

# Informational Report on Endangered Species Interactions with U.S. West Coast Federal Groundfish Fisheries, 2002-2023

The Terms and Conditions of the Biological Opinion (BiOp) for the Pacific Coast Groundfish Fishery require reports of estimates of fishery interactions with eulachon (NMFS 2018), green sturgeon (NMFS 2012), humpback whales (NMFS 2024), leatherback sea turtles (NMFS 2024), and short-tailed albatross (NMFS 2012) as well as fishing effort trends every two years. In this informational report, the Northwest Fisheries Science Center's Fishery Observation Science Program has calculated and compiled those estimates. These represent the most current data sets, processing procedures, and analytical techniques and constitute the best available estimates, replacing any previous datasets. Reports further detailing methods and trends will be published at a later date. In addition, fishing effort trends are described in a separate informational report in this briefing book. Tables can be found in the accompanying spreadsheet.

## Eulachon

The Southern Distinct Population Segment (DPS) of Eulachon (*Thaleichthys pacificus*) was listed as threatened under the Endangered Species Act in 2010 (75 FR 13012), and the 2022 five-year review recommended that the Southern DPS remain classified as a threatened species (NMFS 2022, Gustafson et al. 2022). In the most recent two years (2022 and 2023), estimated bycatch in observed or electronically-monitored federal groundfish fisheries was 24,593 and 7,476 individuals, respectively (Table 1, Figure 1). The 2022 value was the highest in the time series, likely at least partially reflecting higher eulachon abundance in recent years (JCRMS 2025). The Groundfish BiOp incidental take statement establishes a fluctuating threshold, where the geometric mean of the bycatch estimates from the previous five years (not including the current year) is compared to the geometric mean of the minimum abundance estimates for Columbia River eulachon from the current year and the four preceding years (NMFS 2018). The precautionary threshold is 0.01% of the five-year geometric mean of minimum abundance and the reinitiation threshold is 0.02% of the five-year geometric mean of minimum abundance. The 2022 bycatch geometric mean value was 138% of the precautionary threshold and 69% of the reinitiation threshold. The 2023 value was 198% of the precautionary threshold and 99% of the reinitiation threshold<sup>1</sup>.

Most bycatch in federally managed fisheries was observed in midwater trawl fisheries, followed by bottom trawl. Note that for the shoreside midwater sectors, catch is generally not sorted at sea, and

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<sup>1</sup> Values for the 2022 and 2023 minimum Columbia river abundance were provided by Robert Anderson, NOAA NMFS West Coast Region, 2025. Earlier values were provided by the Washington Department of Fish and Wildlife and can be found in Gustafson et al. (2023).

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bycatch is quantified using fish tickets. These tickets only list weight of catch, so counts were estimated using a rolling 3-year count-weight regression from at-sea observations in the limited entry bottom trawl and catch shares sectors. The mean individual weight across years estimated from these regressions was 46.5 g (1.6 oz). Different assumptions about individual weights would lead to different estimated bycatch counts. For additional information on eulachon bycatch, see Gustafson et al. (2023).

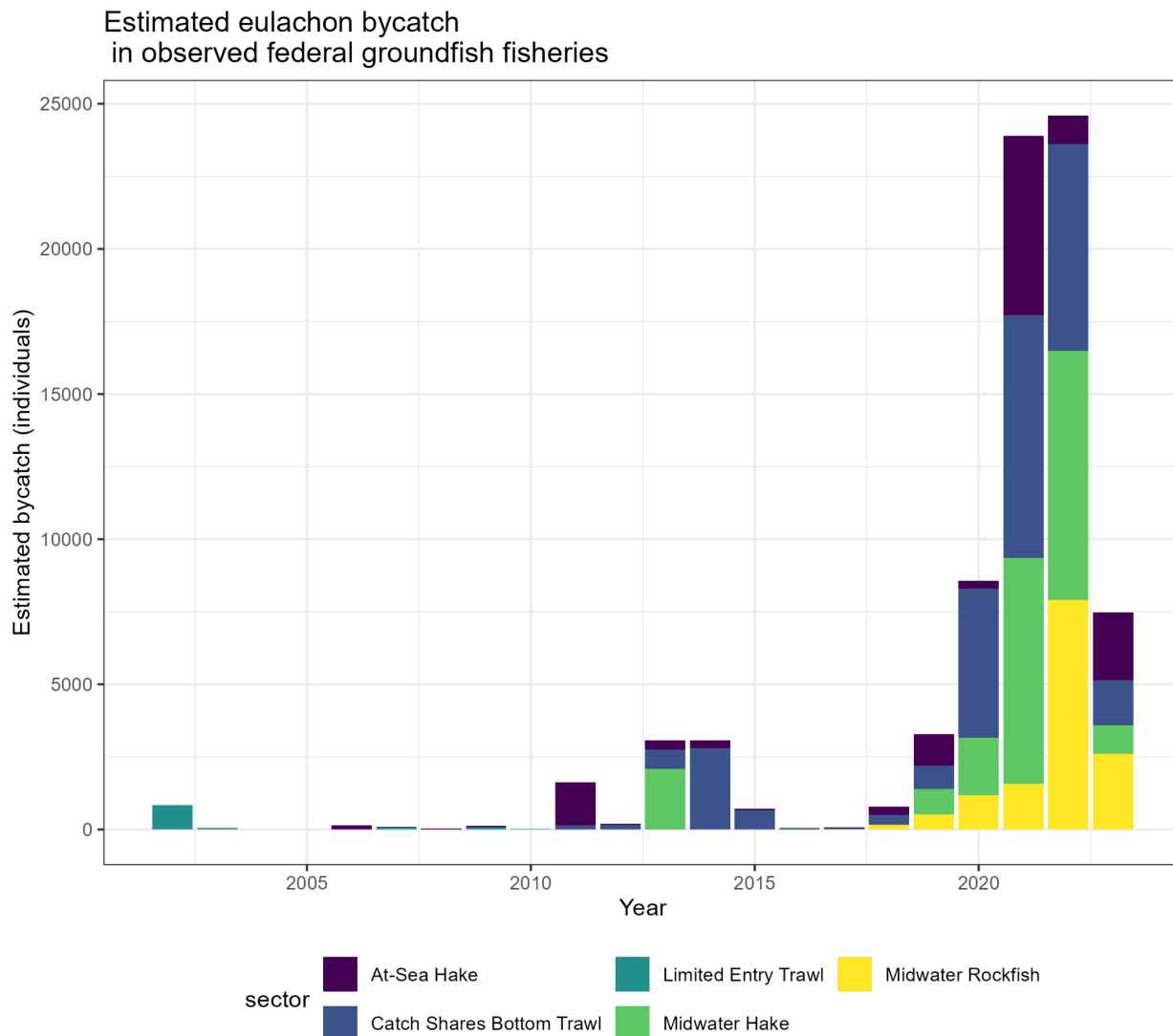


Figure 1. Estimated eulachon bycatch in observed or electronically-monitored federally-managed fisheries, 2002-2023.

## Green Sturgeon

The Southern Distinct Population Segment (DPS) of North American green sturgeon (*Acipenser medirostris*) was listed as threatened under the Endangered Species Act in 2006 (71 FR 17757), and the

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Biological Opinion (BiOp; NMFS 2012) for the Pacific Coast Groundfish Fishery states that incidental take of Southern DPS green sturgeon in the combined federally managed fisheries should not exceed more than 28 fish per year, while allowing for up to 86 takes per year in no more than two years within a nine-year period. While the BiOp only concerns Southern DPS as a listed species, currently there is no direct method to distinguish between Southern and Northern DPS fish at sea. In the latest two years of data (2022 and 2023), estimated take of green sturgeon (regardless of DPS) in observed or electronically-monitored federal groundfish fisheries was two individuals in both 2022 and 2023 (Table 2, Figure 2). Between 2007 and 2017 some bycatch samples were analyzed with genetic stock identification (GSI) methods to differentiate between Northern and Southern DPS fish (pers. comm. Dr. Carlos Garza, SWFSC, NMFS). The GSI analyses indicated that 48% of green sturgeon caught off the Oregon and Washington coasts and 96% of individuals caught off the California coast belonged to the Southern DPS. Multiplying these proportions by the number of takes off each state results in ~1.9 Southern DPS individuals taken in 2022 and ~1.5 Southern DPS individuals taken in 2023. All individuals recorded by observers or electronic monitoring in recent years were caught in the catch shares bottom trawl fishery (Table 2). For additional information on green sturgeon bycatch, see

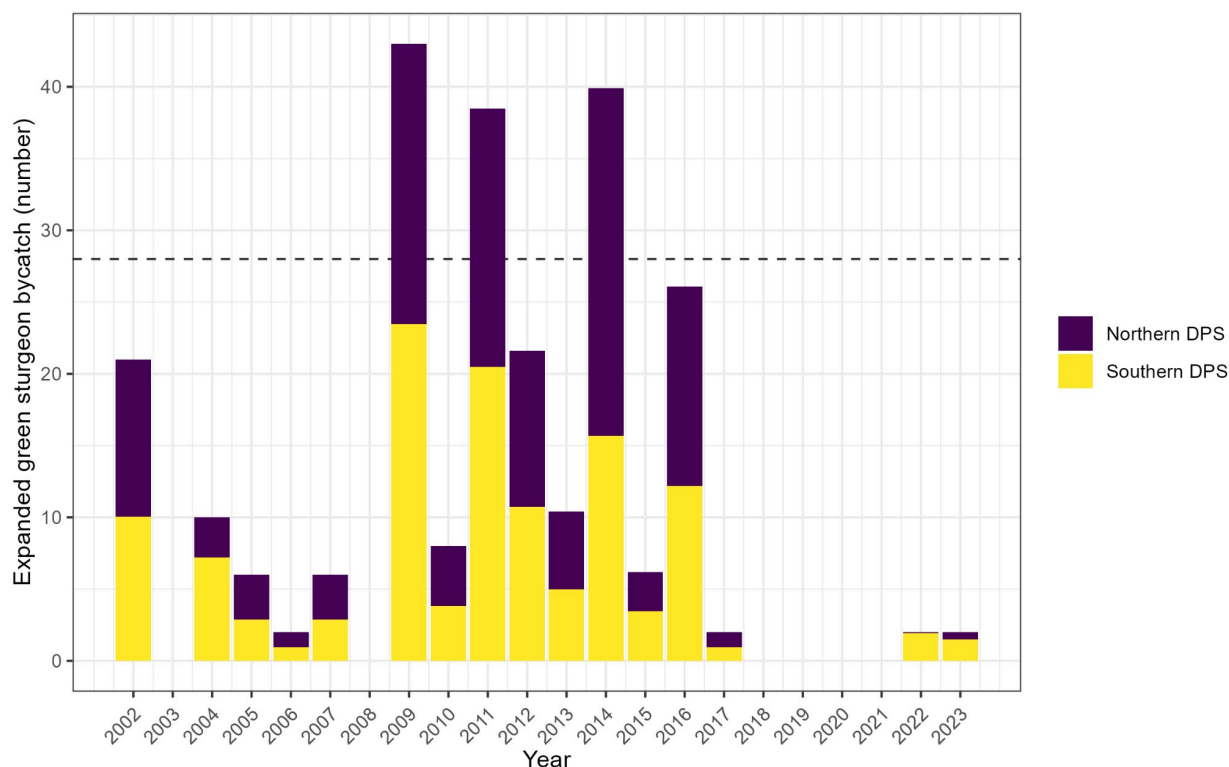


Figure 2. Estimated green sturgeon bycatch in observed or electronically-monitored federally-managed fisheries, 2002-2023. Northern and Southern DPS estimates are based on a subset of individuals that were analyzed with genetic stock identification between 2007 and 2017. Based on these results, we assume that 48% of green sturgeon caught off Oregon/Washington and 96% of green sturgeon caught off California belong to the Southern DPS. The horizontal dashed line represents the BiOp threshold of 28 Southern DPS fish. No green sturgeon were observed in federal fisheries in 2003, 2008, and 2018-2021.

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## Short-Tailed Albatross

No short-tailed albatross takes were documented in the U.S. West Coast groundfish fisheries in 2022-2023, and we continue to estimate bycatch over the full time series (2002-2023) using Bayesian methods (for additional details, see Good et al. 2022). We compared 12 Bayesian time-series models to obtain the single best model to describe bycatch. The best model used a constant bycatch rate and a Poisson process to describe bycatch, and inferred annual expected mortality, given specified levels of observed effort and estimated fleet-wide bycatch using the percent of observer coverage (Figure 3). Fleet-wide estimates of mean bycatch ranged from 0.1 to 1.3 short-tailed albatross takes per year, while the credible limits of those annual estimates ranged from 0 to 3 short-tailed albatross takes per year (Table 3). The take threshold established by the Biological Opinion is five estimated or one observed albatross over a two-year period, neither of which have been exceeded in 2022

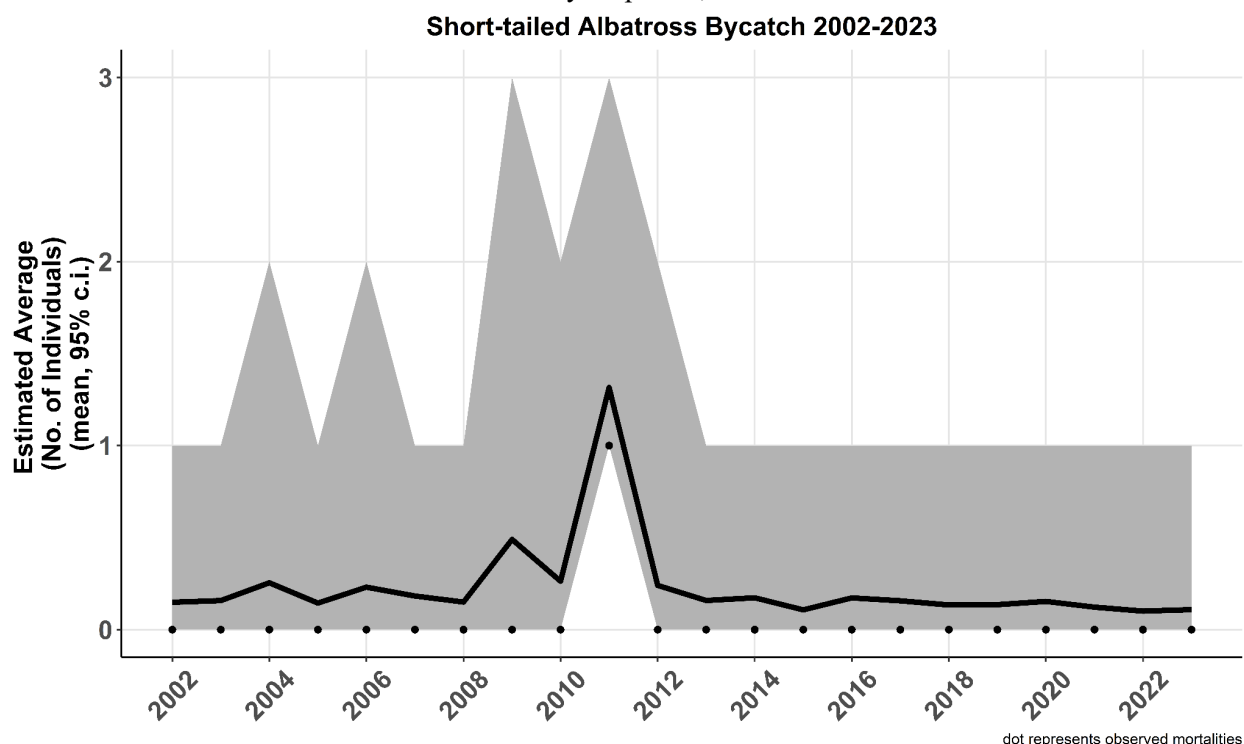


Figure 3: Fleet-wide bycatch of short-tailed albatross estimated for 2002-23. Dots represent observed bycatch, black line is the estimated mean, and the gray area represents the 95% credible interval. The best model used the number of sets as effort, a Poisson distribution for bycatch, and a constant bycatch rate.

The Pacific Fishery Management Council requested periodic updates on sightings of short-tailed albatross south of 36° N latitude to allow for future revision of the decision to limit mitigation measures to that line. Multiple sources were evaluated to identify sightings of short-tailed albatross in 2022 and 2023. None were observed south of lat. 36°N by the WCGOP, the NOAA Fisheries Rockfish Recruitment and Ecosystem Assessment Survey, the CalCOFI surveys, or in any new telemetry data. However, eBird

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sightings included one short-tailed albatross off of Mission Bay in San Diego, CA (lat. ~33°N) in January 2022. For additional information on short-tailed albatross biology and groundfish fisheries, see Jannot et al. 2021 and Good et al. 2023.

## Humpback Whale and Leatherback Sea Turtle

The most recent guidance on biological thresholds for and estimates of takes of humpback whales and leatherback sea turtles in the U.S. West Coast federal groundfish fisheries are available in the 2024 Biological Opinion on the Effects of the Continuing Operation of the Pacific Coast Groundfish Fishery on Humpback Whales and Leatherback Sea Turtles (NMFS 2024).

## Fishing Effort

The full report on fishing effort in U.S. West Coast federal groundfish fisheries is available in this briefing book.

## Citations

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NMFS (National Marine Fisheries Service). 2018. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion, Continuing Operation of the Pacific Coast Groundfish Fishery (Reinitiation 2018). NMFS Consultation Number: WCR-2018-8635. Available: <https://repository.library.noaa.gov/view/noaa/67292>

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