- June 2018 PFMC Meeting

G.3 SUPPLEMENTAL HMSMT REPORT

DRIFT GILLNET PERFORMANCE METRICS

DGN Performance Metrics and Fishery Performance During the 2016-2017 and 2017-2018 Fishing Seasons Using Simple Ratio Estimation

Species	PBR	Ratio Estimation Performance Metric	2016/2017 Fishing Season Ratio Estimator Results	2017/2018 Fishing Season Ratio Estimator Results
Finfish Retention Rate		70%	88%	82%
Minke whale	3.5	5	0	0
Short-beaked common dolphin	8,393	66	44.6	54.3
Long-beaked common dolphin	657	24	4.5	0
Risso's dolphin	46	7	0	0
California sea lion	9,200	97	4.5	5.4
Northern elephant seal	4,882	6	0	16.3
Northern right whale dolphin	179	11	26.8	5.4
Gray whale	624	5	0	5.4
Pacific white-sided dolphin	191	22	0	0
Billfish (other than swordfish)	NA	26	17.9	16.3
Prohibited sharks (megamouth, basking, white)	NA	2	0	0
Hammerhead sharks	NA	4	0	21.7
Manta ray	NA	2	0	0

Proposed Hard Cap Species and Observed M/SI in the DGN Fishery During the 2016-2017 and 2017-2018 Fishing Seasons

Species	PBR	Ratio Estimation Performance Metric	2016/2017 Fishing Season Ratio Estimator Results	2017/2018 Fishing Season Ratio Estimator Results
Sperm Whale	2.7	16	0	0
Humpback Whale	11	5	0	0
Fin Whale	81	0	0	0
Short-finned pilot whale	4.5	6	0	0
Bottlenose dolphin (coastal & offshore)	2.7 & 11	0	0	0
Leatherback sea turtle	NA	8	0	0
Loggerhead sea turtle	NA	5	0	0
Olive ridley sea turtle	NA	0	0	0
Green sea turtle	NA	0	0	0

Regression Tree Method Performance Metrics Values

Species	PBR	Regression Tree Performance Metric*	2016 Calendar Year Results
Minke whale	4	2.3	0.3
Short-beaked common dolphin	8,393	57.7	28.3
Long-beaked common dolphin	657	5.6	5.5
Risso's dolphin	46	2.9	1.4
California sea lion	9,200	46.3	17.3
Northern elephant seal	4,882	4.2	2.4
Northern right whale dolphin	179	8.1	8.4
Gray whale	624	2.1	0.5
Pacific white-sided dolphin	191	9.2	2.1
Sperm Whale	2.7	2.1	0
Humpback Whale	11	1.5	0.1
Fin Whale	81	0.3	0
Short-finned pilot whale	4.5	1.3	0.1
Bottlenose dolphin (coastal & offshore)	2.7 & 11	4.2	0
Leatherback sea turtle	NA	2.8	0
Loggerhead sea turtle	NA	4.5	1.7
Olive ridley sea turtle	NA	0.2	0
Green sea turtle	NA	0.3	0

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

Ratio Estimation vs. Regression Tree Methodology Performance Metric Values

Species	PBR	Ratio Estimation Performance Metric	Regression Tree Performance Metric*
Minke whale	3.5	5	2.3
Short-beaked common dolphin	8,393	66	57.7
Long-beaked common dolphin	657	24	5.6
Risso's dolphin	46	7	2.9
California sea lion	9,200	97	46.3
Northern elephant seal	4,882	6	4.2
Northern right whale dolphin	179	11	8.1
Gray whale	624	5	2.1
Pacific white-sided dolphin	191	22	9.2
Sperm Whale	2.7	16	2.1
Humpback Whale	11	5	1.5
Fin Whale	81	0	0.3
Short-finned pilot whale	4.5	6	1.3
Bottlenose dolphin (coastal & offshore)	2.7 & 11	0	4.2
Leatherback sea turtle	NA	8	2.8
Loggerhead sea turtle	NA	5	4.5
Olive ridley sea turtle	NA	0	0.2
Green sea turtle	NA	0	0.3

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

Ratio Estimation 2016-2017 results vs. Regression Tree 2016 results

Species	PBR	Ratio Estimation 2016-2017 results	Regression Tree* 2016 results
Minke whale	3.5	0	0.3
Short-beaked common dolphin	8,393	44.6	28.3
Long-beaked common dolphin	657	4.5	5.5
Risso's dolphin	46	0	1.4
California sea lion	9,200	4.5	17.3
Northern elephant seal	4,882	0	2.4
Northern right whale dolphin	179	26.8	8.4
Gray whale	624	0	0.5
Pacific white-sided dolphin	191	0	2.1
Sperm Whale	2.7	0	0
Humpback Whale	11	0	0.1
Fin Whale	81	0	0
Short-finned pilot whale	4.5	0	0.1
Bottlenose dolphin (coastal & offshore)	2.7 & 11	0	0
Leatherback sea turtle	NA	0	0
Loggerhead sea turtle	NA	0	1.7
Olive ridley sea turtle	NA	0	0
Green sea turtle	NA	0	0

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

- **Example of revised metrics in Table 2 are based on the highest annual estimated catch of that species from 2004 through 2013**
  - Metrics based on regression tree method will change year to year as newest data are included in the analysis

- **The HMSMT recommends the Council redefine DGN performance metrics using the Regression Tree Methodology**
  - Currently accepted as best available science
  - Provides a more realistic and stable estimate of interactions with marine mammals
  - Could potentially be applied to finfish species

- **The HMSMT suggests the Council revisit the list of species included for performance metrics and the efficacy of those metrics**