



Statewide California Halibut Trawl Bycatch Assessment

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Presented to:

**Marine Resources Committee
Fish and Game Commission**

Presented by:

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Marine Region**



Management Priorities for CA Halibut

1. Enhanced Status Report – completed in 2022
2. Ecosystem evaluation – completed in 2024
3. CA halibut trawl grounds (CHTG) assessment – completed in 2024
4. Management Strategy Evaluation – in progress
5. CA halibut Stock assessment
 - Southern stock – completed in 2024
 - Northern stock – in progress
6. Bycatch evaluation
 - Gill net sector – completed in 2023
 - **Trawl sector – in progress**



MLMA Master Plan Bycatch Evaluation Steps

Four step process:

1. Collection of information
2. Distinguishing target, incidental and bycatch species
3. Determining “acceptable” types and amounts of bycatch
 - Legality of take
 - Threat to sustainability
 - Impacts on fisheries
 - Ecosystem impacts
4. Addressing unacceptable bycatch



Bycatch Evaluation Flow Chart

Step 1. Collection of information: Fishery-reported data, observer data, spatial data, bycaught species data, and bycatch reports

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

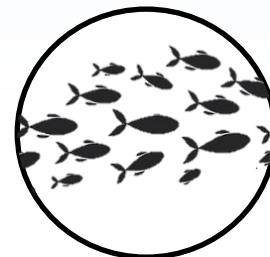
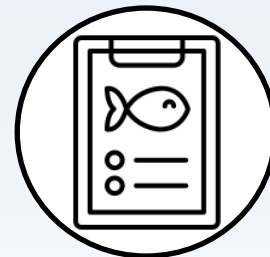
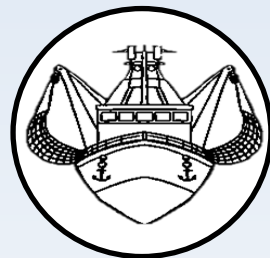
Address Bycatch



Step 1: Collect Information



Photo credit: CDFW



- Fishery-dependent data
 - Trawl logs
 - Fish tickets
 - Observer data
 - Bycatch reports
- Fishery-independent data
 - Spatial/habitat data
 - Species life history information
 - Research
- Stock assessments
- Other information?



Step 2: Distinguish Species

“[Bycatch is] fish or other marine life that are taken in a fishery but are not the target of the fishery. Bycatch includes discards.” §90.5 MLMA

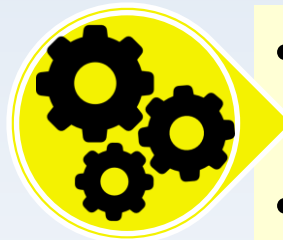
- Intended targets evidenced by landings data
- Marketability of landed commercial species
- Historical use patterns
- Legality, or management considerations



Step 2: Distinguishing Species Approach



Which species should be considered as target species, incidental, bycatch?



- Only data where halibut was targeted and caught
- **Retained catch:** landed non-halibut species
- **Discarded bycatch:** live/dead non-halibut species + live/dead sub-legal halibut
- Delineate based on landings and historical use patterns



- Species categories are consistent with 2022 UCSB-CDFW analysis



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		Discarded bycatch	

Collect Information

Distinguish Species

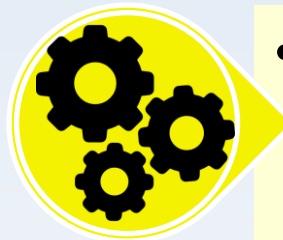
Acceptability

Address Bycatch



Steps 2a and 2b: Prioritize Species Approach

Which species should be prioritized for acceptability determination?



- Solicit input from stakeholders and industry about species of interest and importance
- Utilize vulnerability assessments and thresholds
 - Ecological Risk Assessment
 - Productivity Susceptibility Analysis
- Identify a priority list for Step 3 (Acceptability)



- CESA/ESA species will be included in the priority list.



Step 3 Acceptability: Master Plan Criteria

- Legality of take
- Degree of threat to the sustainability of bycatch species
- Impacts on fisheries that target the bycatch species
- Ecosystem impacts



Step 3 Acceptability: Legality

Legality of take

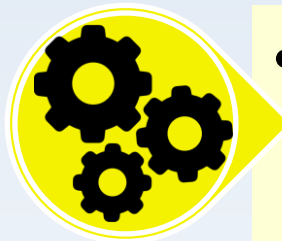
- Protected status (ESA, MMPA, etc.)?
- Gear prohibitions?
- Size, seasonal limits?
- Is the discard mortality rate known?
- Compliance with existing take permits?
- Do incidental or annual catch limits apply?



Step 3: Legality Approach



Are existing bycatch rates legal?



- Identify all relevant management and legal considerations
- Utilize fleetwide bycatch rates to evaluate compliance for relevant species
- Sensitivity analyses to determine mortality thresholds



- Data will be available to determine this for all prioritized species



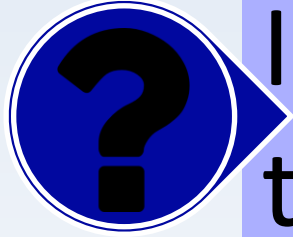
Step 3 Acceptability: Sustainability

Degree of threat to sustainability of bycaught species

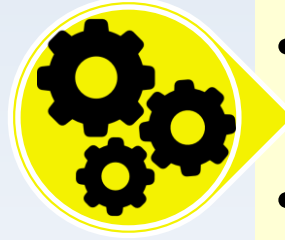
- Have vulnerability assessments been conducted?
- Reliable status estimate or stock assessment?
- Other existing state and/or federal management measures?
- What are estimated discard mortality rates?
- Post-release studies to verify mortality rates?
- Probability of exceeding mortality rates that would threaten the species?



Step 3: Sustainability Approach



Is bycatch a threat to the sustainability of any species?
§7085(b)(2)



- Utilize fleetwide bycatch mortality rates to evaluate compliance
- Utilize stock assessments and review management measures
- Conduct/use existing vulnerability assessments on priority species
- Sensitivity analyses to determine mortality thresholds



- Most bycatch species will be data-limited and acceptability may rely on vulnerability assessments



Step 3 Acceptability: Impact on Fisheries

Impacts on fisheries that target the bycatch species

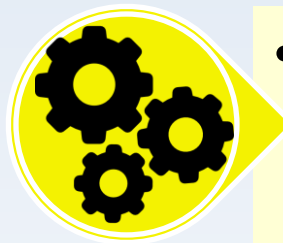
- Does a directed fishery exist?
- Has bycatch and associated discard mortality been accounted for?
- Is bycatch affecting the directed fishery management strategy?
- Are impacts explicit in ESR/FMP?
- Is the species under a rebuilding plan? Will bycatch compete with fleets that target the species?
- Management allowance?
- **Has bycatch impacted directed fishery (e.g., reduced income, fishing opportunities, social/cultural value, impacts to juveniles)**



Step 3: Impact on Fisheries Approach



Is bycatch a threat to other fisheries?
§7085(b)(3)



- Identify any bycatch species that may be part of a federal rebuilding plan or state FMP
- Identify and review compliance with management allowances
- Review all information about interactions between directed fishery and bycatch



- Existing agreements and allowances will inform evaluation for most fisheries



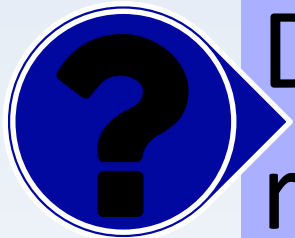
Step 3 Acceptability: Ecosystem Impacts

Ecosystem Impacts

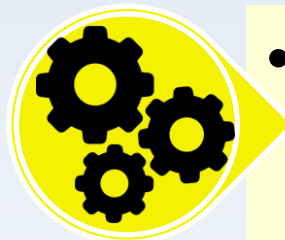
- What is the ecosystem role of bycatch species?
- Is there evidence that mortality alters ecosystem function of bycatch species?



Step 3: Ecosystem Impacts Approach



Does bycatch result in ecosystem impacts?
§7085(b)(4)



- Conduct Ecological Risk Assessment(s) (ERAs) for species that do not already have one
- Use fleetwide estimated discard mortality rates (GEMM)



- Rely on/update existing guild-based ERAs for most species

Collect Information

Distinguish Species

Acceptability

Address Bycatch



Step 4: Address Unacceptable Bycatch

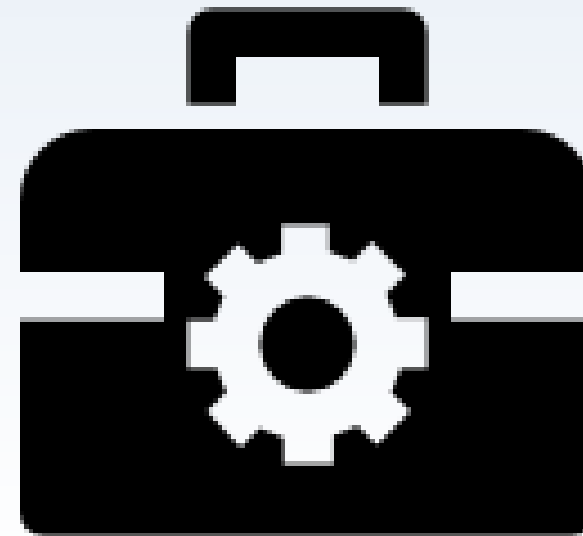
- Are there existing bycatch minimization measures in place?
- Are potential measures likely to be effective?
- How successful are existing methods?
- Are potential measures effective in similar fisheries?
- What's the economic impact of implementation?



Step 4 Address Bycatch: Toolbox

Master Plan Recommendations (Appendix M)

1. Gear modifications
2. Bycatch catch limits
3. Spatial and temporal measures
4. Incentive/disincentive programs
5. Minimizing “ghost fishing”
6. Full retention programs
7. Other





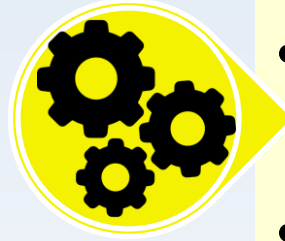
Step 4: Address Unacceptable Bycatch Approach



When and where are priority bycatch species encountered?



- Hotspots and cold spots may reveal alternative spatial management approaches



- Utilize WCGOP data to map species-specific hotspots
- Model spatial and habitat predictors of species-specific and overall bycatch
- Model time-varying predictors of species-specific and overall bycatch
 - *Season, oceanographic conditions*



Engagement Efforts

- Highlights:
 - Regional approach should be considered
 - Species of interest: green sturgeon, Dungeness crab, elasmobranchs
 - Concerns regarding definition of discards (regulatory, discretionary, incidental)
 - Concerns regarding use of the term “bycatch”, discard is the preferred term
 - Concerns about potential bycatch impacts to sub-legal halibut
 - Integration of fishermen’s expertise in interpreting data





Next Steps and Timeline

- **Fall 2025 – early Winter 2026** – Finalize Step 1 and complete 2
- **March 2026** – Present draft prioritized list of species to MRC
- **Spring-Summer 2026** – Complete analysis of acceptability (Step 3)
- **July 2026** – Present draft results from Step 3 to MRC
- **Ongoing** – Stakeholder and Tribal engagement



Thank you!

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

A screenshot of the California Department of Fish and Wildlife website. The page title is "California Halibut Scaled Management Process". The navigation bar includes "Home", "Fishing", "Hunting", "Licensing", "Conservation", and "Learning". The breadcrumb trail is "Home > Conservation > Marine > CA Halibut Scaled Management". The main content area has a section for "Overview" with a paragraph about CDFW's commitment to partnering with stakeholders. There is a link to "Join the email list" and a photo of a flat fish on the ocean floor with the caption "Flat fish lying on ocean floor." A sidebar on the left lists "On this page" with links to "Overview", "Trawl Bycatch Evaluation", "Exploring Scaled Management", "California Halibut Stock Assessment", and "Related Information".

CA
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Home Fishing Hunting Licensing Conservation Learning

Home > Conservation > Marine > CA Halibut Scaled Management

California Halibut Scaled Management Process

On this page


- Overview
- Trawl Bycatch Evaluation
- Exploring Scaled Management
- California Halibut Stock Assessment
- Related Information

Overview

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.

Join the email list to receive updates regarding California halibut management.

In 2019, CDFW assessed the state's fisheries under the **2018 Master Plan for Fisheries (PDF)** framework. A prioritization process identified California halibut (*Paralichthys californicus*) as a species in need of management attention due to potential risks to bycatch species (including sub legal-sized California halibut) and from a changing climate. CDFW is currently working on a California halibut management process which includes all fishery sectors statewide: recreational, commercial



Flat fish lying on ocean floor.

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



Pocket slides



Proposed Analyses: Summary & Discussion

Master Plan Step	Question	Proposed Analysis
2: Distinguish species	Which species are target, incidental, and bycatch?	<ul style="list-style-type: none"> • Use historical use patterns to identify consistently retained and discarded species.
	Which species should be prioritized for step 3?	<ul style="list-style-type: none"> • Solicit stakeholder/industry input • Utilize vulnerability assessments and thresholds
3: Determine acceptability	Are existing bycatch rates legal?	<ul style="list-style-type: none"> • Utilize fleetwide expansions to evaluate compliance for relevant species • Sensitivity analysis when mortality rates are poorly understood.
	What are the impacts on species sustainability?	<ul style="list-style-type: none"> • Productivity susceptibility analysis to determine vulnerability. • Sensitivity analysis when mortality rates are poorly understood.
	What are the impacts on directed fisheries?	<ul style="list-style-type: none"> • Evaluate compliance with existing management and review interactions.
	What are ecosystem impacts?	<ul style="list-style-type: none"> • Ecological risk assessments
4: Address bycatch	When and where are priority species encountered?	<ul style="list-style-type: none"> • Spatiotemporal and habitat models of bycatch



- Look to OST Report for ERA and PSA figures
- <https://www.oceansciencetrust.org/projects/era/>
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