

2022 Weathervane Scallop Dredge Survey Plan

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Scallop Plan Team Meeting Feb. 16, 2022

Overview

We are planning to survey up to 9 scallop beds in the Cook Inlet and Kodiak areas between April 20-May 13, 2022. Survey staff will consist of Ryan Burt, Alyssa Hopkins, Mike Byerly and Cassie Whiteside. This aligns with the current long-term survey plan to alternate annually between the Cook Inlet\Kodiak areas and the Kayak\Yakutat areas.

We will be surveying one third of the currently active stations in the following beds: KAMN, KAMS, KSH1, KNE1, KNE2, KNE3, KNE4, KNE5 and KNE6 (Figure 1). This equates to 197 stations to sample (Table 1). We will not survey beds KSH2 and KSH3 as these beds have historically been sporadic producers during the fishery to focus on other beds that have been more commercially productive.

The average number of survey stations successfully sampled per day during the last three surveys is 13 (Table 2), therefore it is estimated that we will need 18-20 days to complete this survey. The Request for Quotation process is currently not complete so we do not know, given our total survey budget, exactly how many survey days we have. Once the cost per at-sea day is determined we can begin allocating survey days across each bed.

The publication of the 2021-2023 dredge survey Regional Operational Plan was completed in November 2021 and can be found here:

<http://www.adfg.alaska.gov/FedAidPDFs/ROP.CF.4K.2021.09.pdf>

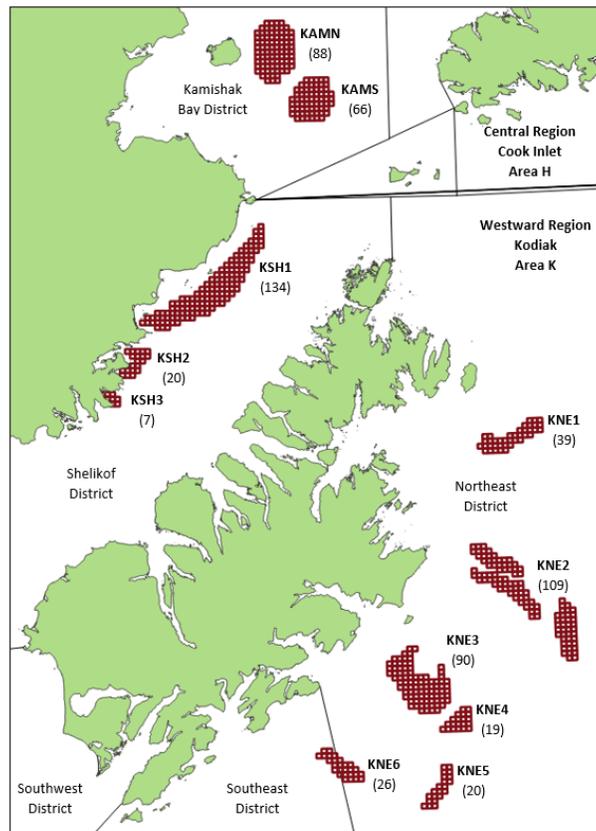


Figure 1.- Scallop dredge survey locations in the Cook Inlet and Kodiak areas. Bed codes are bold and the number of active stations in each bed in parentheses.

Table 1.- Count of active stations by bed.

| bed code | active stations | 1/3 active stations |
|----------|-----------------|---------------------|
| KAMN | 88 | 29 |
| KAMS | 66 | 22 |
| KSH1 | 134 | 44 |
| KNE1 | 39 | 13 |
| KNE2 | 109 | 36 |
| KNE3 | 90 | 30 |
| KNE4 | 19 | 6 |
| KNE5 | 20 | 6 |
| KNE6 | 26 | 8 |
| total | 591 | 197 |

Table 2.- Average number of survey stations successfully sampled per day during the 2019 Kayak\Yakutat (cruise 1901), 2020 Kodiak (cruise 2001) and 2021 Kayak\Yakutat (cruise 2101) dredge surveys.

| cruise | length (days) | hauls | avg hauls/day |
|---------|---------------|-------|---------------|
| 1901 | 11 | 140 | 12.7 |
| 2001 | 11 | 142 | 12.9 |
| 2101 | 14 | 193 | 13.8 |
| totals: | 36 | 475 | 13.2 |

New Survey Dredges

We procured two new 8' dredges for use during future scallop surveys. The dredges were built by East Coast Fabrication in New Bedford, MA and meet the specifications of the dredges used during NOAA Fisheries standardized sea scallop *Placopecten magellanicus* surveys.

Reasons we procured these new dredges:

1. Current dredges not identical.
 - To date, we have used Homer's dredge during surveys. We have been taking the Kodiak dredge on surveys as a backup if the Homer dredge is lost. However, these two dredges are not constructed or configured identically; if we were forced to use the Kodiak dredge we would potentially introduce bias to the catch. The two new dredges are identical in construction and configuration so if one is lost, the other can be used without introducing bias.
2. History of East Coast Fabrication building survey dredges.
 - East Coast Fabrication, Inc. has since its start in 2007, built and maintained the 8' sea scallop survey dredges used by both the Northeast Fisheries Science Center (NEFSC) and the Virginia Institute of Marine Sciences (VIMS). These organizations chose East Coast Fabrication, Inc. because of their attention to detail as well as their familiarity with the sea scallop dredge surveys. The 8' lined sea scallop survey dredge was first implemented by the NEFSC as a survey tool in 1979. While East Coast Fabrication, Inc. did not yet exist in 1979, the Quinn family worked closely with Ronald Smolowitz and Fred Serchuk to design and build the original 8' lined

survey dredge frames and 2" ring bags used by the NEFSC sea scallop dredge survey. In addition to building the 8' sea scallop survey dredges, vessels owned and operated by the Quinn family take part in the VIMS collaborative sea scallop resource survey.

3. Repair\maintenance supplies.
 - We have created good working relationships with several folks involved in the use, repair and maintenance of these dredges and associated businesses that provide parts and supplies.
4. Documentation.
 - NMFS standardized sea scallop survey dredges have a long history and paper trail related to development, construction, testing, inspection and repair. The following list of documents were assembled while researching which course of action would be best to take to replace our survey dredge. They were obtained from either personal communication with various people involved with sea scallop dredge survey programs or downloaded from the internet. More documentation exists but these have been obtained by Kodiak staff:

Development related:

Developing an Improved Dredge for Standardized Surveys of the Sea Scallop Resource. DRAFT Final Report, Award # NA07NMF4540028. 2008. Ronald Smolowitz and Mathew Weeks. Coonamessett Farm, East Falmouth, MA 02536. (personal communication)

Construction related:

NOAA Fisheries Protocols For Sea Scallop Dredge Surveys. 2004. Prepared by members of NOAA Fisheries, Northeast Fisheries Science Center. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Figures 3-7 (pages 33-37). (personal communication)

Testing related:

Serchuk, F.M. & Smolowitz, Ronald. (1980). Size selection of sea scallops by an offshore scallop survey dredge. Northeast Fisheries Center, Woods Hole Laboratory. Woods Hole, Massachusetts 02543.

(<https://www.researchgate.net/publication/285776860>)

Rudders, D., Roman, S., Trembanis, A., & Ferraro, D. (2019) A Study to Assess the Effect of Tow Duration and Estimate Dredge Efficiency for the VIMS Sea Scallop Dredge Survey: Final Report. Marine Resource Report No. 2019-04. Virginia Institute of Marine Science, William & Mary. doi: 10.25773/g9sh-qt28. (<https://scholarworks.wm.edu/cgi/viewcontent.cgi>)

Rudders, D. B., Roman, S. A., & Mohr, E. (2020) Understanding Dredge Performance for a Lined versus Unlined NMFS Sea Scallop Dredge: Final Report. Marine Resource Report No. 2020-3. Virginia Institute of Marine Science, William & Mary. (<https://scholarworks.wm.edu/reports/2097>)

Inspection and repair related:

Appendix 1: Standardized 8' Sea Scallop Dredge Inspection Process. 2013. (personal communication)

Scallop Catch Comparison Project

We are still working out some details but we will be doing a scallop catch comparison project with the old and new dredges. It will consist of doing paired tows at a pre-selected number of stations over a variety of depths and substrate types with a new dredge on the starboard side and the old dredge on the port side of the vessel.

Sampling of the catch from the old dredge will be consistent with current catch sampling methods with the exceptions that we will focus only on the scallop catch and not conduct the detailed sampling of 10 individual scallops from each size class for whole weight, sex, gonad condition, meat condition, meat weight, shell height, shell damage, and presence of mud blisters and shell worms.

New Scallop Measuring Boards

In conjunction with the Shell Height Measurement Conversion project we procured new scallop shell height measuring boards (Figure 2) from Zebra Tech LTD in Nelson, New Zealand for use in dredge surveys going forward.

They are small, rugged and specifically designed to operate in wet and muddy conditions. They use a push-button slider to log the distance from the umbo to the outer shell margin.



Figure 2.- Zebra Tech measuring board.
(taken from <https://www.zebra-tech.co.nz/measuring-board/>)

Conductivity, Temperature and Depth Data

We successfully collected vertical profiles of conductivity, temperature and depth data during the 2021 survey and plan to conduct this sampling again in 2022. This will most likely become a regular sampling item and included in the next version of the dredge survey Regional Operation Plan.

Westward Region Intranet Pages

Westward Region intranet pages continue to be updated and improved to document all things survey related and for data entry, editing and management.