



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Fisheries Science Center
2725 Montlake Boulevard East
Seattle, WA 98112-2097
(206)860-3200

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Mr. Benjamin Laws
NOAA/NMFS/OPR/PCD
1315 East West Hwy
Bldg. SSMC3
Silver Spring, MD 20910-3282

Subject: 2021 NWFSC Marine Mammal Incidental Take Letter of Authorization Annual Report

Dear Mr. Laws,

I am submitting the 2021 NWFSC Marine Mammal Incidental Take Letter of Authorization Annual Report in fulfillment of the reporting requirements specified in the Letter of Authorization (LOA). This report covers the 2021 Calendar Year for all NWFSC fieldwork.

If you have any questions or concerns, please contact me at (206) 310-6817 or lawrence.c.hufnagle@noaa.gov.

Best regards,

Lawrence C. Hufnagle, Jr.

NWFSC Environmental Compliance Coordinator

cc:
Nicolle Hill



2021 NWFSC Letter of Authorization Annual Report to Office of Protected Resources

This report is covering CY21 for all field operations conducted by NWFSC within the three Research Areas (RA) defined in the authorizations. These are: Puget Sound RA (PSRA), Lower Columbia River RA (LCRRA), and California Current RA (CCRA). Limited additional research activities in riverine systems was conducted and separately permitted outside of this authorization.

- (1.) There was one Level A Take of a California Sea lion to report. The take occurred on the Hook and Line Survey when a California Sea lion fed off of the gear. The Level A Take was reported and entered into the PSIT data base as injured.

Event description:

A California sea lion taking a hook on Sept. 28 at 2 PM. The chartered F/V Aggressor (contracted by PSMFC) had hook and line gear in the water when the sea lion approached at the surface and took a hooked fish, breaking the fishing line (gangion). The portion of the gangion remaining with the sea lion included the hook that was swallowed with the fish and two additional hooks and a lead sinker that were dangling from the sea lion's mouth. The sea lion swam off. There was only one sea lion seen and when it returned after about 10 minutes there was nothing seen dangling from its mouth (the FPC assumes this was the same sea lion given no others were near the vessel before or after the incident). The vessel was fishing off Twin Rock near Catalina Island.

- (2.) Annual Acoustic line kilometers was 4982 K using an EK80 Scientific Echosounder at five frequencies (18, 38, 70, 120, and 200 kHz) onboard the NOAA Ship *Bell M. Shimada*. The duration of the research Cruise was 62 days on survey, conducted in three Legs from 7/1/2021 through 9/21/2021. The Uncrewed Surface Vehicles (USV) portion of the survey used two Sairdrone vehicles and EK80 WBT Mini Echosounders at two frequencies (38 and 200 kHz). The two Sairdrones conducted 2639 K of Acoustic line kilometers during continuous operations for 35 days on two transects. Please see attached table of NWFSC Level B Acoustic Take Estimates for Hake research and USV operation.
- (3.) NWFSC conducts research and surveys using a variety of sampling methods. In 2021 we conducted sampling using following:

Midwater trawls (30 m headrope)	26 trawls
Midwater trawls (100 m to 600 m headrope)	63 trawls
Surface Trawls	Multiple sets, projects, and locations
Surface Trawls, Pair Trawls, open cod end	Multiple sets over a 2 month period in LCRRA
Longline	One day of sampling for sablefish
Rod and Reel Hook and Line	Sampling at around 200 sites
Bottom Trawls	650+ trawls
Tangle nets	80+ sets



Lampara nets
Diver operations
Beach Seining

Multiple sets on nearshore habitat
Multiple diver operations
Multiple sets and projects

Please see attached Marine Mammal Reporting Spreadsheet 2021 Tab, for additional information.

(4.) Overall, most of NWFSC sampling activities resulted in no Marine Mammal Level B Takes. The exceptions were the following Level B Takes:

- i) Surface trawl, pair trawls, open cod end deployments detecting tagged fish in LCRRA disturbed 135 California sea lions, and 1 Steller sea lion. Please note this may be an over count since it is likely that we are reporting the same individual animal present throughout a given day as the trawl operations remain in a fixed location for this project over a 6 hour period.
- ii) Tangle net sampling in LCRRA disturbed 10 California sea lions and 3 Steller sea lion. These activities were also in the constrained LCRRA and it is likely that the same animals were counted multiple times.

In the attached Marine Mammal Reporting Spreadsheet 2021 Tab, the red highlighted sightings listed are in question. They are not being counted as Level B takes, but are being include in the spreadsheet in order to ensure Level B reporting compliance. NWFSC would appreciate comment on these sightings to improve accuracy of our future reporting.

Total NWFSC Level B Takes (excluding Acoustic Level B Takes) for the 2021 calendar year:

California sea lions	145
Steller sea lions	4

iii) Acoustic takes from Hake research and Uncrewed Surface Vehicle (USV) operations. Please see estimates in attached table.

(4.) No additional work on mitigation during 2021, success of low Level B Incidental Takes and one Level A Incidental Take, appears to indicate our marine mammal watches are sufficient mitigation measures for NWFSC research and surveys. Marine mammal watches were carried out and logged, as has been our practice for several years. It appears that the watches have been effective to date.

(5.) NWFSC provided copies of our training materials to SWFSC, WCR POC and Headquarters NEPA Leads. AFSC coordinator Rebecca Reuter, SWFSC coordinator Elise Kohli, and I continue to work together and discuss common issues.



2021 NWFSC Level B Acoustic Take Estimates

Species	LOA Level B Acoustic Takes	Hake Research	Saildrone	NWFSC Total Level B Acoustic Take
Sperm Whale	6	1	1	1
Pygmy or dwarf sperm whale (<i>Kogia</i> spp.)	3	1	0	1
Cuvier's beaked whale	14	2	1	3
Baird's beaked whale	3	1	0	1
Hubb's, Blainville's, ginkgo- toothed, Perrin's, lesser, or Stejneger's (<i>Mesoplodont</i> spp.)	3	1	0	1
Bottlenose dolphin	6	1	1	2
Striped dolphin	49	5	2	7
Long-beaked common dolphin	55	5	3	8
Short-beaked common dolphin	895	88	46	134
Pacific white-sided dolphin	61	6	3	9
Northern right whale dolphin	28	3	1	4
Risso's dolphin	30	3	2	5
Killer whale	2	0	0	0
Short-finned Pilot whale	1	0	0	0
Harbor porpoise	110	11	6	17
Dall's Porpoise	218	21	11	32
Guadalupe fur seal	22	2	1	3
Northern fur seal	1878	95	50	145
California sea lion	3659	67	36	103
Steller sea lion	174	17	9	26
Harbor seal	86682	14	8	22
Northern elephant seal	622	77	41	118

