J.4 SUPPLEMENTAL HMSMT REPORT ON DRIFT GILLNET PERFORMANCE METRICS REVIEW

June 2019 Council Meeting

OVERVIEW

1. Annual Estimates of Bycatch

2. Multi-annual Bycatch Rate Approach

3. Required Observer Coverage to Meet Bycatch Detection and Estimation Goals

4. Identification of Specific Bycatch Reduction Measures

Technical Appendix

TABLE 1: MARINE MAMMAL AND TURTLE SPECIES

Species	Calendar Year 2016		Calendar Year 2017	
	Regression Tree Performance Metric*	Regression Tree Total Annual Bycatch Estimate	Regression Tree Performance Metric**	Regression Tree Total Annual Bycatch Estimate
Minke whale	2.3	0.3	2.8	0
Short-beaked common dolphin	57.7	28.3	62.1	33.9
Long-beaked common dolphin	5.6	5.5	5.4	2.4
Risso's dolphin	2.9	1.4	3.4	4.9
Northern right whale dolphin	8.1	8.4	10.3	5.6
Gray whale	2.1	0.5	4.1	0.2
Pacific white-sided dolphin	9.2	2.1	5.6	2.3
Sperm Whale	2.1	0	2.0	2.9
Humpback Whale	1.5	0.1	1.0	0.1
Fin Whale	0.3	0	0.3	0
Short-finned pilot whale	1.3	0.1	0.7	0
Bottlenose dolphin	4.2	0	1.5	0
Leatherback sea turtle	2.8	0	1.9	0.1
Loggerhead sea turtle	4.5	1.7	4.7	1.8
Olive ridley sea turtle	0.2	0	0.2	0
Green sea turtle	0.3	0	0.2	0

*based on highest 2004 - 2013 calendar year estimate in Carretta et al. 2018

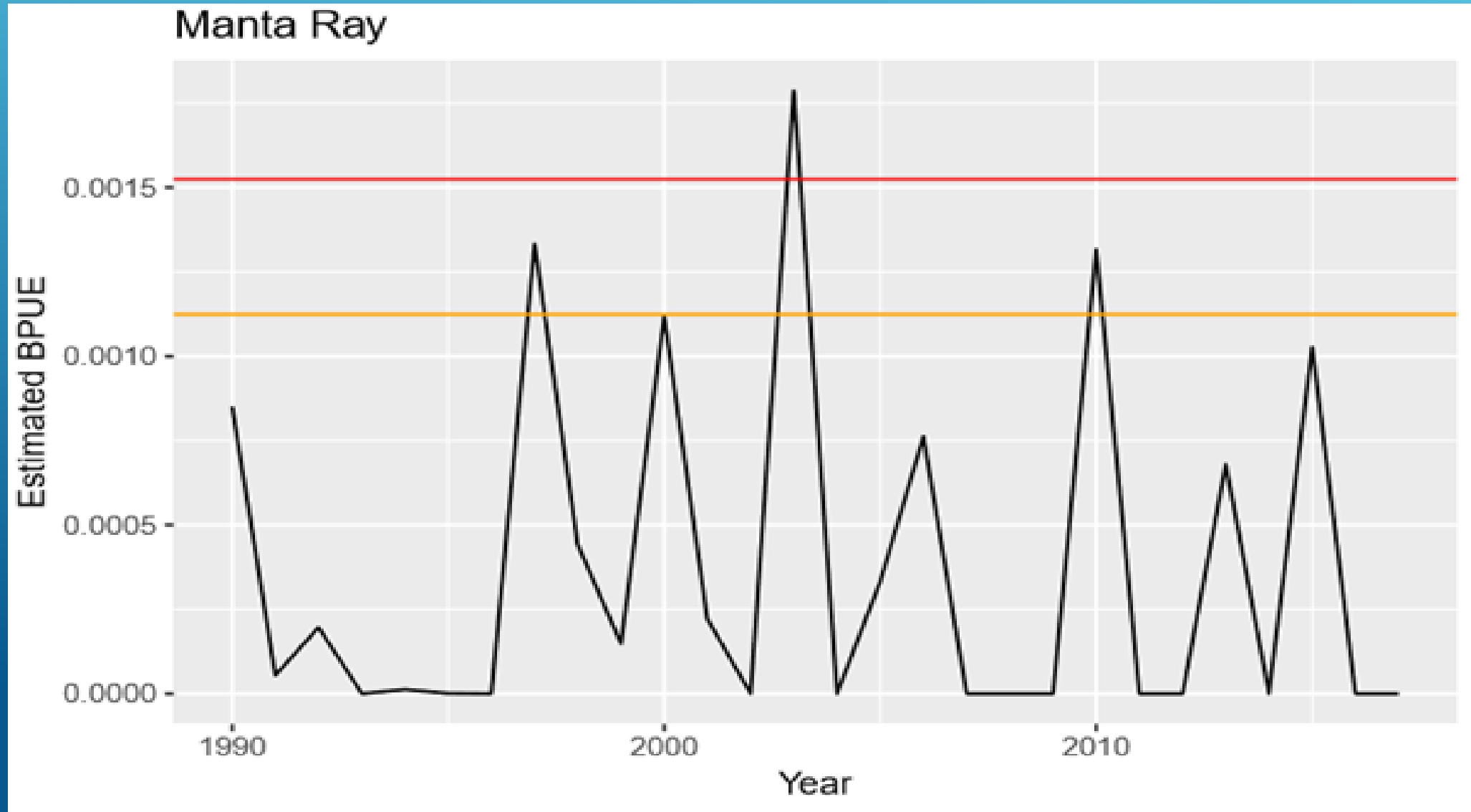**based on highest 2004 - 2013 calendar year estimate in Carretta et al. 2019

TABLE 2: FINFISH SPECIES

Species	Calendar Year 2017	
	Regression Tree Performance Metric	Regression Tree Total Annual Bycatch Estimate
Billfish (non-swordfish)	72.6	29.0
Prohibited sharks (megamouth, basking, white)	2.0	0.2
Scalloped hammerhead sharks	NA	0.0
Manta ray	1.3	0.0

U-CHART FOR MANTA RAY
(Yellow = Warning Line; Red = Action Line)

OBSERVER COVERAGE TOOL
What does it provide?

1) Probability of observing **any** bycatch, given that it occurred in X fishing sets.

2) Probability of achieving bycatch estimation precision goals (as measured in coefficient of variation, CV).

3) Probability of any bycatch having occurred in X fishing sets, given user inputs on BPUE and process (Poisson or otherwise).

IDENTIFICATION OF SPECIFIC BYCATCH REDUCTION MEASURES

▸ Specific measures will depend on causal factors underlying a given bycatch event

▸ Examples of potential management measures: time-and-area closures, Ecocast, reconvene TRT, gear innovations and modifications

HMSMT RECOMMENDATIONS:

1. Adopt the bycatch rate approach to evaluating performance metrics in the DGN fishery

2. Task the HMSMT with providing BPUE time series and control lines for all species at the June 2020 meeting
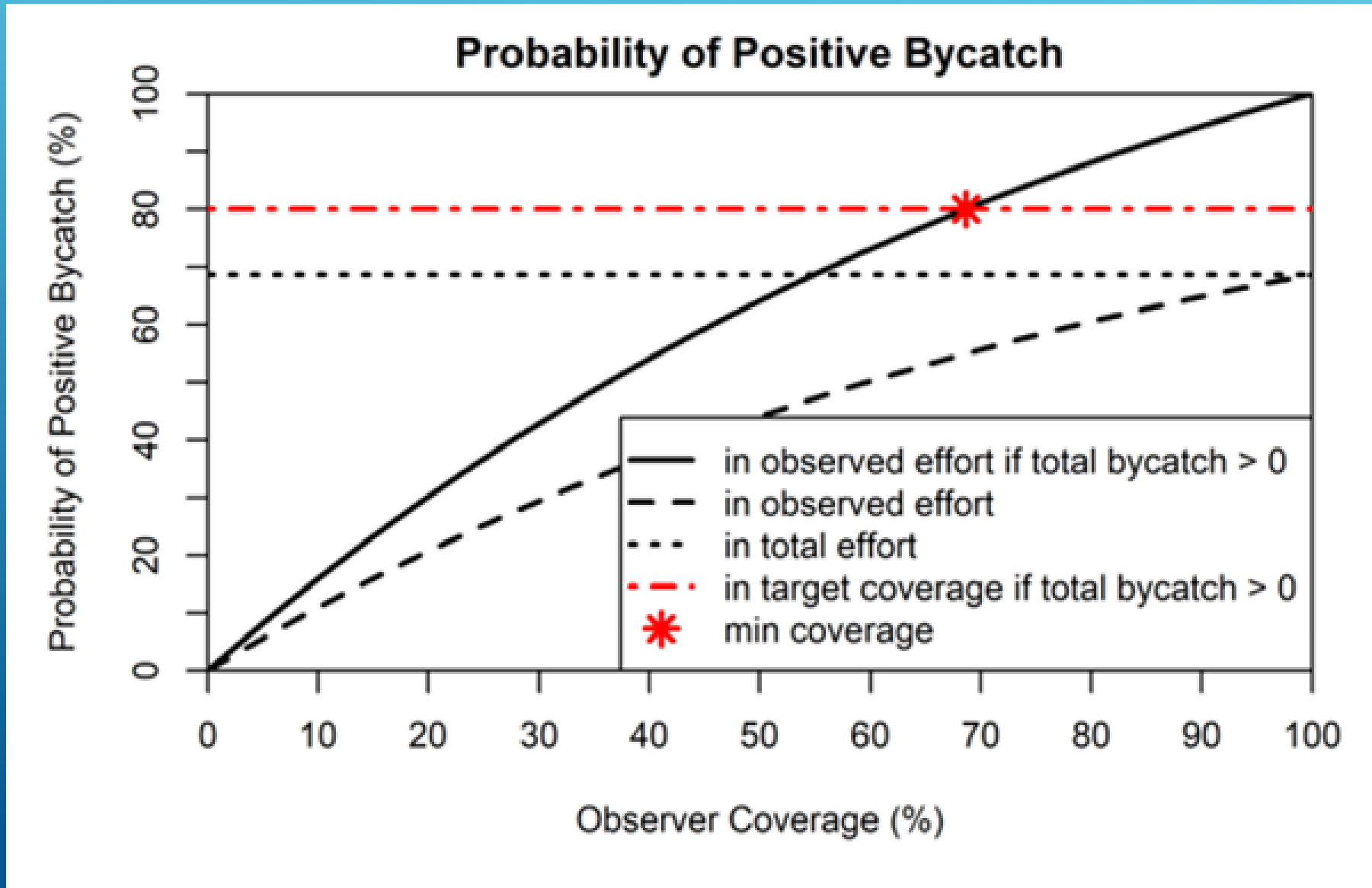
Figure 3a

Figure 3b

CV of Bycatch Estimate vs Observer Coverage

Legend:
- – – target CV
- ＊ min coverage
- ○ 80th percentile
- >50th percentile
- >80th percentile
- >95th percentile

X-axis: Observer Coverage (%)
Y-axis: CV of Bycatch Estimate