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Human-caused Mortality and Injury of NMFS-managed Alaska Marine Mammal Stocks, 2018-2022

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HUMAN-CAUSED MORTALITY AND INJURY OF NMFS-MANAGED ALASKA MARINE MAMMAL STOCKS, 2018-2022

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This report summarizes records of human-caused mortalities and injuries and provides an assessment of injury severity of pinnipeds and cetaceans belonging to stocks that appear in the Alaska Marine Mammal Stock Assessment Reports (SARs) for the period 2018-2022. Summaries of interactions and their outcomes for previous years have been published as NOAA Technical Memorandums (e.g., Freed et al. 2022). Because the methods generally remain the same from year to year, in 2023, we transitioned to publishing the reports online as Alaska Fisheries Science Center (AFSC) Processed Reports with associated data files[1] (CSV) to increase efficiency in making the data available to users (e.g., Freed et al. 2023).

This report includes a new year of data (2022), as well as two new interactions with unidentified pinnipeds that were killed in AFSC longline surveys (18 August 2019 and 22 July 2021) and one interaction with a dependent Western Steller sea lion (*Eumetopias jubatus*) pup (8 February 2018) that we identified as missing from previous reports. This report also includes one additional case of a pinniped shooting reported to the Alaska Stranding Network that was previously mistakenly considered to be an animal that was struck and lost during a subsistence hunt (26 May 2021).

For many pinniped entanglements that were identified in previous reports as involving unknown trawl gear, we changed the source of injury to marine debris (net). The animals were almost exclusively alive with pieces of netting wrapped around their necks. Some of the material appears to have originally come from trawl nets. However, we consider it very unlikely that the nets were actively being used in a commercial fishery when the animals became entangled for these reasons: 1) there is very high observer coverage in commercial trawl fisheries in the Bering Sea/Aleutian Islands (BSAI), such that entanglements that occur during fishing would be included in observer data; and 2) entanglements of live pinnipeds in BSAI trawl fisheries are very rare, as almost all of them are found dead. The more likely source for the entanglements are ghost nets, trawl nets that have been repurposed or improperly discarded, or non-trawl net. Many of these interactions were previously considered to be from commercial BSAI trawl gear, unidentified trawl gear, or unidentified net, but are now considered to be from marine debris (net). NOAA's Marine Debris Program defines marine debris as any persistent solid material that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine environment or the Great Lakes. This change from unknown trawl gear to marine debris affected one Western Steller sea lion record and 47 northern fur seal (*Callorhinus ursinus*) records, 24 of which were previously published (Freed et al. 2023).

Cases of non-serious injuries and serious injuries averted (i.e., human intervention or self-release lessened the severity of the initial serious injury, leaving the animal with only non-serious or no injuries) are included in this report. These cases are also included in the text of the Stock Assessment Reports; however, because the final determination is non-serious injury, they are not

[1] In the NOAA Institutional Repository, these data are under Supporting Files.

included in the Stock Assessment Reports' total estimate of annual human-caused M/SI that is compared to PBR, but they are used to develop the List of Fisheries under Section 118 of the Marine Mammal Protection Act and inform management (e.g., take reduction planning and negligible impact determinations).

Details of each case are presented in the supporting file 'AK-MM-Injury-and-Mortality-2018-2022.csv'.

One of the sources of injury and mortality data is the Marine Mammal Authorization Program (MMAP). From 2018 to 2022, NMFS received 220 MMAP fishermen self-reports documenting mortality and injury of 229 marine mammals in Alaska waters. In addition, NMFS received 7 MMAP fishermen self-reports documenting mortality and injury of 7 marine mammals in waters off the U.S. West Coast from stocks that are assessed in the Alaska SARs (i.e., Eastern Pacific northern fur seal stock in December-May and Eastern Steller sea lion stock). Approximately 94% of the self-reports were excluded from the supporting data file for one or more of the following reasons: a) the reported species is under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS), so data were sent to the USFWS; b) the reported species is included in the Pacific SARs, not the Alaska SARs, so data were sent to the NMFS Southwest Fisheries Science Center; c) the animal was previously dead; for example, had signs of decomposition, and its death could not be attributed to human causes; d) the animal was reported to have been taken in a currently observed fishery and that species/stock is already accounted for in the observer data[2]; or e) the interaction was also reported to the NMFS Alaska Regional Office stranding network, usually with more details and, thus, is already accounted for in the data file.

Of the 783 human-marine mammal interactions provided in the supporting data file, 659 interactions were determined to have caused a mortality (including lethal removal) or serious injury (SI), or were prorated to reflect the likelihood of serious injury of the marine mammal involved in the interaction. The remaining 124 interactions were found to have resulted in a non-serious injury (NSI) of the marine mammal.

Human-caused injuries and mortalities were documented for 39 stocks (or potential stocks, in the cases where stocks overlap and stock identification cannot be confirmed) across 19 species or species groups (such as unidentified pinnipeds). The most commonly reported species overall was Steller sea lion (n = 418 interactions, resulting in 387 M/SI), followed by northern fur seal (n = 164 interactions, resulting in 90 M/SI) and humpback whale (n = 73 interactions, resulting in 41.3 M/SI).

[2] MMAP reports from currently observed fisheries were included in the data file if there were no observed mortalities or injuries of that species and stock in the fishery that year (i.e., the MMAP report represented the only source of information on mortalities or injuries of that species and stock in that fishery in that year).

Across all 783 interactions, entanglement/entrapment was the most common mechanism of injury (n = 566), followed by hooking by fishing gear (n = 74) and removal from the population (n = 53).

Among entanglement/entrapment-related interactions, the majority occurred in fishing gear and marine debris. Other causes of entanglement/entrapment included vessel ground tackle, anchored line used for mooring docks, and unknown line with a buoy.

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Citations

Freed, J. C., N. C. Young, B. J. Delean, V. T. Helker, M. M. Muto, K. M. Savage, S. S. Teerlink, L. A. Jemison, K. M. Wilkinson, and J. E. Jannot. 2022. Human-caused mortality and injury of NMFS-managed Alaska marine mammal stocks, 2016-2020. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-442, 116 p. Available online: https://repository.library.noaa.gov/view/noaa/44638

Freed, J. C., N. C. Young, A. A. Brower, B. J. Delean, M. M. Muto, K. L. Raum-Suryan, K. M. Savage, S. S. Teerlink, L. A. Jemison, K. M. Wilkinson, J. E. Jannot. and K. A. Somers. 2023. Human-caused mortality and injury of NMFS-managed Alaska marine mammal stocks, 2017-2021. AFSC Processed Rep. 2023-05, 6 p. + Supporting file. Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115. Available online: https://https://repository.library.noaa.gov/view/noaa/55810

Hastings, K. K., M. J Rehberg, G. M. O'Corry-Crowe, G. W. Pendleton, L. A. Jemison, and T. S. Gelatt. 2020. Demographic consequences and characteristics of recent population mixing and colonization in Steller sea lions, *Eumetopias jubatus*. J. Mammal. 101(1):107-120.2 DOI: https://doi.org/10.1093/jmammal/gyz192

Acronyms and Abbreviations for Supporting Data File

Areas (also used in some Fishery Names):
AK: Alaska
BS: Bering Sea
CA: California
GOA: Gulf of Alaska
OR: Oregon
PWS: Prince William Sound
SCAK: Southcentral Alaska
SEAK: Southeast Alaska
WA: Washington
WAK: Western Alaska
WC: U.S. West Coast

Sources of Records:
ADFG: Alaska Department of Fish and Game
AKRO: National Marine Fisheries Service, Alaska Regional Office
A-SHOP: National Marine Fisheries Service, At-Sea Hake Observer Program
MMAP: Marine Mammal Authorization Program
NMFS OPR/HQ: National Marine Fisheries Service, Office of Protected Resources/Headquarters
NPGOP: National Marine Fisheries Service, North Pacific Groundfish Observer Program
NWFSC: National Marine Fisheries Service, Northwest Fisheries Science Center
NWIFC: Northwest Indian Fisheries Commission
ODFW: Oregon Department of Fish and Wildlife
SWFSC: National Marine Fisheries Service, Southwest Fisheries Science Center
WCGOP: National Marine Fisheries Service, West Coast Groundfish Observer Program
WCRO: National Marine Fisheries Service, West Coast Regional Office
WDFW: Washington Department of Fish and Wildlife

Initial Assessment and Final Determinations:
NSI: Non-Serious Injury
SI: Serious Injury

Other:
AMMOP: Alaska Marine Mammal Observer Program
ASLC: Alaska SeaLife Center
BSAI: Bering Sea/Aleutian Islands
COD: Cause of Death
EM: Electronic Monitoring
ID: Species Identity
IPHC: International Pacific Halibut Commission
LOF: List of Fisheries
MMPA: Marine Mammal Protection Act
OA: Open Access
OLE: NOAA's Office of Law Enforcement
USCG: United States Coast Guard

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