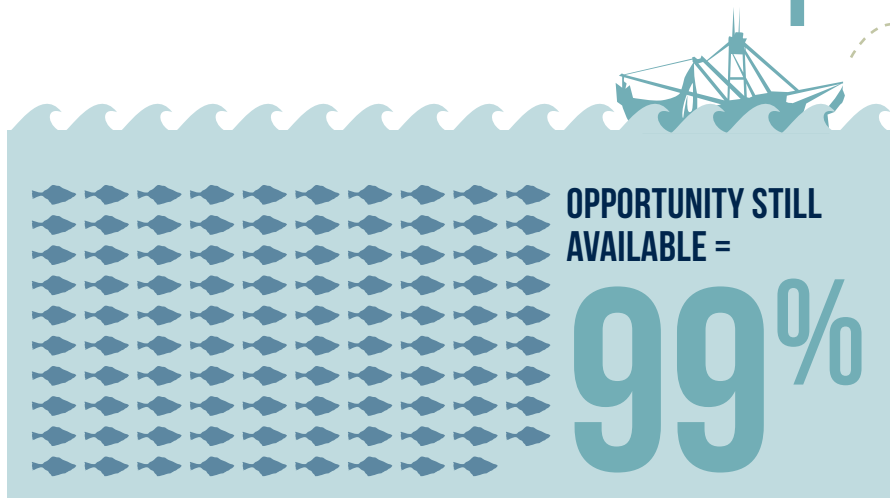


# ENGLISH SOLE: U.S. WEST COAST

FISHING QUOTA REALIZED 2011 – 2014 = **1%**

AVG. PRICE PAID TO FISHERMEN 2011 – 2014 =

**34¢**  
PER POUND



## SEAFOOD WATCH CONSERVATION SUMMARY

- SEAFOOD WATCH RATINGS**
- BEST CHOICE**
  - GOOD ALTERNATIVE**
  - AVOID**
  - UNRATED**

<b>IMPACT ON STOCK</b>	English sole is found primarily along the U.S. West Coast and British Columbia. Recent stock assessments show populations are healthy.
<b>HABITAT IMPACTS</b>	English sole are primarily caught in sand and gravel habitats, which minimizes impacts from trawl gear.
<b>BYCATCH</b>	Bycatch along the U.S. West Coast is closely managed and mandatory use of selective flatfish trawl nets helps reduce bycatch.
<b>MANAGEMENT</b>	English sole management on the U.S. West Coast is considered strong due to measures that include: 100% observer coverage on trawlers, gear restrictions, and a catch share program.

U.S. WEST COAST/CGC*	BRITISH COLUMBIA	ALASKA
BEST CHOICE	GOOD ALT.	UNRATED
●	●	●
●	●	●
●	●	●
●	●	●

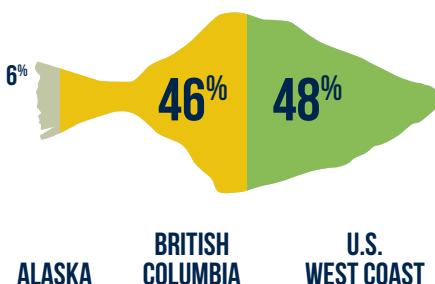
\*California Groundfish Collective

### U.S. WEST COAST ENGLISH SOLE SUSTAINABILITY

Monterey Bay Aquarium  
**Seafood Watch**



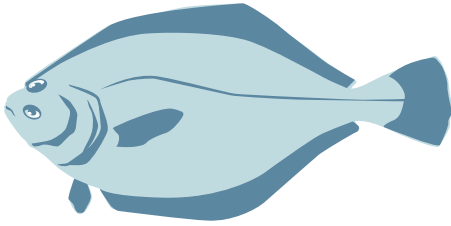
### ENGLISH SOLE LANDINGS BY REGION 2011 – 2013



### U.S. WEST COAST ENGLISH SOLE LANDINGS, AVG. 2011 – 2013



# PACIFIC SANDDAB



**PACIFIC SANDDAB**  
*Citharichthys sordidus*

**MARKET NAMES:**  
Catalina sanddab,  
soft flounder, megrim

**Pacific Sanddab** is found from Baja California to the Bering Sea and the Sea of Japan. The oval shaped body is light brown with brown, black, yellow or orange markings. Identification of this fish from other sanddabs requires gill raker (12 – 16) and lateral line (61 – 70) scale counts. One of the smallest flatfish, the fish can reach 16 inches and 2 lbs.



## SOURCING

- Pacific sanddab are usually less than 1/2 pound in size and marketed pan-ready.
- Fresh fish can last up to 10 days on ice.
- U.S. West Coast fishery is open year-round, but stops when fishers redirect to other target species.
- Fresh fillets should have a translucent sheen giving the meat a wet appearance.
- Raw flesh should be very firm and smell like the sea, not fishy.

## PRODUCT FORMS

PRODUCT	FRESH	FROZEN
FILLETS	X	X
WHOLE	X	X
PAN READY		X

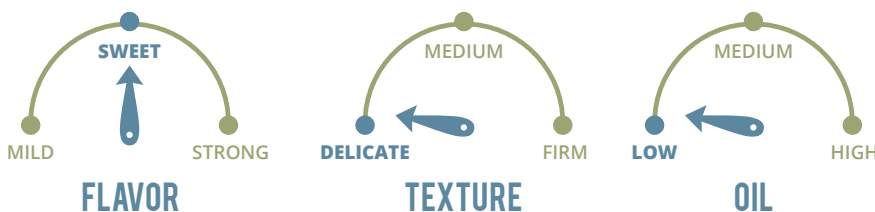
## COOKING METHODS



## SELLING POINTS

- Thin, firm fillets that hold well in many preparations
- Cooked meat is a clean, white color
- Pacific sanddab is known for its sweet, nutty flavor and is popular among many consumers

## CULINARY COMPOSITION





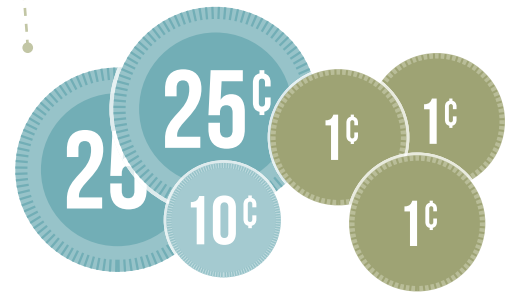
# PACIFIC SANDDAB: U.S. WEST COAST

FISHING QUOTA REALIZED 2011 – 2014 = **NA**

AVG. PRICE PAID TO FISHERMEN 2011 – 2014 =

**63¢**  
PER POUND

THERE IS NO QUOTA SPECIFICALLY FOR PACIFIC SANDDAB AS IT IS CAUGHT AS PART OF A COLLECTIVE OF SPECIES DESIGNATED AS 'OTHER FLATFISH'



## SEAFOOD WATCH CONSERVATION SUMMARY

SEAFOOD WATCH RATINGS		C.G.C.*	
		BEST CHOICE	GOOD ALT.
<b>BEST CHOICE</b>	<b>IMPACT ON STOCK</b>	●	●
<b>GOOD ALTERNATIVE</b>	<b>HABITAT IMPACTS</b>	●	●
<b>AVOID</b>	<b>BYCATCH</b>	●	●
<b>UNRATED</b>	<b>MANAGEMENT</b>	●	●

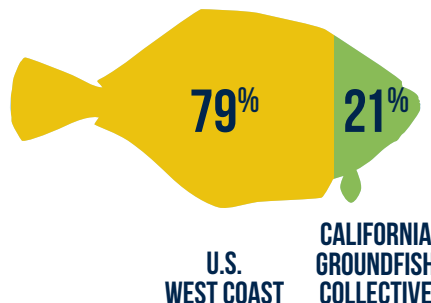
\*California Groundfish Collective

### U.S. WEST COAST PACIFIC SANDDAB SUSTAINABILITY

Monterey Bay Aquarium  
**Seafood Watch**



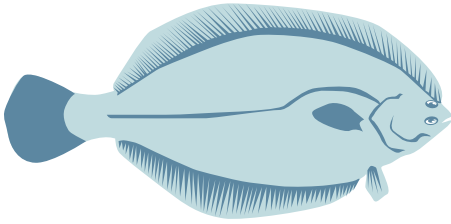
### PACIFIC SANDDAB LANDINGS BY REGION 2011 - 2012



### U.S. WEST COAST PACIFIC SANDDAB LANDINGS, AVG. 2011 - 2012



# PETRALE SOLE



**PETRALE SOLE**  
*Eopsetta jordani*

**MARKET NAMES:**  
flounder, California sole,  
brill, petral

**Petrale sole** is found from northern Baja California to the Bering Sea, Aleutian Islands and Gulf of Alaska. The oval-to round-shaped body is uniformly light to dark brown in coloration with smooth skin. Petrale sole can grow up to 2 feet and live 17 years.



## SOURCING

- Whole fish usually weigh between 1 and 3 lbs. and fillets vary from 3 – 10 ounces.
- Fish should have a uniform color and lack bruises.
- Yellow or gray color fillets indicates old age.
- The best time to buy petrale sole for price is in the winter.
- As larger flatfish sell for a premium, smaller fillets can be a good value.
- Fresh fish can last up to 10 days on ice.

## PRODUCT FORMS

PRODUCT	FRESH	FROZEN
FILLETS	X	X
H&G		X
WHOLE	X	X

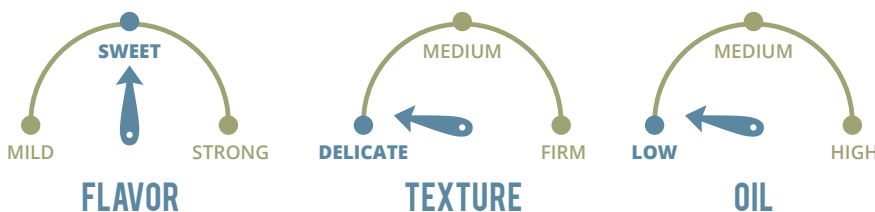
## COOKING METHODS



## SELLING POINTS

- Affordable and available year-round
- Thin fillets that hold well in many preparations
- Cooked meat is a clean, white color
- Delicate texture and mild taste makes it popular among American consumers

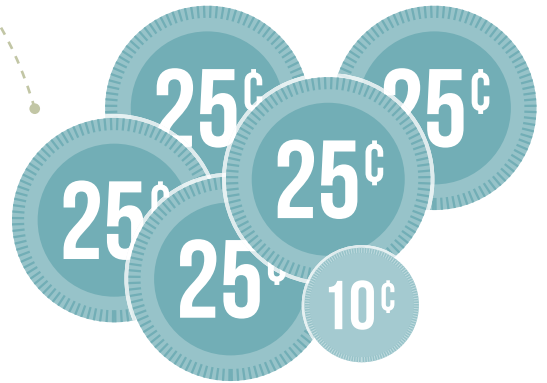
## CULINARY COMPOSITION



# PETRALE SOLE: U.S. WEST COAST

FISHING QUOTA REALIZED  
2011 – 2014 = **95%**

AVG. PRICE PAID  
TO FISHERMEN  
2011 – 2014 = **\$1.35**  
PER POUND



## SEAFOOD WATCH CONSERVATION SUMMARY

- SEAFOOD WATCH RATINGS**
- BEST CHOICE**
  - GOOD ALTERNATIVE**
  - AVOID**
  - UNRATED**

<b>IMPACT ON STOCK</b>	Petrale sole, once considered overfished along the U.S. West Coast has recovered. The species life history makes it moderately vulnerable to fishing pressure.
<b>HABITAT IMPACTS</b>	Petrale sole are primarily caught in sandy and muddy habitats making impacts from trawl gear minimal.
<b>BYCATCH</b>	There is little bycatch in the U.S. West Coast petrale sole fishery as much of the fish is caught in a multispecies integrated fishery.
<b>MANAGEMENT</b>	Petrale sole on the U.S. West Coast is considered strong due to measures that include: 100% observer coverage on trawlers, gear restrictions, and a catch share program.

CGC*	U.S. WEST COAST	BRITISH COLUMBIA
<b>BEST CHOICE</b>	<b>GOOD ALT.</b>	<b>GOOD ALT.</b>
●	●	●
●	●	●
●	●	●
●	●	●

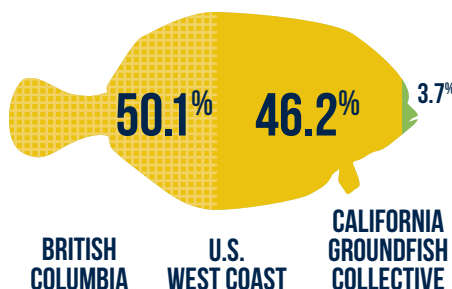
\*California Groundfish Collective

### U.S. WEST COAST PETRALE SOLE SUSTAINABILITY

Monterey Bay Aquarium  
**Seafood Watch**



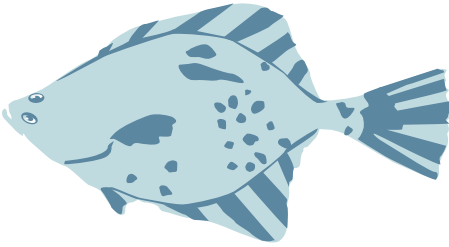
### PETRALE SOLE LANDINGS BY SFW RATINGS 2011 - 2014



### PETRALE SOLE LANDINGS BY SUSTAINABILITY, 2011 - 2012



# STARRY FLOUNDER



**STARRY FLOUNDER**  
*Platichthys stellatus*

**MARKET NAMES:**  
California flounder,  
diamond flounder,  
grindstone

**Starry Flounder** range from Southern California to the Bering Sea and Aleutian Islands, the Sea of Japan and the Sea of Okhotsk. The oval body and pointed head ranges in coloration from olive to dark brown or black. Starry flounder has light yellow/orange colored fins with distinct black bars.



## SOURCING

- Fish should have a uniform color and lack bruises.
- Yellow or gray color fillets indicate old age.
- Starry flounder is one of the biggest flounders from the Pacific and can reach 10 – 15 lbs.
- As larger flatfish sell for a premium, smaller fillets can be a good value.
- Fresh fish can last up to 10 days on ice.

## PRODUCT FORMS

PRODUCT	FRESH	FROZEN
FILLETS	X	X
H&G		X
WHOLE	X	X

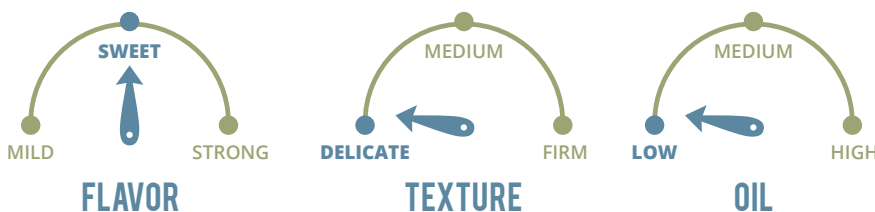
## COOKING METHODS



## SELLING POINTS

- Affordable and available year-round
- Thicker fillet has more culinary options in preparation and serving
- Cooked meat is a clean, white color
- Forgiving texture and delicate taste makes it popular among American consumers
- Texture of starry flounder is more firm than other flounders

## CULINARY COMPOSITION

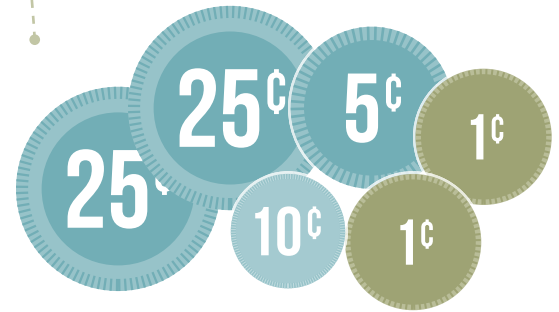
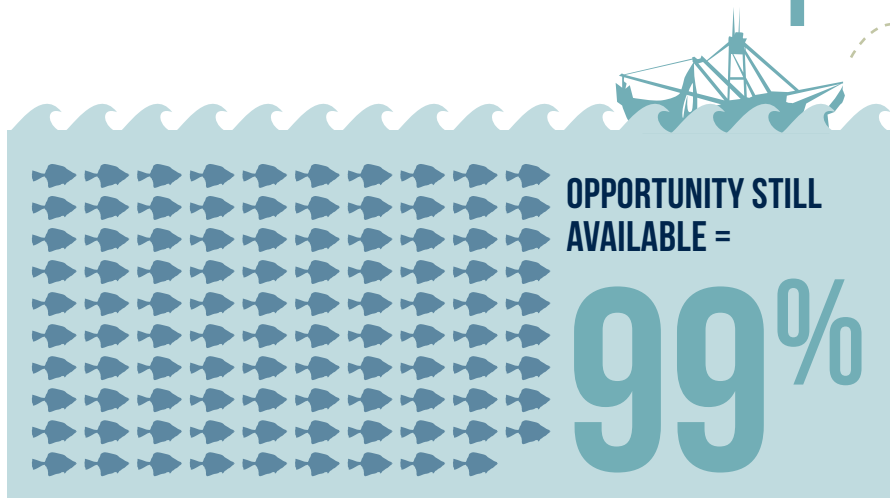


# STARRY FLOUNDER: U.S. WEST COAST

FISHING QUOTA REALIZED 2011 – 2014 = **1%**

AVG. PRICE PAID TO FISHERMEN 2011 – 2014 =

**67¢**  
PER POUND



## SEAFOOD WATCH CONSERVATION SUMMARY

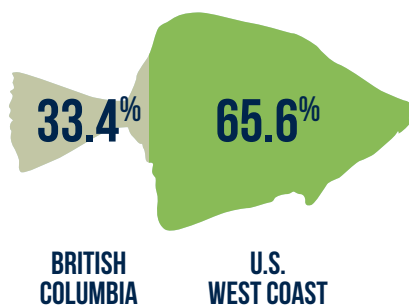
		U.S. WEST COAST	BRITISH COLUMBIA
<b>SEAFOOD WATCH RATINGS</b> <b>BEST CHOICE</b> <b>GOOD ALTERNATIVE</b> <b>AVOID</b> <b>UNRATED</b>	<b>IMPACT ON STOCK</b>	Starry flounder are found along the coasts from Southern California to the Aleutian Islands. The most recent stock assessment in 2005 showed healthy northern and southern populations.	<b>BEST CHOICE</b>
	<b>HABITAT IMPACTS</b>	Starry flounder are primarily caught using trawls in sandy and muddy habitats that are resilient to fishing impacts.	<b>UNRATED</b>
	<b>BYCATCH</b>	There are very few true bycatch species caught in fisheries targeting starry flounder.	<b>UNRATED</b>
	<b>MANAGEMENT</b>	Starry flounder on the U.S. West Coast is considered strong due to measures that include: 100% observer coverage on trawlers, gear restrictions, and a catch share program.	<b>UNRATED</b>

### U.S. WEST COAST STARRY FLOUNDER SUSTAINABILITY

Monterey Bay Aquarium  
**Seafood Watch**



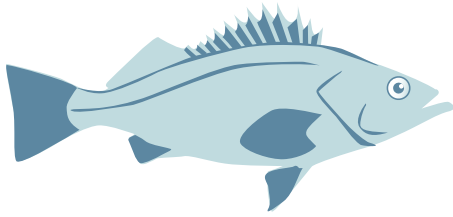
### STARRY FLOUNDER LANDINGS BY REGION 2011 – 2014



### U.S. WEST COAST STARRY FLOUNDER LANDINGS AVG. 2011 – 2013



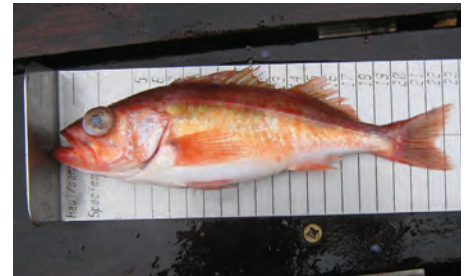
# CHILIPEPPER ROCKFISH



**CHILIPEPPER ROCKFISH**  
*Sebastes goodei*

**MARKET NAMES:**  
Pacific red snapper,  
chilipepper sea perch

**Chilipepper Rockfish** range from Baja California to British Columbia. The fish has an elongated head that lacks spines, a protruding lower jaw and a distinct bright red zone along its lateral line. Chilipepper rockfish differ from bocaccio rockfish with a smaller mouth and an upper jaw that extends to the center of the eye. This species can grow to 22 inches and live to be 16 years old.



## SOURCING

- Rockfish skin should be shiny and bright and is stale if it appears yellow, orange or wrinkled.
- Fillets shouldn't have signs of browning, graying or yellowing.
- Fillets hold together better with skin on.
- Whole fish should have shiny, bright, and clear eyes.
- Gills should be bright pink or red (not brick red) and scales should be shining and clinging to the skin.
- Flesh on fillets should be moist and when pressed, bounce back to original form.

## PRODUCT FORMS

PRODUCT	FRESH	FROZEN
FILLETS	X	X
H&G		X
WHOLE	X	X

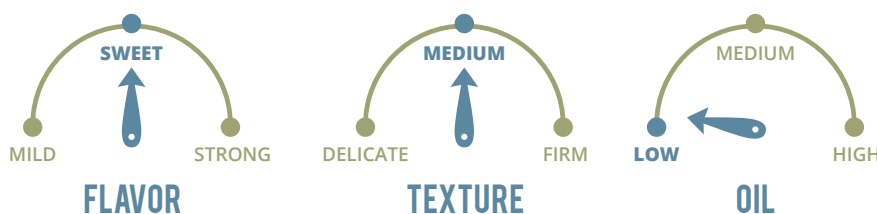
## SELLING POINTS

- Affordable and available year-round
- Texture fits nicely between more delicate flounders and more firm swordfish
- Rockfish hold well in many preparations and remains moist when baked
- Whole, dressed rockfish are well suited to cook on a barbecue
- Chilipepper name adds menu appeal

## COOKING METHODS



## CULINARY COMPOSITION

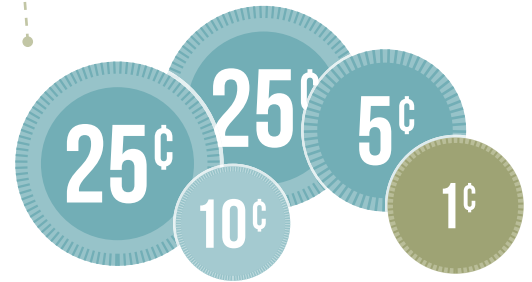
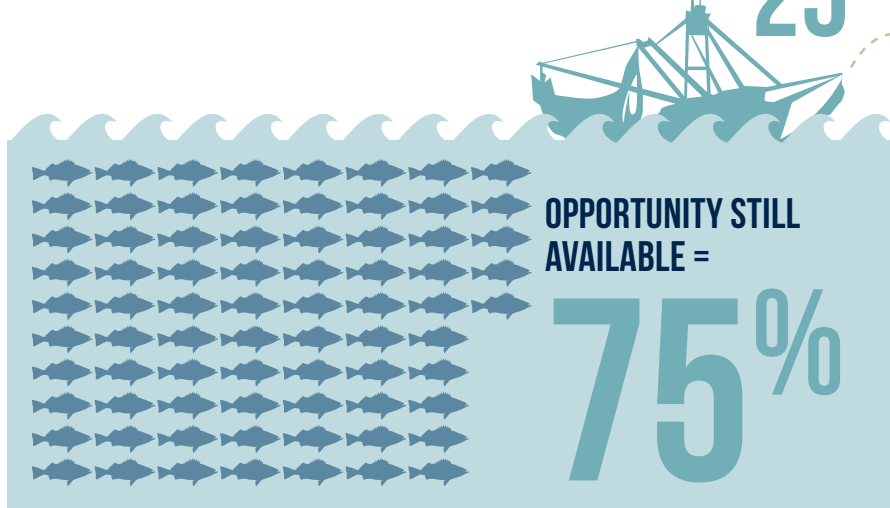


# CHILIPEPPER ROCKFISH: U.S. WEST COAST

FISHING QUOTA REALIZED 2011 – 2014 = **25%**

AVG. PRICE PAID TO FISHERMEN 2011 – 2014 =

**66¢**  
PER POUND



## SEAFOOD WATCH CONSERVATION SUMMARY

- SEAFOOD WATCH RATINGS**
- BEST CHOICE**
  - GOOD ALTERNATIVE**
  - AVOID**
  - UNRATED**

		CGC*	C NON-GC
		BEST CHOICE	GOOD ALT.
<b>IMPACT ON STOCK</b>	Chilipepper rockfish have traits that make them less inherently vulnerable to fishing pressure than other rockfish species and U.S. West Coast populations are currently healthy according to the most recent stock assessments from 2006 and 2007.	●	●
<b>HABITAT IMPACTS</b>	Most chilipepper rockfish are caught using bottom trawl, however, spatial restrictions on fishing gear help reduce the impact.	●	●
<b>BYCATCH</b>	Bycatch in the U.S. West Coast groundfish fishery, which includes chilipepper rockfish, is low, and is carefully managed through spatial and gear restrictions.	●	●
<b>MANAGEMENT</b>	Chilipepper rockfish management on the U.S. West Coast is considered strong and management measures include: 100% observer coverage on trawlers, gear restrictions and a catch share program.	●	●

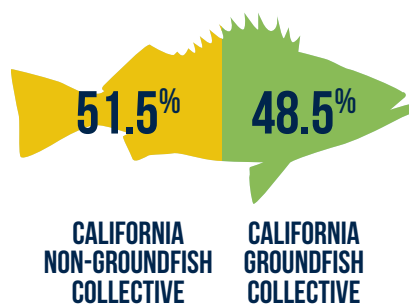
\*California Groundfish Collective

### U.S. WEST COAST CHILIPEPPER ROCKFISH SUSTAINABILITY

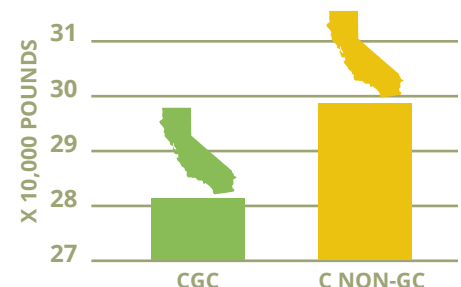
Monterey Bay Aquarium **Seafood Watch**



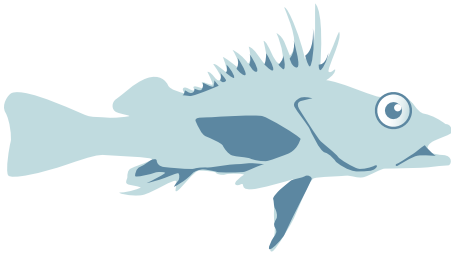
### CHILIPEPPER ROCKFISH LANDINGS BY REGION 2011 – 2012



### U.S. WEST COAST CHILIPEPPER ROCKFISH LANDINGS, AVG. 2011 – 2012



# LONGSPINE THORNYHEAD



**LONGSPINE THORNYHEAD**  
*Sebastes altivelis*

**MARKET NAMES:**  
thornyhead,  
spinycheek rockfish,  
idiotfish

**Longspine Thornyhead** range from southern Baja to the Gulf of Alaska. The fish has a thorny spine across its cheek and when landed the body is red with some black on the fins. Longspine thornyheads differ from shortspine thornyheads with the third dorsal spine being longer than the fourth. This species can grow to 15 inches and live to be 45 years old.



## SOURCING

- Rockfish skin should be shiny and bright and is stale if it appears yellow, orange or wrinkled.
- Fillets shouldn't have signs of browning, graying or yellowing.
- Fillets hold together better with skin on.
- Whole fish should have shiny, bright, and clear eyes.
- Gills should be bright pink or red (not brick red) and scales should be shining and clinging to the skin.
- Flesh on fillets should be moist and when pressed, bounce back to original form.

## PRODUCT FORMS

PRODUCT	FRESH	FROZEN
H&G		X
WHOLE	X	X

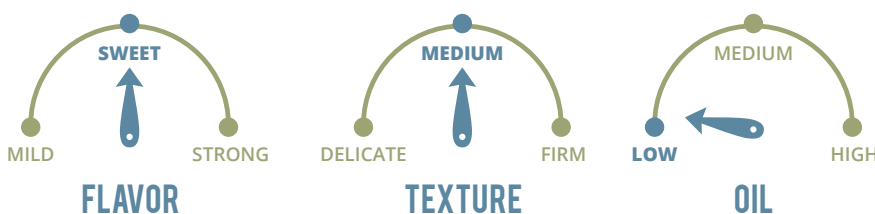
## COOKING METHODS



## SELLING POINTS

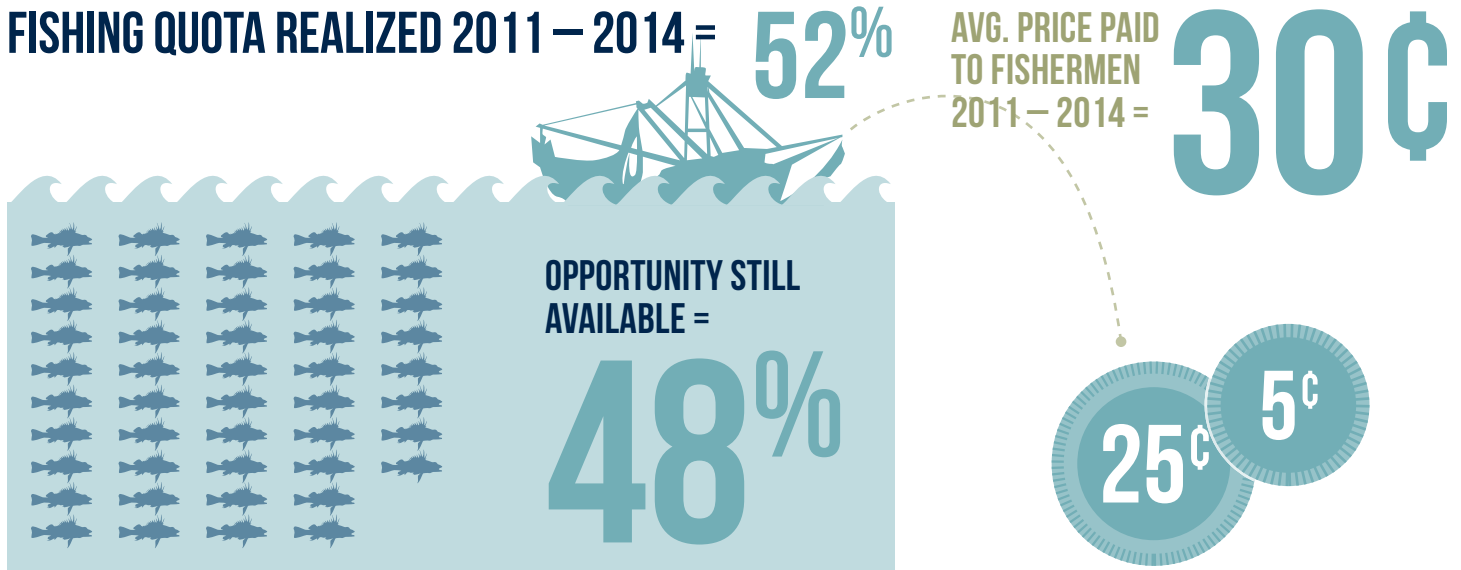
- Affordable and available year-round
- Texture fits nicely between more delicate flounders and more firm swordfish
- Rockfish hold well in many preparations and remains moist when baked
- Whole, dressed rockfish are well suited to cook on a barbecue

## CULINARY COMPOSITION





# LONGSPINE THORNYHEAD: U.S. WEST COAST



## SEAFOOD WATCH CONSERVATION SUMMARY

SEAFOOD WATCH RATINGS		U.S. WEST COAST/CGC*	BRITISH COLUMBIA	
		BEST CHOICE	GOOD ALT.	
<b>BEST CHOICE</b>	<b>IMPACT ON STOCK</b>	U.S. West Coast populations of longspine thornyheads declined somewhat since the 1970s and '80s, but stocks are currently considered healthy.		
<b>GOOD ALTERNATIVE</b>	<b>HABITAT IMPACTS</b>	Longspine thornyhead fisheries include both longline and trawl gears, and the combination of spatial restrictions and gear modifications help reduce habitat impacts.		
<b>AVOID</b>	<b>BYCATCH</b>	Bycatch along the U.S. West Coast is closely managed and mandatory use of selective flatfish trawl nets helps reduce bycatch.		
<b>UNRATED</b>	<b>MANAGEMENT</b>	Longspine thornyheads management on the U.S. West Coast is considered strong and management measures include: 100% observer coverage on trawlers, gear restrictions and a catch share program.		

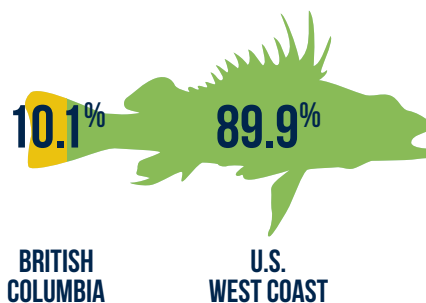
\*California Groundfish Collective

### U.S. WEST COAST LONGSPINE THORNYHEAD SUSTAINABILITY

Monterey Bay Aquarium  
**Seafood Watch**



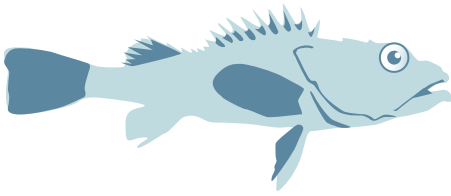
### LONGSPINE THORNYHEAD LANDINGS BY REGION 2012



### U.S. WEST COAST LONGSPINE THORNYHEAD LANDINGS, AVG. 2011 – 2013



# SHORTSPINE THORNYHEAD



## SHORTSPINE THORNYHEAD

*Sebastes alascanus*

**MARKET NAMES:**  
thornyhead,  
spinycheek rockfish,  
idiotfish

**Shortspine Thornyhead** range from central Baja, the Gulf of Alaska, the Sea of Japan and the Sea of Okhotsk. The fish has a spiny ridge across its cheek, and is pinkish red with a white throat when landed. Unlike longspine thornyheads, this species lacks an elongated third dorsal spine. Shortspine thornyheads can grow to 30 inches, 20 lbs., and live to 100 years old.



### SOURCING

- Rockfish skin should be shiny and bright and is stale if it appears yellow, orange or wrinkled.
- Fillets shouldn't have signs of browning, graying or yellowing.
- Fillets hold together better with skin on.
- Whole fish should have shiny, bright, and clear eyes.
- Gills should be bright pink or red (not brick red) and scales should be shining and clinging to the skin.
- Flesh on fillets should be moist and when pressed, bounce back to original form.

### PRODUCT FORMS

PRODUCT	FRESH	FROZEN
FILLETS	X	X
H&G		X
WHOLE	X	X

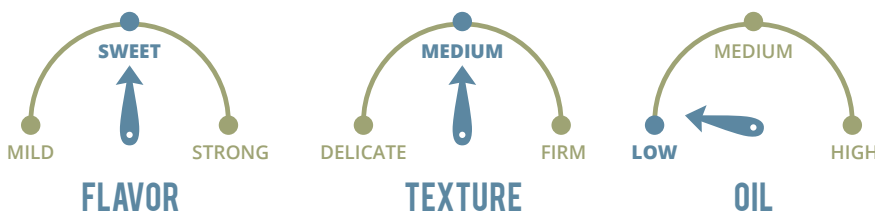
### COOKING METHODS



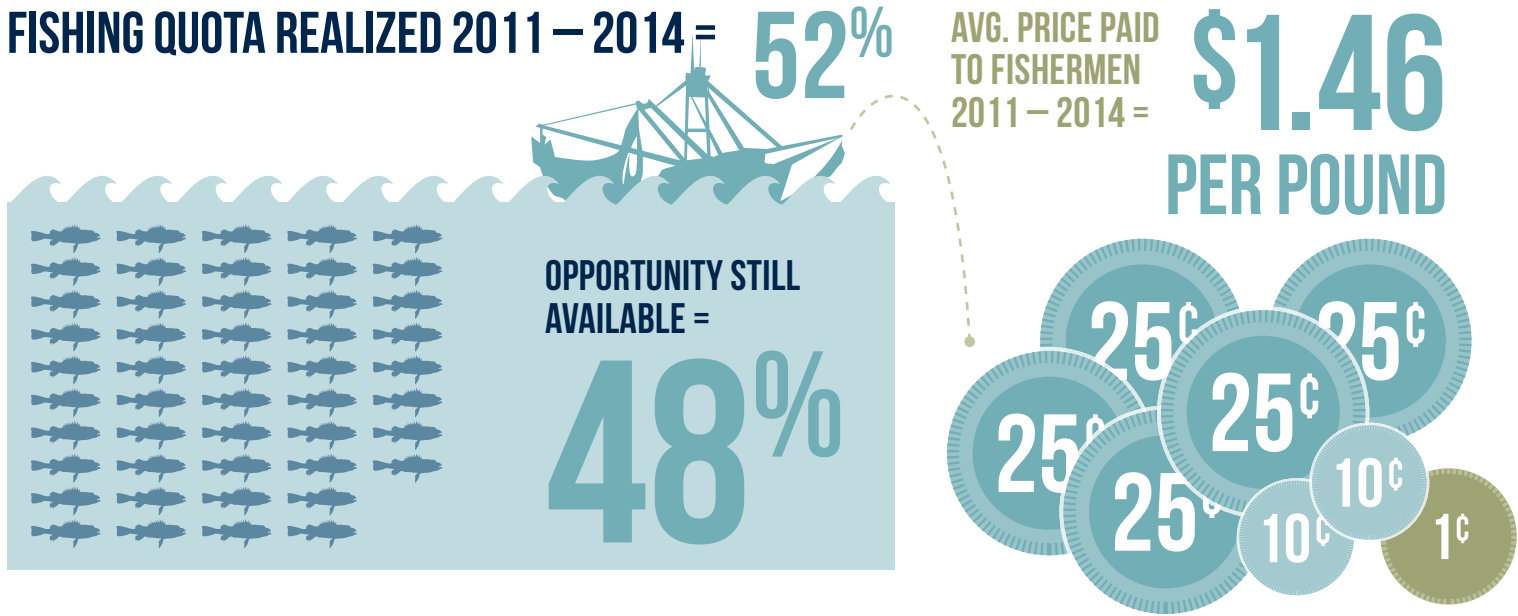
### SELLING POINTS

- Affordable and available year-round
- Texture fits nicely between more delicate flounders and more firm swordfish
- Rockfish hold well in many preparations and remains moist when baked
- Whole, dressed rockfish are well suited to cook on a barbecue

### CULINARY COMPOSITION



# SHORTSPINE THORNYHEAD: U.S. WEST COAST



## SEAFOOD WATCH CONSERVATION SUMMARY

- SEAFOOD WATCH RATINGS**
- BEST CHOICE**
  - GOOD ALTERNATIVE**
  - AVOID**
  - UNRATED**

<b>IMPACT ON STOCK</b>	U.S. West Coast populations of shortspine thornyheads declined somewhat since the 1970s and '80s, but stocks are currently considered healthy.
<b>HABITAT IMPACTS</b>	Shortspine thornyhead fisheries include both longline and trawl gears, and the combination of spatial restrictions and gear modifications help reduce habitat impacts.
<b>BYCATCH</b>	Bycatch along the U.S. West Coast is closely managed and mandatory use of selective flatfish trawl nets helps reduce bycatch.
<b>MANAGEMENT</b>	Shortspine thornyhead management on the U.S. West Coast is considered strong and management measures include: 100% observer coverage on trawlers, gear restrictions and a catch share program.

U.S. WEST COAST/CGC*	BRITISH COLUMBIA	ALASKA
BEST CHOICE	AVOID	GOOD ALT.

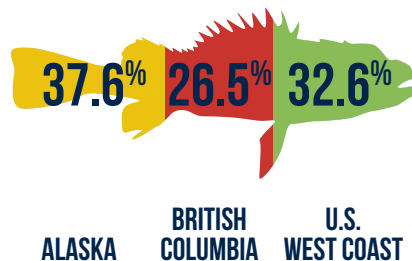
\*California Groundfish Collective

### U.S. WEST COAST SHORTSPINE THORNYHEAD SUSTAINABILITY

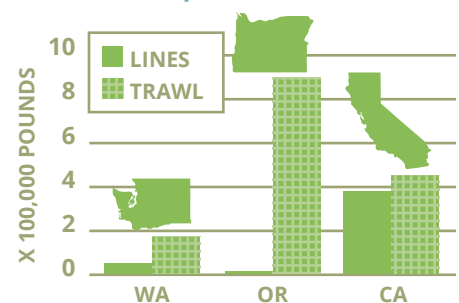
Monterey Bay Aquarium  
**Seafood Watch**



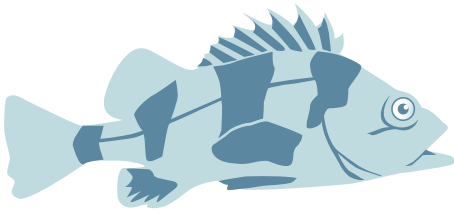
### SHORTSPINE THORNYHEAD LANDINGS BY REGION 2011 – 2014



### U.S. WEST COAST SHORTSPINE THORNYHEAD LANDINGS, AVG. 2011 – 2013



# SPLITNOSE ROCKFISH



**SPLITNOSE ROCKFISH**  
*Sebastes diploproa*

**MARKET NAMES:**  
rock cod

**Splitnose Rockfish** range from Baja California to Prince William Sound, Alaska. When landed the body is dark pink with a pale belly. Splitnose rockfish have large eyes and several sharp head spines. The species is distinguished from aurora and chameleon rockfishes by a deep notch on its upper jaw. Splitnose rockfish can grow to 18 inches and live to 86 years old.

### SOURCING

- Rockfish skin should be shiny and bright and is stale if it appears yellow, orange or wrinkled.
- Fillets shouldn't have signs of browning, graying or yellowing.
- Fillets hold together better with skin on.
- Whole fish should have shiny, bright, and clear eyes.
- Gills should be bright pink or red (not brick red) and scales should be shining and clinging to the skin.
- Flesh on fillets should be moist and when pressed, bounce back to original form.

### PRODUCT FORMS

PRODUCT	FRESH	FROZEN
FILLETS	X	X
H&G		X
WHOLE	X	X

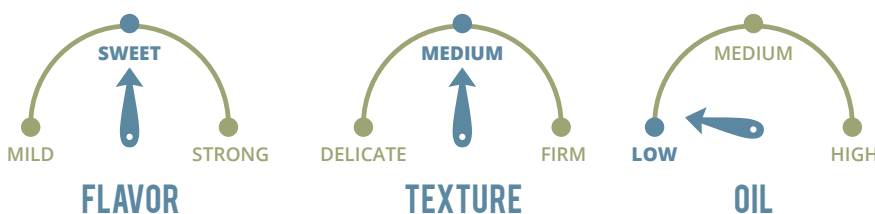
### SELLING POINTS

- Affordable and available year-round
- Texture fits nicely between more delicate flounders and more firm swordfish
- Rockfish hold well in many preparations and remains moist when baked
- Whole, dressed rockfish are well suited to cook on a barbecue

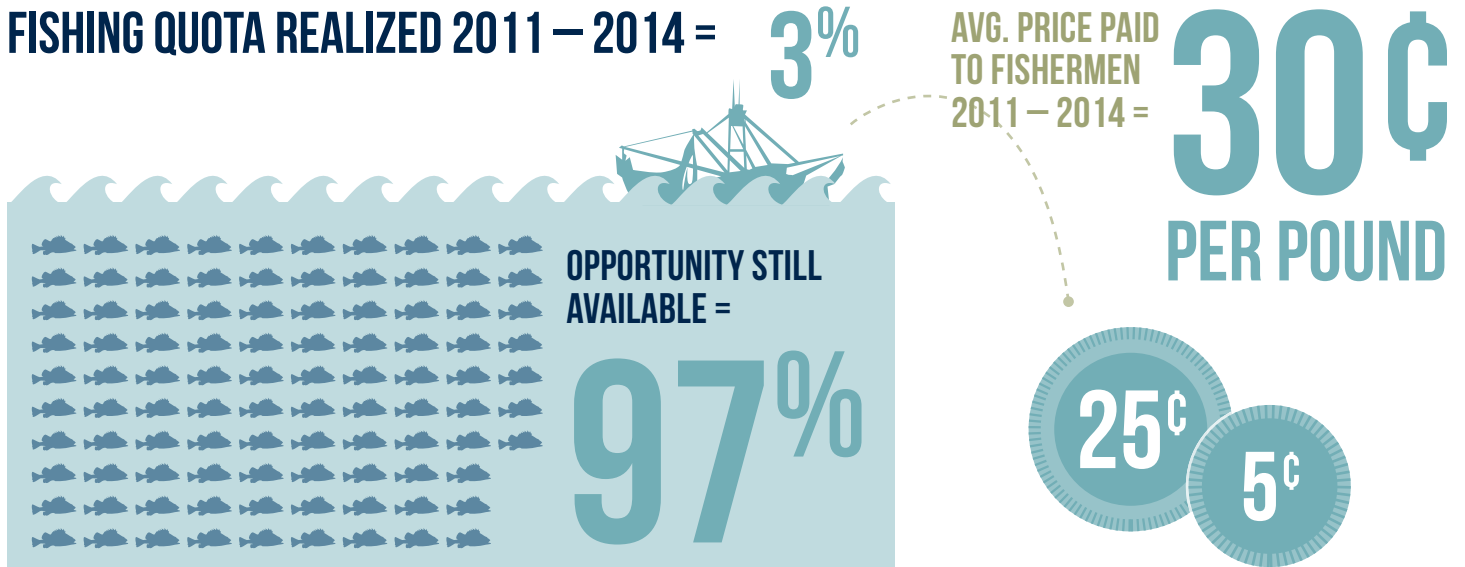
### COOKING METHODS



### CULINARY COMPOSITION



# SPLITNOSE ROCKFISH: U.S. WEST COAST



## SEAFOOD WATCH CONSERVATION SUMMARY

		U.S. WEST COAST*
		BEST CHOICE
<b>SEAFOOD WATCH RATINGS</b> <b>BEST CHOICE</b> <b>GOOD ALTERNATIVE</b> <b>AVOID</b> <b>UNRATED</b>	<b>IMPACT ON STOCK</b>	Splitnose rockfish populations declined between the 1960s through the 1990s, but have been increasing since 1999 and were found to be healthy when they were most recently assessed in 2009.
	<b>HABITAT IMPACTS</b>	Splitnose rockfish are primarily caught using bottom trawls, but spatial restrictions help mitigate damage to sensitive habitat.
	<b>BYCATCH</b>	Bycatch in the U.S. West Coast groundfish fishery, which includes splitnose rockfish, is low, and is carefully managed through spatial and gear restrictions.
	<b>MANAGEMENT</b>	Splitnose rockfish management on the U.S. West Coast is considered strong and management measures include: 100% observer coverage on trawlers, gear restrictions and a catch share program.

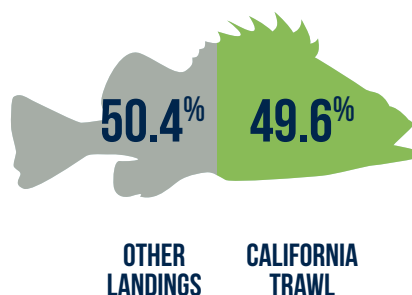
\*Midwater & Bottom Trawl

### U.S. WEST COAST SPLITNOSE ROCKFISH SUSTAINABILITY

Monterey Bay Aquarium  
**Seafood Watch**



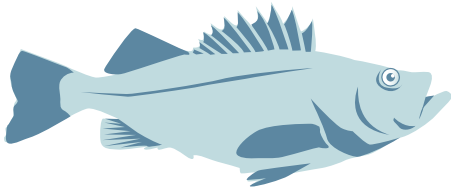
### SPLITNOSE ROCKFISH LANDINGS BY REGION 2011 – 2014



### U.S. WEST COAST SPLITNOSE ROCKFISH LANDINGS, AVG. 2011 – 2013



# WIDOW ROCKFISH



**WIDOW ROCKFISH**  
*Sebastes entomelas*

**MARKET NAMES:**  
widowfish

**Widow Rockfish** range from Baja California to Kodiak Island, Alaska. When underwater, the fish varies in coloration from brown to orange. Widow rockfish have a short head with a small mouth and are distinguished by black pectoral fin membranes. This species can grow to 23 inches and live to 60 years old.



## SOURCING

- Rockfish skin should be shiny and bright and is stale if it appears yellow, orange or wrinkled.
- Fillets shouldn't have signs of browning, graying or yellowing.
- Fillets hold together better with skin on.
- Whole fish should have shiny, bright, and clear eyes.
- Gills should be bright pink or red (not brick red) and scales should be shining and clinging to the skin.
- Flesh on fillets should be moist and when pressed, bounce back to original form.

## PRODUCT FORMS

PRODUCT	FRESH	FROZEN
FILLETS	X	X
H&G		X
WHOLE	X	X

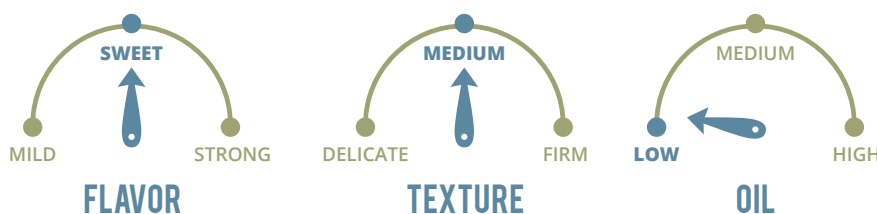
## SELLING POINTS

- Affordable and available year-round
- Texture fits nicely between more delicate flounders and more firm swordfish
- Rockfish hold well in many preparations and remains moist when baked
- Whole, dressed rockfish are well suited to cook on a barbecue

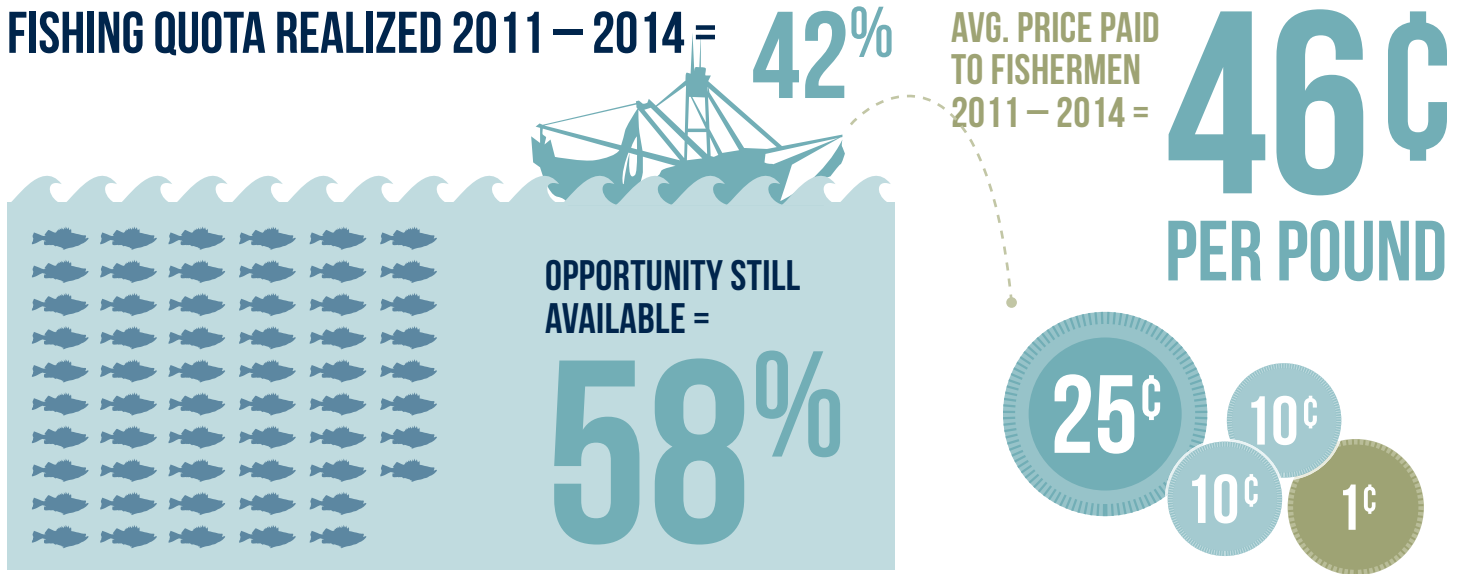
## COOKING METHODS



## CULINARY COMPOSITION



# WIDOW ROCKFISH: U.S. WEST COAST



## SEAFOOD WATCH CONSERVATION SUMMARY

SEAFOOD WATCH RATINGS	IMPACT ON STOCK	HABITAT IMPACTS	BYCATCH	MANAGEMENT	U.S. WEST COAST*	BRITISH COLUMBIA	ALASKA
					BEST CHOICE	AVOID	UNRATED
<b>BEST CHOICE</b>	U.S. West Coast widow rockfish were declared overfished in 2001 but the stock was rebuilt in 2011 and the population is considered healthy overall.	Widow rockfish along the U.S. West Coast are caught primarily using midwater trawl gear that has little impact on the ocean bottom habitats.	To avoid catching overfished rockfish species while targeting widow rockfish on the U.S. West Coast, Rockfish Conservation Areas were established where fishing is limited.	Widow rockfish management on the U.S. West Coast is considered strong and management measures include: 100% observer coverage on trawlers, gear restrictions and a catch share program.			
<b>GOOD ALTERNATIVE</b>							
<b>AVOID</b>							
<b>UNRATED</b>							

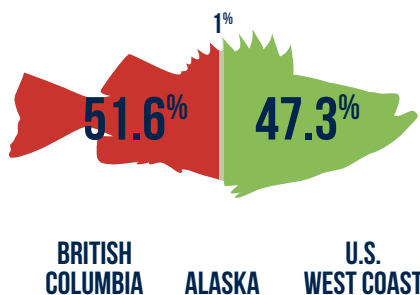
\*Midwater & Bottom Trawl

### U.S. WEST COAST WIDOW ROCKFISH SUSTAINABILITY

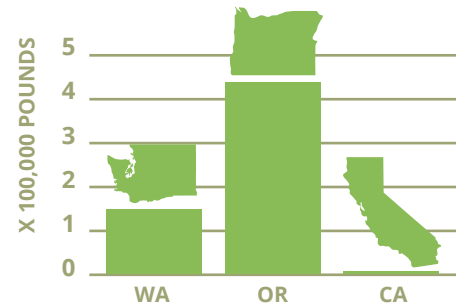
Monterey Bay Aquarium  
**Seafood Watch**



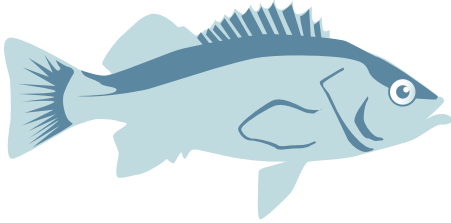
### WIDOW ROCKFISH LANDINGS BY REGION 2011 – 2013



### U.S. WEST COAST WIDOW ROCKFISH LANDINGS, AVG. 2011 – 2013



# YELLOWTAIL ROCKFISH



**YELLOWTAIL ROCKFISH**  
*Sebastes flavidus*

**MARKET NAMES:**  
green rockfish,  
yellowtail sea perch

**Yellowtail Rockfish** range from San Diego, California to Unalaska Island, Alaska. When landed the body turns a uniform olive brown with some reddish brown spots on the scales. Yellowtail rockfish have a long head with a protruding lower jaw and is distinguished from olive rockfish by the absence of spines on the head. This species can grow to 26 inches and live to 64 years old.



## SOURCING

- Rockfish skin should be shiny and bright and is stale if it appears yellow, orange or wrinkled.
- Fillets shouldn't have signs of browning, graying or yellowing.
- Fillets hold together better with skin on.
- Whole fish should have shiny, bright, and clear eyes.
- Gills should be bright pink or red (not brick red) and scales should be shining and clinging to the skin.
- Flesh on fillets should be moist and when pressed, bounce back to original form.

## PRODUCT FORMS

PRODUCT	FRESH	FROZEN
FILLETS	X	X
H&G		X
WHOLE	X	X

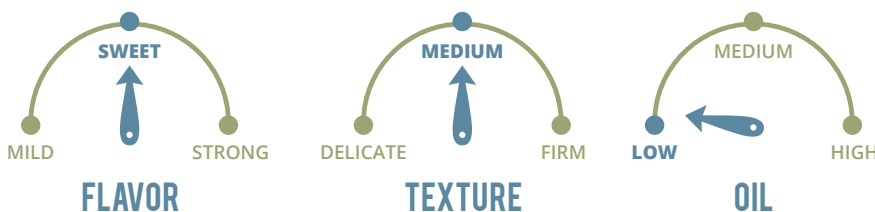
## SELLING POINTS

- Affordable and available year-round
- Texture fits nicely between more delicate flounders and more firm swordfish
- Rockfish hold well in many preparations and remains moist when baked
- Whole, dressed rockfish are well suited to cook on a barbecue

## COOKING METHODS



## CULINARY COMPOSITION



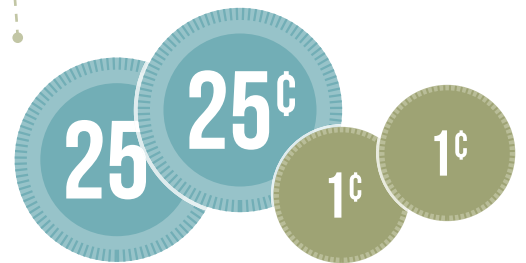
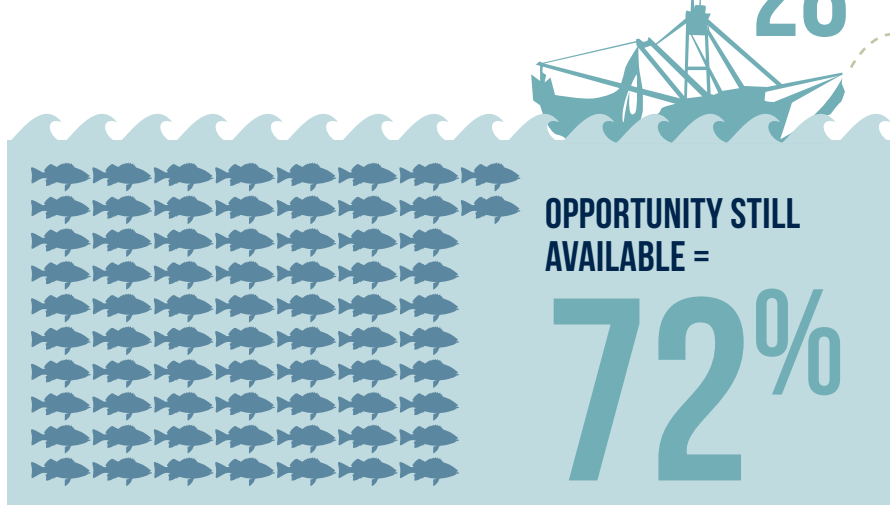


# YELLOWTAIL ROCKFISH: U.S. WEST COAST

FISHING QUOTA REALIZED 2011 – 2014 = **28%**

AVG. PRICE PAID TO FISHERMEN 2011 – 2014 =

**52¢**  
PER POUND



## SEAFOOD WATCH CONSERVATION SUMMARY

- SEAFOOD WATCH RATINGS**
- BEST CHOICE**
  - GOOD ALTERNATIVE**
  - AVOID**
  - UNRATED**

		U.S. WEST COAST	BRITISH COLUMBIA
<b>IMPACT ON STOCK</b>	Yellowtail rockfish are found along the U.S. West Coast and British Columbia. The species is vulnerable to fishing pressure, but U.S. West Coast populations are healthy.		
<b>HABITAT IMPACTS</b>	Yellowtail rockfish are caught with a variety of gear types minimizing habitat impacts.		
<b>BYCATCH</b>	Bycatch in the U.S. West Coast groundfish fishery which includes yellowtail rockfish is low, and the multi-species nature of the fishery makes it difficult to clearly identify bycatch at times.		
<b>MANAGEMENT</b>	Yellowtail rockfish management on the U.S. West Coast is considered strong and management measures include: 100% observer coverage on trawlers, gear restrictions and a catch share program.		

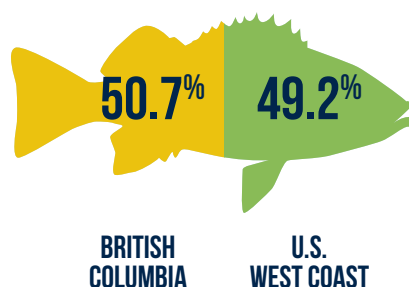
	U.S. WEST COAST	BRITISH COLUMBIA
<b>BEST CHOICE</b>		
<b>GOOD ALT.</b>		

### U.S. WEST COAST YELLOWTAIL ROCKFISH SUSTAINABILITY

Monterey Bay Aquarium Seafood Watch



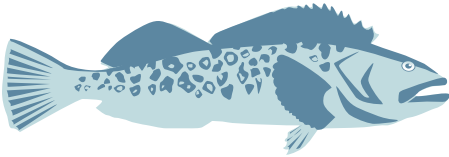
### YELLOWTAIL ROCKFISH LANDINGS BY REGION 2011 – 2013



### U.S. WEST COAST YELLOWTAIL ROCKFISH LANDINGS, AVG. 2011 – 2013



# LINGCOD



## LINGCOD

*Ophiodon elongates*

### MARKET NAMES:

greenling, buckethead, bluefish, green cod, buffalo cod

Lingcod are actually not cod at all—they are in the same group of fishes as sablefish, Pacific rockfish and scorpionfish. This bottom-dwelling fish only occurs on the West Coast of North America. They grow quickly and mature within a few years, which has allowed them to recover quickly from overfishing. This species can reach 5 feet and 80 pounds and live for more than 20 years.



## SOURCING

- Most lingcod is caught as bycatch in other fisheries, but there are some targeted fisheries, namely Southeast Alaska.
- Raw lingcod flesh can have a blue-green tint—this is perfectly normal, and when cooked it turns a snow white color.
- Look for a grayish flesh color and/or blood spots to signal mishandling.
- Dull eyes and faded gills on whole lingcod indicate a lack of freshness.

## PRODUCT FORMS

PRODUCT	FRESH	FROZEN
FILLETS	X	X
H&G		X
STEAKS	X	X

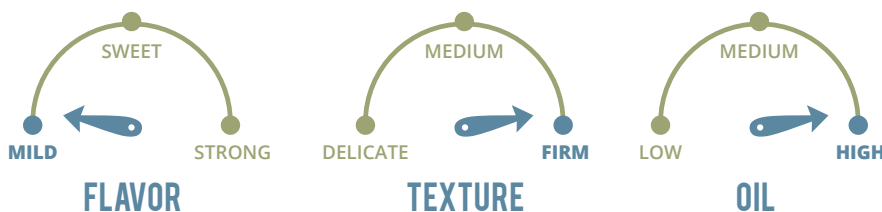
## COOKING METHODS



## SELLING POINTS

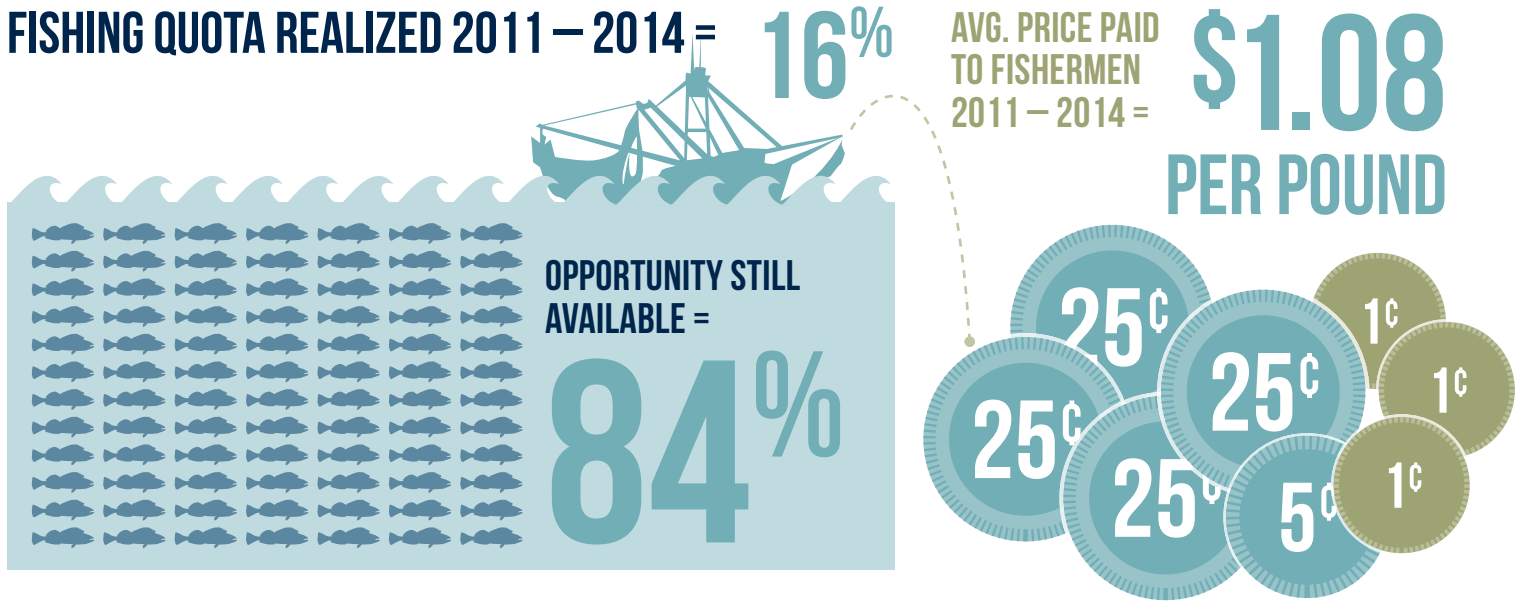
- A lower cost alternative to halibut
- Cooked meat is moist, white, and flaky
- Versatile culinary options ranging from simple to sophisticated
- Available year-round

## CULINARY COMPOSITION



FIND SUPPLIERS ON FISHCHOICE.COM

# LINGCOD: U.S. WEST COAST



## SEAFOOD WATCH CONSERVATION SUMMARY

- SWF RATING**
- BEST CHOICE
  - GOOD ALTERNATIVE
  - AVOID
  - UNRATED

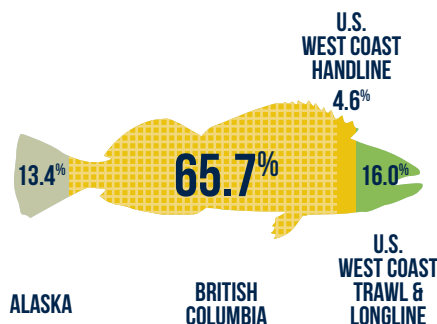
		U.S. WEST COAST LONGLINE & TRAWL	U.S. WEST COAST HANDLINE	BRITISH COLUMBIA TRAWL & LONGLINE	BRITISH COLUMBIA TROLL	ALASKA
		BEST CHOICE	GOOD ALT.	GOOD ALT.	BEST CHOICE	UNRATED
<b>IMPACT ON STOCK</b>	U.S. West Coast lingcod stocks were declared rebuilt in 2005.	●	●	●	●	●
<b>HABITAT IMPACTS</b>	Impact from lingcod fisheries is mitigated from spatial restrictions.	●	●	●	●	●
<b>BYCATCH</b>	Bycatch has dropped 75% since a new management plan in 2011.	●	●	●	●	●
<b>MANAGEMENT</b>	Strong management measures include: 100% observer coverage on trawlers, gear restrictions, and a catch share program.	●	●	●	●	●

### U.S. WEST COAST LINGCOD SUSTAINABILITY

Monterey Bay Aquarium **Seafood Watch**



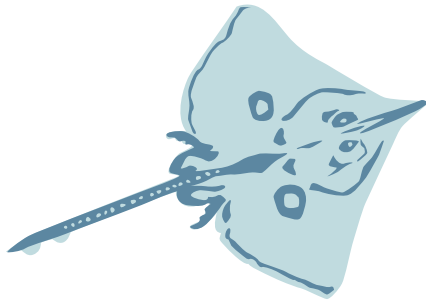
### LINGCOD LANDINGS BY REGION 2011 - 2014



### U.S. WEST COAST LINGCOD LANDINGS, AVG. 2010 - 2012



# LONGNOSE SKATE



**LONGNOSE SKATE**  
*Raja Rhina*

**MARKET NAMES:**  
skate

**Longnose Skate** are found on the sea floor from Baja, California to Alaska. The fish is distinguished by a long, sharply pointed snout and its dark brown coloration. Longnose skate can reach lengths of 4+ feet and live up to 30 years.



## SOURCING

- The edible part of skate's fins are referred to as "wings."
- Skate can be purchased as skin-off wings, skin-on wings, fillets or whole.
- Due to California state regulations aimed at protecting sharks, longnose skate can only be purchased whole form, not as wings, in California. In other states both whole and wings are available.
- Longnose skate wings average 3 to 5 lbs. per wing.
- Raw meat is light beige to pink and turns off-white after cooking.
- Avoid buying any skate with an ammonia smell.
- Although similar in appearance to California and big skate, longnose skate is the dominant skate landed in California.

## PRODUCT FORMS

PRODUCT	FRESH	FROZEN
SKIN-OFF WINGS	X	X
SKIN-ON WINGS	X	X
FILLETS	X	X
WHOLE	X	X

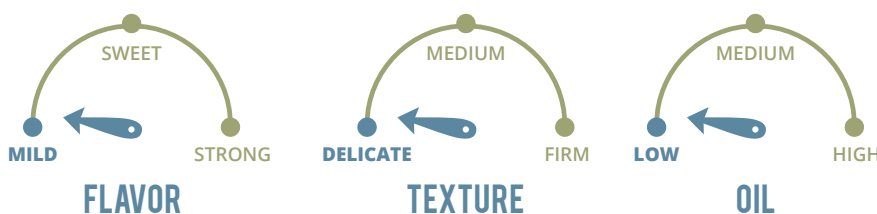
## COOKING METHODS



## SELLING POINTS

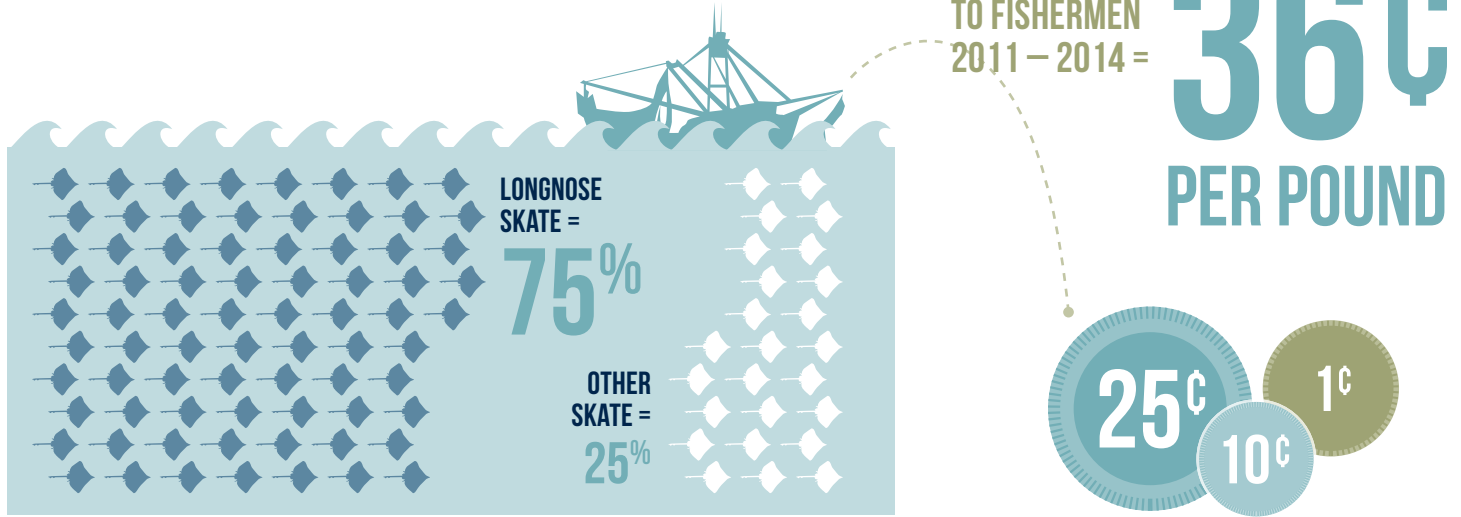
- Distinct texture makes skate a unique seafood option
- Great option for soups, and as a replacement for sharkfin soup
- Skate prefer to eat mollusks, crustaceans and small fish which give give them a scallop-like taste
- Affordable and available year-round

## CULINARY COMPOSITION



# LONGNOSE SKATE: U.S. WEST COAST

## U.S. WEST COAST SKATE SPP. LANDINGS



## SEAFOOD WATCH CONSERVATION SUMMARY

SEAFOOD WATCH RATINGS		U.S. WEST COAST	BRITISH COLUMBIA
		BEST CHOICE	AVOID
<b>BEST CHOICE</b>	<b>IMPACT ON STOCK</b>	●	●
<b>GOOD ALTERNATIVE</b>	<b>HABITAT IMPACTS</b>	●	●
<b>AVOID</b>	<b>BYCATCH</b>	●	●
<b>UNRATED</b>	<b>MANAGEMENT</b>	●	●

**IMPACT ON STOCK:** Longnose skate has characteristics that make them inherently vulnerable to fishing pressure. Although U.S. West Coast populations declined since the 1900s, current stocks remain above management targets.

**HABITAT IMPACTS:** Longnose skates are caught using bottom longline and bottom trawl gear. Spatial management measures have helped mitigate gear impacts along the U.S. West Coast.

**BYCATCH:** Bycatch in the U.S. West Coast groundfish fishery which longnose skate is low, and the multi-species nature of the fishery makes it difficult to clearly identify bycatch at times.

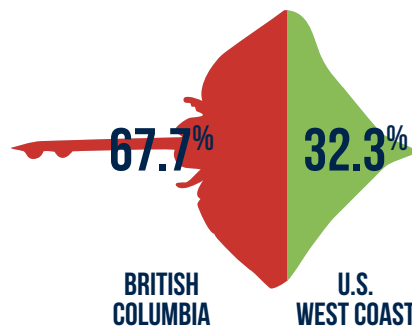
**MANAGEMENT:** Longnose skate management on the U.S. West Coast is considered strong and management measures include: gear restrictions, catch limits, and a catch share program.

### U.S. WEST COAST LONGNOSE SKATE SUSTAINABILITY

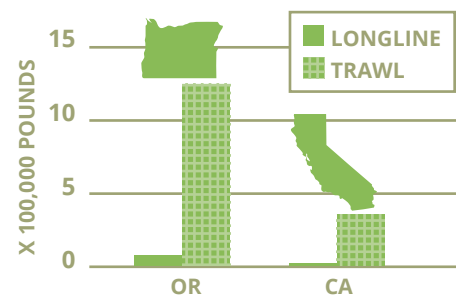
Monterey Bay Aquarium  
**Seafood Watch**



### LONGNOSE SKATE LANDINGS BY REGION 2011 - 2014



### U.S. WEST COAST LONGNOSE SKATE LANDINGS, AVG. 2011 - 2013



## SPECIES SUMMARY: MARKET CONDITIONS AND SUSTAINABILITY

	SPECIES NAME	SCIENTIFIC NAME	2011 – 2013 AVG. EX-VESSEL PRICE	2011 – 2013 AVG. UNFISHED QUOTA	2014 SFW RATING U.S. WEST COAST TRAWL*	2014 SFW RATING CALIFORNIA GROUNDFISH COLLECTIVE	2014 MARINE STEWARDSHIP COUNCIL CERTIFIED
FLATFISH	Dover Sole	<i>Microstomus pacificus</i>	\$0.43	65%	●	●	●
	English Sole	<i>Parophrys vetulus</i>	\$0.34	98%	●	●	●
	Pacific Sanddab	<i>Citharichthys sordidus</i>	\$0.63	N/A	●	●	
	Petrale Sole	<i>Eopsetta jordani</i>	\$1.35	5%	●	●	●
	Starry Flounder	<i>Platichthys stellatus</i>	\$0.67	99%	●		
ROCKFISH	Chilipepper Rockfish	<i>Sebastes goodei</i>	\$0.66	74%	●	●	●
	Longspine Thornyhead	<i>Sebastolobus altivelis</i>	\$0.30	48%	●	●	●
	Shortspine Thornyhead	<i>Sebastolobus alascanus</i>	\$1.46	48%	●	●	●
	Splitnose Rockfish	<i>Sebastes diploproa</i>	\$0.30	97%	●		●
	Widow Rockfish	<i>Sebastes entomelas</i>	\$0.46	58%	●		●
	Yellowtail Rockfish	<i>Sebastes flavidus</i>	\$0.52	72%	●		●
OTHER	Lingcod*	<i>Ophiodon elongatus</i>	\$1.08	84%	●		●
	Longnose Skate	<i>Raja rhina</i>	\$0.36	N/A	●		●

Monterey Bay Aquarium  
**Seafood Watch**



**SEAFOOD WATCH RATINGS**

- = BEST CHOICE
- = GOOD ALTERNATIVE
- = AVOID
- = UNRATED



**MARINE STEWARDSHIP COUNCIL CERTIFICATION**

- = CERTIFIED

\*U.S. West Coast lingcod fishery assessments include trawl, longline (“Best Choice”), and handline (“Good Alternative”) fisheries.

## STRENGTHS OF THE U.S. WEST COAST GROUNDFISH TRAWL FISHERY

- The strong link between [stock] assessments and management actions
- The management plan establishes individual accountability on the part of fishermen and delivers more complete data for fishery managers
- Sensitive habitats are protected in areas of “essential fish habitat,” and additional areas deemed off-limits to bottom trawls
- The management system is transparent and open to the public
- The catch share program provides incentives for sustainable fishing



## OTHER U.S. WEST COAST GROUND FISH TRAWL FISHERIES

	SPECIES NAME	SCIENTIFIC NAME	MARKET NAME(S)	SFW RATING
FLATFISH	Arrowtooth Flounder	<i>Atheresthes stomias</i>	turbot	●
	Rex Sole	<i>Errex zachirus, Glyptocephalus zachirus</i>	longfin sole	●
ROCKFISH	Aurora Rockfish	<i>Sebastes aurora</i>	rockfish	●
	Blackgill Rockfish (3)	<i>Sebastes melanostomus</i>		●
	Bocaccio Rockfish (2)	<i>Sebastes paucispinis</i>	jack, merou	●
	Canary Rockfish	<i>Sebastes pinniger</i>	orange rockfish	●
	Darkblotched Rockfish (3)	<i>Sebastes crameri</i>	blackmouth rockfish	●
	Grass Rockfish	<i>Sebastes rastrelliger</i>		●
	Greenstriped Rockfish	<i>Sebastes elongatus</i>		●
	Pacific Ocean Perch	<i>Sebastes atrovirens</i>	ocean perch	●
	Rougheye Rockfish (3)	<i>Sebastes aleutianus</i>		●
OTHER	Big Skate	<i>Raja binoculata</i>		●
	California Skate	<i>Raja inornata</i>		●
	Giant Rattail (Grenadier) (3)	<i>Albatrossia pectoralis</i>		●
	Pacific Cod	<i>Gadus macrocephalus</i>	Alaska cod, grey cod, true cod, P-cod	●
	Pacific Grenadier	<i>Coryphaenoides acrolepis</i>		●
	Sablefish	<i>Anoplopoma fimbria</i>	black cod	●
	Sablefish (IFQ longline & pot)*	<i>Anoplopoma fimbria</i>	black cod	●

Monterey Bay Aquarium  
Seafood Watch



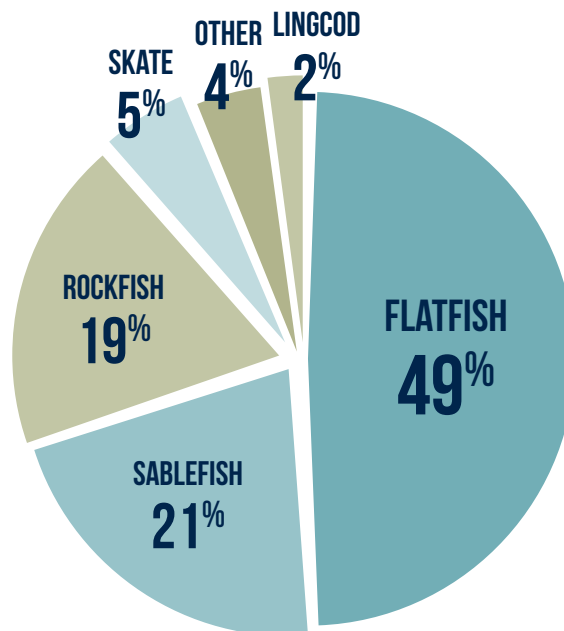
**SEAFOOD WATCH RATINGS**

- = BEST CHOICE
- = GOOD ALTERNATIVE
- = AVOID
- = UNRATED

\* Multiple sablefish fisheries on the U.S. West Coast using longline and pot/trap methods (not trawl) scored SFW Best Choice ratings.

### ESTIMATED % OF GROUND FISH LANDINGS BY GROUP BASED ON 2012 LANDINGS

SPECIES	MT
Flatfish	10,876
Sablefish	4,645
Rockfish	4,170
Skate	1,126
Other	9,38
Lingcod	423
<b>TOTAL</b>	<b>22,178</b>



Bellman, et al.. 2013. Bellman, M.A., Al-Humaidhi, J., Jannot, J. Majewski, J. 2013. Estimated discard and catch of groundfish species in the 2012 U.S. west coast fisheries. West Coast Groundfish Observer Program, National Marine Fisheries Service, NWFS, Seattle, WA.



### About Environmental Defense Fund

Environmental Defense Fund, a leading international nonprofit organization, creates transformational solutions to the most serious environmental problems. EDF links science, economics, law and innovative private-sector partnerships. For nearly two decades, EDF experts have worked with fishermen and fishery managers to restore US fisheries. Now, the number of federally managed overfished species is at an all-time low.

We are working for a future in which fishermen are better off because US fisheries are flourishing, providing a stable and healthy source of food and recreation, and a safe, profitable, and long-term means of making a living across the country.

Learn more at [edf.org/oceans](http://edf.org/oceans)



### About FishChoice.com

FishChoice, Inc. (FCI) is a registered 501(c)(3) nonprofit that is funded by private foundations. FishChoice works directly with the Monterey Bay Aquarium Seafood Watch® program, Ocean Wise, NOAA Fisheries, the Marine Stewardship Council, the Aquaculture Stewardship Council, Global Aquaculture Alliance, and Fair Trade USA in providing science-based, up-to-date sustainable seafood information and tools for businesses.

Learn more at [FishChoice.com](http://FishChoice.com)

### Contacts

**Roxanne Nanninga**  
*Senior Specialist,  
Seafood Markets Strategy*  
Environmental Defense Fund  
[RNanninga@edf.org](mailto:RNanninga@edf.org)

**Justin Boevers**  
*Director of Operations*  
[FishChoice.com](http://FishChoice.com)  
[justin@fishchoice.com](mailto:justin@fishchoice.com)

### Acknowledgements

Marine Stewardship Council  
Monterey Bay Aquarium  
Seafood Watch®  
NOAA Fisheries

### Photo Credits

Shawn Linehan  
John Snow (Longspine Thornyhead)  
Washington Department of  
Fish and Wildlife