2021 Scallop Dredge Survey Plan

By Ryan Burt and Alyssa Hopkins, February 2021

We are planning to survey up to 8 scallop beds in the Yakutat and Kayak Island areas between April 12 – May 15, 2021. Survey staff will consist of Ryan Burt, Alyssa Hopkins, Mike Byerly and possibly Andrew Olson. This aligns with the current long-term survey plan to alternate annually between the Kodiak/Cook Inlet areas and the Kayak/Yakutat areas. Our goal is also to start building larger spatial datasets in both survey areas, so we are exploring options to increase spatial coverage of the Kayak/Yakutat area in 2021. The Request for Quotation (RFQ) process is currently not complete so we do not know, given our total survey budget, how many survey days we have. Once the cost per at-sea day is determined we can begin allocating survey days across each bed.

We took an initial look at how many days it may take to survey our standard one-third of active stations across all beds, excluding YAK6 (Figure 1). This bed has historically been a sporadic producer during the fishery so we will focus on the other beds that have been more commercially important. This involved using the count of active stations by bed (Table 1) and determining the average number of survey stations successfully fished per day (Table 2) using the 2019 Yakutat (cruise 1901) and 2020 Kodiak (cruise 2001) surveys. The total number of active stations is 649 and the average number of survey stations successfully fished per day is 14 (rounded down). So, ((649 * 0.3333) / 14) = 15.45 days to survey all beds other than YAK6. We will determine how to scale up or down from this value when the RFQ process is complete.

We recently acquired a CTD and will be collecting vertical profiles of conductivity, temperature and depth as we survey. We do not have a formal sampling plan for this yet. At the Feb 2020 Scallop Plan Team meeting, everyone on the team agreed it would be valuable to begin collecting environmental data to address SPT research priorities. ADF&G staff at the Mark, Tag, Age Lab Age Determination Unit, NMFS staff at the Auke Bay Lab and industry members agreed as well.

This year we will also be doing a special project to investigate the impact of a shift in the definition of the biological measurement of scallop shell height. The current definition is:

> *"The scallop biological measurement is shell height (in mm). This is defined as the straight-line distance from the umbo to the outer shell margin, perpendicular to the hinge. The top valve of the animal is measured when determining shell height. The bottom valve is typically larger than the top valve and it protrudes beyond the top shell's margin. Care should be given when measuring shell height so not to include the bottom valve.".*

A proposed new definition is:

> *"The scallop biological measurement is shell height (in mm). This is defined as the straight-line distance from the umbo to the outer shell margin, perpendicular to the hinge.".*

The proposed change in shell height definition from the "top shell" to "outer shell" is being driven by a potential change in sampling technology. A small, digital measuring board has been designed specifically for measuring scallops that uses a push-button slider to log the location of the outer-most shell margin. This instrument could represent a significant increase in the efficiency of generating shell height data that is necessary to fulfill a number of survey objectives. This shift would also bring our definition of shell height into closer alignment with the US East Coast sea scallop program:

> *"Shell height is a straight-line measurement from the hinge to the part of the shell that is farthest away from the hinge."*

During this special project we will collect shell height data on both the top and bottom valves with both calipers and the new digital measuring boards. Our goal is to quantify the differences between the shell heights and variability of each technique to gauge the impact of shifting to the proposed new definition.

We will continue to use and improve Westward Region Intranet pages to document all things survey related and for data management, entry and editing.

The 2021 through 2023 dredge survey operational plan is in the works as well. The initial draft has been distributed to the other authors for further input/editing and will hopefully go through the publication process quickly. The authors are Ryan Burt, Mike Byerly, Alyssa Hopkins, Tyler Jackson, and Kevin McNeel.

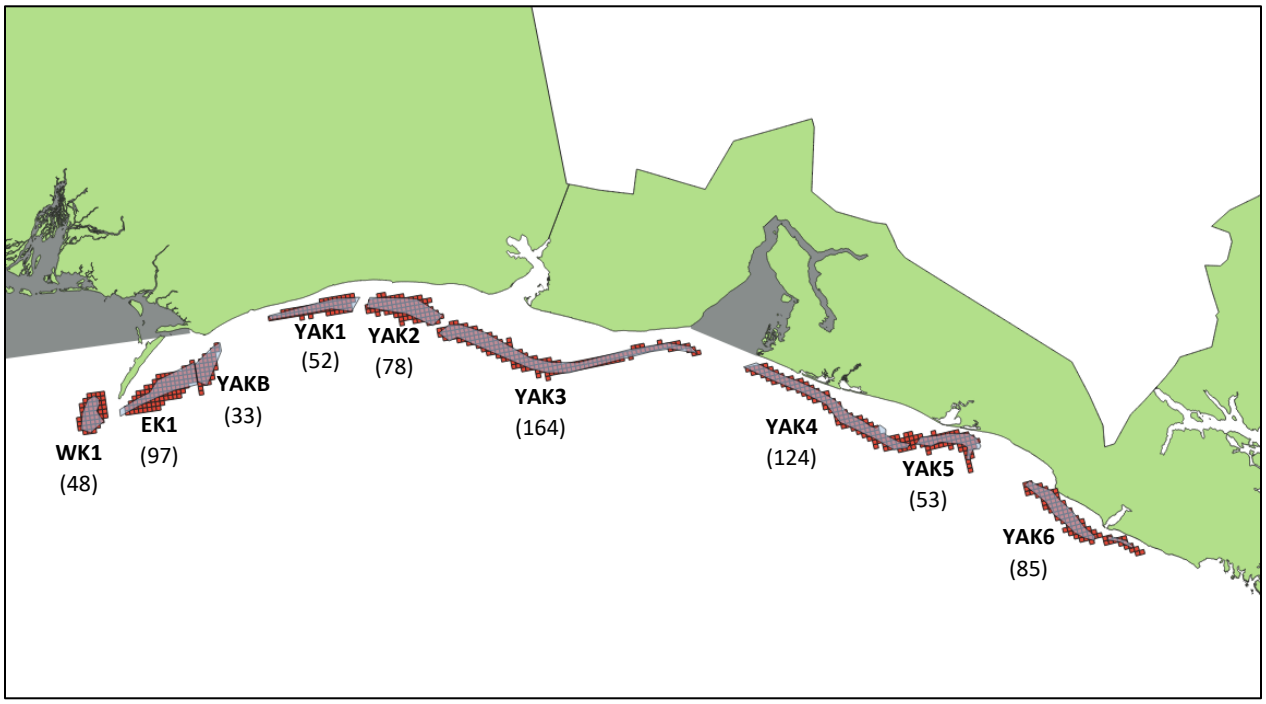

Figure 1.- Weathervane scallop dredge survey locations in the Kayak Island and Yakutat areas (bed codes in bold with number of stations in each bed in parentheses).

Table 1.- Count of active stations by bed.

bed code	num stations
WK1	48
EK1	97
YAKB	33
YAK1	52
YAK2	78
YAK3	164
YAK4	124
YAK5	53
total	**649**

Table 2.- Average number of survey stations successfully fished per day using 2019 Yakutat (cruise 1901) and 2020 Kodiak (cruise 2001) dredge survey data.

cruise	date_set	hauls
1901	2019-05-05	10
1901	2019-05-06	9
1901	2019-05-07	11
1901	2019-05-09	18
1901	2019-05-10	19
1901	2019-05-11	19
1901	2019-05-12	22
1901	2019-05-13	6
1901	2019-05-14	15
1901	2019-05-15	12
1901	2019-05-16	18
2001	2020-04-29	11
2001	2020-04-30	14
2001	2020-05-01	14
2001	2020-05-02	9
2001	2020-05-03	13
2001	2020-05-04	16
2001	2020-05-10	14
2001	2020-05-11	20
2001	2020-05-12	19
2001	2020-05-13	19
2001	2020-05-14	11
	average	**14.50**