



NOAA
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Draft 2019 Annual Deployment Plan

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ABOUT US

Fisheries Monitoring and Analysis

A Division of the Alaska Fisheries Science Center

Restructured Observer Program

- Complies with the Magnuson-Stevens Act requirements to gather reliable data by deploying observers on a statistically reliable sample of vessels
- Corrects past program's pay-as-you-go deployment method which resulted in consistent problems with under or over coverage
- Fulfills our responsibility for sustainable fisheries through a statistically designed sampling plan: the Annual Deployment Plan



Draft 2019 Annual Deployment Plan

- Designed to reduce bias in fishery dependent data by using a scientific method to deploy observers
- Results in better spatial and temporal distribution of observer coverage across all fisheries
 - Improves confidence in catch and bycatch estimation
 - Improves NMFS' ability to evaluate the statistical properties of estimators and improve catch estimation procedures
- The ADP describes plans and goals
 - for observer deployment in the
 - **partial** coverage category for the
 - upcoming year



Draft 2019 Annual Deployment Plan

- 2017 is used as the reference year
 - 411 individual observers deployed on 418 vessels and at 6 processing facilities
 - 41,123 total observer days
 - 3,606 partial coverage days governed by ADP (**8.8% of the program**)
- The ADP sample-size analysis examines the probability of selecting a sample and having cells – defined defined by gear and NMFS Reporting Area – with no observer coverage.
- 2018 – with last two months simulated – will be used in the Final 2019 ADP
 - Assumptions can be incorporated
 - reflecting reduced effort



Recap: what are the elements of a “deployment design”?

A deployment design consists of:

- Stratification
- Allocation

The Draft ADP evaluates the performance of different deployment designs

The Final ADP focuses on the coverage rates that result from the best deployment design

Deployment designs evaluated in Draft 2019 ADP

Stratification (1 design):

- HAL, POT, TRW, POT Tender, and TRW Tender

Allocation (2* designs):

- Minimum equal allocation
- 15% + optimization

** Gear-specific hurdles other than 15% are investigated in Appendix B. Based on results in Appendix B, the FMAC (formerly OAC) requested that the NMFS evaluate a deployment design that sets coverage rates for trips made with pot gear at 10%*

Deployment designs (3 total)

- Minimum equal allocation
- 15% + optimization on discards, halibut, and Chinook
- 15% + optimization on discards, halibut, Chinook, and crab



Optimization

In a given stratum, take more samples if:

- The number of trips made increases
- The variance of the metric used for optimization increases
- The cost of observing a trip decreases

Metrics used for optimization

- Discards
 - Halibut PSC
 - Chinook PSC
 - Crab PSC
- } “No crab”
- } “With crab”



Rates and weightings: equal allocation

Stratum (h)	Metric	N_{h2019}	n_h	d_h	r_h (%)
TRW	None	2,085	313	1,014	15.00
HAL	None	2,013	302	1,530	15.00
POT	None	811	122	450	15.00
Tender TRW	None	69	10	52	15.00
Tender POT	None	71	11	63	15.00
TOTAL		5049	758	3109	



Rates and weightings: 15% + optimized

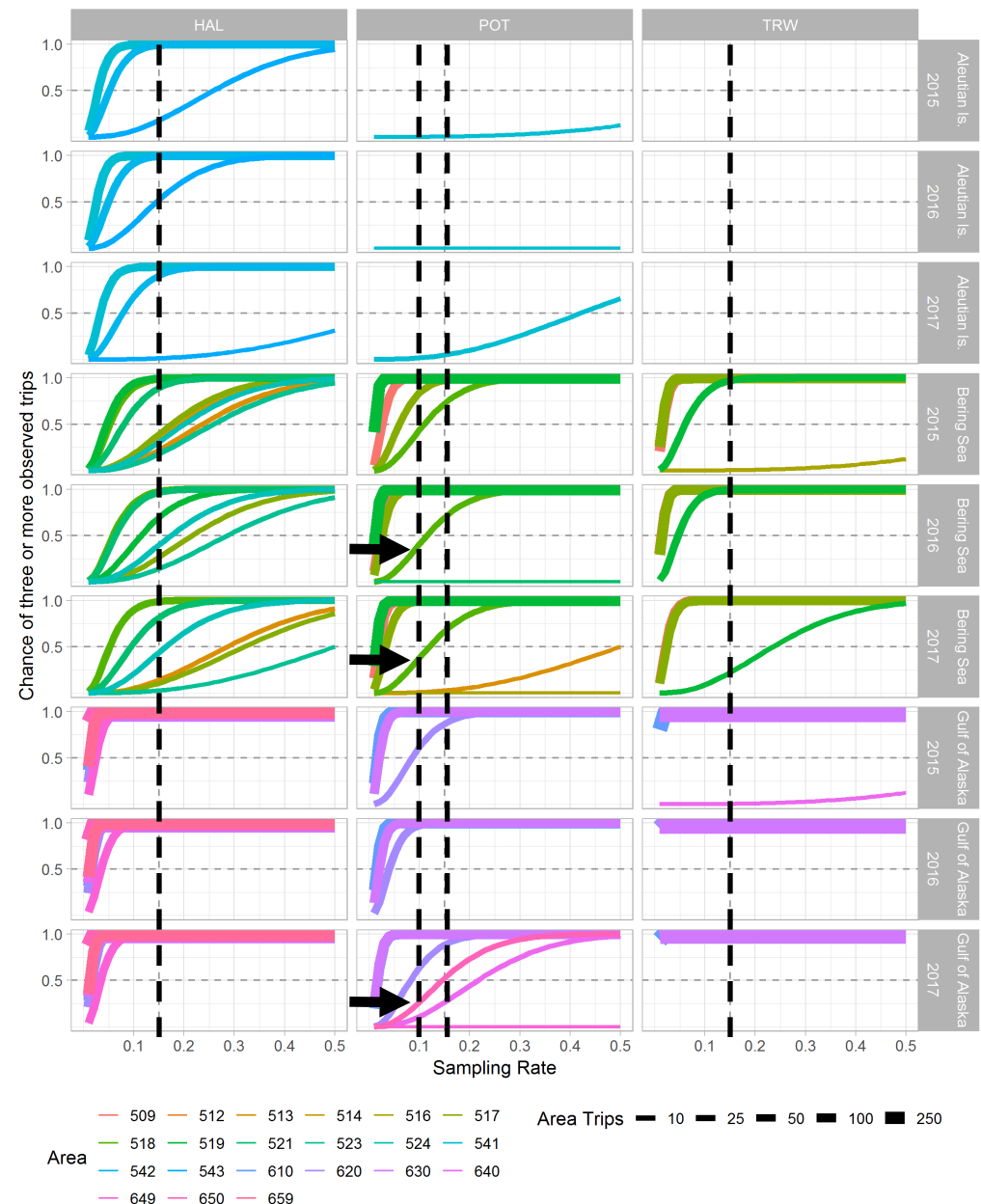
Stratum (h)	N_{h2019}	n_h	d_h	W_{hopt} No crab	W_{hopt} With crab	r_h (%)
TRW	2,085	313	1,014	0.72 ↑	0.64 ↓	15.00
HAL	2,013	302	1,530	0.23	0.18	15.00
POT	811	122	450	0.02 ↓	0.15 ↑	15.00
Tender TRW	69	10	52	0.03	0.02	15.00
Tender POT	71	11	63	0.00	0.01	15.00
TOTAL	5049	758	3109	1.00	1.00	



Appendix B: Choosing a hurdle

The 15% minimum deployment rate does not guarantee that all post-strata will have at least 3 observed trips. Instead, it represents the point at which many (*but not all*) post-strata have a greater than 50% chance of containing data (at least 3 observed trips) in a year.

The FMAC concluded that, based on effort from previous years, only 2-3 areas would drop below a 50% chance of having 3 observed POT trips if the minimum hurdle was reduced to 10%



Rates and weightings: 15% & POT 10% + optimized

Stratum (<i>h</i>)	Metric	N_{h2019}	W_{hopt}	n_h	d_h	r_h (%)
TRW	Discards w/ halibut PSC + Chinook PSC	2,085	0.72	346	1,123	16.61
HAL	Discards w/ halibut PSC + Chinook PSC	2,013	0.23	313	1,584	15.53
POT	Discards w/ halibut PSC + Chinook PSC	811	0.02	82	303	10.08
Tender TRW	Discards w/ halibut PSC + Chinook PSC	69	0.03	12	59	16.93
Tender POT	Discards w/ halibut PSC + Chinook PSC	71	0.00	7	42	10.00
TRW	Discards w/ halibut PSC + Chinook PSC + crab PSC	2,085	0.64	343	1,111	16.44
HAL	Discards w/ halibut PSC + Chinook PSC + crab PSC	2,013	0.18	310	1,570	15.40
POT	Discards w/ halibut PSC + Chinook PSC + crab PSC	811	0.15	88	327	10.89
Tender TRW	Discards w/ halibut PSC + Chinook PSC + crab PSC	69	0.02	11	57	16.45
Tender POT	Discards w/ halibut PSC + Chinook PSC + crab PSC	71	0.01	8	45	10.70



Stratum (h)	Metric	rh (%)
Equal Allocation		
TRW	None	15
HAL	None	15
POT	None	15
Tender TRW	None	15
Tender POT	None	15
15% + Optimized		
TRW	Discards w/ halibut PSC + Chinook PSC	15
HAL	Discards w/ halibut PSC + Chinook PSC	15
POT	Discards w/ halibut PSC + Chinook PSC	15
Tender TRW	Discards w/ halibut PSC + Chinook PSC	15
Tender POT	Discards w/ halibut PSC + Chinook PSC	15
TRW	Discards w/ halibut PSC + Chinook PSC + crab PSC	15
HAL	Discards w/ halibut PSC + Chinook PSC + crab PSC	15
POT	Discards w/ halibut PSC + Chinook PSC + crab PSC	15
Tender TRW	Discards w/ halibut PSC + Chinook PSC + crab PSC	15
Tender POT	Discards w/ halibut PSC + Chinook PSC + crab PSC	15
15% & POT 10% + Optimized		
TRW	Discards w/ halibut PSC + Chinook PSC	16.61
HAL	Discards w/ halibut PSC + Chinook PSC	15.53
POT	Discards w/ halibut PSC + Chinook PSC	10.08
Tender TRW	Discards w/ halibut PSC + Chinook PSC	16.93
Tender POT	Discards w/ halibut PSC + Chinook PSC	10
TRW	Discards w/ halibut PSC + Chinook PSC + crab PSC	16.44
HAL	Discards w/ halibut PSC + Chinook PSC + crab PSC	15.4
POT	Discards w/ halibut PSC + Chinook PSC + crab PSC	10.89
Tender TRW	Discards w/ halibut PSC + Chinook PSC + crab PSC	16.45
Tender POT	Discards w/ halibut PSC + Chinook PSC + crab PSC	10.7



Gap analysis

Allocation design	G3	G3 Relative	G1	G1 Relative
Equal Allocation	0.59	1.00	0.84	1.00
15% + Optimized on Discards + Halibut + Chinook PSC	0.59	1.00	0.84	1.00
15% + Optimized on Discards + Halibut + Chinook + Crab PSC	0.59	1.00	0.84	1.00
15% & POT 10% + Optimized on Discards + Halibut + Chinook PSC	0.53	0.90	0.78	0.93
15% & POT 10% + Optimized on Discards + Halibut + Chinook + Crab PSC	0.53	0.90	0.78	0.93

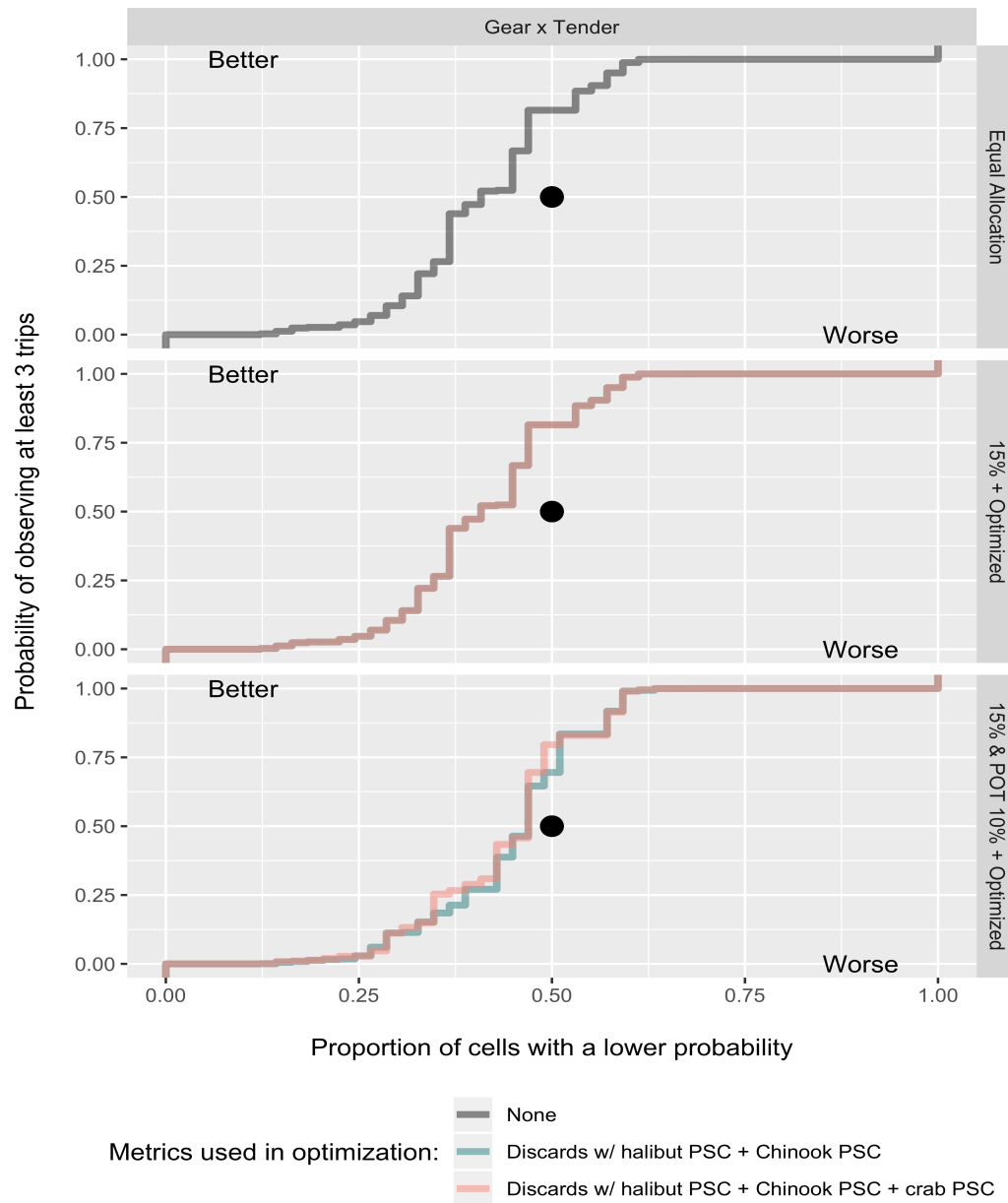


Gear-specific gap analysis

Stratum (h)	G3 (POT 15%)	G3 (POT 10%)
HAL	0.72	0.72
POT	0.57	0.43 ↓
TRW	0.83	0.83
Tender POT	0.29	0.14 ↓
Tender TRW	0.25	0.25

Reducing the minimum hurdle to 10% for POT and Tender POT reduces the number of areas that have a >50% chance of obtaining three observed trips without increasing that metric in other strata.





Recap and recommendations

- The NMFS expects its estimate of 2019 effort will drop between the Draft and Final 2019 ADP
- This drop in expected effort will free up days to be allocated above 15% coverage for all strata
- **The NMFS recommends that days be optimized above a 15% hurdle for all strata**
- **The NMFS recommends that days be optimized based on the blended metric that includes crab PSC**



A photograph taken from the deck of a ship, looking out over the ocean at sunset. The sky is filled with dramatic, colorful clouds in shades of orange, red, and purple. The sun is low on the horizon, creating a bright glow. In the foreground, the ship's deck is visible, with various pieces of equipment, including a large yellow buoy and a blue tarp. The ocean is dark blue with white-capped waves. In the distance, a range of mountains is visible under the twilight sky.

Questions?