



2022 ADF&G Scallop Dredge Survey Results

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2023 Scallop Plan Team Meeting

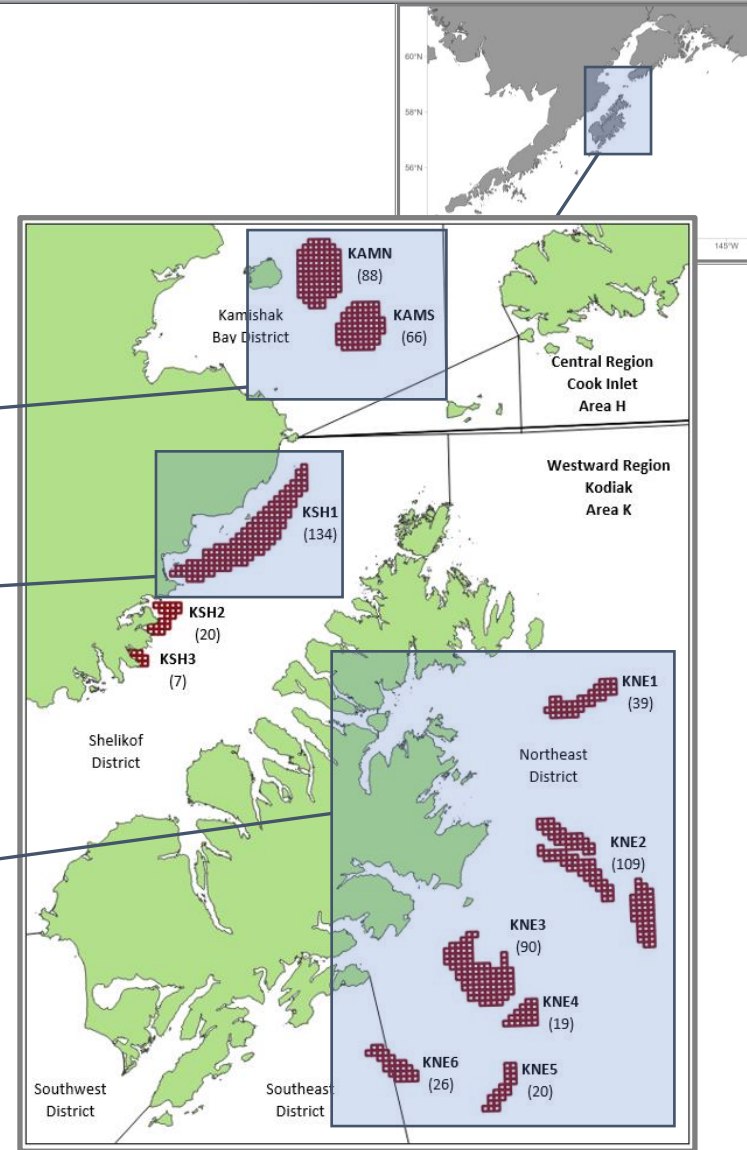
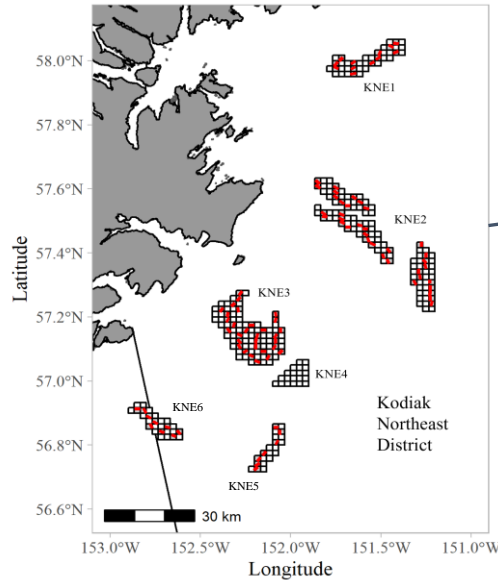
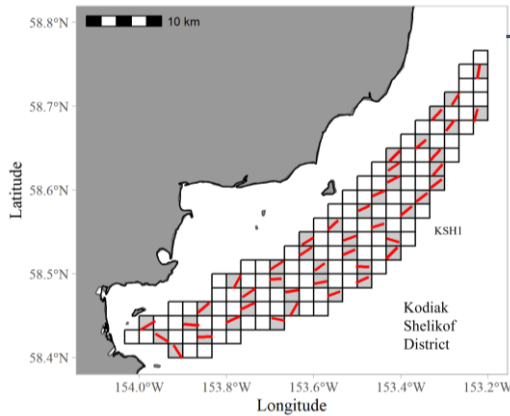
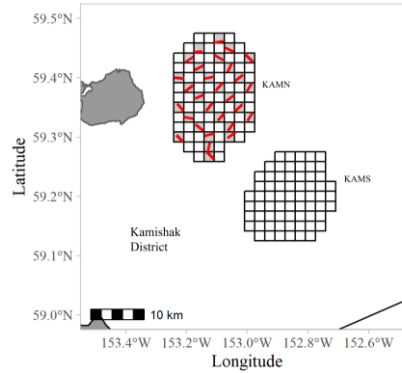
March 6th, 2023



Survey Design

Survey 2201 - April 20 – May 12, 2022

District	Bed	Stations Sampled	Total Stations	Sampling Rate
Kamishak	KAMN	29	88	33%
Kodiak	KNE1	12	39	31%
Northeast	KNE2	36	109	33%
	KNE3	30	90	33%
	KNE5	7	20	35%
	KNE6	9	26	35%
	Shelikof	KSH1	44	134



Survey Design – Fishing Power Study

Fishing Power Study

Estimate a fishing power correction factor to compare catches made with modern and historical dredge types

Phase 1 – Complete

Fishing protocols established for the newly built dredges



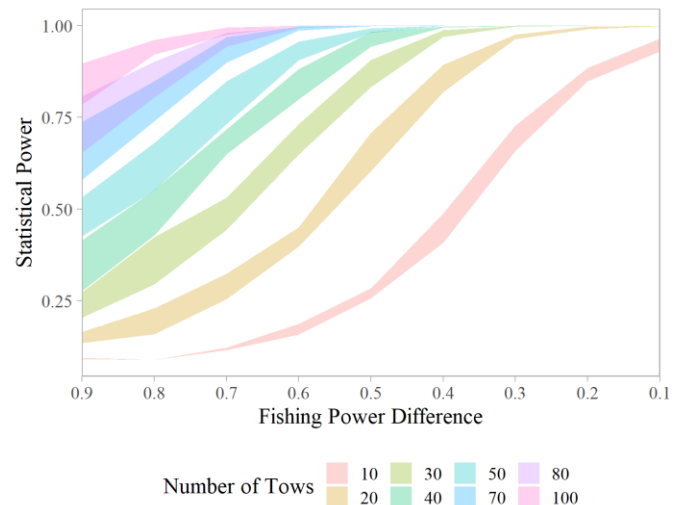
Phase 2 – In progress

Old dredge fished for survey hauls
New dredge fished for comparison



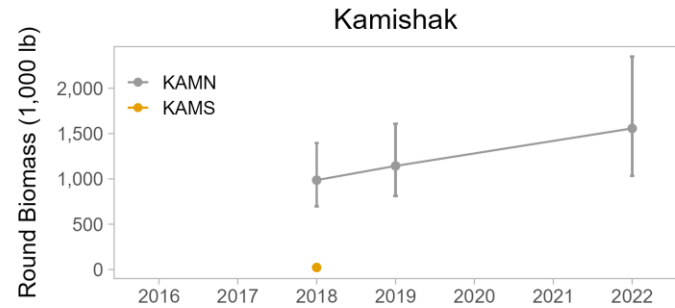
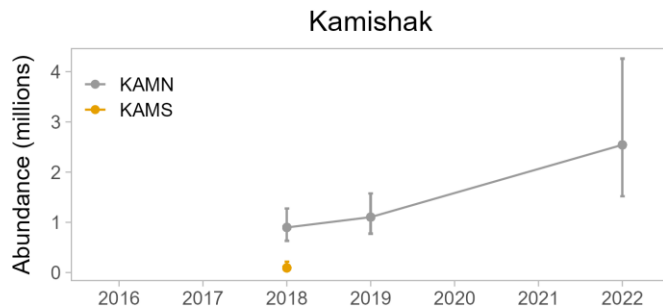
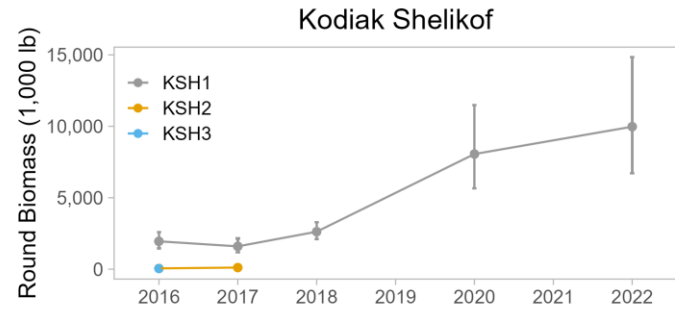
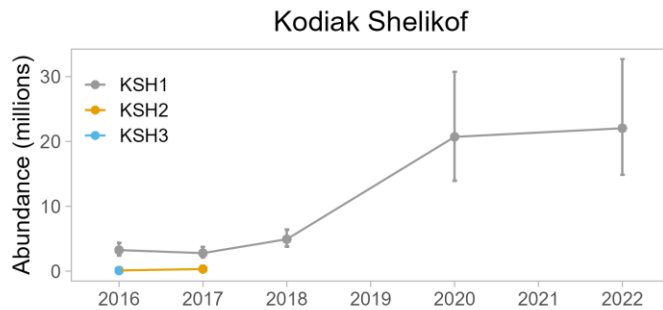
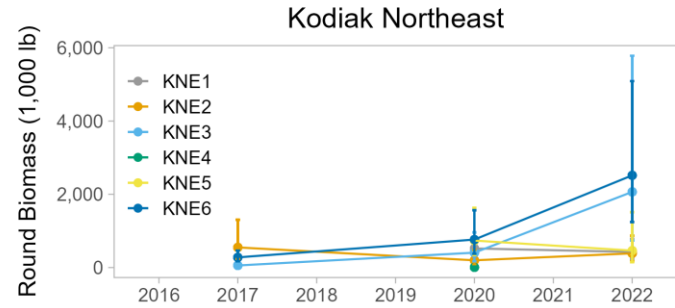
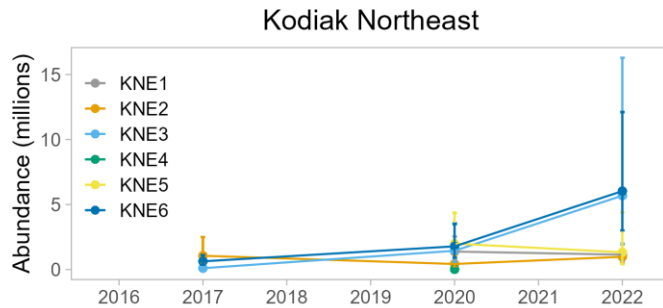
Phase 3

New dredges become the primary sampling gear with correction factor applied to the catch



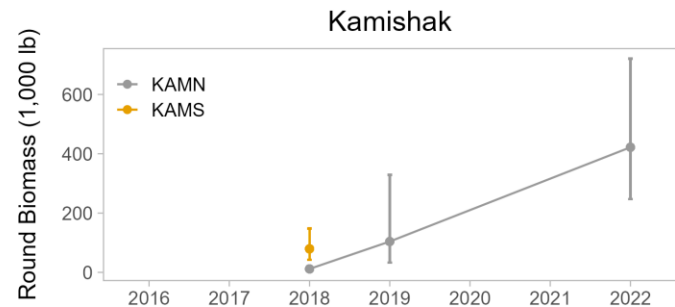
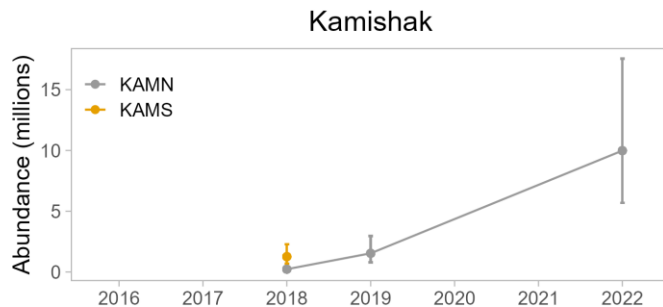
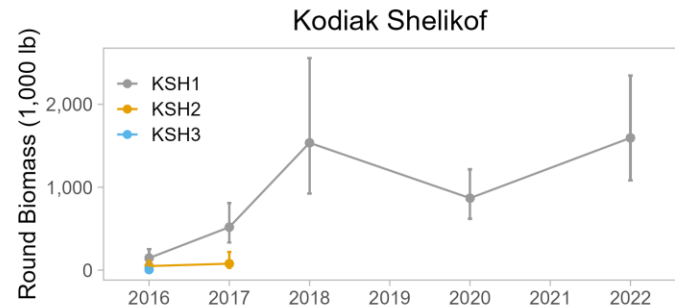
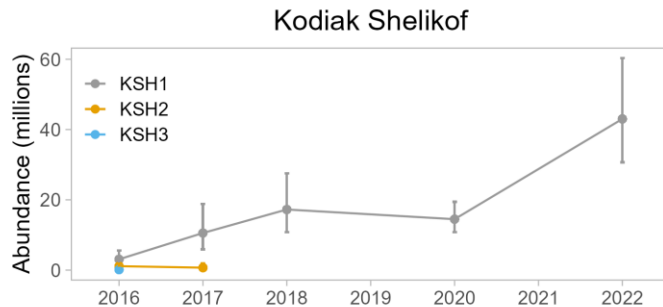
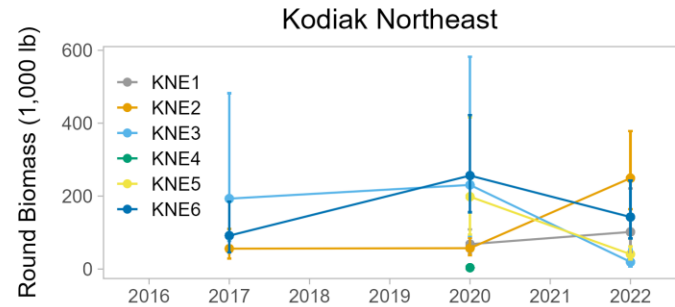
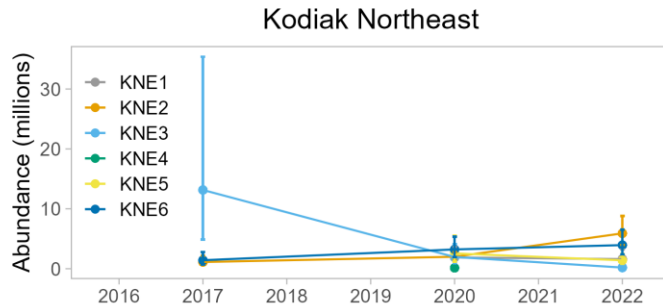
Results – Abundance and Biomass

Exploitable Scallops ($\geq 100\text{mm}$)



Results – Abundance and Biomass

Small Scallops (< 100mm)



Results – Size Composition

Size frequency measurements by survey year

Year	Mean per Haul	Total
2016	49.8	3287
2017	61.2	8985
2018	61.6	9343
2019	57.6	6728
2020	65.6	6098
2021	85.6	9379
*2022	210.0	17011

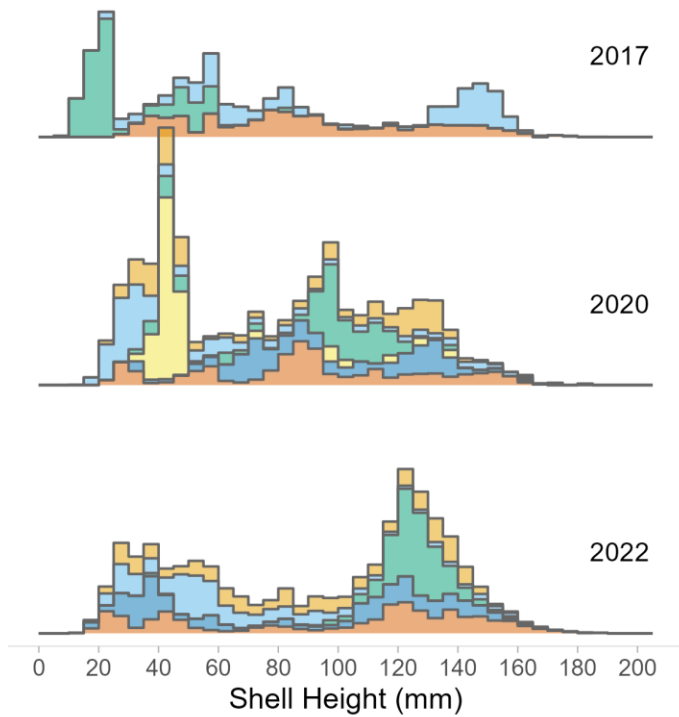
“The scallop biological measurement... is defined as the straight-line distance from the umbo to the outer shell margin, perpendicular to the hinge.”



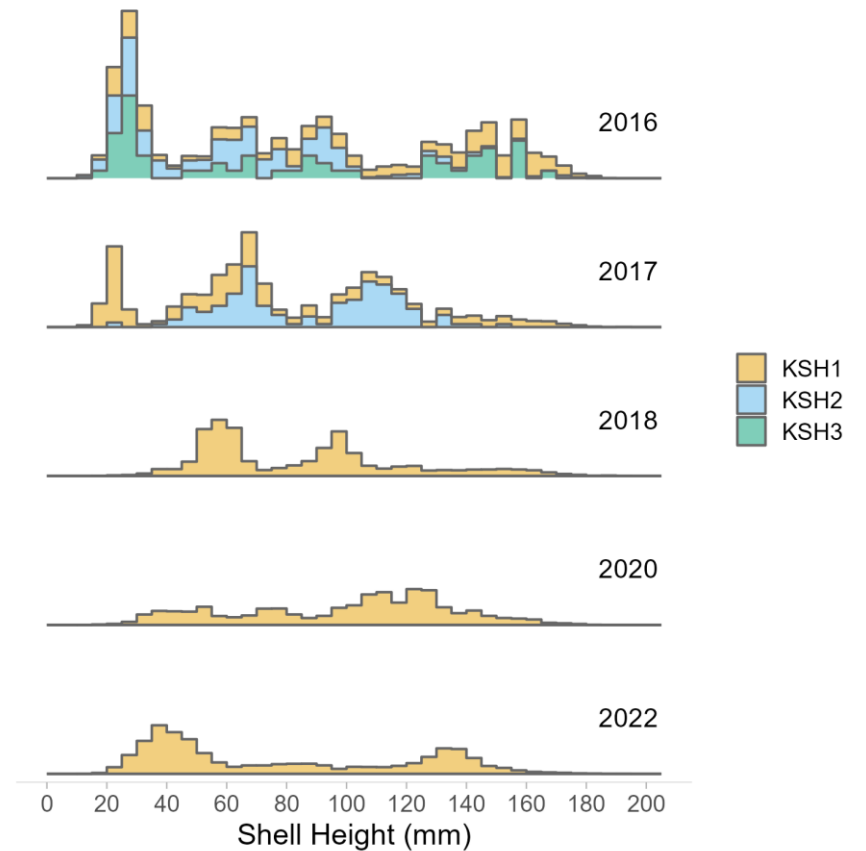
*Measuring boards and adaptive sampling led to a **2.5 fold increase** in measurements per haul

Results – Size Composition

Kodiak Northeast

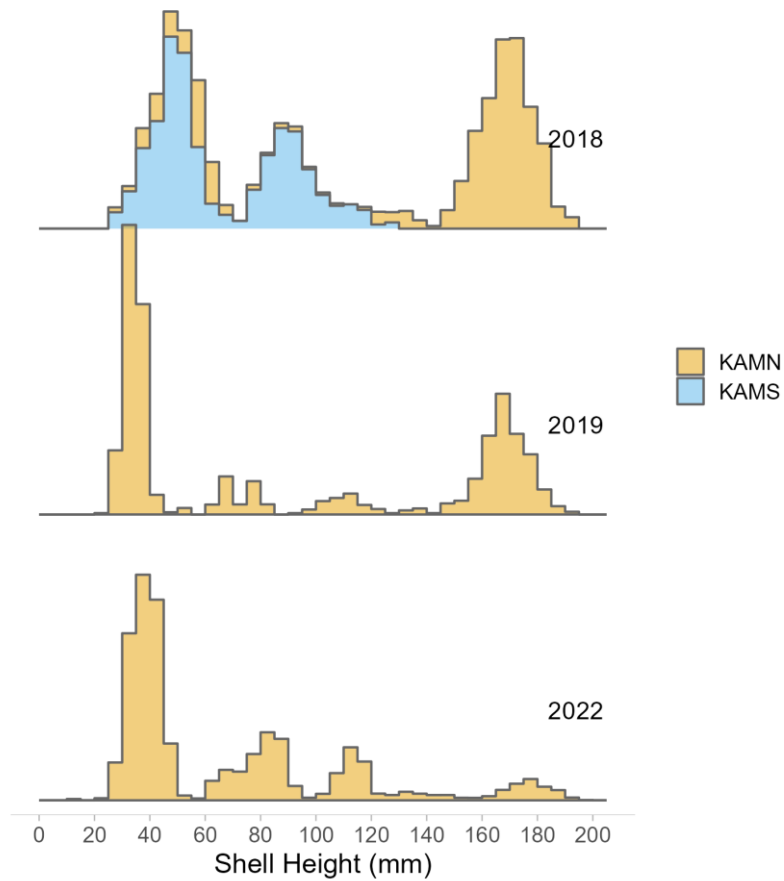


Kodiak Shelikof

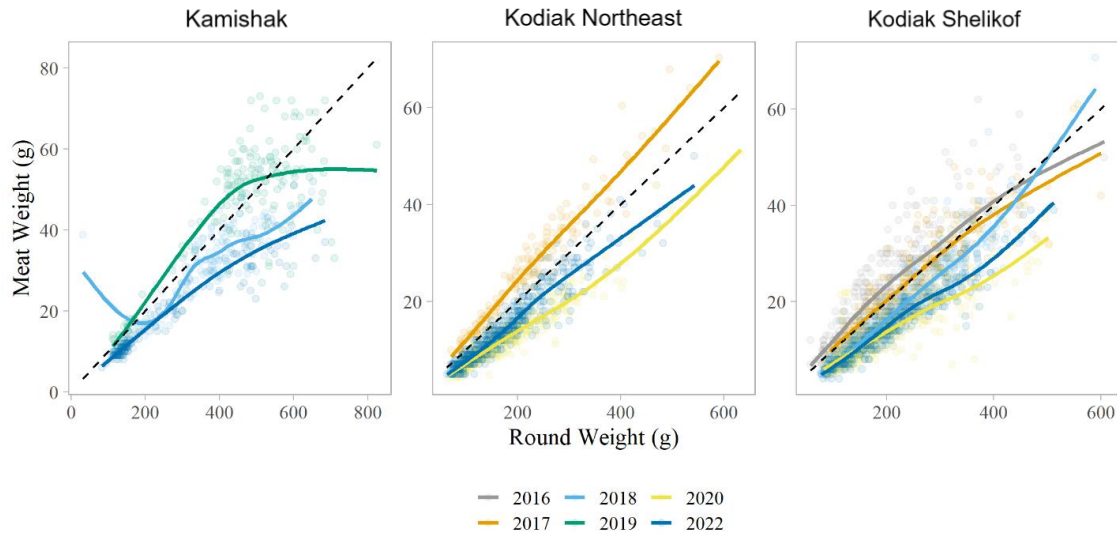
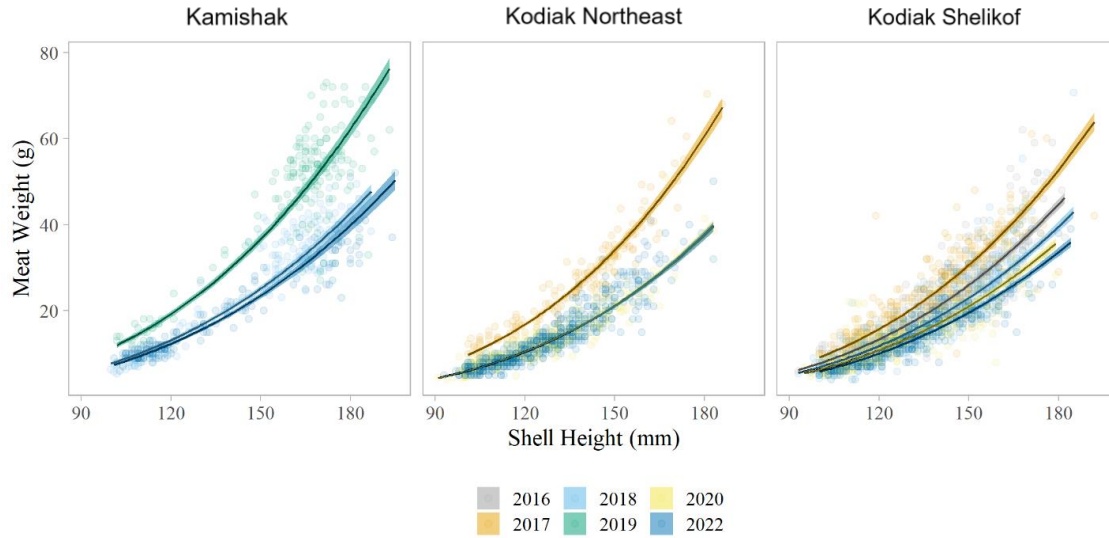


Results – Size Composition

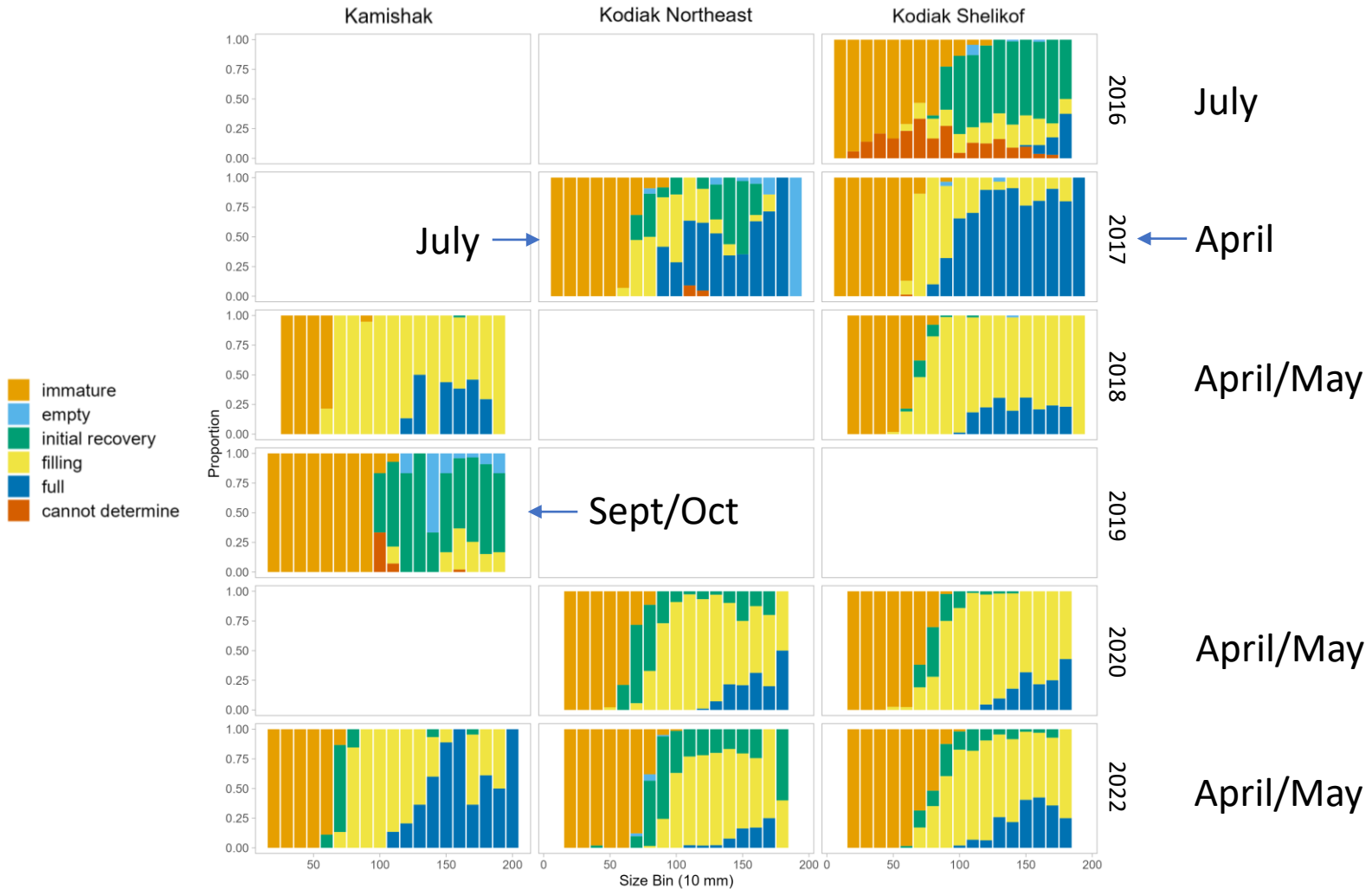
Kamishak



Results – Meat Weight



Results – Gonad Condition



Results – Infections

Shell Borers and Shell Blisters

Definitions and categorical IDs were updated to more closely align with pathology

Old → New		Old → New	
<u>Shell Worms</u>	<u>Shell Borers</u>	<u>Mud Blisters</u>	<u>Shell Blisters</u>
0%	None	0%	None
1-24%	Mild	1-24%	Mild
25-49%	Moderate	25-49%	Moderate
50-74%	Advanced	50-74%	Advanced
75-100%		75-100%	

Size Class	District	Bed	Shell Borers				Shell Blisters			
			None	Mild	Moderate	Advanced	None	Mild	Moderate	Advanced
≥ 100 mm	Kodiak Northeast	KNE1	75	25	0	0	99	1	0	0
		KNE2	87	12	1	0	97	3	0	0
		KNE3	71	28	1	0	98	1	1	0
		KNE5	93	7	0	0	96	2	2	0
		KNE6	57	42	1	0	91	9	0	0
		Shelikof	KSH1	58	41	1	0	93	7	0
	Kamishak	KAMN	21	53	12	14	80	10	7	3
< 100 mm	Kodiak Northeast	KNE1	87	13	0	0	100	0	0	0
		KNE2	98	2	0	0	100	0	0	0
		KNE3	96	4	0	0	100	0	0	0
		KNE5	95	5	0	0	100	0	0	0
		KNE6	91	9	0	0	99	1	0	0
		Shelikof	KSH1	93	7	0	0	100	0	0
	Kamishak	KAMN	82	18	0	0	100	0	0	0

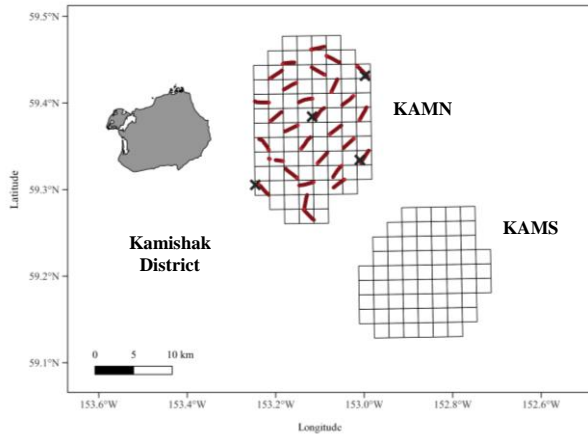
Early and late-stage shell blistering (conchiolin, mucus)



“Shell boring” sponge

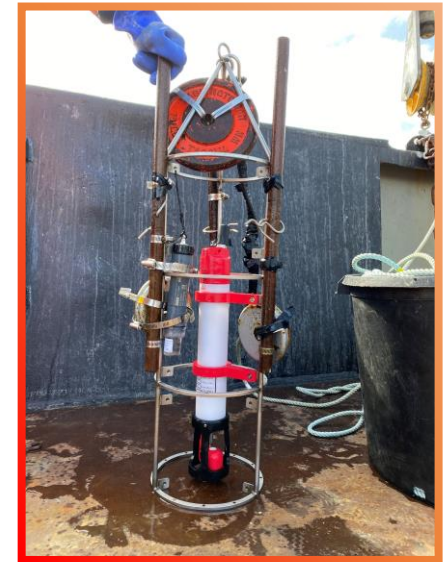
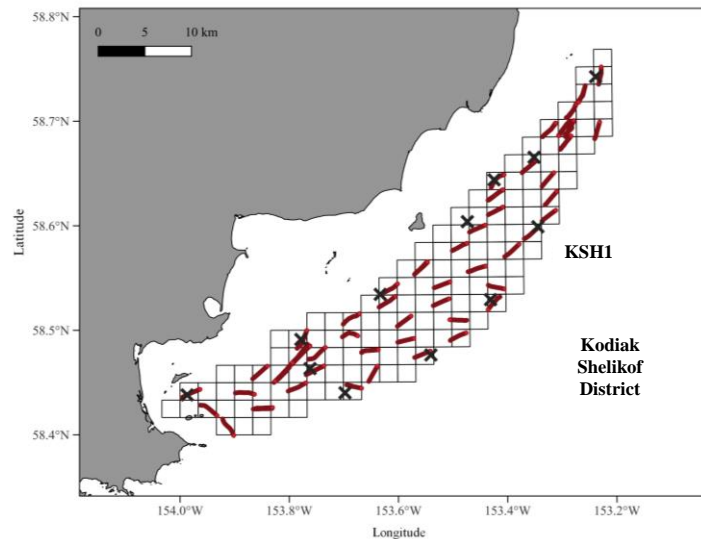
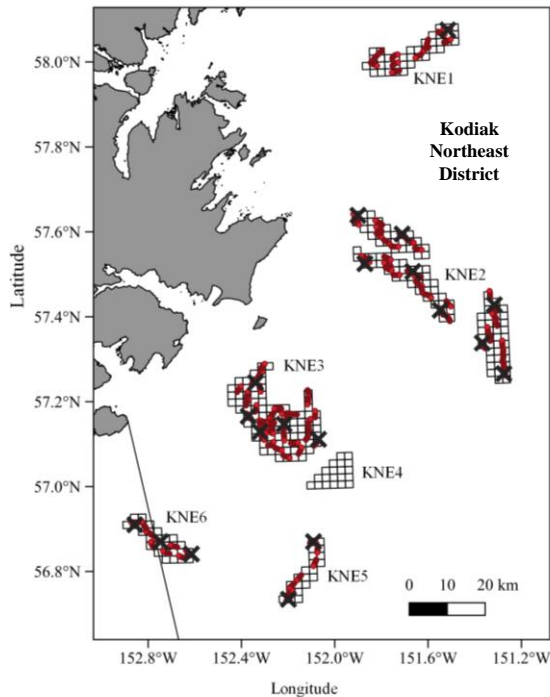


Results – Environmental Data



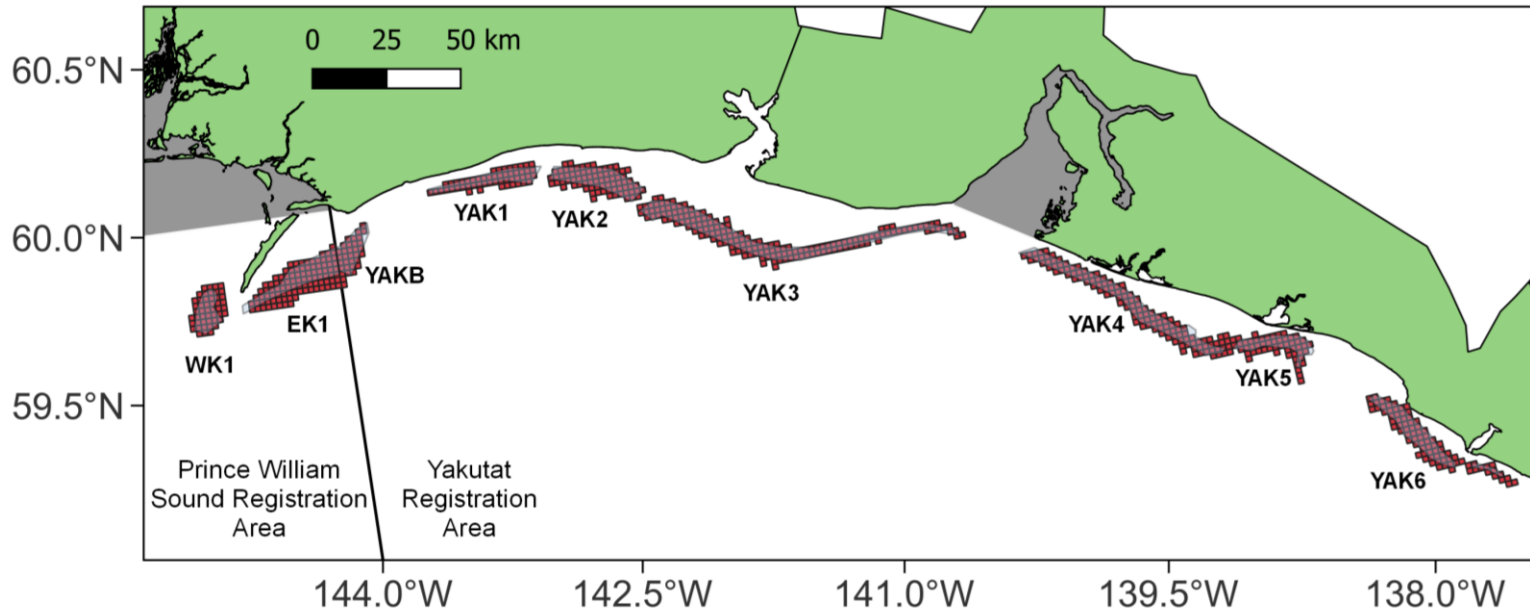
2201 CTD and pH logger data summary

District	Bed	Casts (n)	Maximum Max depth (m)	Minimum Average Temp at Max depth (m)	Average Temp at Max Depth (°C)	Average Salinity at Max Depth	Average pH
Kamishak	KAMN	4	62	45	4.3	31.4	8.0
Kodiak	KNE1	1	112	112	5.0	32.4	8.2
Northeast	KNE2	8	150	87	5.2	32.5	8.3
	KNE3	5	85	76	5.2	32.3	8.3
	KNE5	3	132	87	5.2	32.9	8.2
	KNE6	2	105	105	5.1	32.1	8.3
Shelikof	KSH1	12	152	58	4.7	31.8	no data



2023 Survey Plan

April 24th – May 13th, 2023



Bed Code	Active Stations	Sampling Rate	# of Stations
WK1	48	0.33	16
EK1	97	0.33	32
YAKB	33	0.33	11
YAK1	53	0.33	17
YAK2	78	0.25	20
YAK3	164	0.25	41
YAK4	123	0.25	31
YAK5	53	0.33	17

- Continue with phase 2 of fishing power study
- Average ~13 stations per day, plus dredge comparison hauls and CTDs
- Begin transition to database server to talk directly to data recorders (2-3 year implementation)