

Final Report on the 2017 Halibut Deck Sorting EFP



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Scope of the Report

- This report summarizes deck sorting operations for the 2017 season
- Provides various performance metrics for 2017 as well as comparisons to earlier deck sorting EFPs (some of which had different rules)
- This report is provided in accordance with the requirements of EFP 2016-01 for a final report to the NMFS Alaska Region Office and the North Pacific Fishery Management Council

Many Amendment 80 and other non-pollock CP vessels participating, from the relatively small...



F/T Vaerdal, length overall: approximately 124 feet

...to medium-size...



F/TArica, length overall: approximately 160 feet

...to the larger ones in the trawl CP sector
that target flatfish



F/T/ Seafreeze Alaska, length overall: approximately 297 feet

Refresher on how deck sorting is done



The codend is pulled forward of the live tank hatches and opened. As fish flow out of the net, crewmembers sort halibut out of the catch



Crewmembers carefully transport a halibut to the observer's sample table. An observer is present for all sorting activities and randomly samples the halibut to measure length and time out of water, and estimate viability.



A clear view of crewmembers sorting fish and pushing target species catch into the live tanks. At the far right of the image, the observer's sample table can be seen with the observer just out of frame.



Another view of sorting, this time from above. The observer can be seen in the background, placing a halibut onto the sample table for measurement and quick release overboard. The view provided here approximates the view from one of the required EFP monitoring cameras (described in the “Rules” section of this report).

Rules for 2017 EFP

Under an Exempted Fishing Permit, the permitted operations are exempted from certain normal regulations, but must follow a special set of protocols. The protocols for the deck sorting EFP are summarized below:

- Observer must be present on deck whenever deck sorting occurs
- Vessel cannot run fish out of stern tank in factory while deck sorting is occurring unless there are two observers on duty at that time
- 2017 permit allowed participants to select number of observers (2-4) based on their production needs
- Three observers would allow vessel to sort on deck while running fish out of tank for 12 hour window, four observers would allow running fish any time
- Taking two observers means that fish cannot be run out of tank until deck sorting operations are completed.

2017 rules continued

- Observer data collections on deck (one in five fish selected via systematic random sample) determines amount of halibut sorted on deck and its viability
- Observer sampling in factory determines amount of halibut in factory and 90% mortality rate applied for those
- Deck sorting allowed for Amendment 80, CDQ, and Trawl Limited Access deliveries
- Cameras must be set up on deck for viewing and recording of all sorting operations and the observer sample table

2017 rules continued

- Opt out tow (e.g. rough weather) defaults to factory sampling to account for all halibut on tow and 90% mortality rate applied
- Crew collects all factory halibut post observer sampling and observer weighs factory halibut (for analytical comparisons)
- No deck sorting in GOA - Amendment 80 boats that switch back and forth needed to brief crew on which rules applied (deck sorting or normal Amendment 80)
- Seven day advance notice for starting into EFP, 72 hour observer briefing requirement

Performance Metrics of Interest

- Increasing EFP participation
 - 9 CP vessels in 2015
 - 12 CP vessels in 2016
 - 17 CP vessels in 2017
- More EFP fishing; this year's EFP began in January with some participants spending the vast majority of their 2017 fishing in the EFP
 - Over 250,000 metric tons of groundfish harvested in the EFP
- Diverse fisheries represented in the EFP; a high percentage of yellowfin sole and other flatfish is now harvested in the EFP, as well as increasing amounts of Pacific ocean perch and Atka mackerel

2017 Deck Sorting Performance

Vessel	Total Catch (MT)	Halibut Catch (Encounter) Rate	EFP Halibut Mortality (MT)†	EFP Mortality Rate	Mortality if not in EFP (MT)‡	Net “Savings” (MT)
Alaska Spirit*	288	**	**	**	**	**
American No 1*	14,825	0.8%	83	69%	102	19
Arica	18,356	0.9%	99	57%	147	48
Cape Horn	14,996	0.8%	60	48%	105	45
Constellation	19,340	0.6%	61	56%	93	32
Defender	15,838	0.9%	72	53%	116	44
Enterprise*	15,321	1.0%	80	51%	135	54
Katie Ann	11,180	0.6%	49	71%	59	10
Legacy	11,596	1.2%	57	39%	122	65
Northern Glacier	22,128	0.4%	57	61%	79	22
Rebecca Irene	16,753	0.9%	75	50%	126	51
Seafisher	5,833	0.7%	21	53%	34	13
Seafreeze Alaska	25,141	0.7%	97	57%	146	49
Seafreeze America	29,270	0.8%	150	62%	207	57
Unimak	21,027	0.9%	102	52%	167	65
US Intrepid*	8,490	0.7%	34	58%	49	16
Vaerdal*	2,653	0.5%	8	56%	11	4
Total	253,032	0.8%	1,108	55%	1,707	599

* new to EFP as of 2017

** insufficient data

† mortality for deck and factory halibut in EFP (using haul-specific and fixed 90% mortality rates, respectively)

‡ mortality using an assumed DMR of 85%

EFP Performance Across Years

Year	Total Catch (MT)	Halibut Catch (Encounter) Rate	EFP Halibut Mortality (MT)	EFP Mortality Rate	Mortality if not in EFP (MT)	Net “Savings” (MT)
2015	38,561	1.3%	234	49%	409	176
2016	79,905	0.9%	331	45%	620	290
2017	253,032	0.8%	1,108	55%	1,707	599
Change from 2016	173,127	-0.1%	777	10%	1,087	309

Halibut “Savings” in the EFP

- The 2017 EFP required the permit holder to report halibut savings generated by deck sorting
- The concept of halibut savings is open to interpretation, and one could imagine many ways to approach it
- It is an estimation at best – it cannot account for fishing practices etc. that may have differed without deck sorting

Halibut “Savings” in the EFP

- Savings were calculated in the following manner:
 - A total halibut mortality was calculated (using EFP deck sampling and standard factory species composition sampling)
 - A theoretical mortality was calculated: this applied a flat 85% mortality rate to all halibut encountered – this is the DMR that would have been applied without deck sorting
 - The difference between the two is considered “savings” for the purpose of this report
- This approach does not take into account potential differences in gear type, fishing practices, amount of halibut that would have ended up in observer samples, and similar factors if the vessel did not have the option of deck sorting

Other Metrics of Interest

- Halibut bycatch “catch rate” even lower than in 2016
 - 1.3% in 2015
 - 0.9% in 2016
 - 0.8% in 2017
- Excluder use during deck sorting was lower to avoid potential for adversely affecting viabilities (siltation effects on halibut that do not escape)
- Addition of TLAS fishing, with extensive support from NMFS, was a success operationally and logistically
 - Halibut mortality rate for CV deliveries was approximately 65%*

*This figure is approximate due to minor data quality issues associated with some specific values for two vessels; these are not believed to be significant to the overall quality of the data

Other Metrics of Interest (cont.)

- Rules for 2017 EFP allowed vessels to adjust number of observers (2-4) to fit their fishing/production schedules; taking three observers helped efficiency when taking frequent CV deliveries
- Focusing on the most viable halibut helped to reduce production loss to some extent but deck sorting still affects production negatively
- Fraction of total halibut catch sorted on deck was ~71%*, down some from the 2015 and 2016 figure of ~85%; targeting the most viable halibut and starting EFP in January probably explains this

*This figure is approximate due to minor data quality issues associated with some specific values for two vessels; these are not believed to be significant to the overall quality of the data

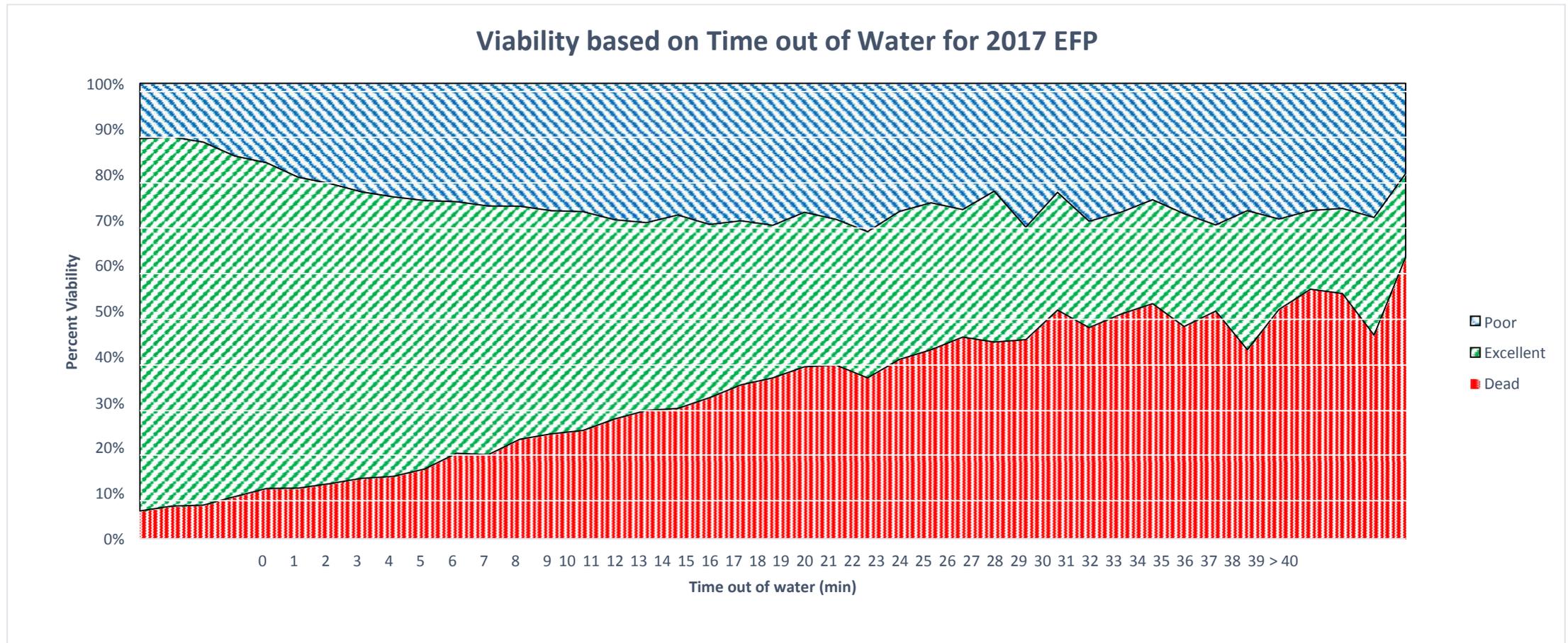
Consistency Between Observer Sampling Estimation and Census in Factory

Vessel	Factory Census (MT)	Observer Sampling (MT)	Census Exceeds Estimate?
Alaska Spirit	2	3	~equal
American No 1	52	62	No
Arica	42	47	No
Cape Horn	26	20	Yes
Constellation	46	38	Yes
Defender	55	41	Yes
Enterprise	36	32	Yes
Katie Ann	26	22	Yes
Legacy	18	17	~ equal
Northern Glacier	29	31	No
Rebecca Irene	40	39	~ equal
Seafisher	22	13	Yes
Seafreeze Alaska	39	46	No
Seafreeze America	63	85	No
Unimak	54	48	Yes
US Intrepid	22	26	No
Vaerdal	8	5	Yes
Total	580	575	Yes

Potential Interactions with Whales

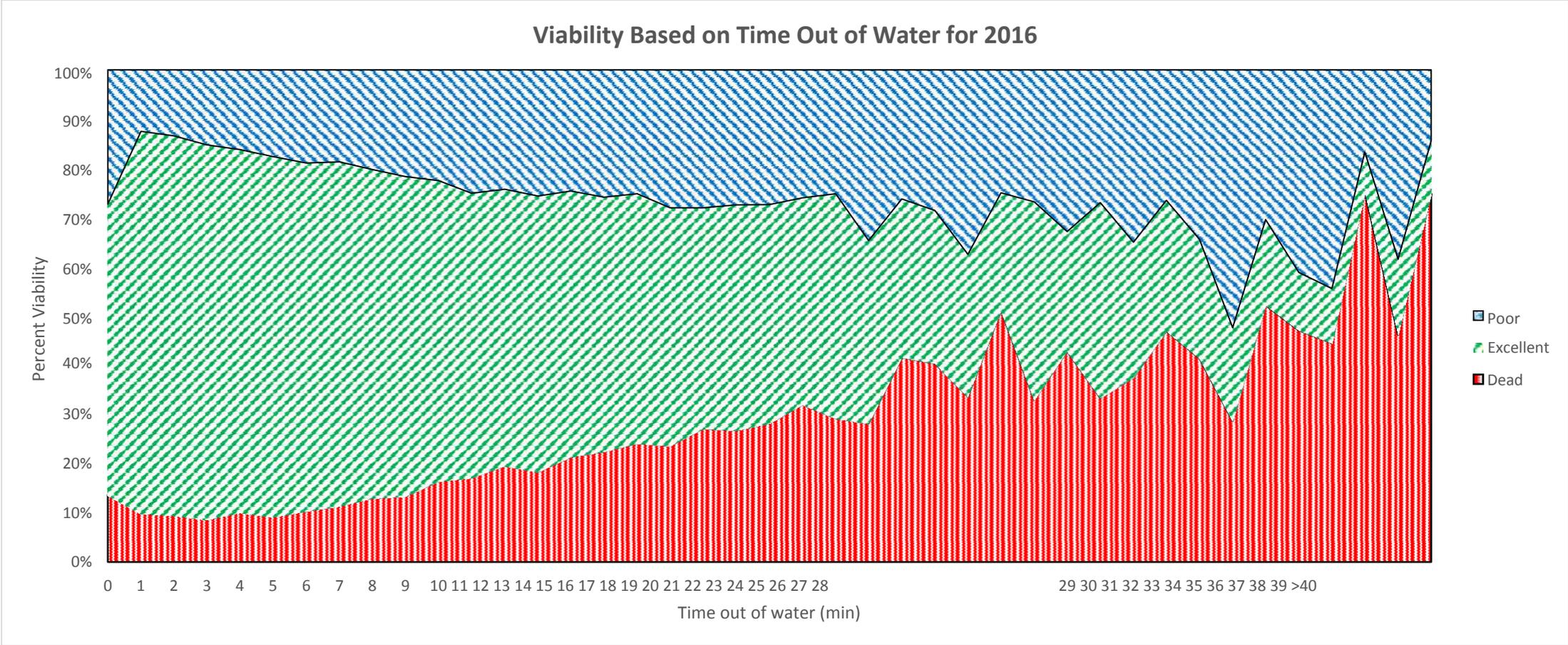
- Sightings of killer whales once again were reported intermittently while fishing in arrowtooth flounder target
- Sightings don't always mean predation on released halibut. When whales were present vessels attempted to reduce potential for predation on released halibut (e.g. steaming while deck sorting)
- Arrowtooth flounder comprised about 5% of total catch in the EFP

How time out of water affected viability 2017



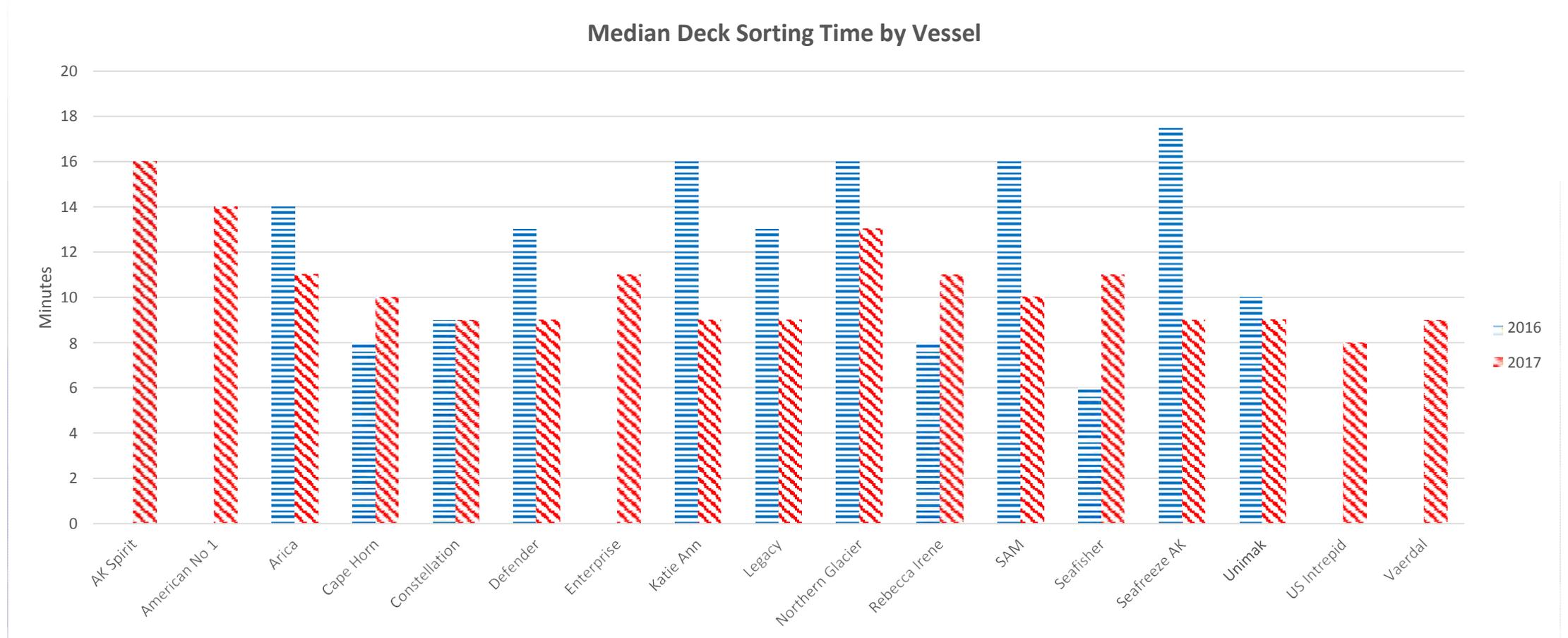
This chart shows the relationship between time out of water and viability of halibut. As was expected, the longer a halibut is held out of water, the worse its viability (expected chance of survival) becomes. The green portion shows the percentage of halibut with excellent chance of survival; this percentage is substantial all the way until around 35 minutes out of water.

How time out of water affected viability 2016



This is the same chart as on the preceding slide, but for 2016. The data show the same relationship, just “noisier” due to less data being available overall.

Deck sorting time per tow (median) per vessel



This chart shows the median time it took for each vessel to sort a tow, for 2016 and 2017. In 2017, it took on average only about 11 minutes to sort a tow and return all the halibut to the water.

Thank You!



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