

BSFRF Research Update

September CPT

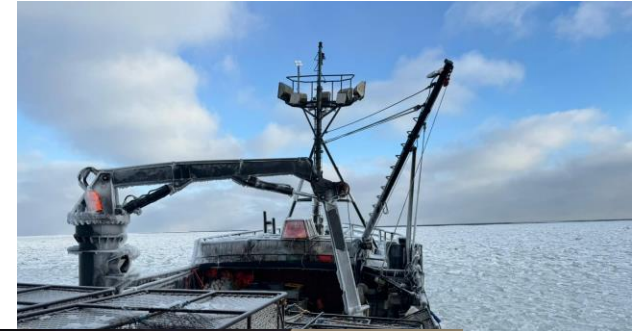
09.10.24

- *Research Progress '24*
- *Latest Opilio Research*
- *Disaster Relief Research Planning*



Scott Goodman | Executive Director
Bering Sea Fisheries Research Foundation

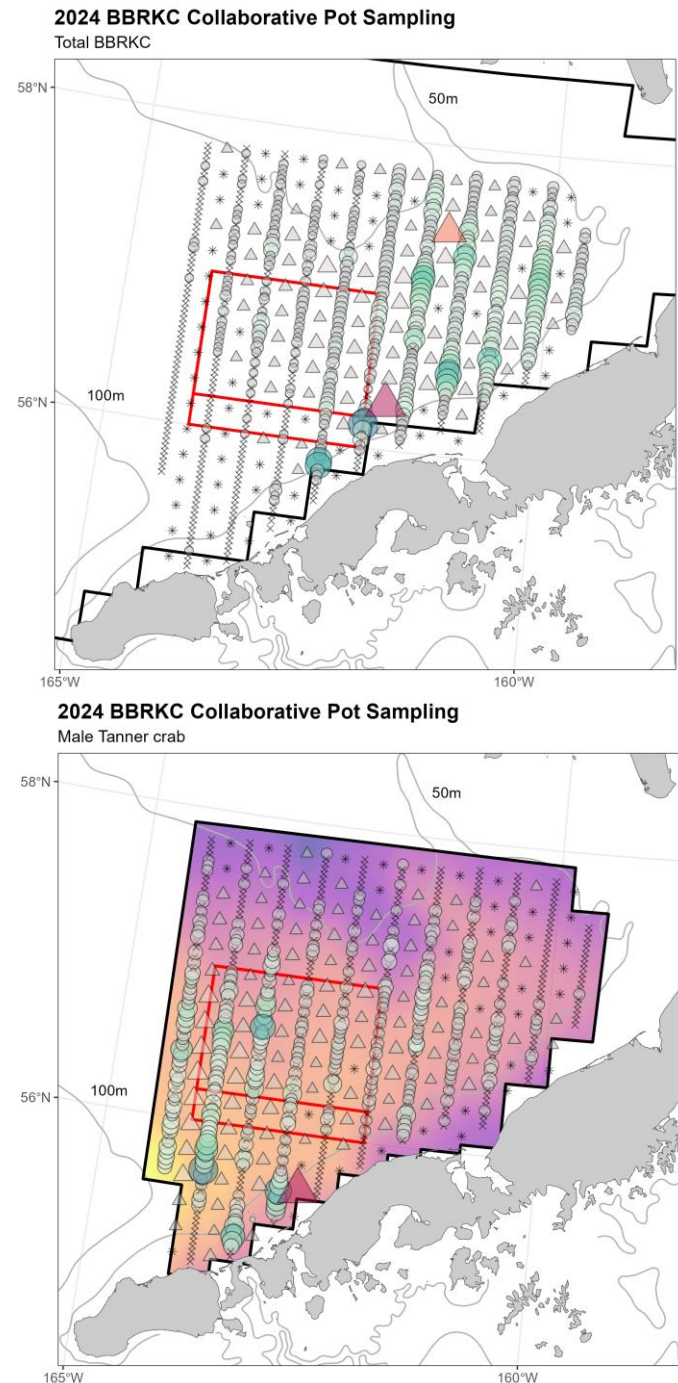
CPS2 3 boats – everybody home safely – work complete



CPS2 Summary Maps

(CPUE maps are catch/pot lift and catch/tow)

- Study extent and management boundaries
- Total male and female BBRKC densities
- Mature male BBRKC densities
- Mature female BBRKC densities
- Immature male BBRKC densities
- Immature female BBRKC densities
- Total male and female bairdi densities
- Male bairdi densities
- Female bairdi densities
- Pacific cod densities
- Pollock densities
- Yellowfin sole densities
- Rock sole densities
- Observed temperature maps (as layer)
- Shell condition maps



Comparison of CPS1 and CPS2

-- temperature is important --

Summary Item	CPS1 - 2023		CPS2 - 2024	
	POT	TRW	POT	TRW
Pot Lifts/Tows	637	0	646	128
RKC Catch	10,191		6,415	496
RKC Sex Ratio (M/F)	77/23	<--->	76/24	44/56
Bairdi Catch	670		1,009	928
Bairdi Sex Ratio (M/F)	83/17	<--->	99/1	68/32

- Comparisons to NOAA surveys --
- Other data summaries in press --
- Data sharing to other projects asap --

Opilio Workshop



**Clawing Their Way Back:
A Comparative NL-AK Snow Crab Workshop
Toward Sustainable Management in Uncertain
Times**

**Summary in Press:
Dr. Gordon Kruse et al.**

Publication format TBD



Fisheries and Oceans
Canada



April 29 – May 1, 2024

Location: Fisheries & Marine Institute of Memorial University of Newfoundland
155 Ridge Rd. | St. John's, NL | A1C 5R3 | Industry Seminar Room

Chair: Gordon Kruse

Co-Chairs: Scott Goodman and Darrell Mullowney

Rapporteur: Raquel Ruiz-Diaz

Opilio Pilot Project (OPP)

-- Preliminary Summaries --
Trawl & Pot Sampling



Opilio Pilot Project (OPP)

-- collaborative planning team --

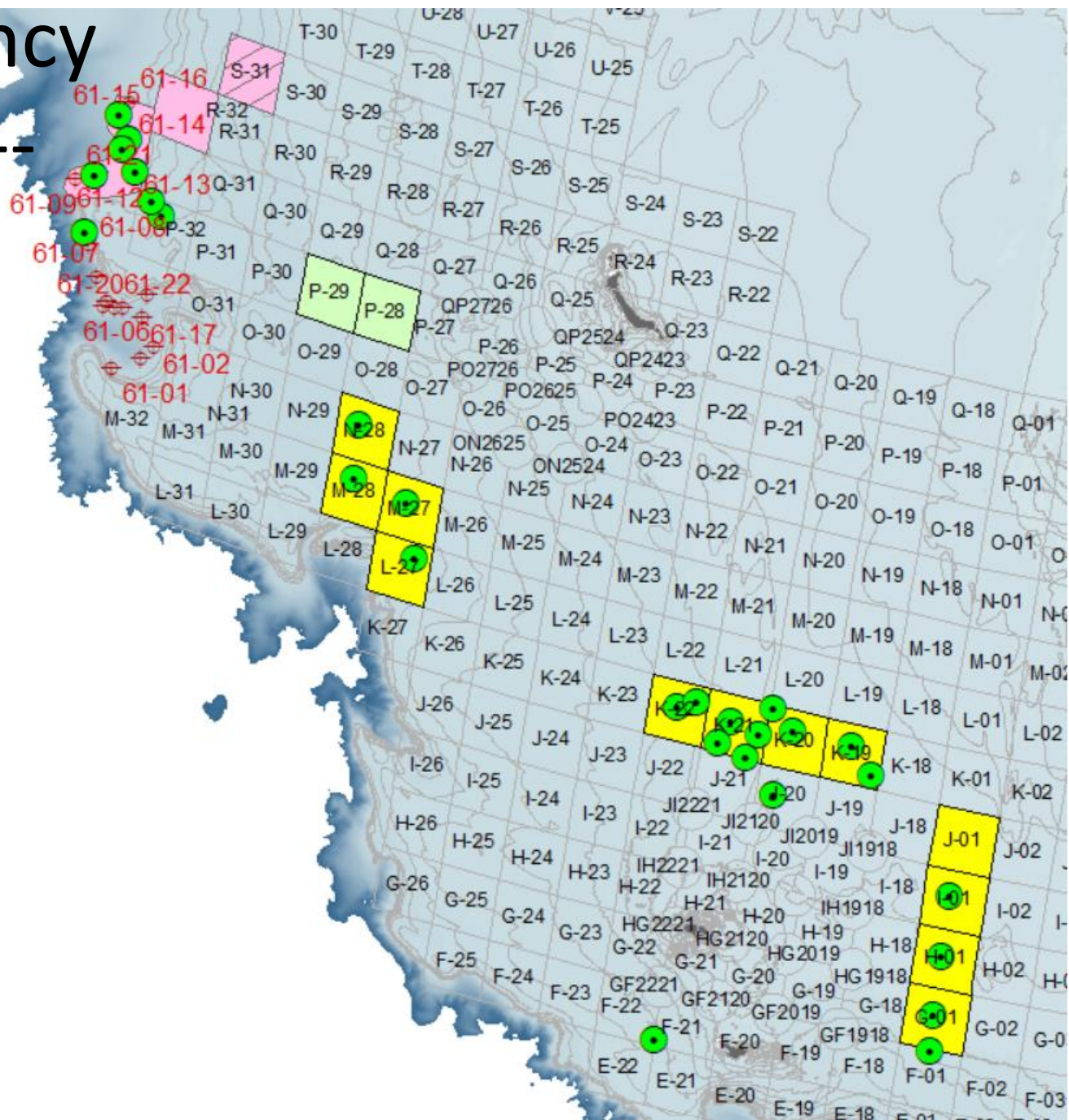
Overall objective:

- inform ongoing survey calibration research both for the NMFS Bering Sea shelf-slope survey modernization strategy, and for improved understanding of Bering Sea male snow crab distribution near the shelf-slope margin during the current rebuilding period for the stock. Utilizing available crab vessels is as a vital part of financial relief during this period of economic difficulty through industry engagement to complete the research. This pilot project is an important bridging opportunity to assist with the development of larger scale snow crab research over the next 3-5 years of crab disaster relief funding.

Gear specific project objectives: CALIBRATION & VARIABILITY

- Using a chartered commercial crab vessel and opilio-rigged crab pots, collect information on male snow crab distribution near the survey/fishing area boundary (deeper waters, shelf/slope break) in 1-3 focused sampling areas near the same time and area as NMFS 2024 summer survey activities.
- Collect information from a chartered trawl vessel using BSFRF Nephrops trawl sampling during NOAA standard and test (15-30 minutes duration, other) tows near survey/fishing area boundary (deeper waters, shelf/slope break) in focused sampling areas, side-by-side or in proximity to NMFS 2024 summer survey testing to provide additional survey calibration information.

-- contingency
planning --



-- contingency
planning --

2024 Eastern Bering Sea Survey

Northwest Explorer				
POSITION	L1 EBS	L2 EBS	L3 EBS	L4 EBS
Dates	24-May to 17-Jun	17-Jun to 9-Jul	9-Jul to 1-Aug	1-Aug to 24-Aug
FPC	Duane Stevenson	Bianca Prohaska	Stan Kotwicki	Nicole Charriere
DECK LEAD	Bianca Prohaska	Chris Anderson	Chris Anderson	Emily Markowitz
Crab (1)*	Connor Cleary	Alix Laferriere	Chris Long	Megan Burns (contract)
Crab (2)*	Andrew Nault (ADFG)	Angie Korabik (Sea Grant Fellow)	Sean Haridson (post doc)	Liza Hazan (ADFG)

SUN	MON	TUE	WED	THU	FRI	SAT
28-Jul	29-Jul	30-Jul	31-Jul	1-Aug	2-Aug	3-Aug
		BSFRF SciTm 3pm			OPP Update 1030am	sea VEST SciPty dh
4-Aug VEST 1	5-Aug VEST 2 TRANS 1	6-Aug VEST 3 TRANS 2	7-Aug VEST 4 SAMP 1	8-Aug VEST 5 SAMP 2	9-Aug VEST 6 SAMP 3	10-Aug VEST 7 SAMP 4
11-Aug VEST 8 SAMP 5 sea CONF SciPty dh	12-Aug VEST 9 SAMP 1 CONF 1	13-Aug VEST 10 TRANS 3 CONF 2	14-Aug VEST 11 TRANS 4 CONF 3	15-Aug sea VEST SciPty dh CONF 4	16-Aug CONF 5	17-Aug CONF 6
18-Aug CONF 7	19-Aug CONF 8	20-Aug CONF 9	21-Aug CONF 10	22-Aug CONF 11	23-Aug CONF 12	24-Aug CONF 13
25-Aug CONF 14	26-Aug CONF 15	27-Aug sea CONF SciPty dh	28-Aug	29-Aug	30-Aug	31-Aug

Depart	Return
23-May	17-Jun
16-Jun	9-Jul
8-Jul	1-Aug
31-Jul	24-Aug

L3 EBS		L4 EBS	
Jul	9-Jul to 1-Aug	1-Aug to 24-Aug	
	Jerry Hoff	Sean Rohan	
	Emily Markowitz	Thaddeus Buser	
	Erin Fedewa	Emily Ryznar	
	Laurie Balstad (UC Davis)	Emily Mailman (NMFS OHC; Anchorage AK)	

Biologist/IPHC	Andrew Chin (A&G)	Jim Patterson (SEFSC)	Thaddeus Buser	Shawn Russell (NL)
Stomach	Cynthia Yeung	Emily Slesinger (AFSC; Newport, OR)	Michael Schram (Lapenta Intern)	Sophia Wassermann
Stand By				

Male cook on AOK

*Invitational Travel

**Safety Leaders

Travel Dates for AK Knight scientists		Sea Days (no travel)	Travel	Depart	Return
24			Leg 1	23-May	17-Jun
22			Leg 2	16-Jun	9-Jul
23			Leg 3	8-Jul	1-Aug
24			Leg 4	31-Jul	24-Aug

Opilio Pilot Project (OPP)

-- FV Vesteraalen trawl sampling --

Fieldwork Summary: OPP 2024 Vesteraalen

1. Project Overview

Project Objectives

- Assess the presence/absence of opilio on the shelf/slope boundary WNW of the Pribilof Islands.
- Conduct side-by-side-by-side tows with two NOAA vessels on the shelf and the slope

Study Plan

Twenty-seven tows were completed with the Nephrops trawl during the 2024 *opilio* pilot project. Initially, the plan focused on the shelf and slope boundary in areas 6 and 61 (Figure 1). We conducted **seven side-by-side-by-side tows on the slope**, where the NMFS slope gear was compared to the standard NMFS 83-112 survey trawl gear. After wrapping up operations on the slope, we followed the NOAA vessels back to the shelf to continue side-by-side work on higher-density *opilio* grounds. NOAA conducted side-by-side tows to compare 30-minute tows to 15-minute tows in pre-specified areas (Figure 2). We completed an additional **12 side-by-side-by-side** tows in areas 2, 4, and 8, as well as **eight opportunistic index tows**.

Opilio Pilot Project (OPP)

-- FV Vesteraalen trawl sampling --

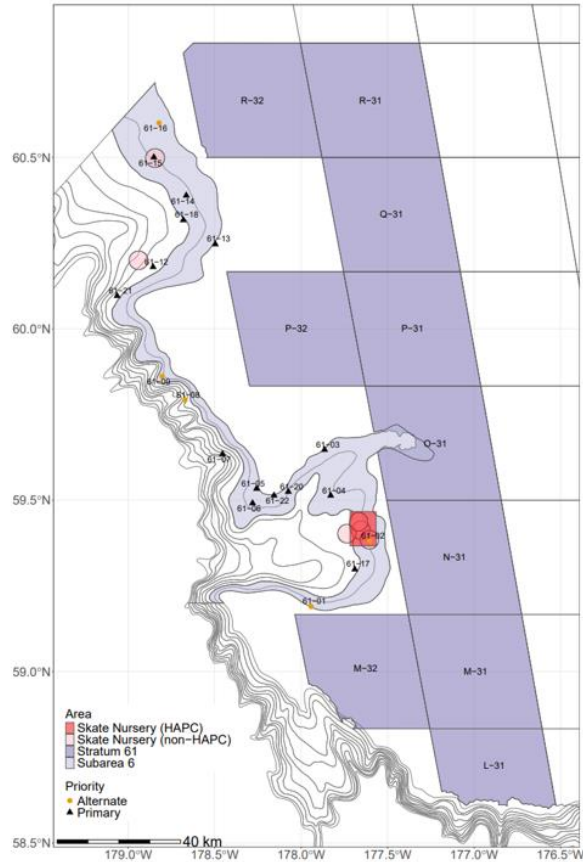


Figure 1: NOAA Stratum 61 and subarea 6.

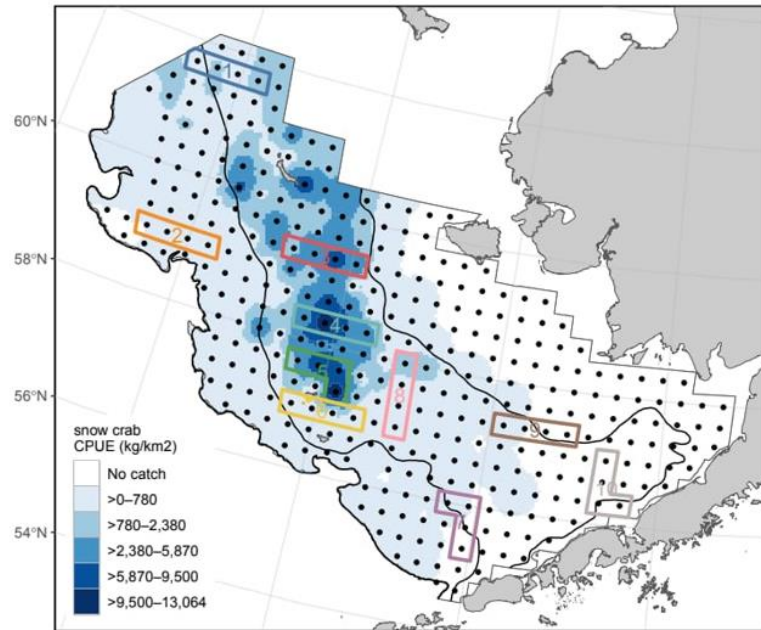


Figure 2: NOAA EBS grid with study boxes for NOAA side-by-side work with the 83-112 comparing 30min and 15min tows. The heat map shows snow crab density.

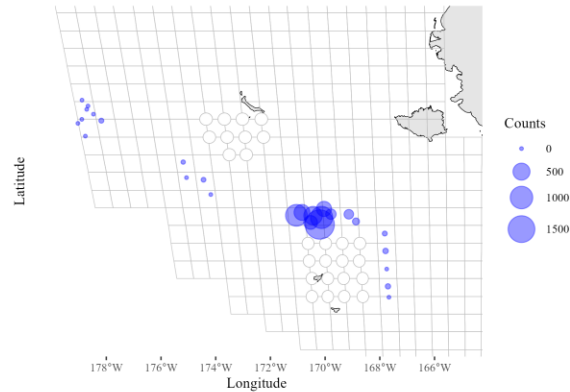
-- FV Vesteraalen trawl sampling --

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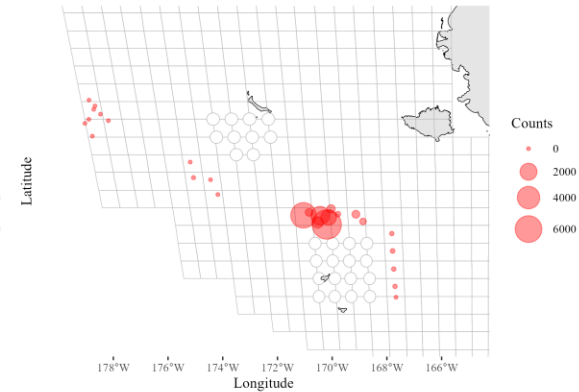
Opilio Pilot Project (OPP)

-- FV Vesteraalen trawl sampling --

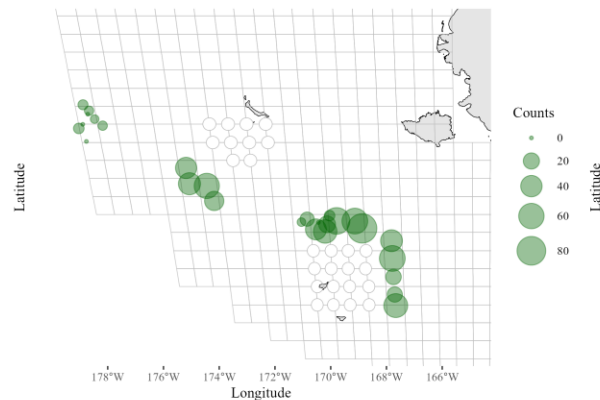
OPP Stations with Male Opilio



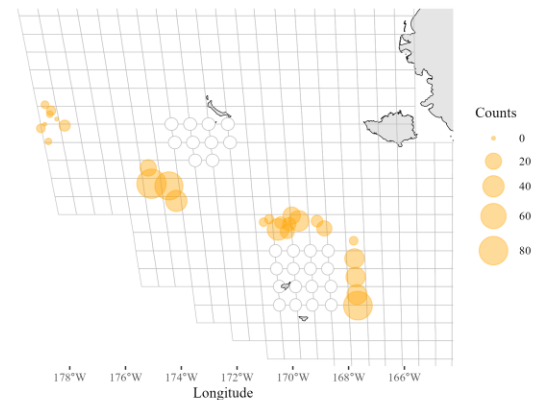
OPP Stations with Female Opilio



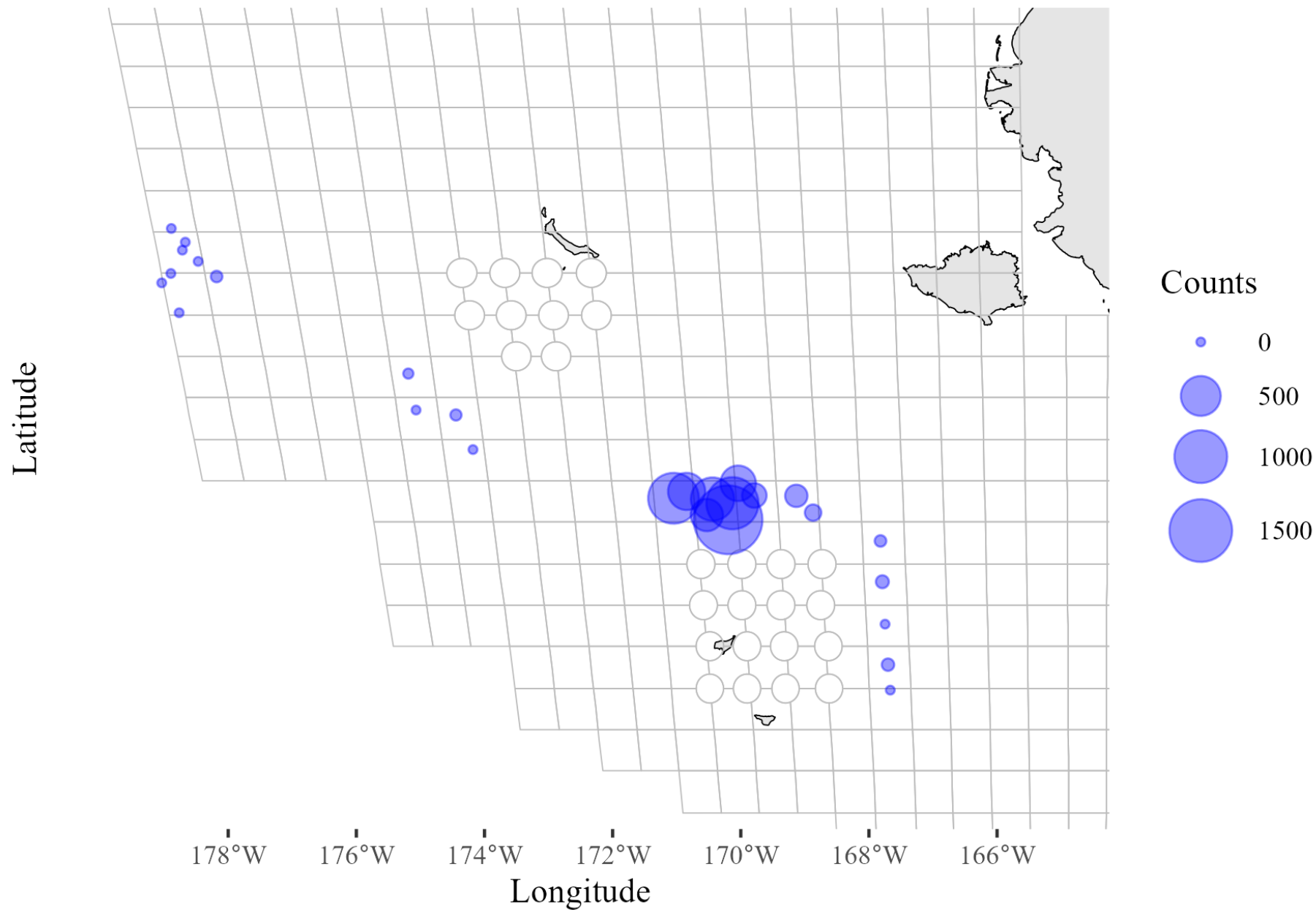
OPP Stations with Male Bairdi



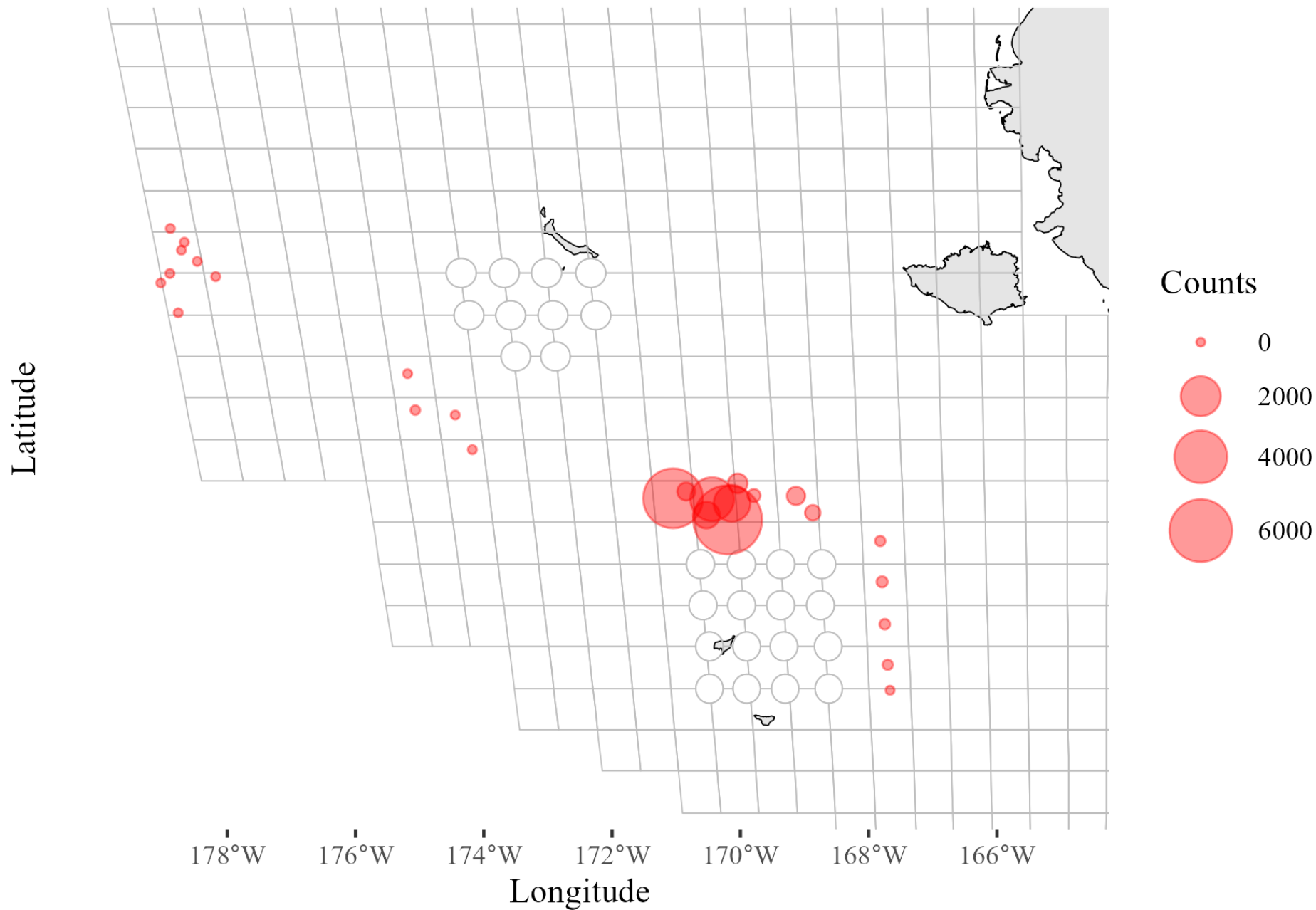
OPP Stations with Female Bairdi



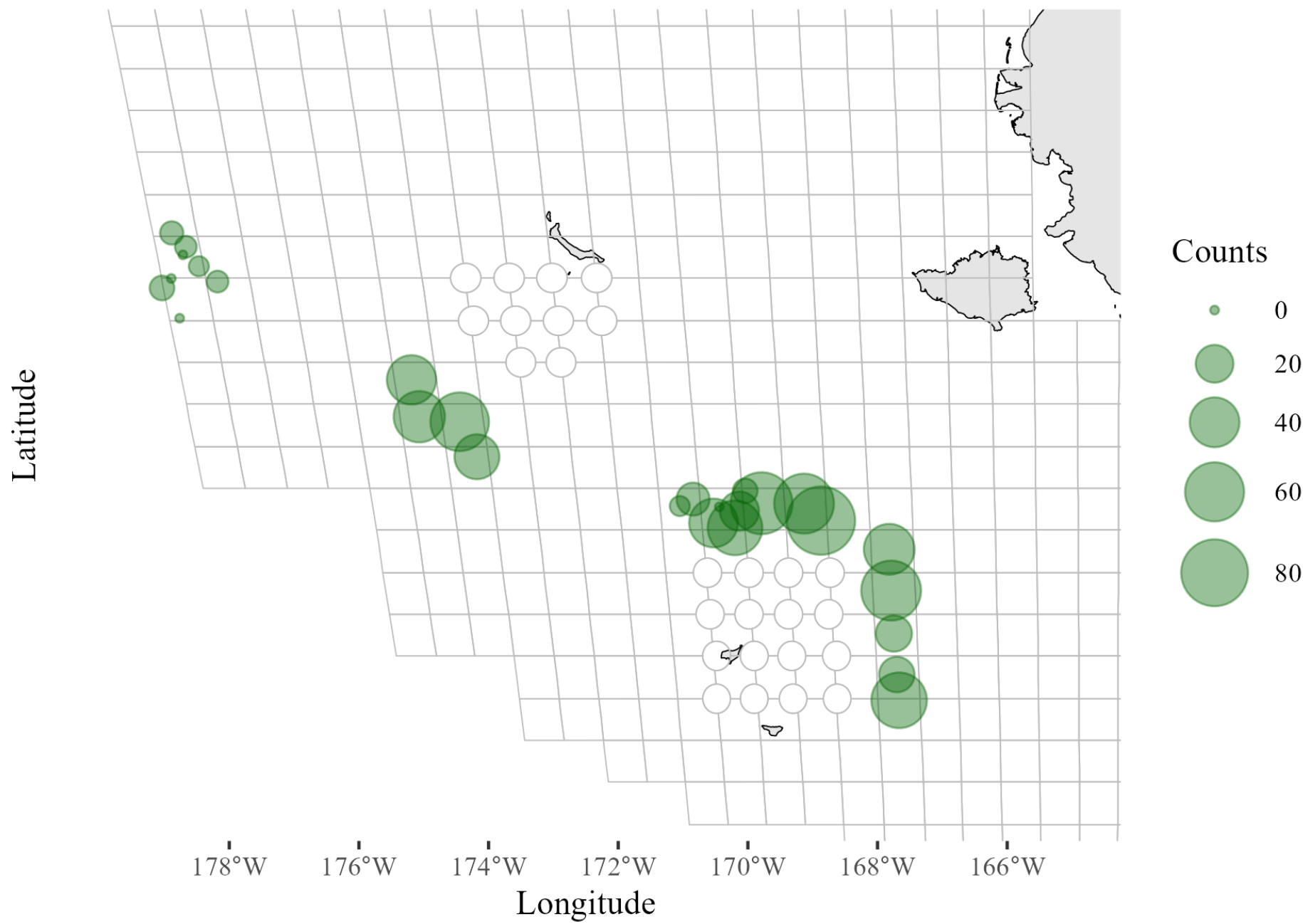
OPP Stations with Male Opilio



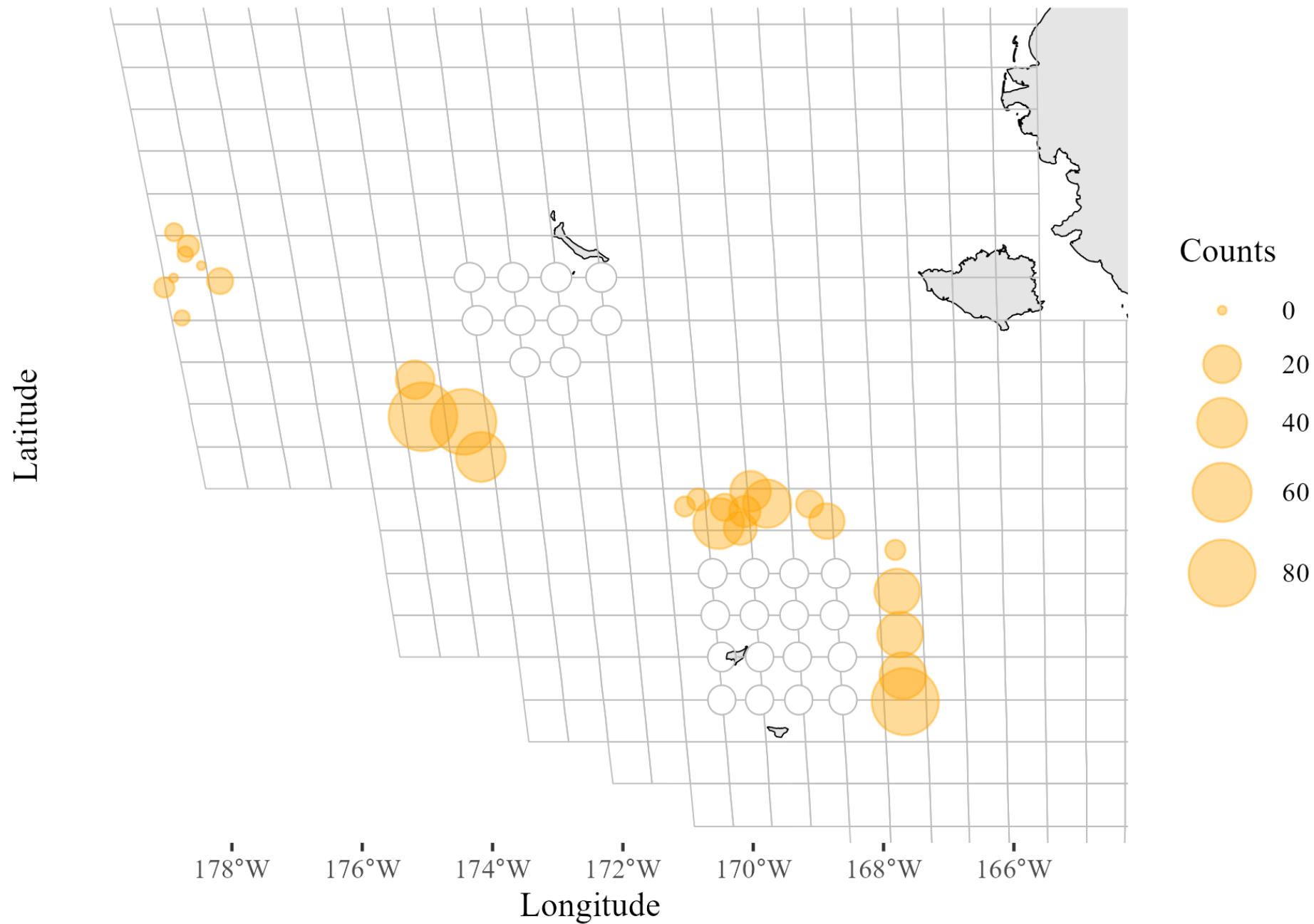
OPP Stations with Female Opilio



OPP Stations with Male Bairdi



OPP Stations with Female Bairdi



RAW CATCHES – PRELIMINARY INFO

Vesteraalen

Station	OPILIO			BAIRDI			CH SPP TOTAL		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
61-09	0	0	0	0	1	1	0	1	1
61-12	0	0	0	0	0	0	0	0	0
61-13	0	0	0	3	0	3	3	0	3
61-14	0	0	0	4	4	8	4	4	8
61-15	0	0	0	5	2	7	5	2	7
61-18	0	0	0	0	1	1	0	1	1
61-21	0	0	0	6	3	9	6	3	9
G-01	7	4	11	69	115	184	76	119	195
H-01	0	6	6	18	32	50	18	38	56
I-01	9	10	19	62	32	94	71	42	113
J-01	4	4	8	42	3	45	46	7	53
K-19	125	270	395	146	25	171	271	295	566
K-20	915	440	1,355	87	65	152	1,002	504	1,507
K-21	3,730	12,223	15,954	110	76	186	3,841	12,299	16,140
K-22	912	5,374	6,287	3	3	6	915	5,377	6,293
L-27	0	0	0	31	40	71	31	40	71
M-27	3	0	3	59	77	136	62	77	139
M-28	0	1	1	43	85	128	43	86	129
N-28	1	0	1	39	21	60	40	21	61
P-32	4	0	4	4	7	11	8	7	15
TOTALS	5,711	18,332	24,043	731	592	1,323	6,442	18,924	25,366

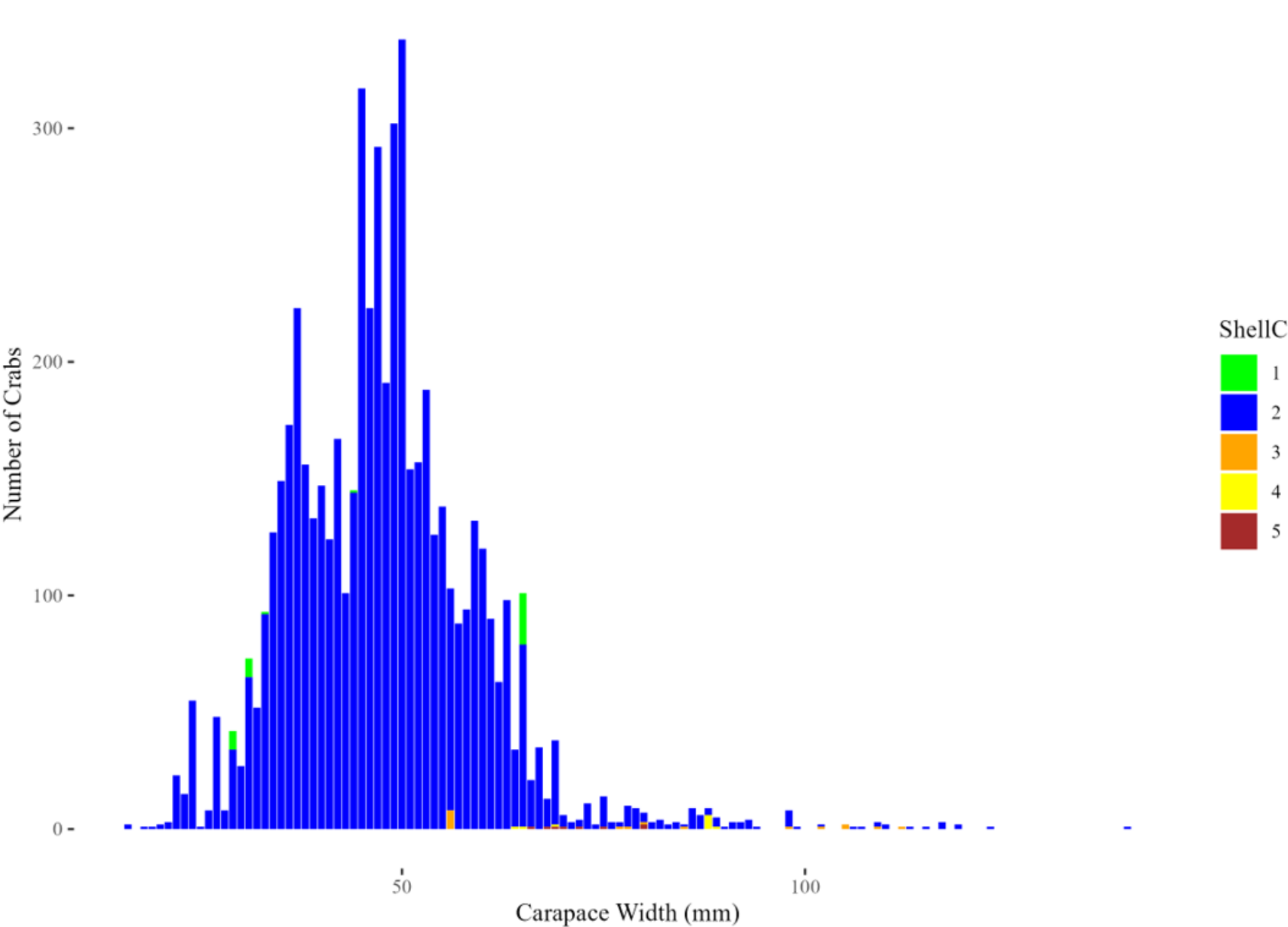
23.8%

76.2%

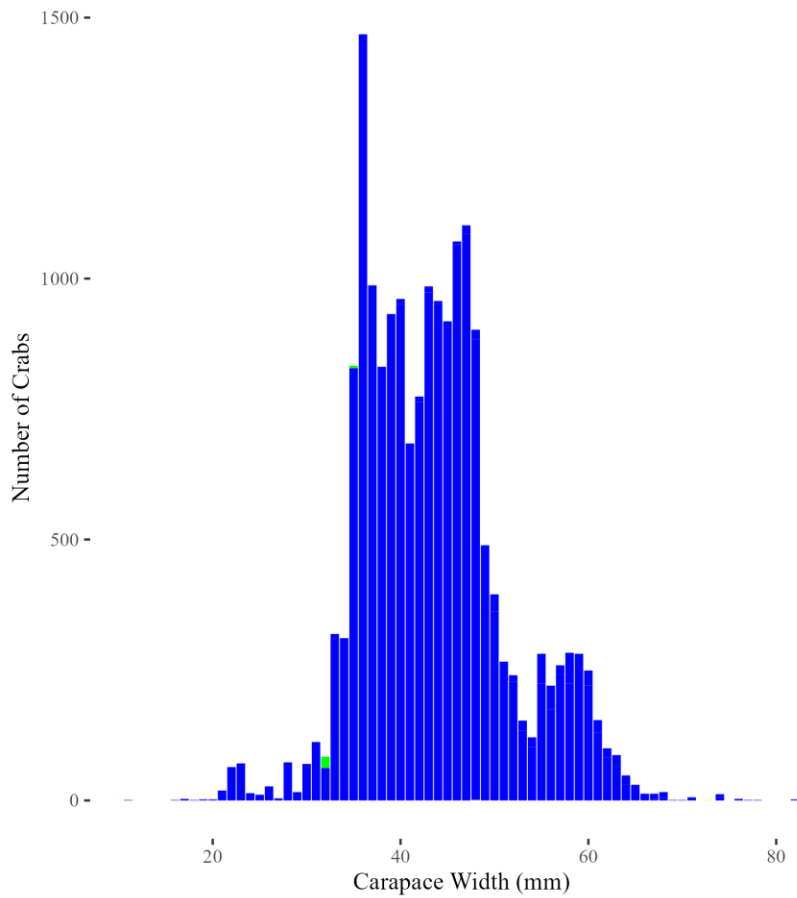
55.3%

44.7%

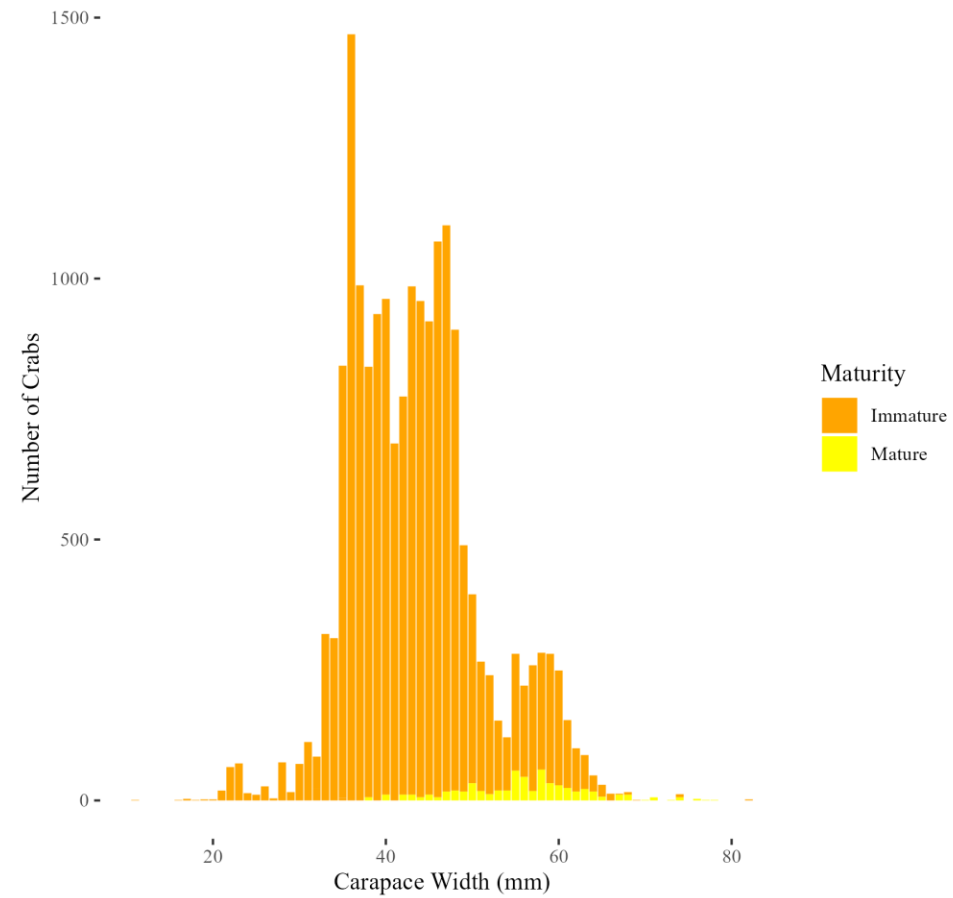
Opilio Males: 1mm Size Class Frequency



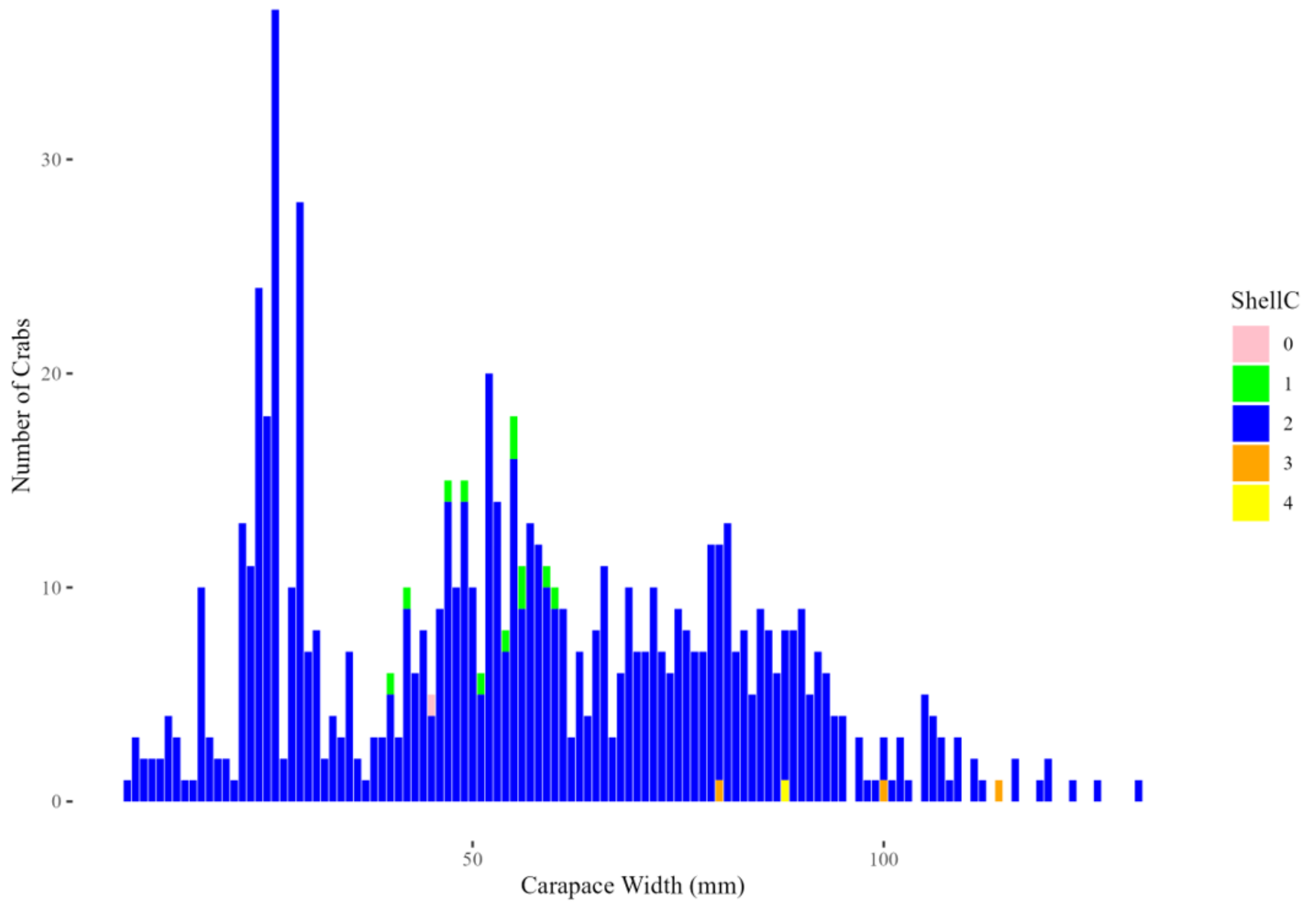
Opilio Females: 1mm Size Class Frequency



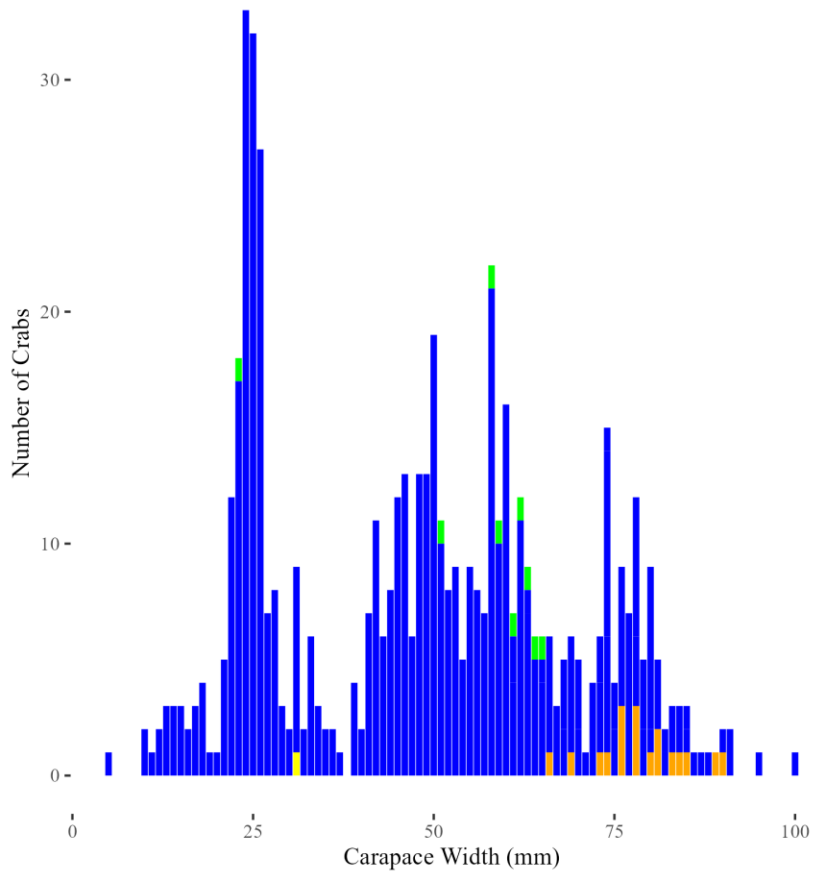
Opilio Females: 1mm Size Class Frequency



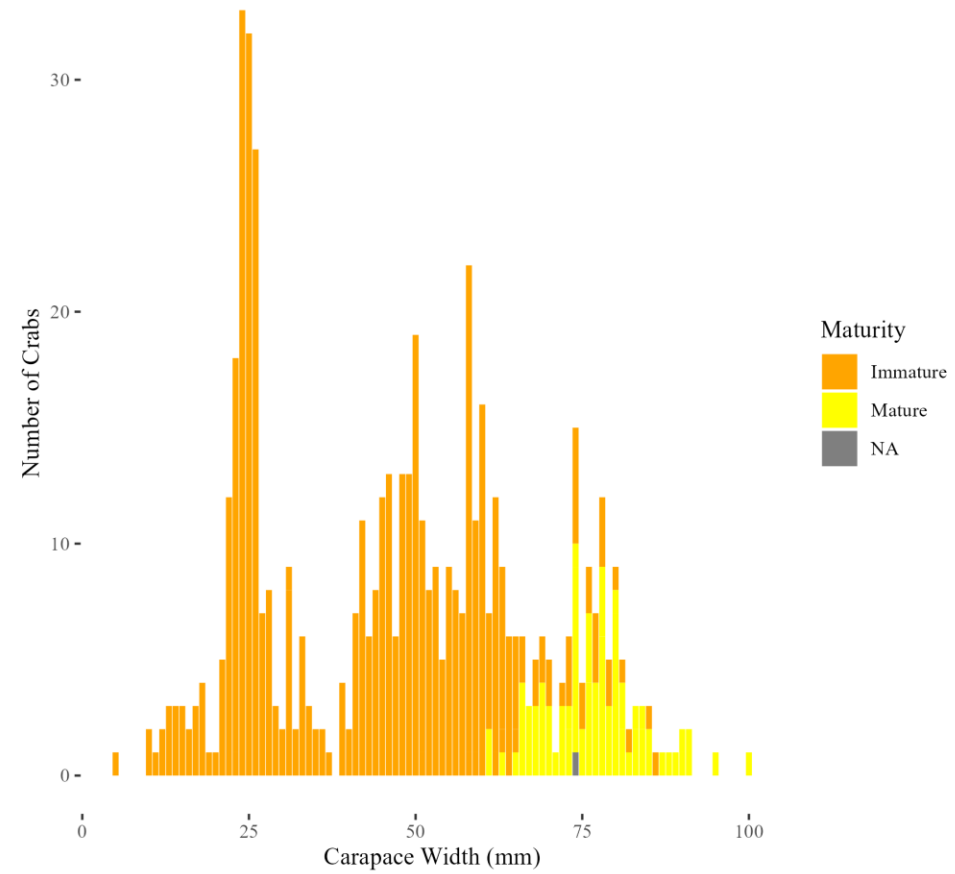
Bairdi Males: 1mm Size Class Frequency



Bairdi Females: 1mm Size Class Frequency



Bairdi Females: 1mm Size Class Frequency



-- FV Vesteraalen trawl sampling --



-- FV Vesteraalen trawl sampling --

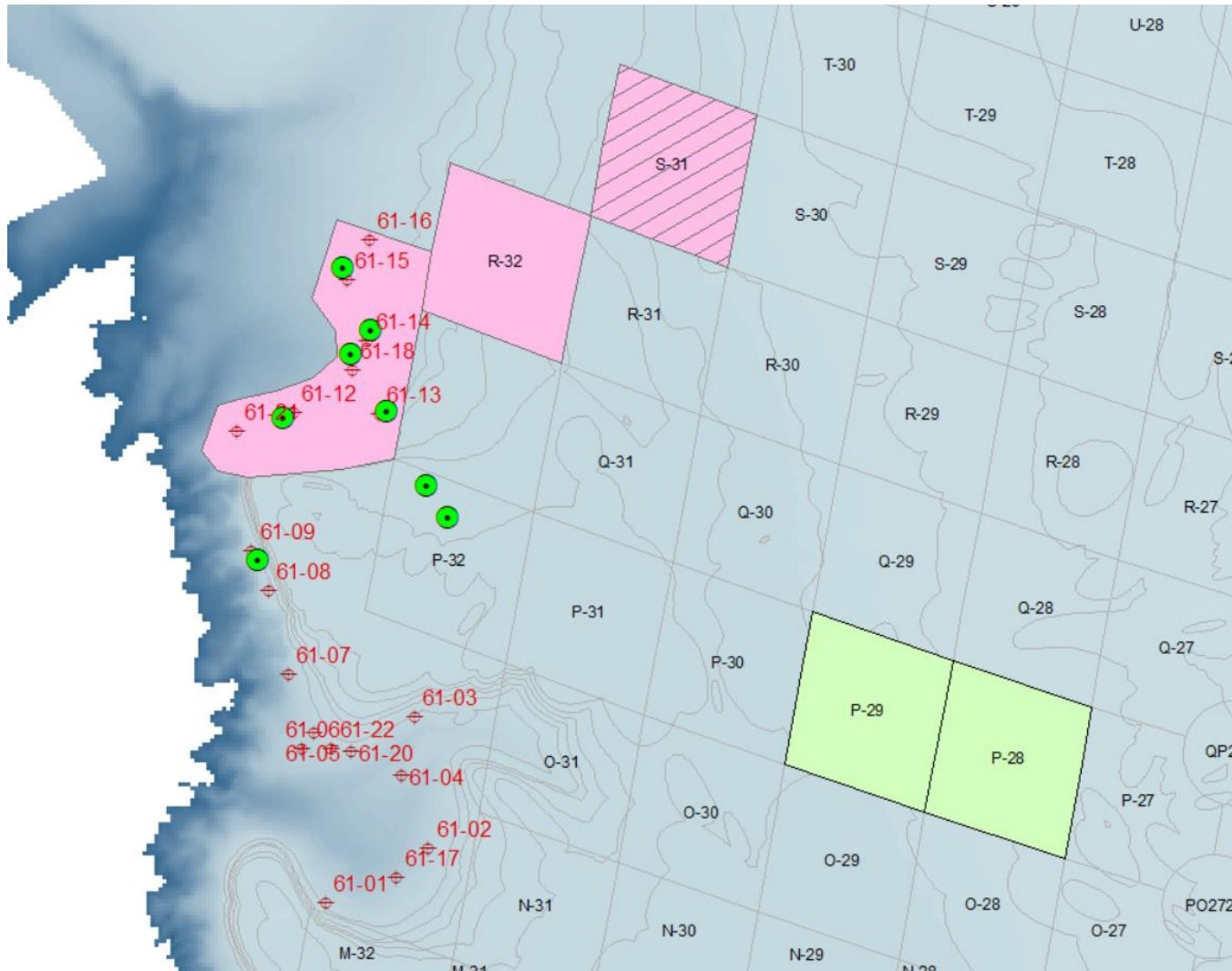


-- FV Vesteraalen trawl sampling --

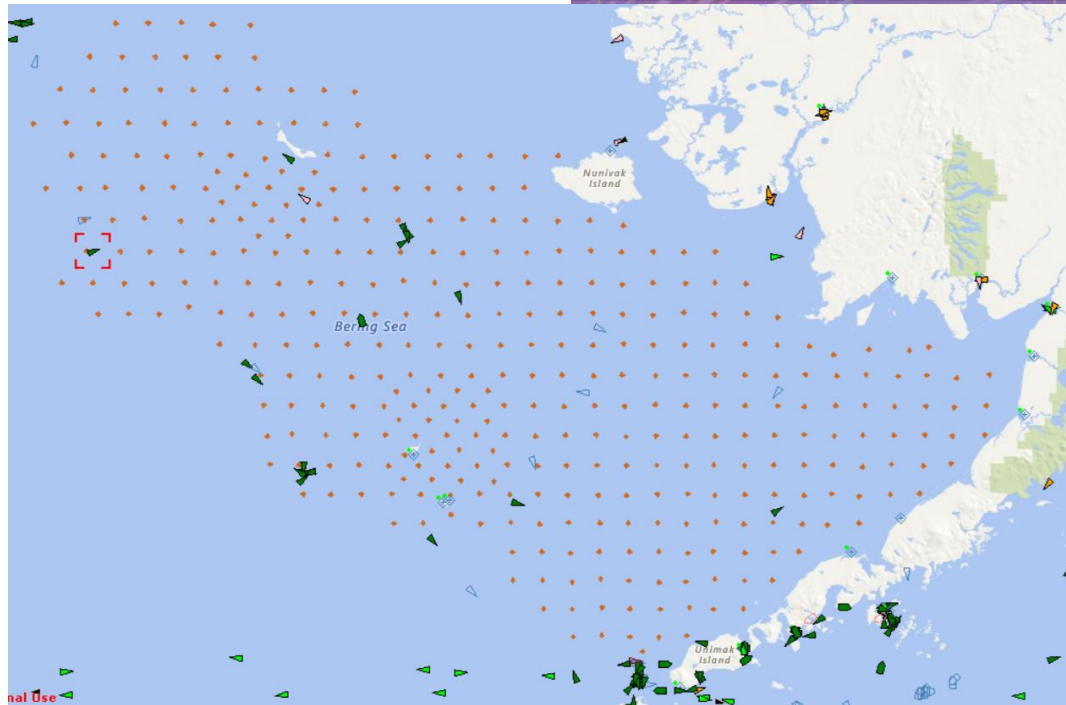
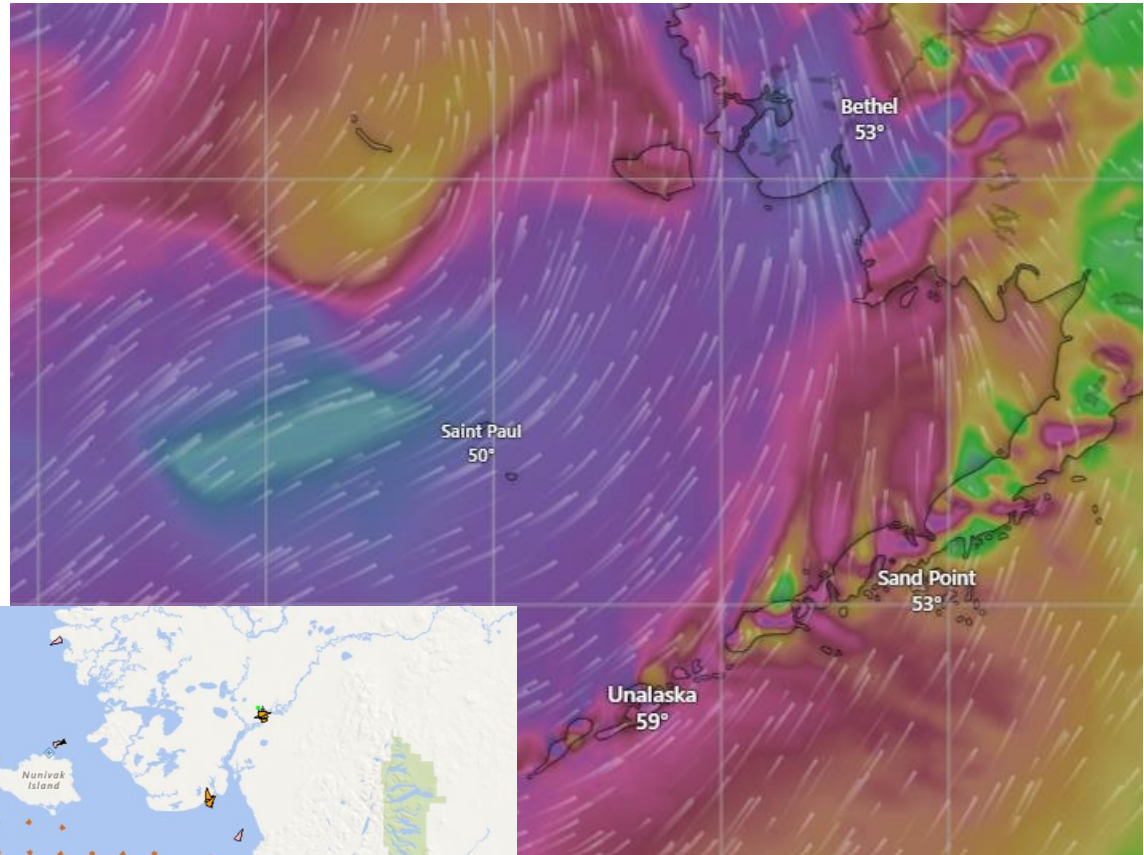


Opilio Pilot Project (OPP)

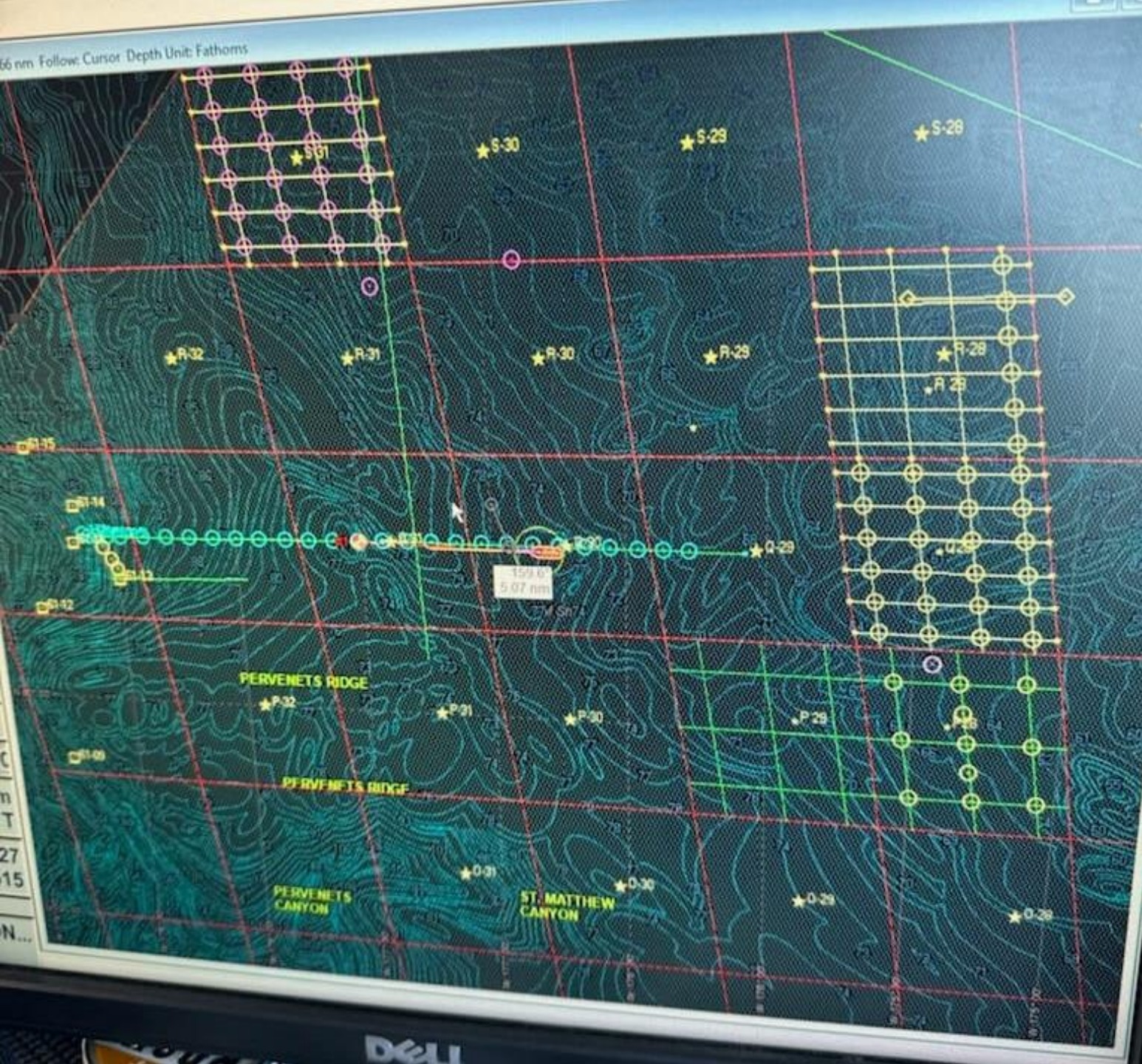
-- FV Confidence pot sampling --



-- contingency
planning --



66 nm Follow: Cursor Depth Unit: Fathoms



RAW CATCHES – PRELIMINARY INFO

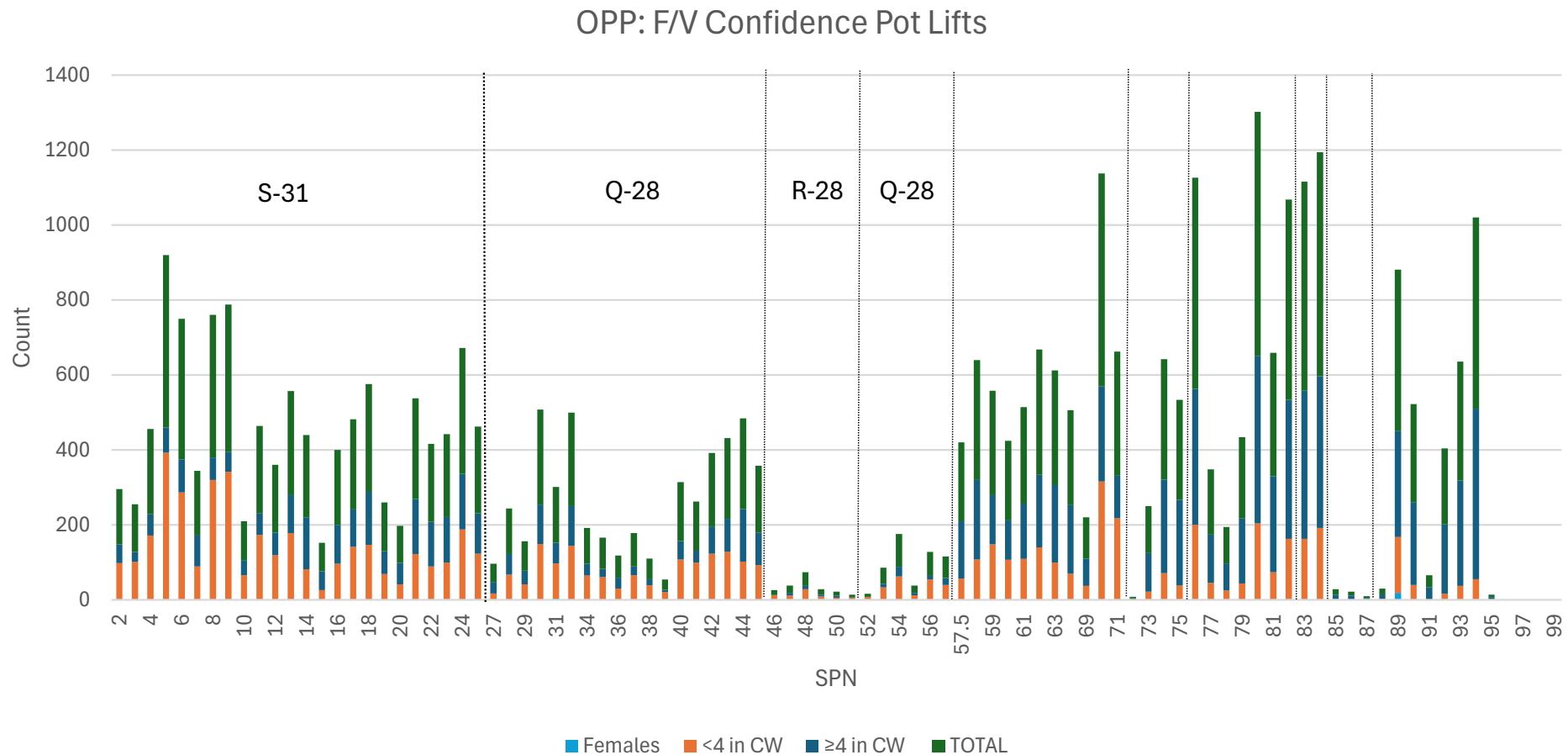
FV Confidence – Pot Sampling

Stations	Pot Lifts	Avg Soak Time (hrs)	Avg Depth (ftm)	# of Females	# of <4" Males	# of ≥4" Males	Total Opilio
P-28	11	39	64	0	1,410	1,771	3,181
Q-28	24	31	61	3	1,655	1,056	2,711
Q-29	2	47	70	0	355	800	1,155
Q-30	7	46	75	1	754	1,811	2,565
Q-31	7	37	80	0	135	612	747
R-28	6	33	56	0	72	29	101
S-31	24	29	75	4	3,559	2,038	5,597
Slope	12	31	111	19	300	1,477	1,777
Grand Total	93	33	74	27	8,240	9,594	17,834

total of 122 bairdi caught in the pots

RAW CATCHES – PRELIMINARY INFO

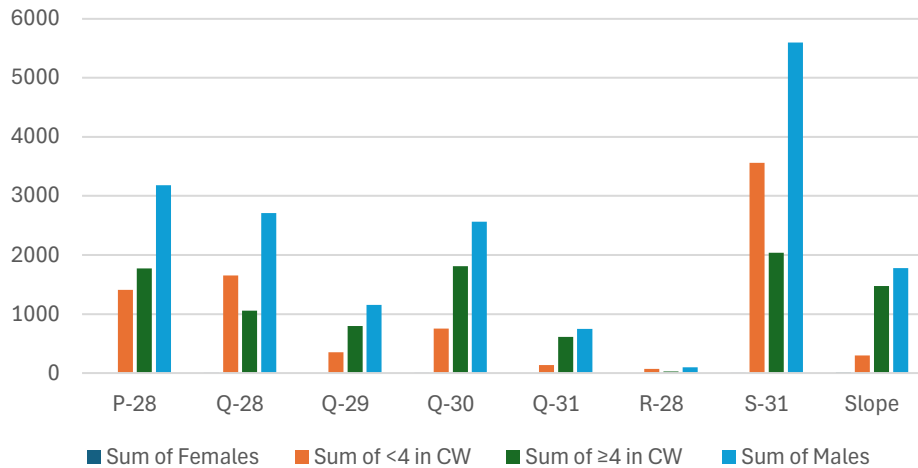
FV Confidence – Pot Sampling



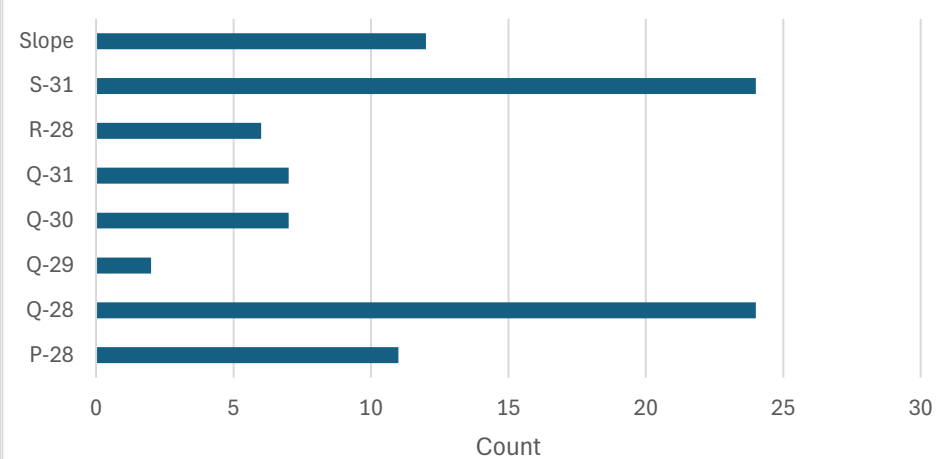
RAW CATCHES – PRELIMINARY INFO

FV Confidence – Pot Sampling

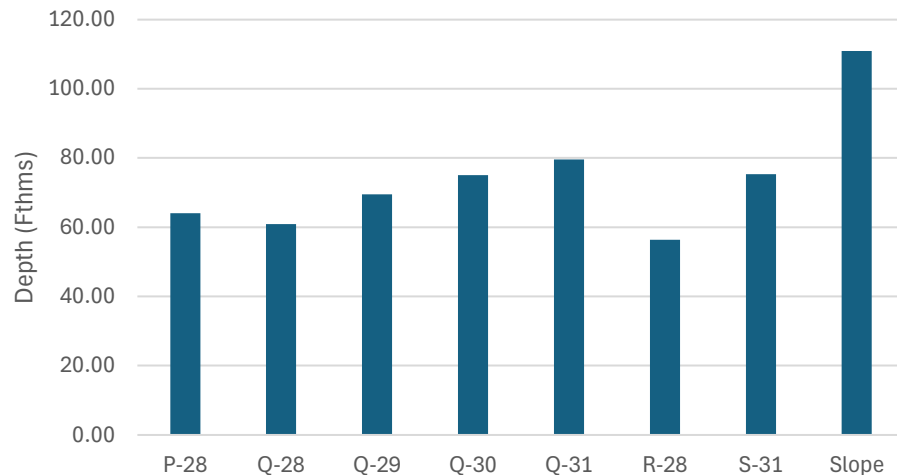
Crab caught by Station



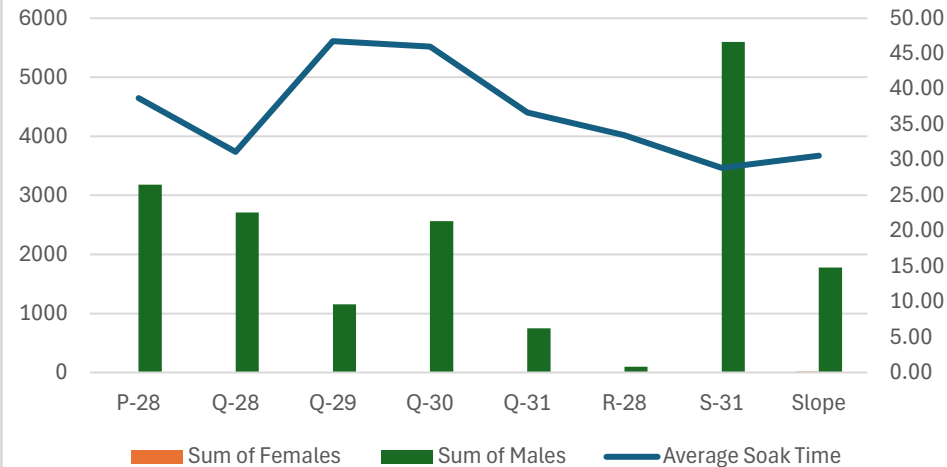
Pot drops by NMFS Station



Average Station Depth

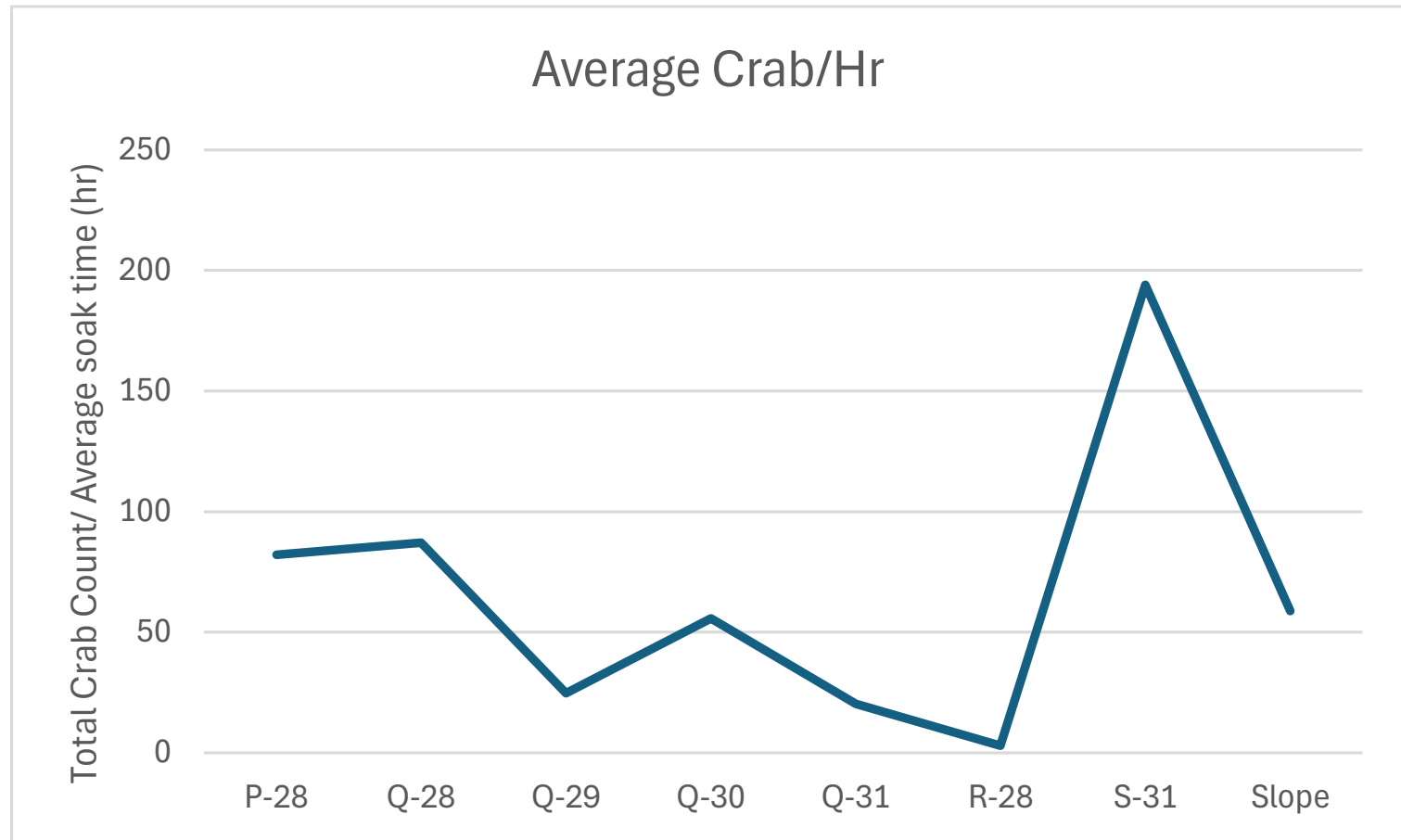


Crab and Soak Time



RAW CATCHES – PRELIMINARY INFO

FV Confidence – Pot Sampling













Disaster Relief Planning → Bairdi, Opilio and BBRKC

- Bairdi funds coming online (PhD and other research)
- Opilio Workshop in St John's – sharing more info soon
- Opilio Pilot Project (COMPLETE)
- Research Strategy for 2025-2028
 - Likely several projects/charters for opilio/BBRKC
 - Coordinating w/NPRB, more about this THU/FRI
 - Working on ***Crab Research*** that's been ***Prioritized...***
- Research Activities this week...
 - Dinner THU, Crab Science Symposium FRI



BSFRF
Bering Sea
Fisheries
Research
Foundation



Fall Crab Science Symposium – AGENDA

“Bering Sea Crab – Signs of Life, Disaster Relief, & New Research”

Date: Friday, September 13, 2024 [8:30 am – 1:30 pm] Seattle Time

IN-PERSON MEETING @ LEIF ERIKSON HALL, 2245 NW 57th ST. SEATTLE, WA 98107

Hybrid Meeting Options: Zoom Info Below

ZOOM MEETING INFO:

Scott Goodman is inviting you to a scheduled Zoom meeting.

Topic: BSFRF-ABSC Fall Crab Science Symposium

Time: Sep 13, 2024 08:30 AM Pacific Time (US and Canada)

Join Zoom Meeting

<https://us02web.zoom.us/j/89145424748?pwd=GTtINMjKYlbTx99ia7ZvWzOd4zlgb.1>

Meeting ID: 891 4542 4748

Passcode: 037974

One tap mobile

+12532050468,,89145424748#,,,,*037974# US

+12532158782,,89145424748#,,,,*037974# US (Tacoma)

Dial by your location

- +1 253 205 0468 US
- +1 253 215 8782 US (Tacoma)
- +1 346 248 7799 US (Houston)

Meeting ID: 891 4542 4748

Passcode: 037974

Find your local number: <https://us02web.zoom.us/j/kd0cm5V6ZG>

If you have questions or comments that you would like to share prior to the meeting, please send them to sgoodman@nrccorp.com, or call Scott Goodman (BSFRF) at 425.232.5986 or Jamie Goen (ABSC) at 206.417.3990. We want to hear your thoughts.

BSFRF Research Update

September CPT

09.10.24

Open to Questions Anytime



Scott Goodman | Executive Director
Bering Sea Fisheries Research Foundation