



Statewide California Halibut Trawl Bycatch Assessment



March 12, 2026

Presented to:

**Marine Resources Committee
California Fish and Game Commission**

Presented by:

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Marine Region**



Bycatch Evaluation Flow Chart

Step 1. Collection of information on the amount and type of catch

Step 2. Distinguish target, incidental, and bycatch (discard) species

2a. Special status and species of interest and importance

2b. Ecological Risk Assessment/Productivity Susceptibility Analysis

Exceed Vulnerability Score Threshold?

Step 3. Determine acceptable types and amounts

Step 4. Address unacceptable bycatch

Collect Information

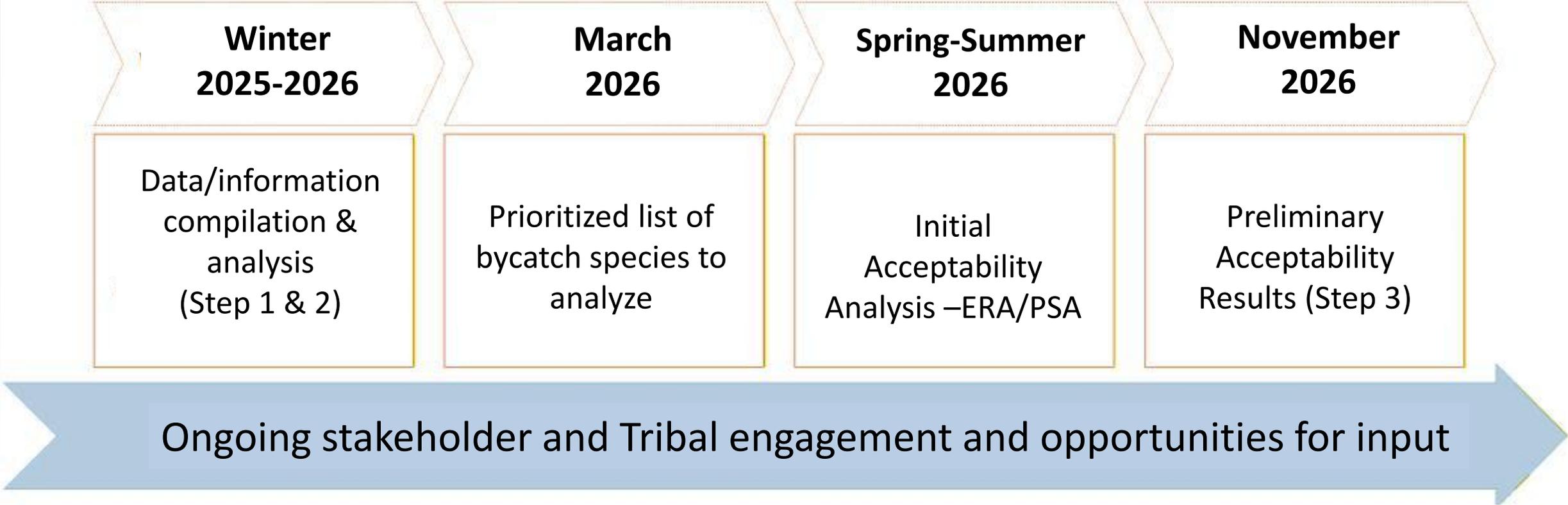
Distinguish Species

Acceptability

Address Bycatch



Timeline



Collect Information

Distinguish Species

Acceptability

Address Bycatch



Step 2: Distinguishing Species Analysis

	Legal sized CA halibut	Example: Starry flounder, sand sole, Pacific angel shark, CA scorpionfish, etc.	Example: Big skate, CA skate, hornyhead turbot, longspine combfish, etc.	Example: Sub-legal halibut, Dungeness crab, green sturgeon, black sea bass, etc.
Historical use patterns	Consistently landed	Frequently landed	Frequently discarded	Consistently discarded
Intended catch	Yes	Yes	No	No
Regulatory discard	No	Yes/no	Yes/No	Yes
Economic discard	No	Yes/no	Yes	No
Type of catch	Target	Incidental catch	Bycatch	Bycatch

Retained catch (under Target and Incidental catch) | **Discarded bycatch** (under Bycatch)

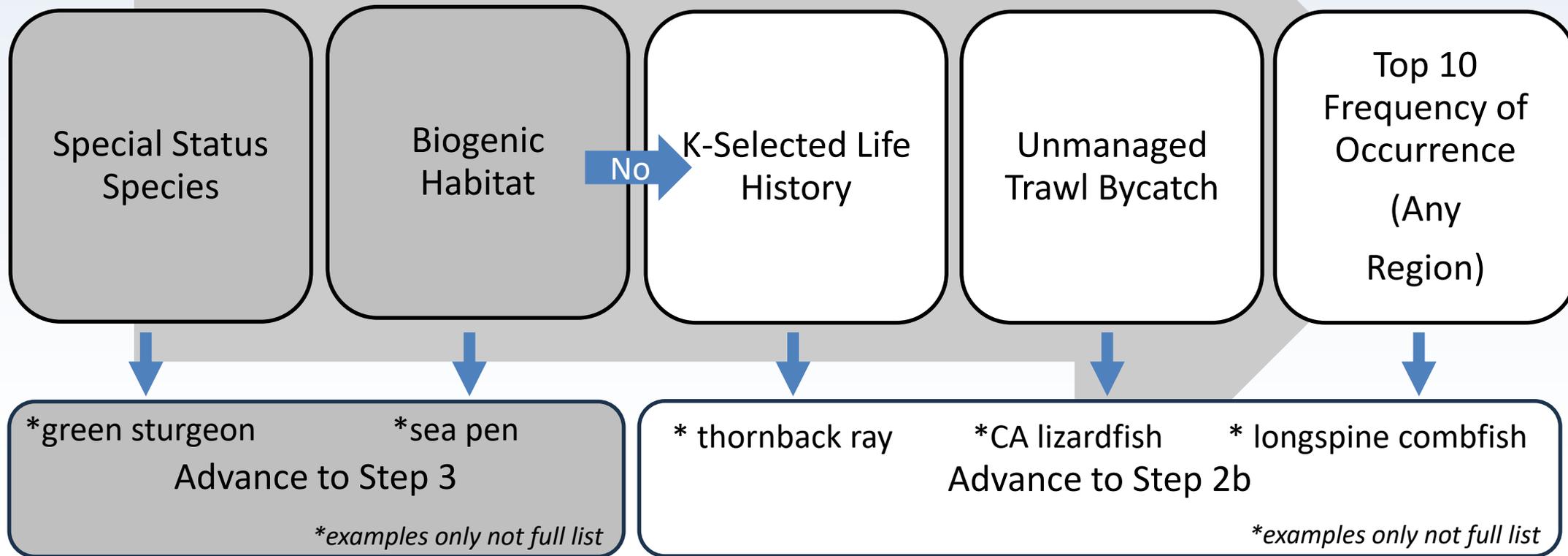


Step 2: Distinguish Species – In Process

- a. Target, incidental, & bycatch/discards full list (**235** species/species categories)
- b. Rapid Risk Assessment Tool (**187** species/species categories)
- c. Additional analyses (**49** species)
 - Catch trend analyses
 - Biological/Habitat Groups to ensure broad ecosystem representation
 - Included species for all impacted habitat types



Step 2: Rapid Risk Assessment Tool



Collect Information

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Acceptability

Address Bycatch



Step 2a: Special Status & Species of Importance - Complete

1. Seabirds
2. Marine mammals
3. Biogenic habitat
4. Chinook salmon
5. Coho salmon
6. Green sturgeon
7. White sturgeon
8. Giant black sea bass
9. Longfin smelt
10. Zero/highly limited retention rockfish
11. Dungeness crab



Collect Information

Distinguish Species

Acceptability

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Step 2b: Catch Trend Analysis

Was the species observed in
>5% of trawls per region?

Northern Region (>36°N)

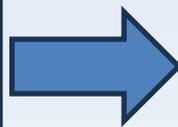
>123 of 2,452 total trawls (2012-2023)

Southern Region

>55 of 1,106 total trawls (2012-2023)

California Halibut Trawl Grounds

>47 of 934 total trawls (2012-2023)



Has the species been observed
by WCGOP in California halibut
trawls **since 2016**?



Did the species exhibit **±20%
change** (mean annualized
weight) from baseline to recent
years (post-COVID)?

baseline: 2016-2021, recent: 2022-2023

Collect Information

Distinguish Species

Acceptability

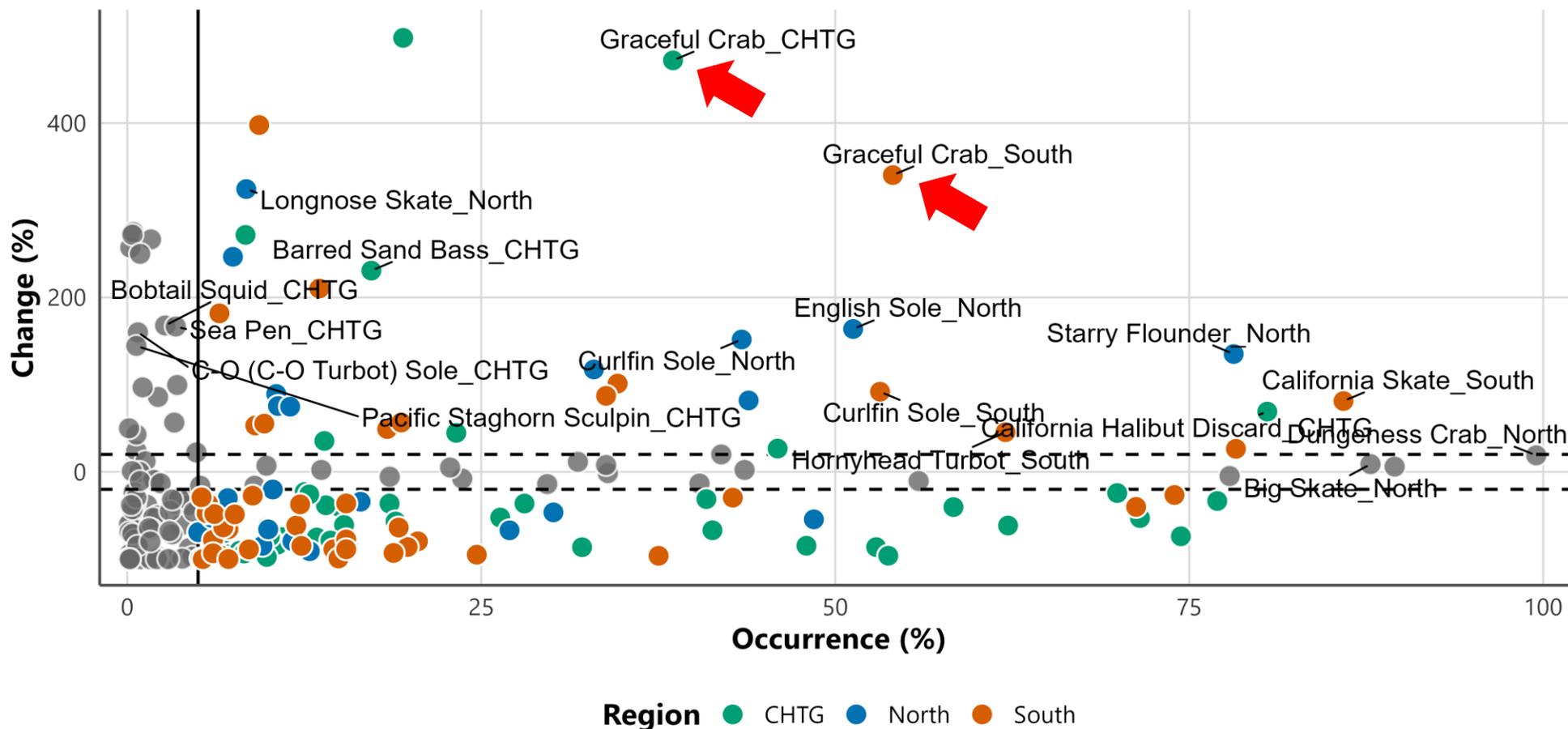
Address Bycatch



Step 2b: Catch Trend Analysis

Occurrence vs Change by Region

Dashed lines indicate $\pm 20\%$ change; solid line marks 5% occurrence threshold



Source: West Coast Groundfish Observer Program (WCGOP)



Step 2: Biological and Habitat Groups

Advance to Step 3

Special Status Species and Species of Interest and Importance
Seabirds
Marine Mammals
Biogenic Habitat - Invertebrates (Gorgonians, Sponges, Corals, Basket Stars)
Special Status Fish Species- Biological and Habitat Group
Anadromous
Deep Reef Associated Finfish
Shallow Reef Associated Finfish

Advance to Step 2b (ERA/PSA)

Fish
Anadromous
California Halibut discard
Deep Benthic Elasmobranch (rays, skates, sharks)
Deep Flatfish
Deep Reef Associated Finfish
Deep Soft Bottom Associated Finfish
Pelagic Elasmobranch (rays, skates, sharks)
Pelagic Finfish
Shallow Benthic Elasmobranch (rays, skates, sharks)
Shallow Demersal Finfish
Shallow Flatfish
Shallow Soft Bottom Associated Finfish
Invertebrates
Cancer Crabs (Dungeness, graceful, rock)
Deep Crabs (Box, King)
Mobile Benthic Invertebrate-Hard Bodied
Mobile Benthic Invertebrate-Soft Bodied
Other Shallow Crabs (kelp, sheep, masking, decorator, globe)



Step 2: DRAFT Species Representatives

Fish Biological and Habitat Groups	Species
Anadromous	Striped Bass
California Halibut discard	California Halibut Discard
Deep Benthic Elasmobranch (rays, skates, sharks)	Big Skate
	Longnose Skate
	Spiny Dogfish Shark
Deep Flatfish	Longfin Sanddab
	Pacific Sanddab
Deep Soft Bottom Associated Finfish	Specklefin Midshipman
Pelagic Finfish	Pacific Butterfish
	White Sea Bass
Shallow Benthic Elasmobranch (rays, skates, sharks)	Bat Ray
	Brown Smoothhound Shark
	California Skate
	Horn Shark
	Leopard Shark
	Pacific Angel Shark
	Pacific Electric Ray
	Shovelnose Guitarfish
	Soupfin Shark
	Starry Skate
	Swell Shark
	Thornback

Fish Biological and Habitat Groups	Species
Shallow Demersal Finfish	Longspine Combfish
	Pacific Staghorn Sculpin
Shallow Flatfish	Bigmouth Sole
	California Tonguefish
	Curlfin Sole
	Diamond Turbot
	English Sole
	Fantail Sole
	Hornyhead Turbot
	Starry Flounder
Shallow Soft Bottom Associated Finfish	Barred Sand Bass
	California Lizardfish
	Pink Surfperch
	Plainfin Midshipman
	Queenfish
	White Croaker

Seabirds
Marine Mammals
Biogenic Habitat- Invertebrates (Gorgonians, Sponges, Corals, Basket Stars)

Invertebrate Biological and Habitat Groups	Species
Cancer Crabs (Dungeness, graceful, rock)	Dungeness Crab
	Graceful Crab
	Pacific Rock Crab
	Red Rock Crab
Deep Crabs (box, king)	Armed Box Crab
Mobile Benthic Invertebrate-Hard Bodied	California Spiny Lobster
	Mantis Shrimp
	Ridgeback Prawn
Mobile Benthic Invertebrate-Soft Bodied	CA Sea Cucumber
Other Shallow Crabs (kelp, sheep, masking, decorator, globe)	Purple Globe Crab
	Sheep Crab
	Xantus Swimming Crab

Special Status Fish Species- Biological and Habitat Groups	Species
Anadromous	Chinook Salmon
	Coho Salmon
	Green Sturgeon
	White Sturgeon
	Longfin Smelt
Shallow Reef Associated Finfish	Giant Black Sea Bass
Deep Reef Associated Finfish	Rockfish (Quillback, Bronzespots, Copper, Vermillion)



Bycatch Evaluation Flow Chart - Summary

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Outreach

- Highlights

- March 2026 – MRC Update
- February 2026 – Outreach to Tribes, fleet, NGOs
- December 2025 – Calls to fleet
- November 2025 – MRC Update
- October 2025 – Stakeholder Update Webinar
- June 2025 – Stakeholder Update Webinar
- April 2025 – Kickoff in-person Workshop

- Upcoming/Ongoing

- Fleet Online Survey
- Workshop, surveys and updates as needed
- November 2026 – MRC Update Results (Steps 1-3)





Thank you!

[Email: MLMAFisheriesMgmt@wildlife.ca.gov](mailto:MLMAFisheriesMgmt@wildlife.ca.gov)

A screenshot of a web page from the California Department of Fish and Wildlife. The page title is "California Halibut Scaled Management Process". The navigation bar includes links for Home, Fishing, Hunting, Licensing, Conservation, and Learning. The breadcrumb trail is "Home > Conservation > Marine > CA Halibut Scaled Management". Below the title, there are three images: a halibut on the ocean floor, a scientific illustration of a halibut, and a close-up of a halibut's head. The page content includes a "Management Overview" section with a paragraph stating: "The California Department of Fish and Wildlife (CDFW) is committed to partnering with the stakeholder community to make informed decisions about the management of the California halibut fishery to support a healthy species, ecosystem, and fishing community. In 2019, CDFW released an updated roadmap for the continued implementation of the Marine Life Management Act (MLMA) 2018 Master Plan. As part of the update, many of the state's fisheries were". A sidebar on the left lists "On this page" with links to "Overview", "Bycatch Evaluation Process", "California Halibut Stock Assessment", and "Related Information".

<https://wildlife.ca.gov/Conservation/Marine/CA-Halibut-Scaled-Management>

Team members: Kirsten Ramey, Helen Killeen, Cyndi Dawson, Ken Oda, Travis Tanaka, Kim Walker



Pocket slides



Summarized WCGOP Observer Data

Summarized statewide trawl landed and bycatch species and categories.

Source: WCGOP observer data, Open Access trawl, 2016-22.

Anadromous		Finfish (other)		Mammals & birds	
Elasmobranch		Flatfish		Rockfish complex	
Biogenic Inverts		Crustaceans		Echinoderm	
Invert-Other		Mollusks			

*Individual species in bold identified by Free (2022) as a top 40 species landed or discarded in the northern and southern halibut trawl fisheries.

Anadromous
American Shad
Chinook (King) Salmon
Coho (Silver) Salmon
Green Sturgeon
Striped Bass
White Sturgeon

Elasmobranch
Aleutian Skate
Banded Guitarfish
Bat Ray
Big Skate
Bonito (Shortfin Mako) Shark
Brown Cat Shark
Brown Smoothhound Shark
California Butterfly Ray
California Skate
Common Thresher Shark
Diamond Stingray
Egg Case Unid
Gray Smoothhound Shark
Horn Shark
Leopard Shark
Longnose Skate
Pacific Angel Shark
Pacific Electric Ray
Ray Unid
Round Stingray
Sandpaper Skate
Sevengill Shark
Shark Unid
Shovelnose Guitarfish

Elasmobranch-cont
Sixgill Shark
Skate Unid
Smoothhound Unid
Souppin Shark
Spiny Dogfish Shark
Starry Skate
Swell Shark
Thornback
Thresher Shark Unid

Finfish (other)
Anchovy Unid
Anglerfish Unid
Barred Sand Bass
Bass Unid
Bay Pipefish
Bigfin Eelpout
Blacksmith
Buffalo Sculpin
Bull Sculpin
California Barracuda
California Lizardfish
Combfish Unid
Croaker Unid
Cusk-eel Unid
Eelpout Unid
Finescale Triggerfish
Fish Unid
Giant sea bass
Jack Mackerel
Jellyfish Unid
Kelp Bass

Finfish (other)-cont
Longspine Combfish
Lumptail Searobin
Mackerel Unid
Midshipman Unid
Mola Mola (Sunfish)
Non-Eulachon Smelt Unid
Northern Anchovy
Ocean Whitefish
Pacific Argentine
Pacific Butterfish
Pacific Cod
Pacific Grenadier
Pacific Hake
Pacific Herring
Pacific Mackerel
Pacific Pomfret
Pacific Sandlance
Pacific Sardine
Pacific Staghorn Sculpin
Pacific Tom Cod
Painted Greenling
Pile Surfperch
Pink Surfperch
Plainfin Midshipman
Poacher Unid
Queenfish
Rubberlip Surfperch
Sablefish
Sarcastic Fringehead
Sculpin Unid
Shiner Surfperch
Smooth Stargazer

Finfish (other)-cont
Snubnose Pipefish
Specklefin
Midshipman
Splitnose Searobin
Spottfin Surfperch
Spotted Batfish
Spotted Ratfish
Spotted Sand Bass
Surfperch Unid
Threadfin Sculpin
White Croaker
White Sea Bass
Wolf-eel

Flatfish
Arrowtooth Flounder
Bigmouth Sole
Butter Sole
California Halibut
California Tonguefish
C-O (C-O Turbot) Sole
Curtfin Sole
Deepsea Sole
Diamond Turbot
Dover Sole
English Sole
Fantail Sole
Flatfish Unid
Flathead Sole
Hornyhead Turbot
Longfin Sanddab
Pacific Sanddab
Petrale Sole

Flatfish-cont
Rex Sole
Rock Sole
Sand Sole
Sanddab Unid
Slender Sole
Speckled Sanddab
Spotted Turbot
Starry Flounder

Rockfish Complex
Bocaccio Rockfish
Bronzespotted Rockfish
Brown Rockfish
Cabezon
Calico Rockfish
California Scorpionfish
California Sheephead
Canary Rockfish
Chilipepper Rockfish
Copper Rockfish
Gopher Rockfish
Halfbanded Rockfish
Kelp greenling (California)
Kelp Rockfish
Lingcod
Longspine Thornyhead
Mexican Rockfish
Nearshore Rockfish Unid
Quillback Rockfish
Redbanded Rockfish

Rockfish Complex-cont
Rosy Rockfish
Shelf Rockfish Unid
Speckled Rockfish
Squarespot Rockfish
Stripetail Rockfish
Vermilion Rockfish
Yellowtail Rockfish

Mammals and Birds
California sea lion
Harbor porpoise
Harbor seal
Northern elephant seal
Stellar Sea lion
Brandts cormorant
Western grebe

Biogenic Invertebrates
Gorgonian Coral Unid
Horny Gorgonian
Sea Anemone Unid
Sea Pansy
Sea Pen
Sea Whip
Soft Coral
Sponge Unid

Crustaceans
Armed Box Crab
Brown Box Crab
California King Crab
California Spiny Lobster
Crab Unid
Crustacean Unid
Decorator/Spider Crab
Dungeness Crab
Graceful Crab
Hermit Crab Unid
Isopod Unid
Kelp Crab Unid
King Crab Unid
Lyre Crab Unid
Mantis Shrimp
Masking Crab
Pacific Rock Crab
Purple Globe Crab
Red Rock Crab
Ridgeback Prawn
Rock Crab
Scarlet King Crab
Sheep Crab
Shrimp Unid
Spiny King Crab
Spiny Lobster Unid
Spot Prawn
Squat Lobster Unid
Xantus Swimming Crab
Yellow Rock crab

Echinoderms
Brittle/Basket Star Unid
CA Sea Cucumber
Irregular Echinoid
Sand Dollar Unid
Sea Cucumber Unid
Sea Star Unid
Urchin Unid

Invertebrate Other
Ectoprocta Unid
Invertebrate Unid
Jellyfish Unid
Pyrosome Unid
Salp Unid
Tunicate Unid
Worm Unid

Mollusks
Bivalve Unid
Bobtail Squid
Humboldt Squid
Market Squid
Mollusk Unid
Non-Humboldt Squid Unid
Nudibranch Unid
Octopus Unid
Scallop Unid
Sea Snail Unid
Squid Unid