2023 ADF&G Scallop Dredge Survey Results

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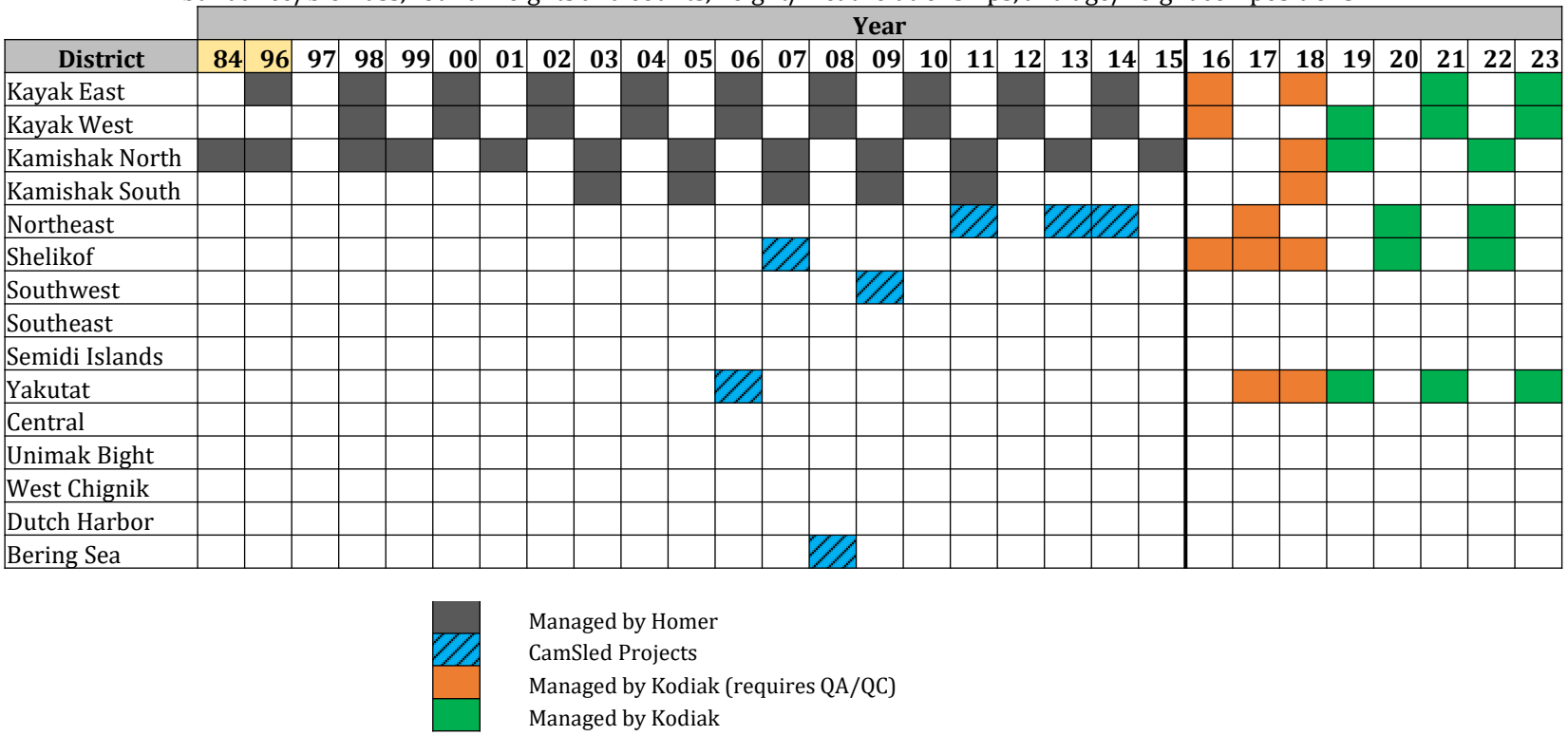
2024 Scallop Plan Team Meeting

March 5th, 2024

Survey History

Scallop Dredge Survey Data Summary

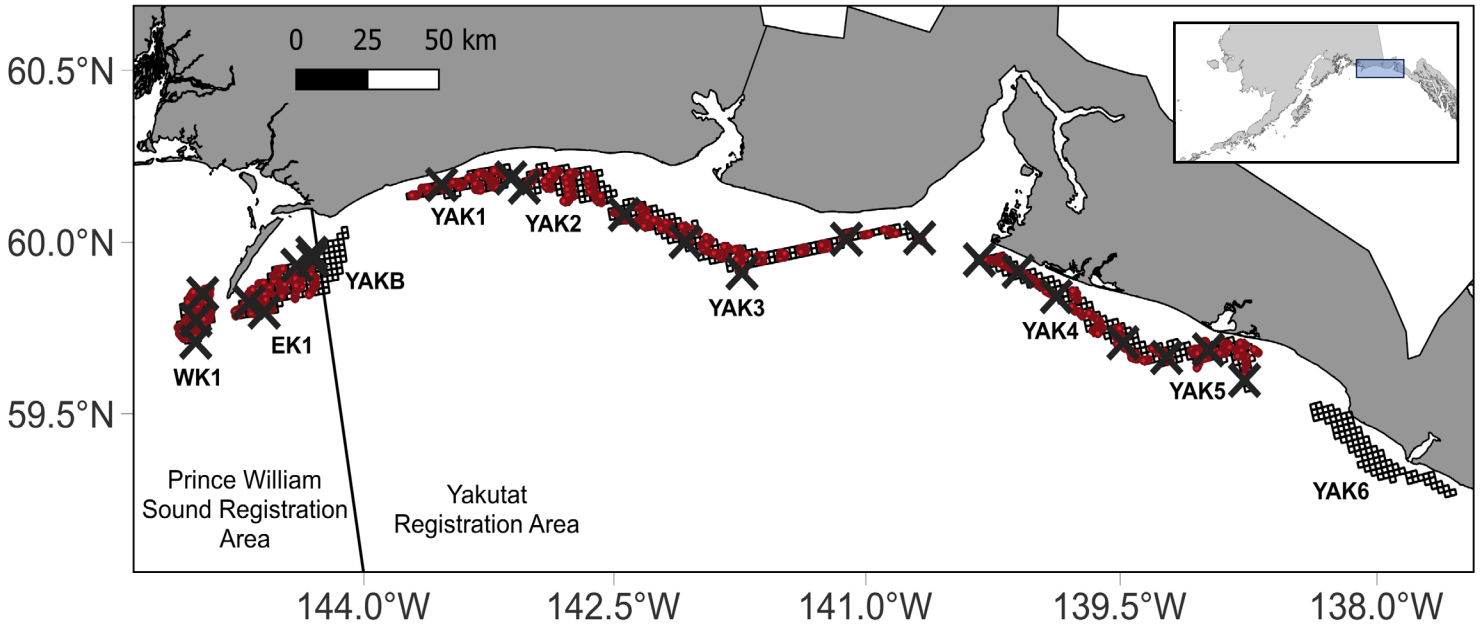
Abundance/biomass, round weights and counts, height/meat relationships, and age/height compositions



*Taken from 2022 ADFG Statewide Alaska Weathervane Scallop Workshop, Available Data Products presentation (Burt, Hopkins, 2022).

Survey Design

Survey 2301 - April 24 – May 15, 2023 (F/V Provider)



Registration Area	Bed	Stations Sampled	Total Stations	Sampling Rate
Prince William Sound	WK1	24	48	50%
	EK1	32	97	33%
Yakutat	YAK1	17	53	33%
	YAK2	20	78	25%
	YAK3	41	164	25%
	YAK4	31	123	25%
	YAK5	17	53	33%

Survey Design – Fishing Power Study

Fishing Power Study

Estimate a **fishing power correction (FPC)** factor to compare catches made with new (Kodiak) and old (Homer) dredge types

Phase 1 (Survey 2201)

Fishing protocols established for the new dredge

Phase 2 (Survey 2201)

Old dredge fished for survey hauls

New dredge fished for comparison

Phase 3 (Survey 2301)

New dredge fished for survey hauls

Survey 2301 - April 24 – May 15, 2023 (F/V Provider)

West and East Kayak Island Beds

Old (Homer) dredge

Yakutat Beds

New (Kodiak) dredge

Survey Design - Sampling

Whole Catch Sampling

Sorting

- Scallops sorted by size
  - <100 mm
  - ≥100 mm
- Species composition subsample

Count and Weigh

- Total baskets
  - Scallops
  - Bycatch
- Scallops per basket

Natural Mortality

- Clappers
- Predators

Subsampled Catch

Scallop Size Frequency

- Shell height

Scallop biological metrics

- Shell height
- Whole weight
- Meat weight and condition
- Gonad condition
- Sex
- Parasite presence
- Shell collection (aging)

Haul composition

- Species composition
- Debris (natural, man-made)

Survey Design - Sampling

Supporting information

Fishing log

- Haul information
  - Date/time
  - Lat/long
  - Depth
  - Duration
- Dredge performance
- Sea state

Dredgemaster

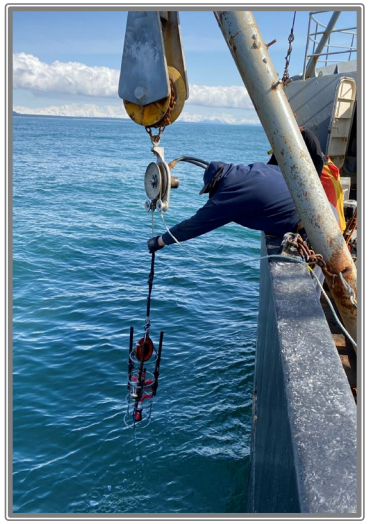
- Dredge angle
- Bottom temperature

GLOBE

- Haul track lines

Environmental Data

- Vertical profiles
  - CTD (conductivity, temp, depth)
  - pH logger



Results - Outline

Abundance and round biomass

- Small (<100 mm)
- Large (≥100 mm)

Size composition

Meat weight biomass

Shell height vs. meat weight

Gonad condition

Parasites and meat condition

- Shell borers
- Shell blisters
- Weak meats

Environmental conditions

- CTD/ph summary by bed
- Water mass characteristics

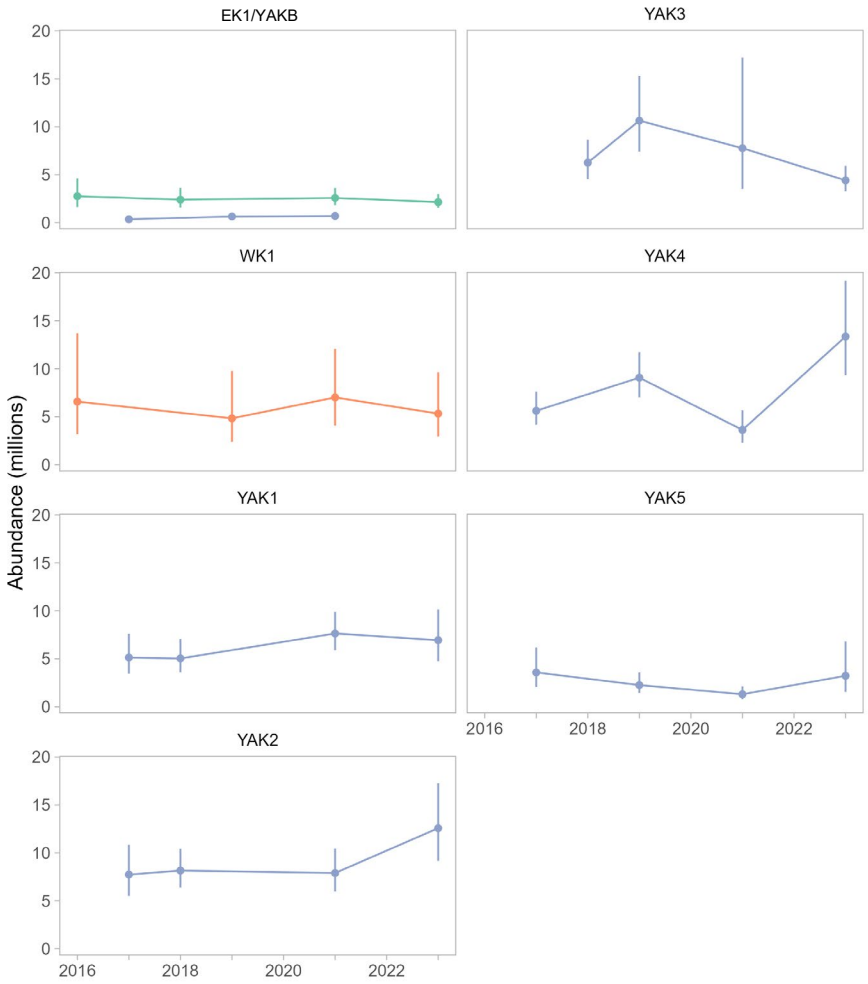
Survey 2024

Fishing Power Study – Alex Reich

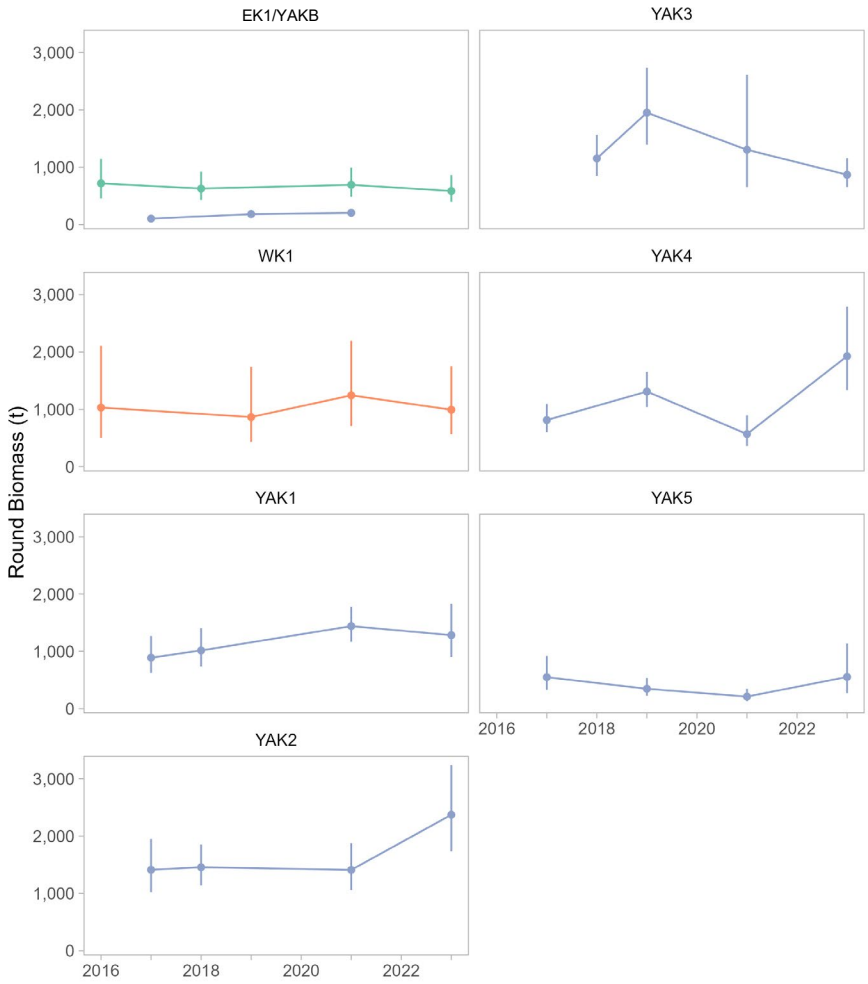
Results – Abundance and Biomass

Large Scallops (≥ 100mm)

Abundance



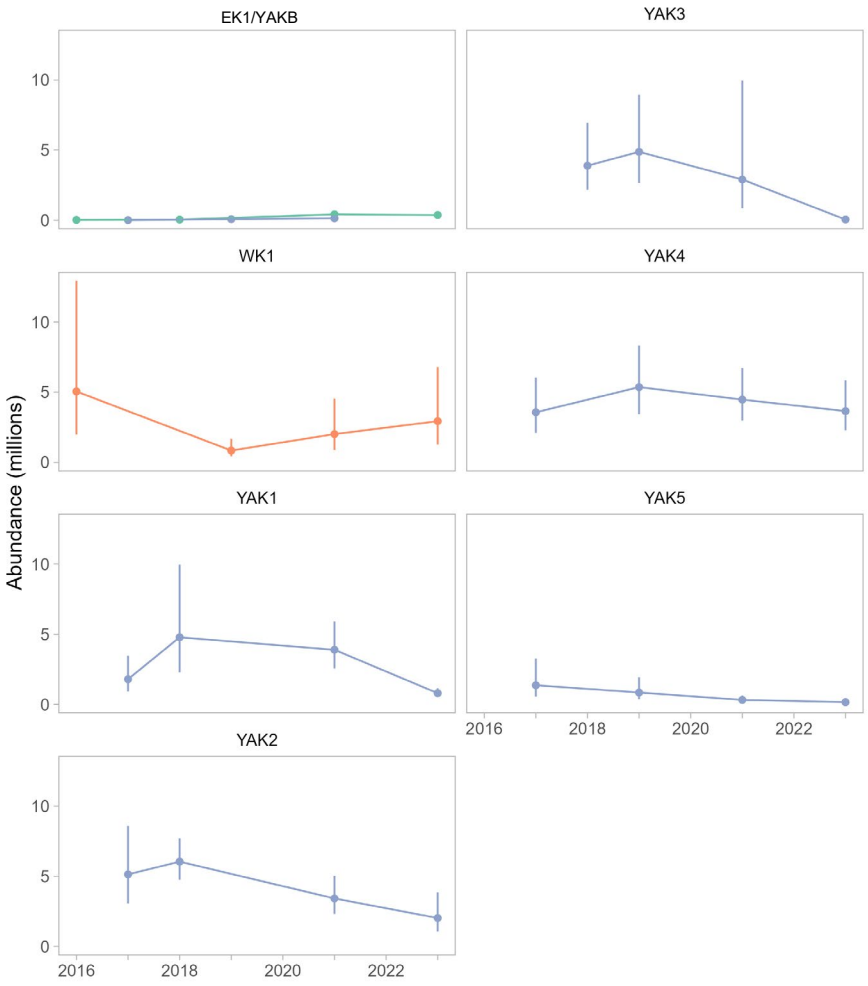
Round Biomass



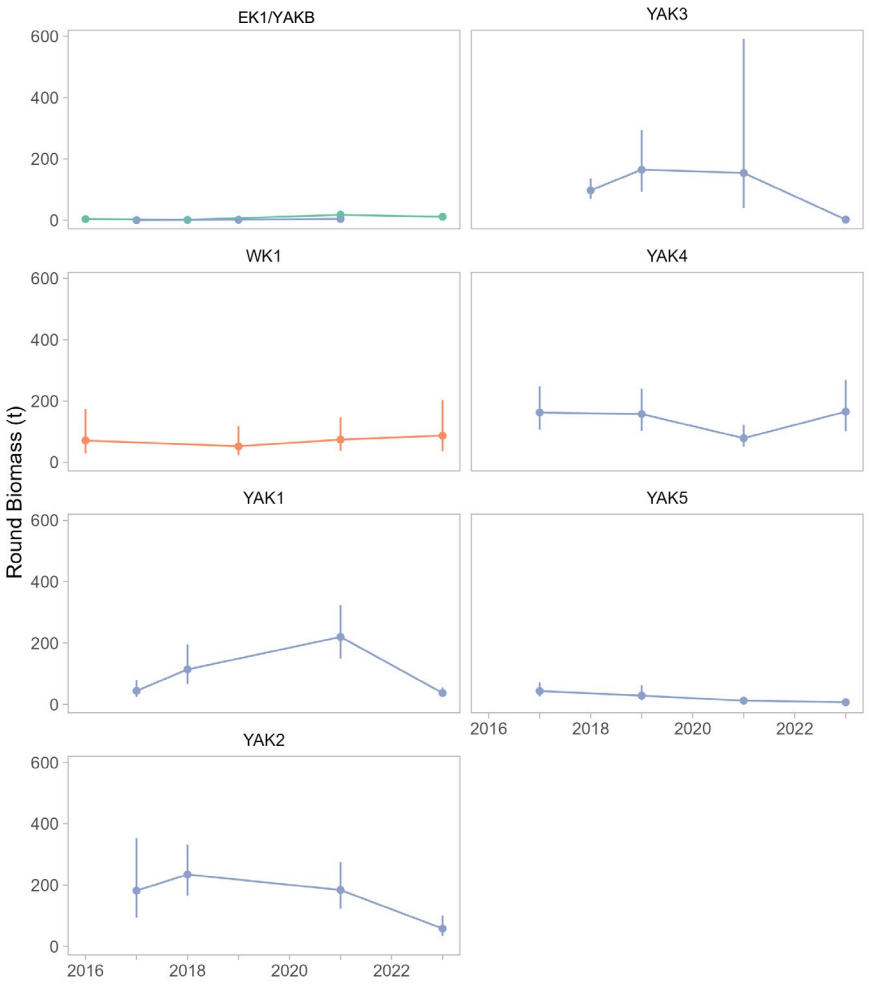
Results – Abundance and Biomass

Small Scallops (< 100mm)

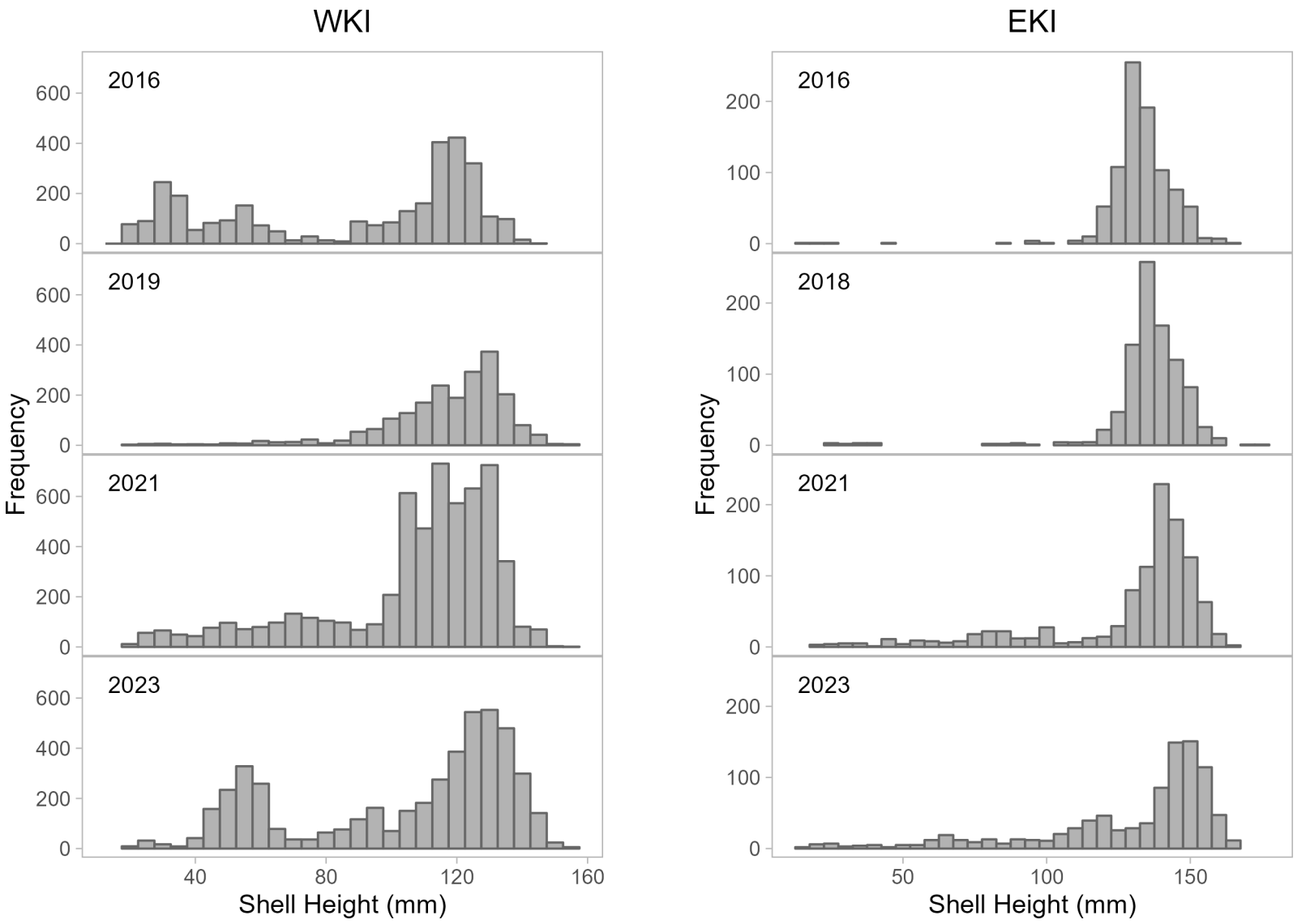
Abundance



Round Biomass



Results – Size Composition



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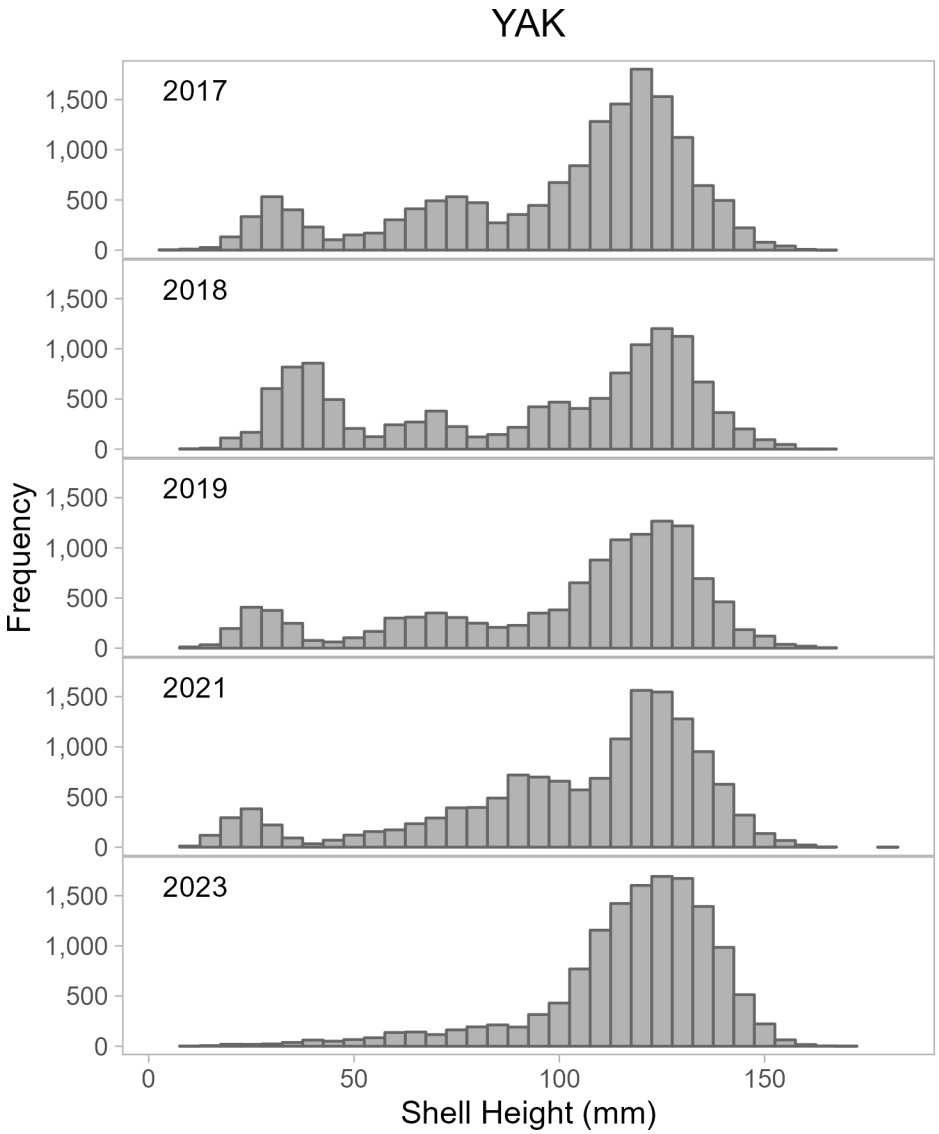

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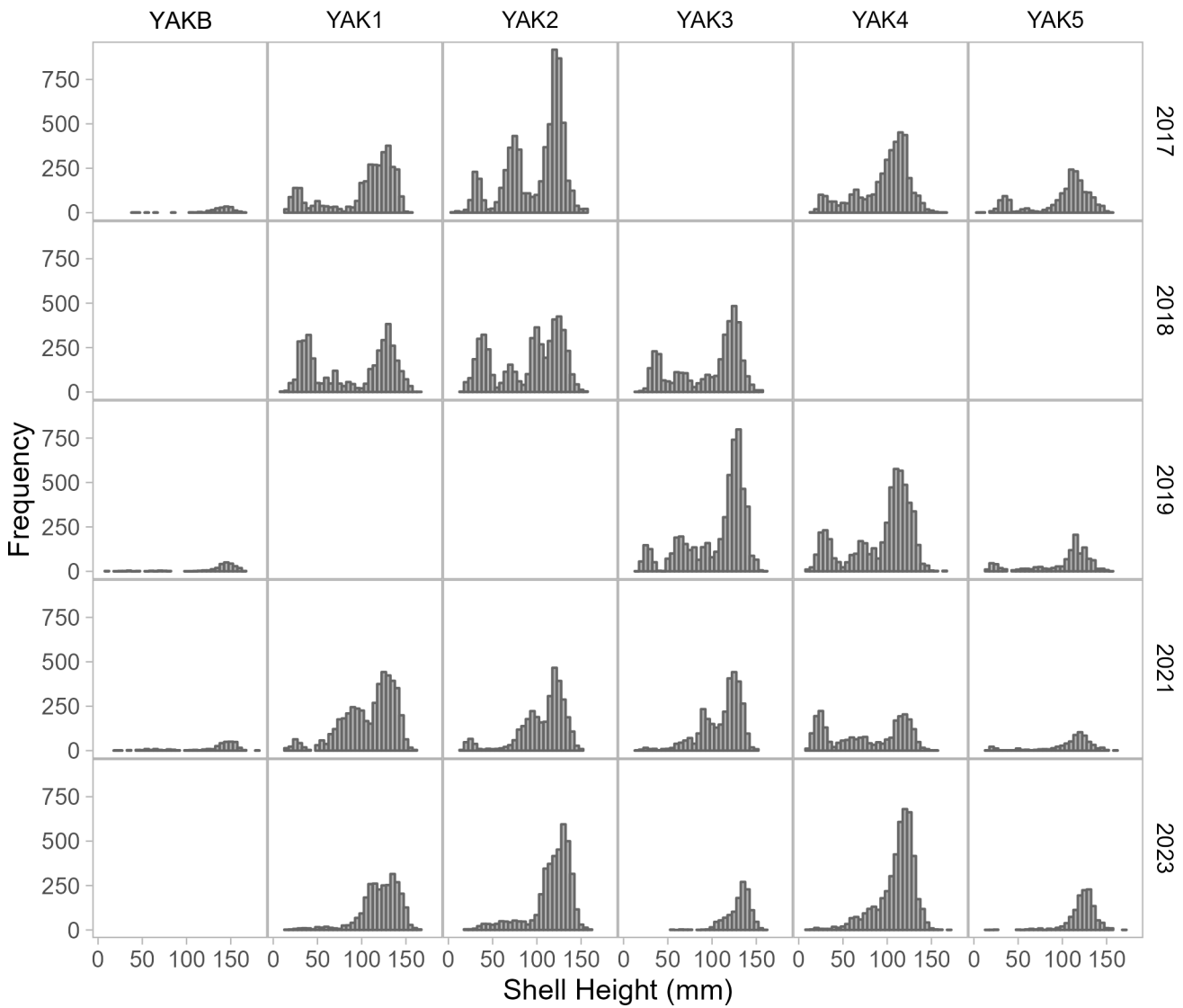
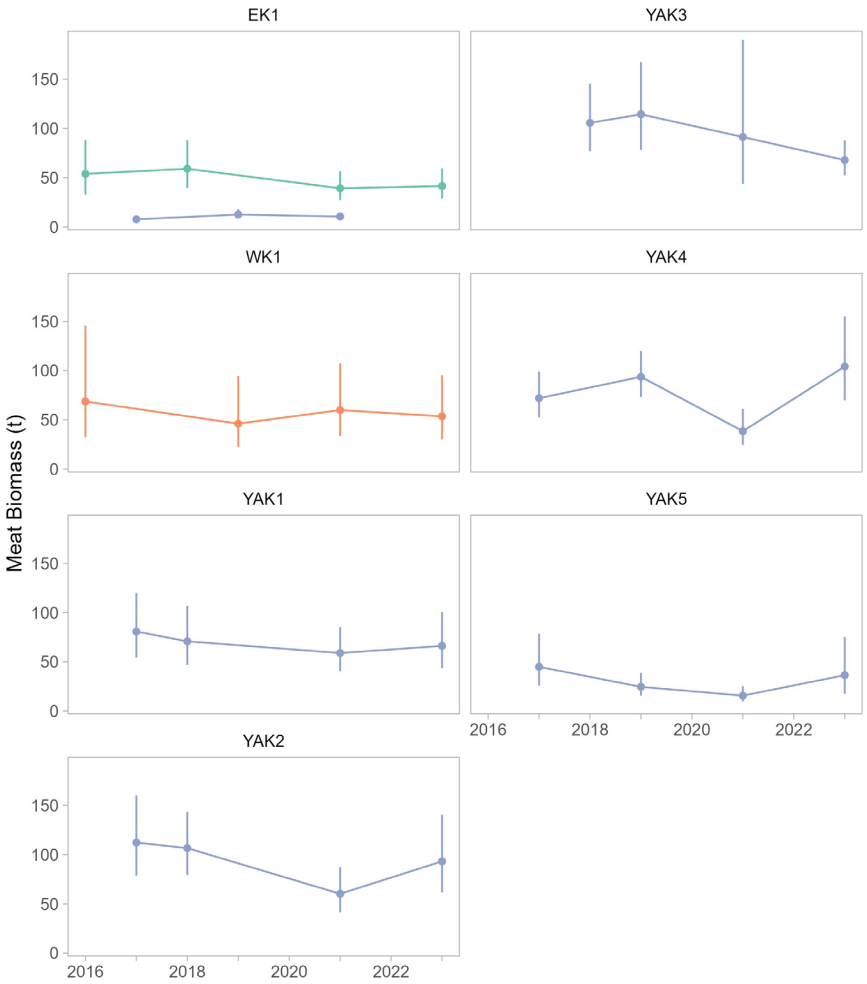


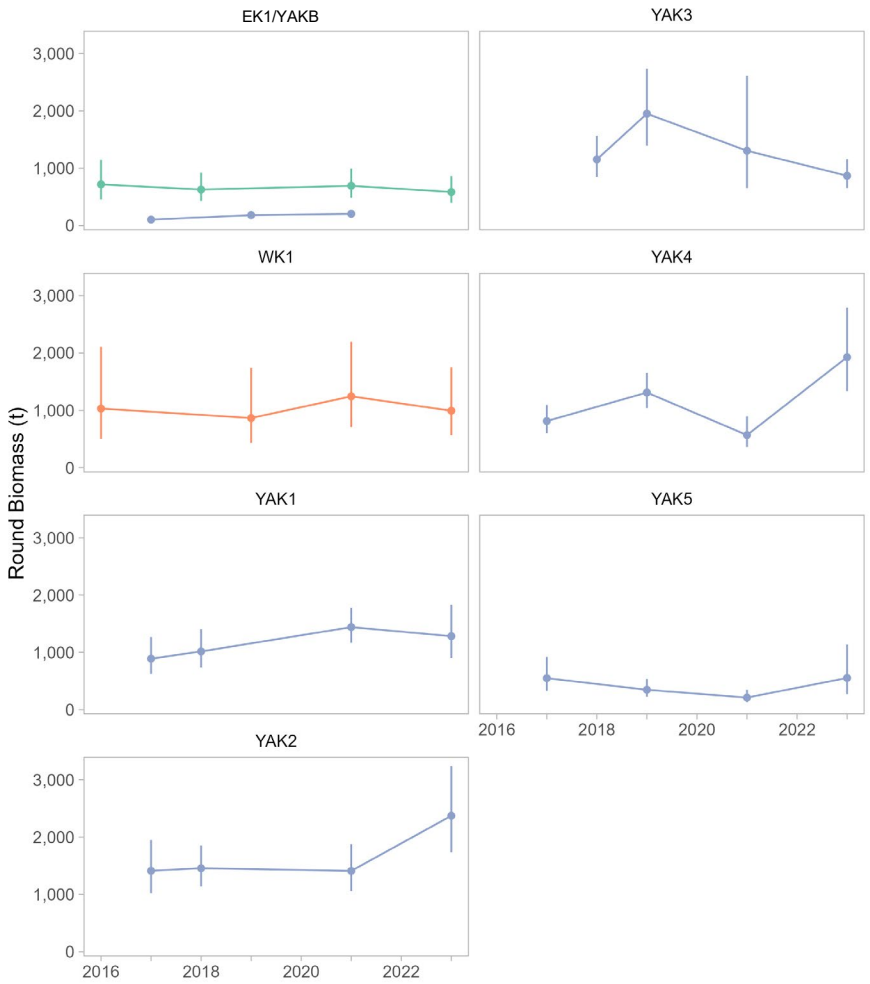
Results – Meat Weight Biomass

Large Scallops (≥ 100mm)

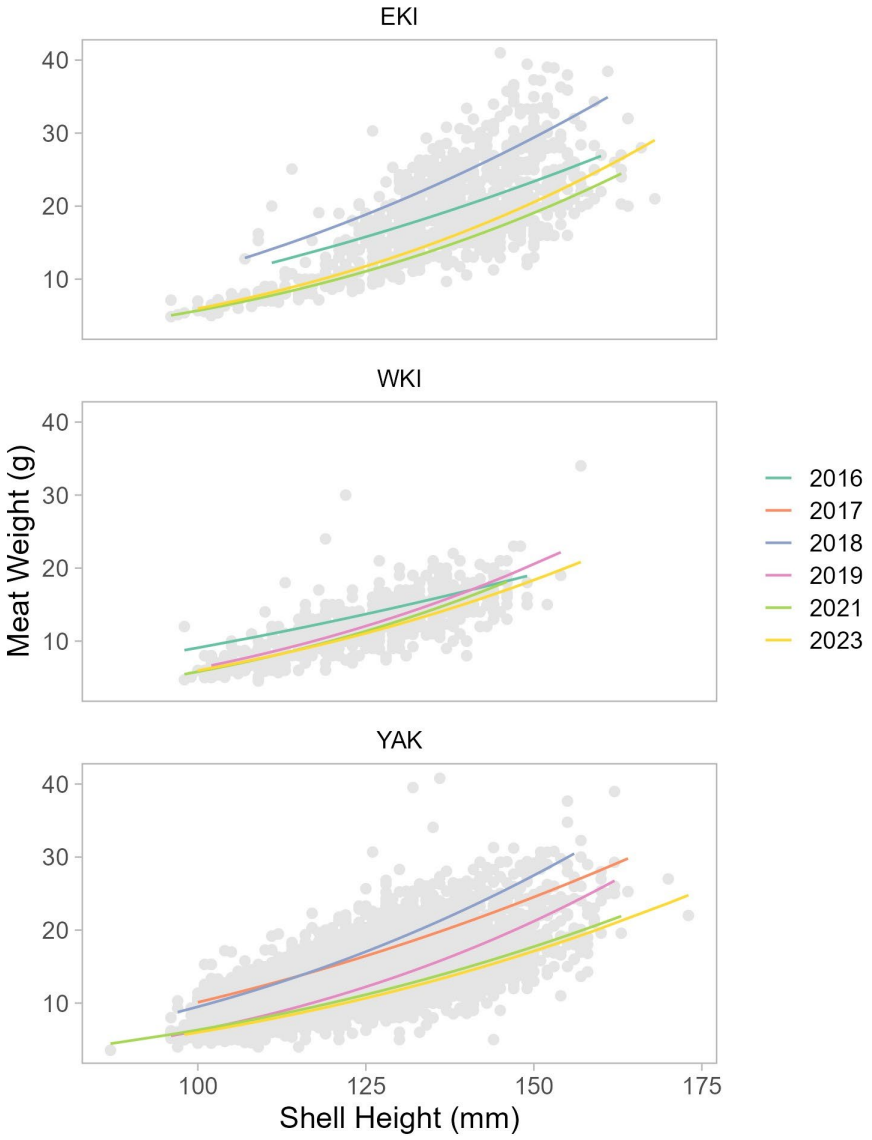
Meat Weight Biomass



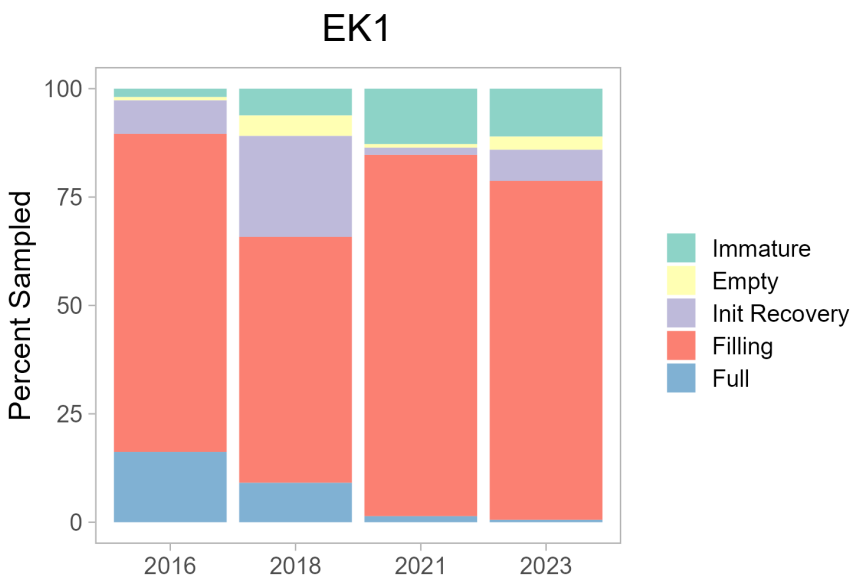
Round Biomass

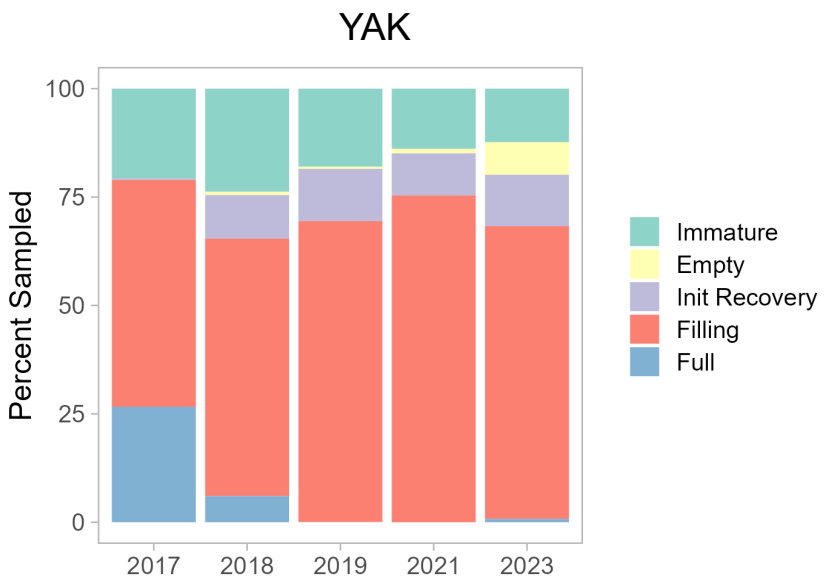


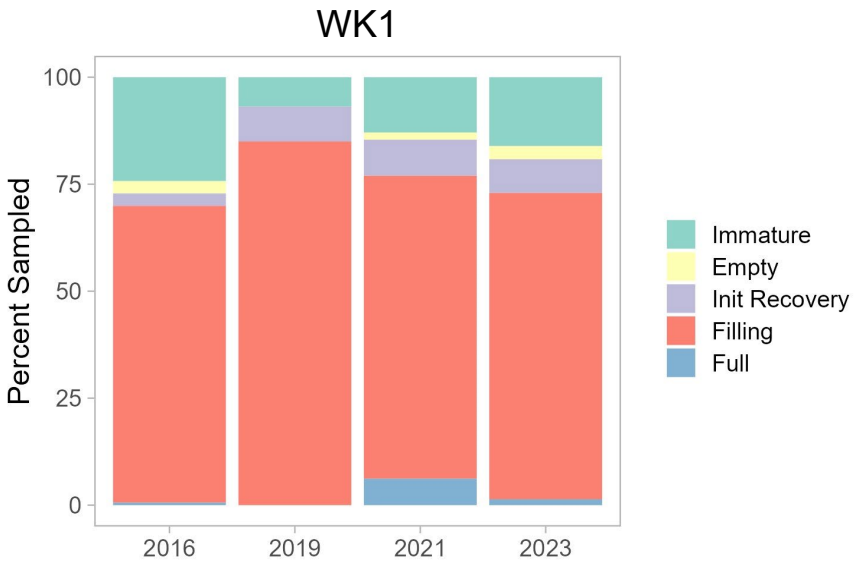
Results – Shell Height vs. Meat Weight

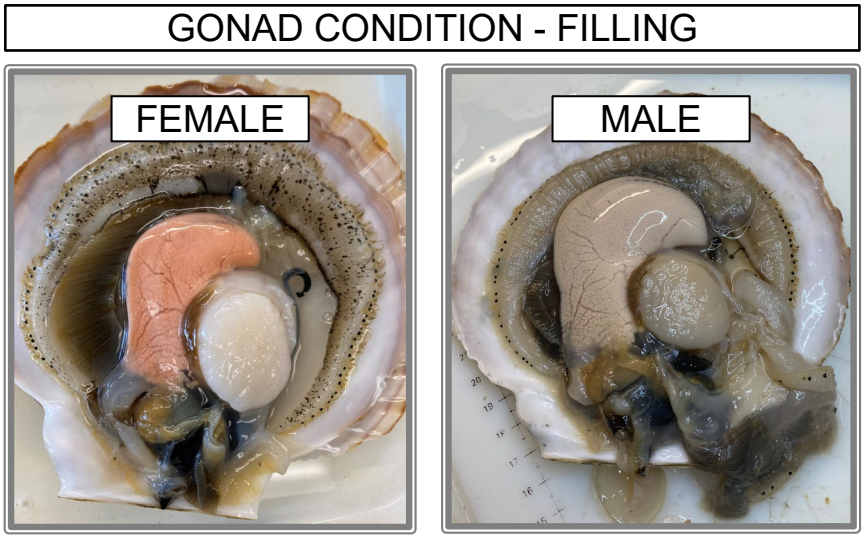


Results – Gonad Condition









Results – Parasites and Meat Condition

Definitions

Definitions and categorical IDs updated to align with infection severity (2022)

Old	New
Shell Worms	Shell Borers
0%	None
1-24%	Mild
25-49%	Moderate
50-74%	Advanced
75-100%	

Old	New
Mud Blisters	Shell Blisters
0%	None
1-24%	Mild
25-49%	Moderate
50-74%	Advanced
75-100%	

		Shell Borers (%)				Shell Blisters (%)			
Area	Bed	None	Mild	Moderate	Advanced	None	Mild	Moderate	Advanced
Prince William Sound	WK1	47	37	15	1	93	6	1	0
	EK1	50	46	4	0	67	22	7	4
Yakutat	YAK	49	40	10	1	71	25	2	1

		Weak Meat (%)						
Area	Bed	2016	2017	2018	2019	2021	2022	2023
Prince William Sound	WK1	0	-	-	3	5	-	2
	EK1	2	-	1	-	12	-	5
Yakutat	YAK	-	2	1	3	3	-	3

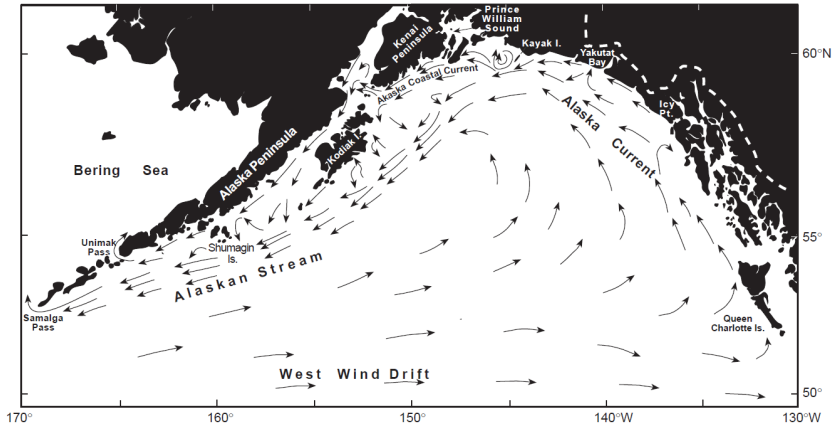
Early and late-stage shell blistering (conchiolin, mucus)

"Shell boring" sponge

Results – Environmental Data

2301 CTD and pH logger data summary

Area	Bed	Casts	Minimum cast depth (fath)	Maximum cast depth (fath)	Average depth (fath)	Average temp at max depth (°C)	Average salinity at max depth	Average pH at max depth
Prince William Sound	WK1	3	33	55	41	5.4	32.0	8.08
	EK1	4	34	60	46	6.1	31.9	8.17
Yakutat	YAK1	2	44	53	49	6.2	32.1	8.08
	YAK2	3	34	55	43	5.5	32.1	7.98
	YAK3	4	44	53	47	5.3	32.1	8.02
	YAK4	4	38	65	47	5.4	32.3	8.02
	YAK5	3	51	53	53	5.1	32.1	8.04



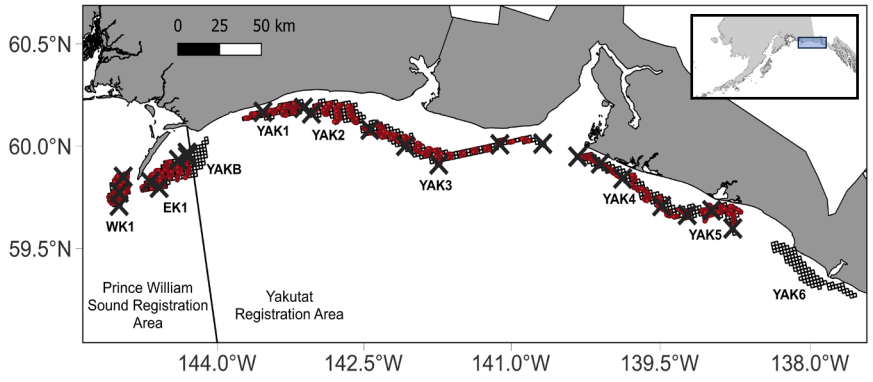
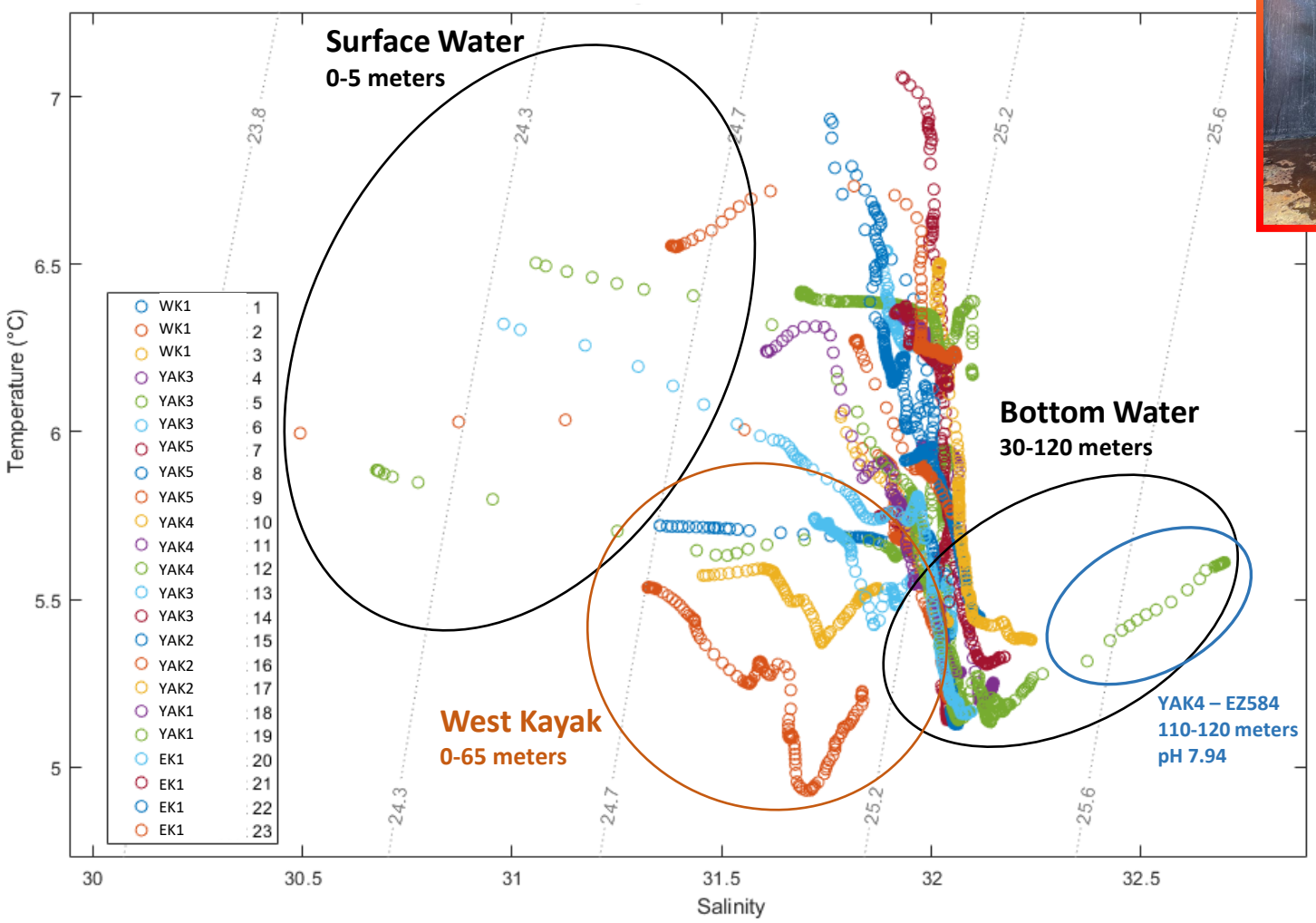


Fig. 1. Map of the Gulf of Alaska. The flow of the Alaska Coastal Current and subarctic gyre are indicated as are several geographic place names. (After Reed and Schumacher, 1986).

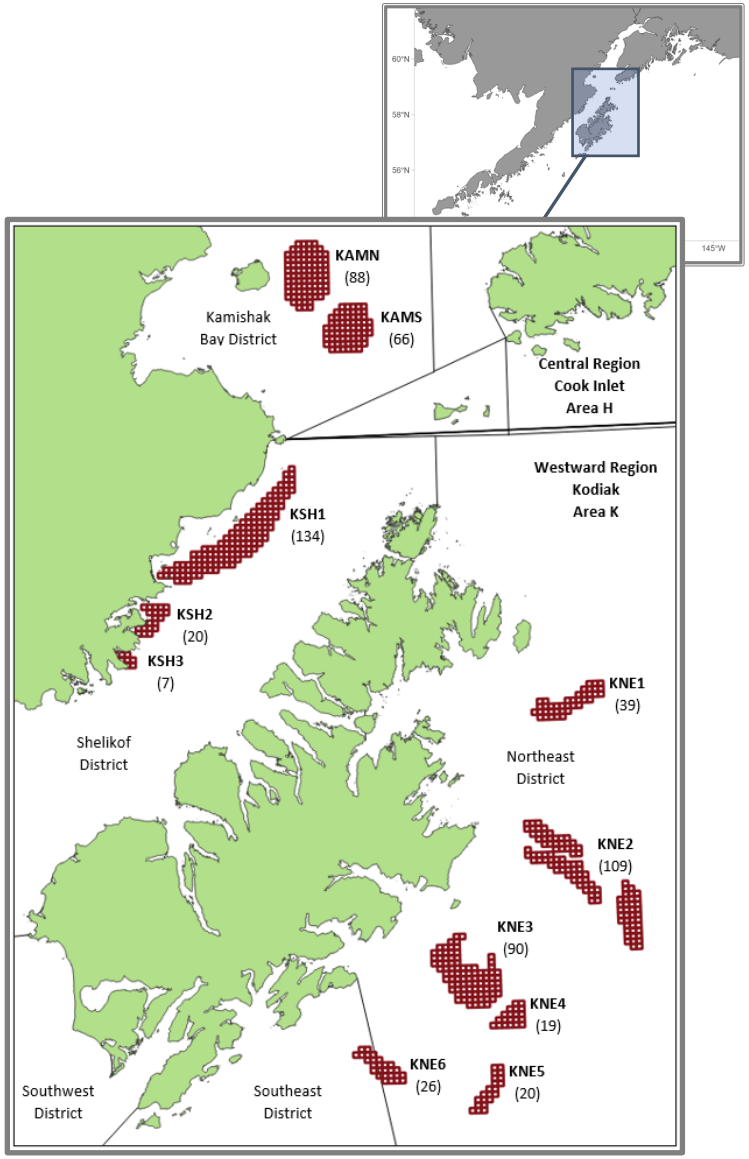
Results – Environmental Data



2024 Survey Plan

Survey 2401 – May 2024

District	Bed	Stations Sampled	Total Stations	Sampling Rate
Kamishak	KAMN	29	88	33%
	KAMS	22	66	33%
Northeast	KNE1	12	39	31%
	KNE2	36	109	33%
	KNE3	30	90	33%
	KNE4	6	19	33%
	KNE5	7	20	35%
	KNE6	9	26	35%
Shelikof	KSH1	44	134	33%



Mike “Bycatch” Byerly