June 2026 Update on EFP to Evaluate New Excluder Approaches For Chum Escapement

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EFP Objectives

- **Evaluate new ideas/concepts for improved chum salmon escapement**
- **Focus on chum salmon excluders designed around B season fishing conditions: (lower pollock CPUE, longer tows, more ambient light)**
- **Learn about pollock and salmon behavior in larger mesh sections of the net (8” to 32”) where potential for increasing escapement thought to be greatest**

Reasons to focus new excluders on the 8"-32" mesh sections where diameter of trawl is much greater……

- ✶ **Congestion of fish in the intermediate (4-inch mesh) section blocking salmon's access to flapper or O/U excluders' escapement portal(s)**

- ✶ **Salmon often hovering at escapement portals with current excluders: preference for a lee* or fatigue?**

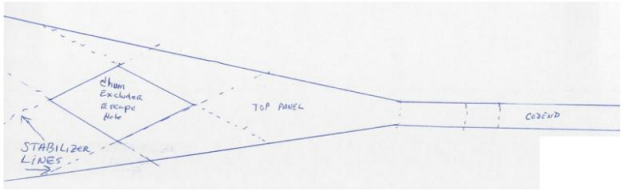
*In fluid dynamics, a **lee** refers to the sheltered area behind an obstacle (like a rock in a stream), creating a circular eddy.

New Excluder discussed at fall 2024 workshop

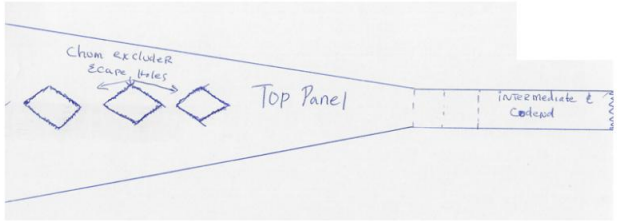
- **Large diamond-shaped escapement hole(s) installed in top panel**
- **Located in 8” to 32” sections (little is known about fish behavior there)**
- **Shape/location should create updraft of water flow to encourage salmon escapement, might need more (e.g. floatation and leadlines)**
- **EFP is a preliminary evaluation of fish behavior in large mesh sections and first look at new excluder concepts**

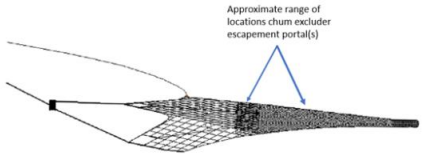
Concept for the new excluder and general location

Single large escape portal

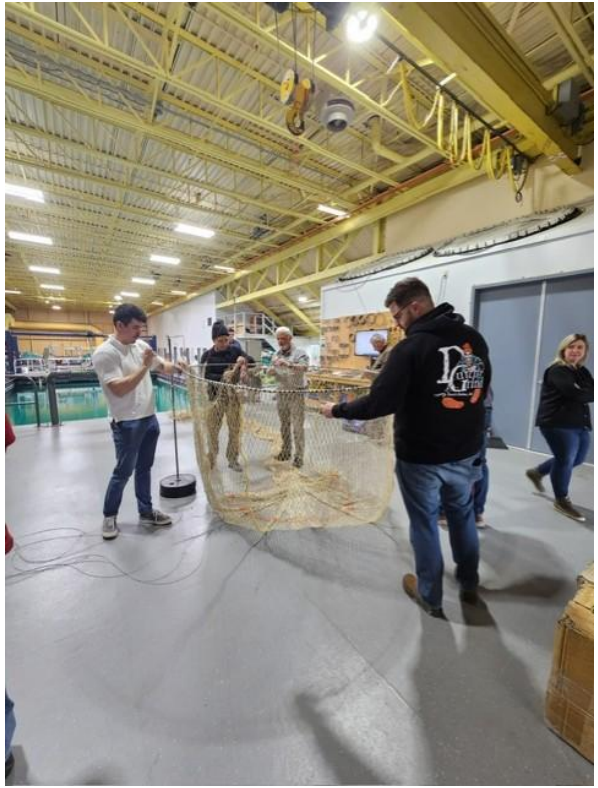


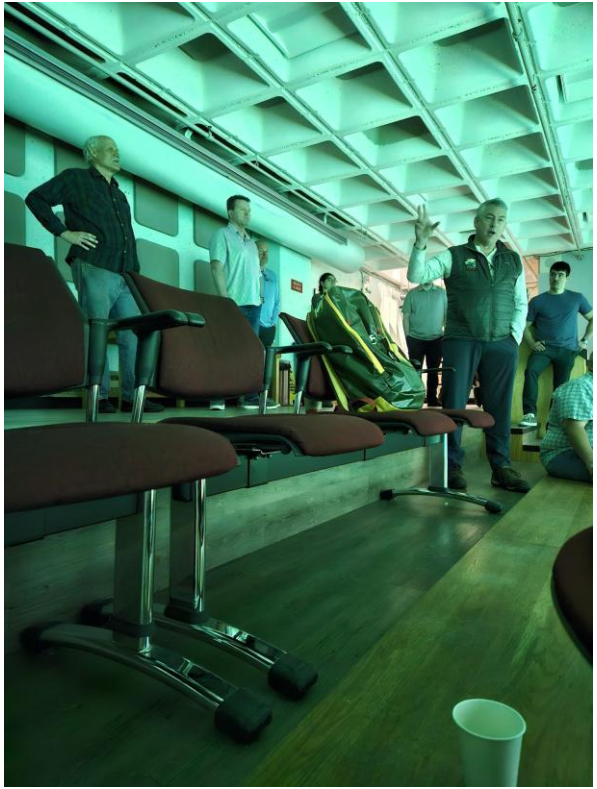
Multiple escape portals



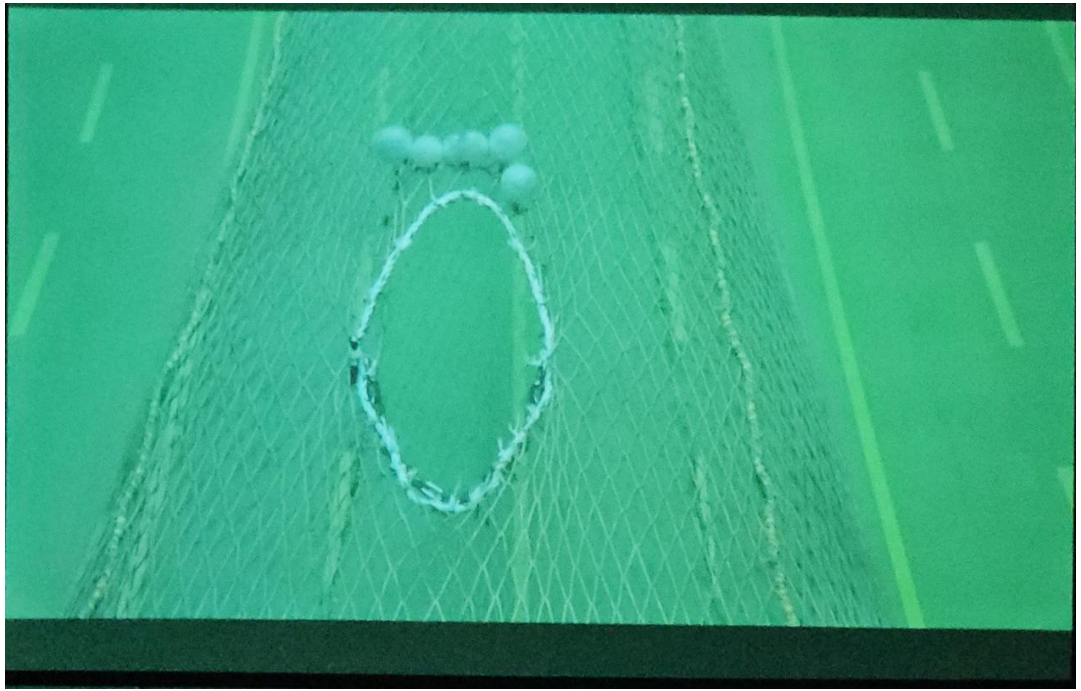


Work on location and scale of excluder hole @MU's flume tank

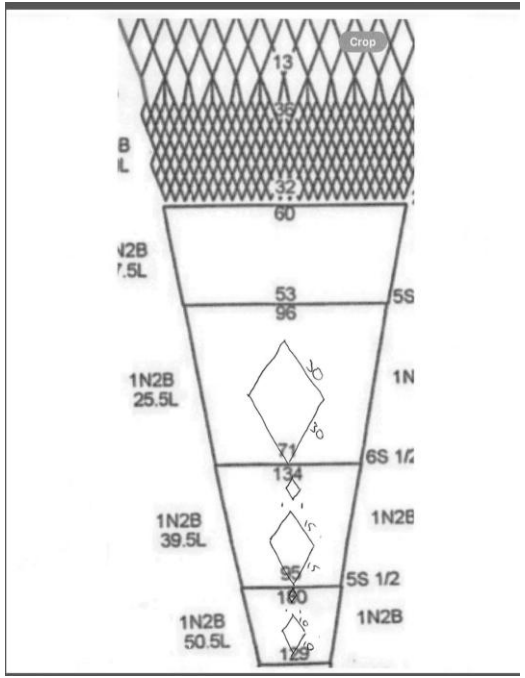




Flume tank models to understand excluder hole size relative to net diameter in each mesh section



Swan Nets marking cut outs for excluders before EFP

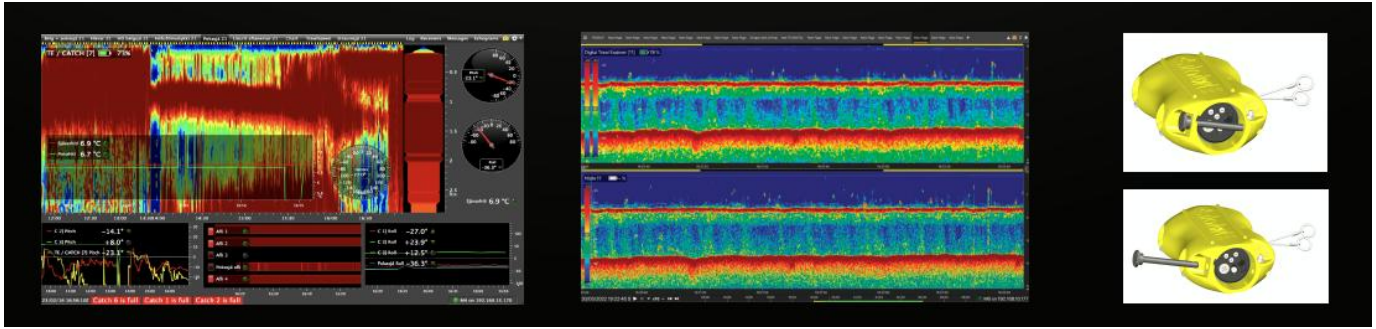


Components EFP trials 2025

Two phases for each of the three EFP vessels

- **Phase 1: Collect headrope, wireless echosounder, and video data for pollock and salmon behavior in each mesh section w/o mods to net**
- **Use the Phase1 info to select most promising excluder location**
- **Phase 2, excluder installed in preferred location and fish behavior evaluated using same equipment (also captains' assessment of how fishing was affected)**

Marport's Trident wireless echosounder for evaluating fish behavior in large mesh sections



Trident echosounder being deployed in EFP

Cameras used to evaluate whether pollock or salmon near top panel

EFP Testing July 5 to August 7 2025

Vessel	Mesh Size	Excluder Cut?	# of tows
Traveler			
	8	N	10
	16	N	3
Pacific Challenger Trip 1	8	N	6
	16	N	3
	16	Y, diamond	5
	8	Y, diamond	8
Auriga	16	N	1
	32	N	2
	32	Y, diamond	7
Pacific Challenger Trip 2	8	Y, blowhole	10

Preliminary Results EFP Tests July 5-August 7 2025

2025 Salmon Excluder EFP Summary Statistics

EFP Totals	
Total # Hauls	53
Total Haul Duration (hrs)	365.72
Avg Haul Duration (hr/haul)	6.9
Total EFP Catch (mt)	2964.45
Total EFP Pollock Catch (mt)	2952.22
Pollock % of Catch	99.59%
Average Catch (mt/hr)	8.105879
Total Chinook	8
Total Chum	205
Total Salmon	213
Chum CPUE (salmon/mt)	0.069153
Chinook CPUE (salmon/mt)	0.002699

Unfortunately, chum salmon did not overlap with pollock fishing anywhere in Bering Sea 7/5 to 8/9. So, what did we learn?

Results from 2026 fieldwork

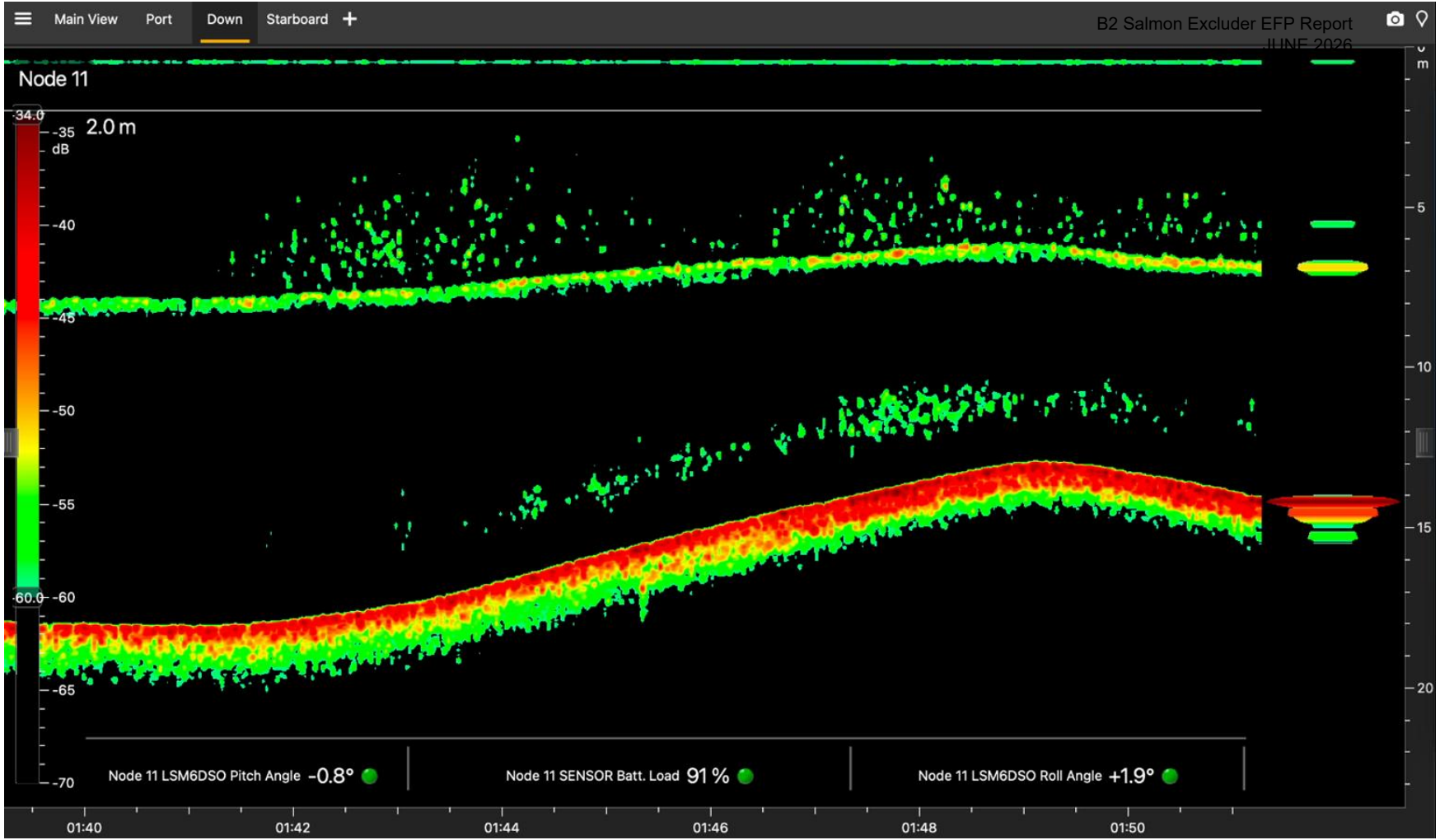
1. Marport “Trident” echosounder and camera deployments in large mesh successfully monitored fish behavior (there was significant doubt equipment could be placed in these net sections)

2. Pollock consistently stayed >2 meters below top panel (CPUE avg 8 mt/hr,) but same 2m result at dense(r) catch occurrences

3. Results stable over night/day, 3 HP categories (lower confidence in <1600 HP)

Results from 2025 EFP (continued)

1. No salmon noted in video review (large area, 300 hrs. of video reviewed, only 208 salmon)
2. Herring noted in cameras for hauls with herring in catch; often seen using the excluder to escape (promising sign if chum behave like herring?)
3. Captains concur that pollock loss minimal, even with “blow hole” version of excluder


Main View
Port
Down
Starboard
Node 11
2.0 m
34.0
-35
dB
-40
-45
-50
-55
-60
60.0
-65
-70
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m
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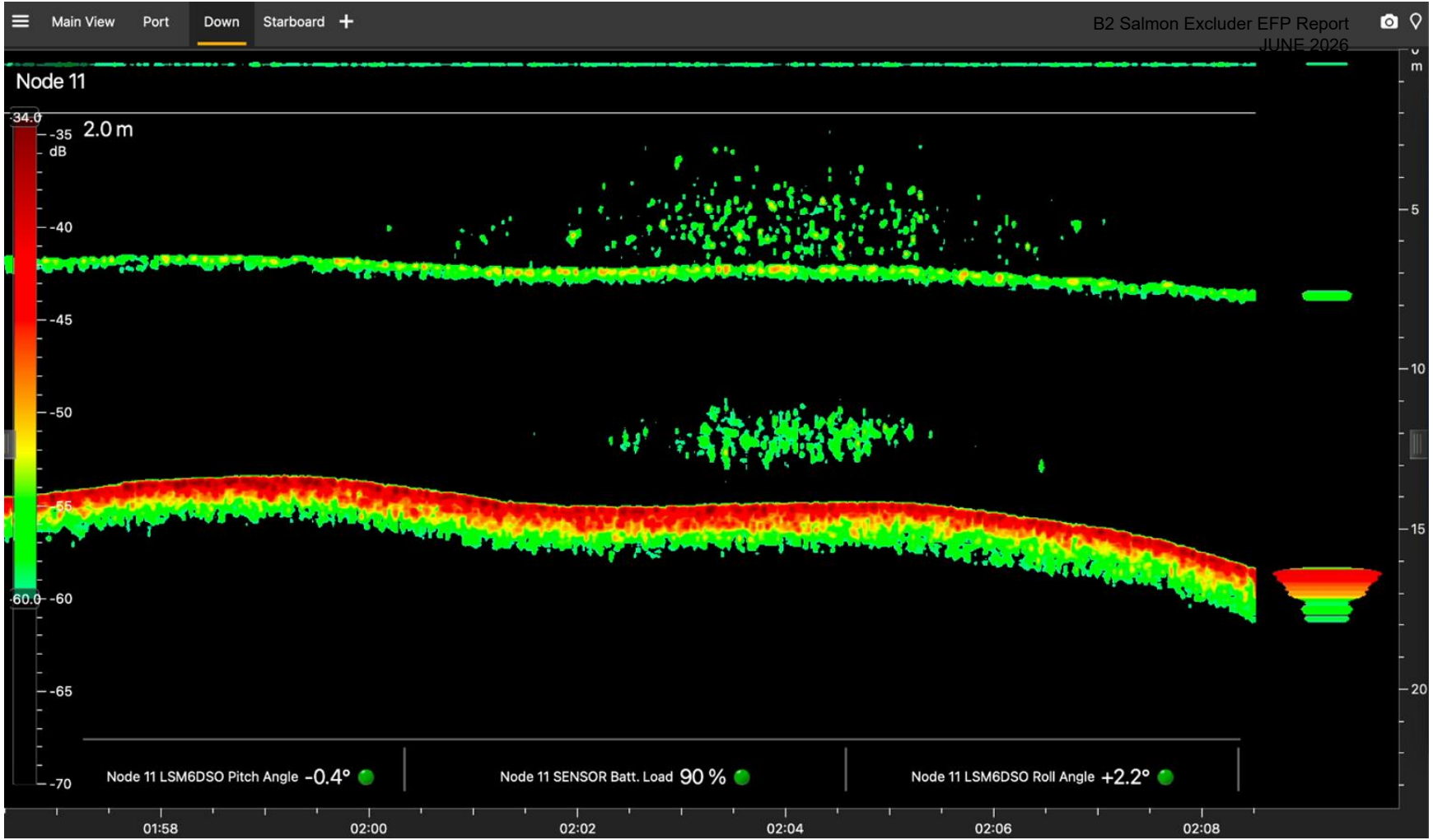
10
15
20
Node 11 LSM6DSO Pitch Angle -0.8°
Node 11 SENSOR Batt. Load 91 %
Node 11 LSM6DSO Roll Angle +1.9°
01:40
01:42
01:44
01:46
01:48
01:50


Main View
Port
Down
Starboard
Node 11
2.0 m
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dB
-40
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m
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Node 11 LSM6DSO Pitch Angle -0.4°
Node 11 SENSOR Batt. Load 90 %
Node 11 LSM6DSO Roll Angle +2.2°
01:58
02:00
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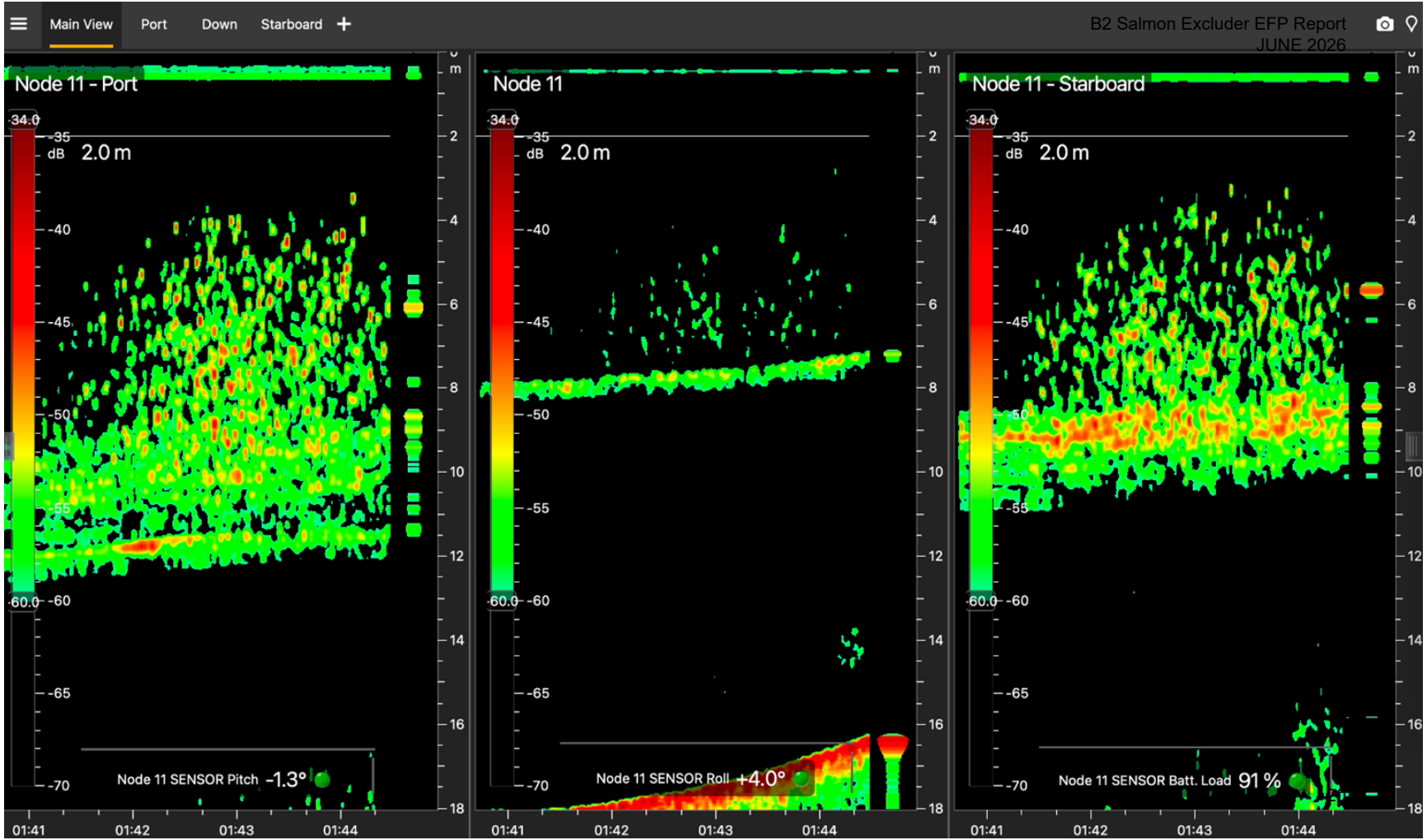
02:06
02:08


Main View
Port
Down
Starboard
Node 11 - Port
Node 11
Node 11 - Starboard
2.0 m
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Node 11 SENSOR Pitch -1.3°
Node 11 SENSOR Roll +4.0°
Node 11 SENSOR Batt. Load 91 %
01:41
01:42
01:43
01:44

Plans for 2026 Rollover EFP

- Mods to permit and PM logistics to increase odds of encountering chums
- Continue to focus on most-promising ideas for reducing chum bycatch from workshops (including April 2026 workshop reflecting what was learned in 2025 fieldwork)
- 2026: Two vessels (highest and lowest HP) test diamond shaped holes. This time with and w/o light (2025 was with and w/o excluder hole cut out)
- Improved steps to test in areas with sufficient chum salmon to observe escapements

Phase 1 diamond hole cut out as per 2025 and Phase 2 adds low-intensity illumination aimed outside the hole

Third EFP vessel will test new idea for diverter panel with top escapement hole (remotely operable)

Idea came from one of the 2025 EFP captains, diverter panel operated by tensioning 3rd wire, catch diverted out during setting and retrieval (allows accounting of water column catches), possibly allows active exclusion if chums seen in live feed

Roadmap from here

- Testing in July-August, possibly Sept depends on timing of chum overlap with fishery
- Data analysis (fall 2026)
- Post EFP Workshop (following the B season)
- Final report drafting (fall-winter 2026) including 2025 data
- Submit draft final report for AK Region and Science Center review
- Presentation of findings to NPFMC (at Council's request) Spring 2027
- Next steps (depends on findings)

Thanks for your attention! Questions?