



March 1, 2023

Ms. Samantha Murray, President  
California Fish and Game Commission  
P.O. Box 944209  
Sacramento, CA 94244-2090

**RE: MRC Agenda Item 2: California Halibut Fishery Bycatch Review – Set Gillnets**

Dear President Murray and Members of the Commission:

We write to express our continued concerns regarding bycatch in Commission-managed marine fisheries, specifically set gillnets targeting California halibut and white seabass as well as the bottom trawl fishery targeting California halibut. We hope to see the Commission adopt regulations under the Marine Life Management Act (MLMA) to reduce discard mortality in all these fisheries by 2025. Last November, the Marine Resources Committee (MRC) recommended focusing initially on set gillnets targeting California halibut and conducting a bycatch inquiry from the MLMA Master Plan for Fisheries for the top ten bycatch species of greatest concern. At this March meeting, we hope to see the MRC identify specific types and amounts of bycatch that are unacceptable in the set gillnet fishery targeting California halibut.

Consistent with the MRC’s guidance, Oceana and Turtle Island Restoration Network conducted a comprehensive analysis of bycatch in set gillnets following the Bycatch Inquiry in the MLMA Master Plan and have shared our analysis with the California Department of Fish and Wildlife and Commission staff. This table below summarizes our key conclusions for the top bycatch issues of concern in the context of the bycatch acceptability criteria in the MLMA (Fish and Game Code Section 7085) for set gillnets targeting California halibut. The MLMA criteria include:

- the legality of bycatch under any relevant law,
- degree of threat to the sustainability of the bycatch species,
- impacts to fisheries that target the bycatch species, and
- ecosystem impacts.

The term “unacceptable” is not intended to be a value judgment on the fishery or participants, but rather represents a legal threshold in the MLMA to initiate a process to address unacceptable bycatch through conservation and management measures (Fish and Game Code Section 7085(c)). CDFW has already identified the California set gillnet fishery as a top management priority due to bycatch and ecosystem risk.

Based on the rationale presented in the below table and the information provided by CDFW, there is a strong and compelling case for the Commission to determine that specific types and amounts of bycatch in the set gillnet fishery targeting California halibut are unacceptable under the MLMA criteria and require immediate management action. This fishery is clearly among the highest bycatch concerns of any Commission-managed fishery. Determining which types and/or amounts of bycatch are unacceptable is a critical step that will create a roadmap to inform management measures. Based on the information and data presented by CDFW, we hope to see a robust discussion to support an MRC recommendation based upon the MLMA bycatch criteria at the upcoming March 2023 meeting.

Sincerely,

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**Table: Summary of top bycatch issues with California set gillnets identified in the Bycatch Inquiry corresponding to each of the four MLMA bycatch acceptability criteria (Fish and Game Code Section 7085).**

MLMA Bycatch Criteria	Top concerns identified in the Bycatch Inquiry for California halibut set gillnets - for each concern, we present the rationale for why the type and amount of bycatch should be deemed unacceptable under the MLMA bycatch acceptability criteria. <sup>1</sup>
<i>(1) Legality of the bycatch under any relevant law</i>	<ul style="list-style-type: none"> <li>• <b>Unpermitted take of federally endangered species</b> <ul style="list-style-type: none"> <li>○ <b>Humpback whales</b> - The current NMFS “MMPA List of Fisheries” lists the CA set gillnet fishery as a Category II fishery due to take of federally endangered humpback whales, however the fishery does not have an incidental take permits.<sup>2</sup> Unidentified gillnets (excluding identified drift gillnet entanglements) entangled 12 humpback whales and 26 gray whales from 2000 – 2022.<sup>3</sup></li> <li>○ <b>Pacific leatherback sea turtles</b>- The fishery is known to have caught endangered leatherback sea turtles and does not have an incidental take permit.<sup>4</sup> Current levels of observer coverage in the set net fishery, in combination with a lack of total effort estimates for the fishery, are insufficient to detect rare event bycatch.<sup>5</sup></li> <li>○ <i>Note: Soupfin sharks are currently a candidate species for ESA listing and caught in set gillnets.</i></li> </ul> </li> </ul>
<i>(2) Degree of threat to the sustainability of the bycatch species.</i>	<ul style="list-style-type: none"> <li>• <b>Unassessed Sharks, Skates &amp; Rays</b> - 28 different species of skates, sharks, and rays are caught and discarded in set gillnets; 22 of these species have unassessed populations yet are considered generally vulnerable due to their slow growth and low fecundity. For context, global shark and ray populations have declined by 71% since 1970.<sup>6</sup> The Southern California Bight is a critical shark nursery area for many vulnerable shark species such as the white shark, soupfin shark, mako shark, and others.</li> <li>• <b>White Sharks</b> - CA set gillnets are the biggest threat to juvenile white sharks on the West Coast, catching an estimated 25 sharks annually with approximately 50% mortality rate, representing over 90% of all annual white shark bycatch.<sup>7</sup> White shark landings are prohibited in all California fisheries except for set gillnets. White shark regional abundance of adults and sub-adults off California is estimated to be in the low hundreds<sup>8</sup> of which a subset are reproducing females. White sharks show low resilience to mortality<sup>9</sup> as reproducing females produce 2-10 embryos every 2 years and begin reproducing after the age of 30.<sup>10</sup> Therefore this level of bycatch mortality may represent a significant portion of the total juveniles that enter the population every year. The only known nursery area for the distinct Northeast Pacific white shark population is in Southern California waters where the set gillnet fishery operates.<sup>11</sup></li> <li>• <b>Soupfin shark</b>- Discard mortality of soupfin in the set net fishery is 64%. Soupfin sharks have no formal stock assessment and are not managed with any catch limits, despite indicators of low populations. The species has recently been listed as an ESA candidate species due to global population declines of 80% in the last 3 generations.<sup>12</sup> Soupfin shark populations on the West Coast were severely depleted in the 1940’s Vitamin A fishery and have not recovered.</li> <li>• <b>Humpback Whales</b> – Populations of humpback whales are threatened and endangered on the West Coast; fishery related mortality and entanglement reports are produced annually. Whale entanglements likely happen more frequently than are reported or observed, and no estimates of total whale entanglements (extrapolated estimates) are available. The potential take and entanglement of humpback whales in this fishery have not been evaluated; and better gear-marking requirements are needed to understand the role of set gillnets in the wider issue of whale entanglements along the West Coast.</li> <li>• <b>Leatherback Turtles</b> – Leatherback sea turtles are critically endangered, and an ESA listed species at risk of extinction. Turtles foraging off California have declined by 90% in recent decades; recent estimates indicate just 55 sea turtles remain foraging on the West Coast and are decreasing at a rate of 5.6% annually.<sup>13</sup> While encounters of leatherback turtles are rare due to the extremely low population size, a single entanglement or death of a turtle is a risk to the recovery of the species.<sup>13</sup> Observers documented set gillnet take of a leatherback turtle in the 1990s<sup>4</sup> and current observer coverage rates are insufficient to detect rare event bycatch such as for leatherback turtles.<sup>5</sup></li> </ul>

<p>(3) Impacts on fisheries that target the bycatch species.</p>	<ul style="list-style-type: none"> <li>• <b>CA Halibut</b> - Set gillnets discard 12% of the individual California halibut caught. Observers documented that approximately 40% of these discarded California halibut are already dead before being discarded at sea and post-release mortality is not estimated. California halibut is the target of other commercial and recreational fisheries (commercial bottom trawl, commercial and recreational hook and line). Recent draft stock assessments conducted by CDFW indicate the Southern California stock is estimated to be depleted to about 14% of its unexploited spawning biomass level, consistent with previous stock assessment findings of depletion.</li> <li>• <b>Giant seabass</b><sup>14</sup> are caught and killed in set gillnets. Historically a prized sportfish, the take of seabass has been prohibited in commercial and recreational fisheries since 1981 due to depletion, however, giant seabass is allowed to be landed in set gillnets. Take of black seabass in set gillnets may be impacting prospects to reopen targeted fishing opportunities in the future; where set nets have been banned giant seabass populations have shown signs of recovery.<sup>15</sup> Because the giant seabass is slow growing, long lived, and aggregates in large groups, it is susceptible to overfishing.</li> <li>• <b>Barred sand bass</b> are prohibited from commercial take in California and are one of the most frequently caught and discarded recreationally important fish in the set gillnet fishery. At vessel discard mortality is 37%, with unknown post-release mortality. Barred sand bass play a focal role in the recreational fishing industry in southern California. Historically, they have supported the most reliable short-range inshore trips of southern California's charter boat businesses<sup>16</sup>, as well as being a target species for private boaters. Together these angling groups make up a large portion of California's multi-billion annual recreational fishing industry.<sup>17</sup> Recent declines in the catch of barred sand bass have resulted in substantially fewer angler trips targeting this species and the current bag limit and minimum size limit for recreational anglers may be further reduced as populations of barred sand bass fail to recover.<sup>18</sup></li> <li>• <b>Rock Crab</b> - Rock crab is caught in high numbers and is 99% discarded in the set net fishery with and observed 57% discard mortality. These crabs support a commercial and recreational fishery. No estimates of the rock crab population abundance in California exist, however, some fisheries-dependent as well as anecdotal information suggest population depletion.<sup>19</sup> According to the CDFW Enhanced Status Report (ESR) for Rock Crab: "management changes to establish targets, limits and associated management procedures are needed."</li> </ul>
<p>(4) Ecosystem impacts.</p>	<ul style="list-style-type: none"> <li>• <b>Threat to Biodiversity</b> - At least 125 distinct species are caught, including finfish, sharks, seabirds, invertebrates, marine mammals, and endangered and vulnerable species with an aggregate 55% discard mortality. Of the 97 fish species caught (including sharks, skates, ray and bony fish), 68 species have no stock assessments. For species covered under fishery management plans, landings and bycatch from the set net fishery are not accounted for in Annual Catch Limits. Total population impacts to all of these species are difficult to quantify with lack of total effort estimates for this fishery – making estimated marine mammal mortality, and population impacts to bycaught species difficult to evaluate.</li> <li>• <b>Ecosystem Engineers</b> – Sharks, skates, and rays comprise 23% of the animals caught in set gillnets. These species are critical for maintaining healthy ecosystems and are particularly vulnerable to overfishing due to low birth rates and slow maturation. The set gillnet fishery operates in a critical nursery area for many at-risk shark species.</li> <li>• <b>Cumulative ecological impacts</b> – The set gillnet fishery has one of the highest overall bycatch rates in the United States. This fishery discards 64% of all animals caught, and 55% of all observed discards are thrown back already dead. Additional mortality from injury and stress after release is unknown for most of these species.</li> <li>• <b>Overall Ecosystem Risk</b> – Set gillnets scored 1<sup>st</sup> and 3<sup>rd</sup> highest risk in CDFW's Prioritization / Ecological Risk Analysis. Studies in other regions indicate set gillnets have the highest ecological risk across nearshore commercial fishing gear types.<sup>20</sup></li> <li>• <b>High Marine Mammal Take</b> - The fishery takes an estimated 150 California sea lions each year, more than all other West Coast fisheries combined.<sup>21</sup> This does not account for sea lions that escape the gear but are still entangled. California sea lions play an important role as predators in the Southern California Bight marine ecosystem. The set gillnet fishery operates just 1 nm offshore a critical sea lion rookery in the Channel Islands.</li> </ul>

***We also identified the following additional bycatch concerns that require management attention:***

- **Insufficient observer coverage** - Despite recommendations by National Marine Fisheries Service scientists for this fishery to have a minimum of 20% observer coverage to better document bycatch of key species with low abundance<sup>22</sup>, in the last 15 years (2007 – 2021) the observer coverage rate has been below 5%.
- **Inconsistent accounting of fishing effort** - State and federal fishery managers have not been maintaining records of the number of set gillnet “sets” cast each year. Instead they track fishing effort through number of trips and landings. However, federal observer data measures set gillnet effort in number of sets. This inconsistency creates uncertainty in estimating total catch and discards.
- **Lost Gear** – Set gillnets are collected in the California Lost Fishing Gear Recovery Project. Lost set gillnets, sometimes referred to as “ghost gear” are marine debris that are documented off California to entangle fish, crabs, lobster, and birds.<sup>23</sup> This represents additional bycatch mortality that is not included in fishery observer data estimates of bycatch.
- **Lack of gear marking** – Set gillnets do not have unique gear marking of nets or buoys to enable identification of the fishery or permit owner if lost or observed in wildlife entanglements.

## References

- <sup>1</sup> Except where otherwise specified, all data on discard rates and discard mortalities in the table are based on the NMFS California Set Gillnet Observer Program data summaries for six individual years. NMFS. 2022. California Set Gillnet Observer Program, Observed Catch 2007-01-01 to 2017-12-31. NOAA. <https://media.fisheries.noaa.gov/2022-01/setnet-catch-summaries-2007-2010-2013-2017.pdf>
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- <sup>7</sup> Dewar *et al.* 2013, Status Review of the Northeastern Pacific Population of White Sharks (*Carcharodon Carcharias*) under the Endangered Species Act, 2013. <https://repository.library.noaa.gov/view/noaa/17705>. Table 4.3 Average estimated catches from U.S. west coast set nets 2001-2011
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