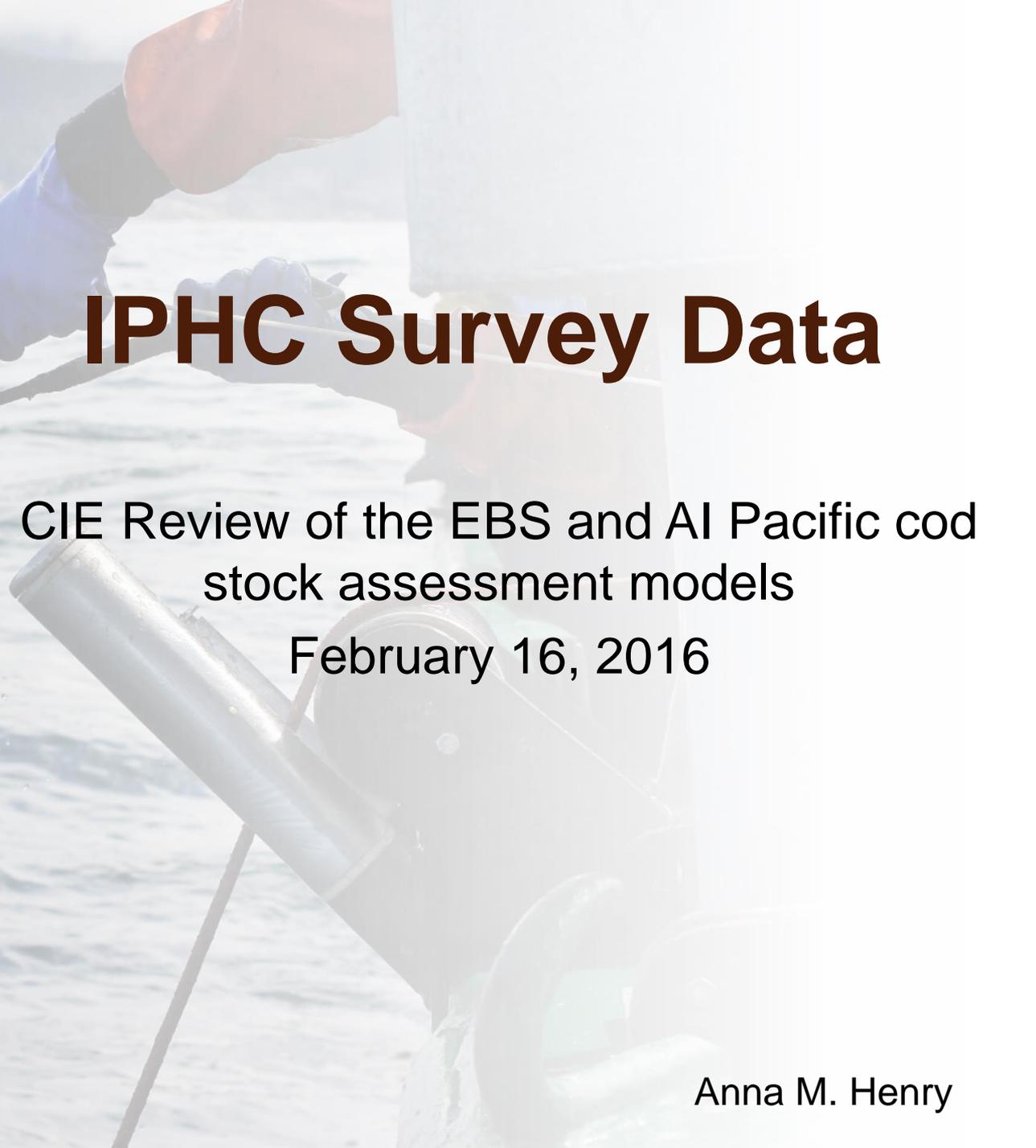




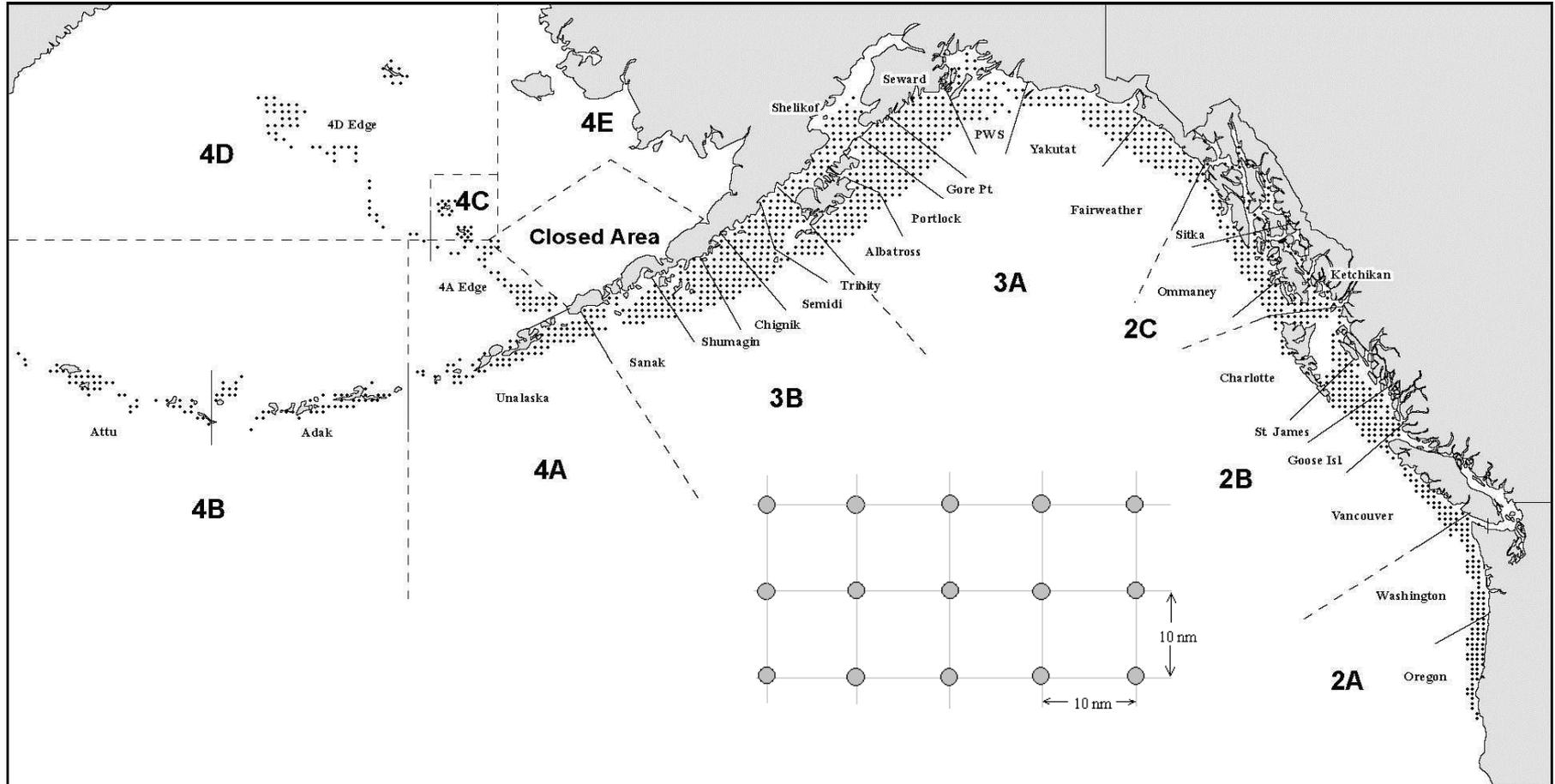
IPHC Survey Data

CIE Review of the EBS and AI Pacific cod
stock assessment models

February 16, 2016

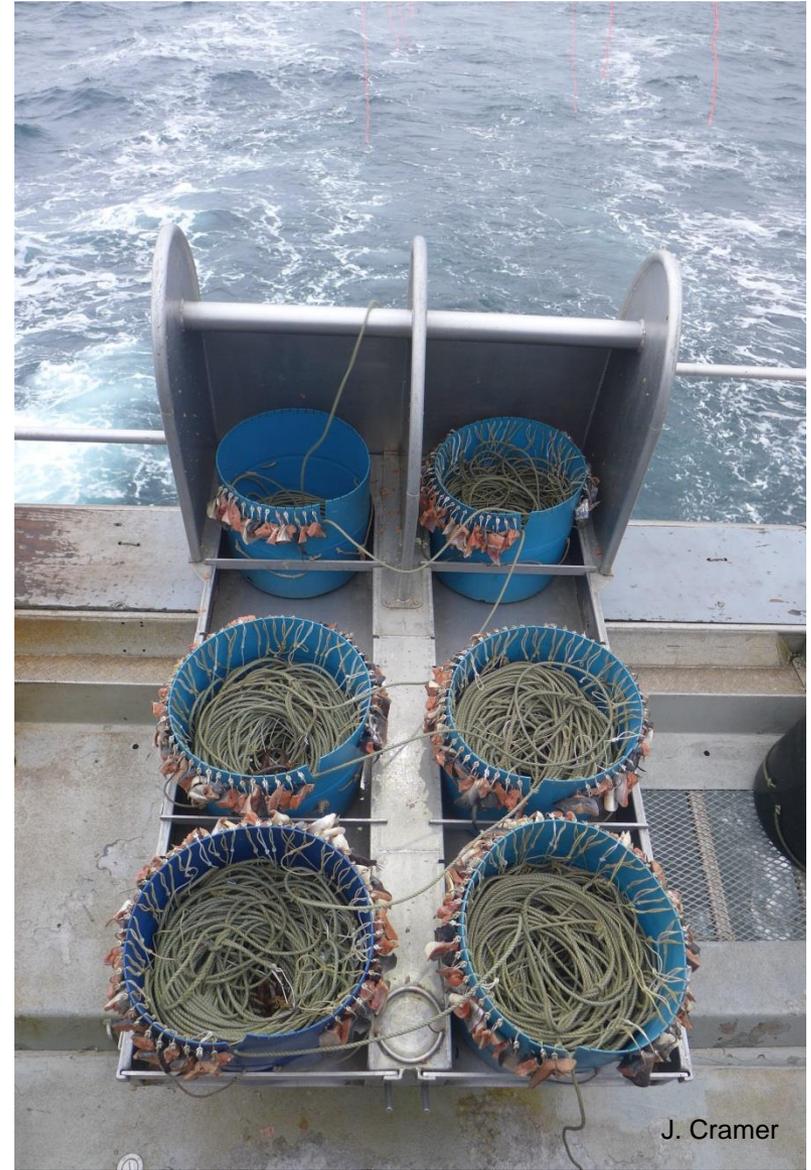


Survey design



Standardization

- Fixed station positions
- Gear
- Bait
- Soak duration and time of day



J. Cramer



Primary objective

- Standardized, fishery independent data for Pacific halibut stock assessment
 - CPUE, sex specific length-at-age, age composition
 - Data on juvenile halibut
 - Halibut distribution and abundance trends (changes in sex, length, maturity and age over the grounds)



S. Parker



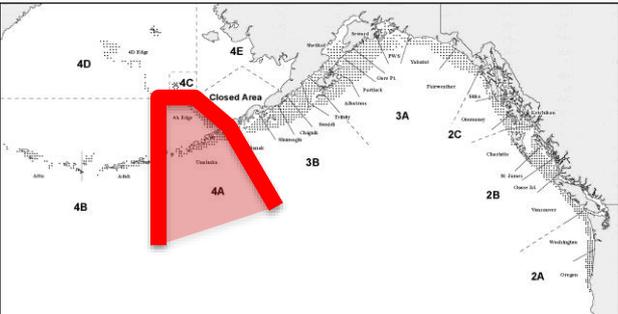
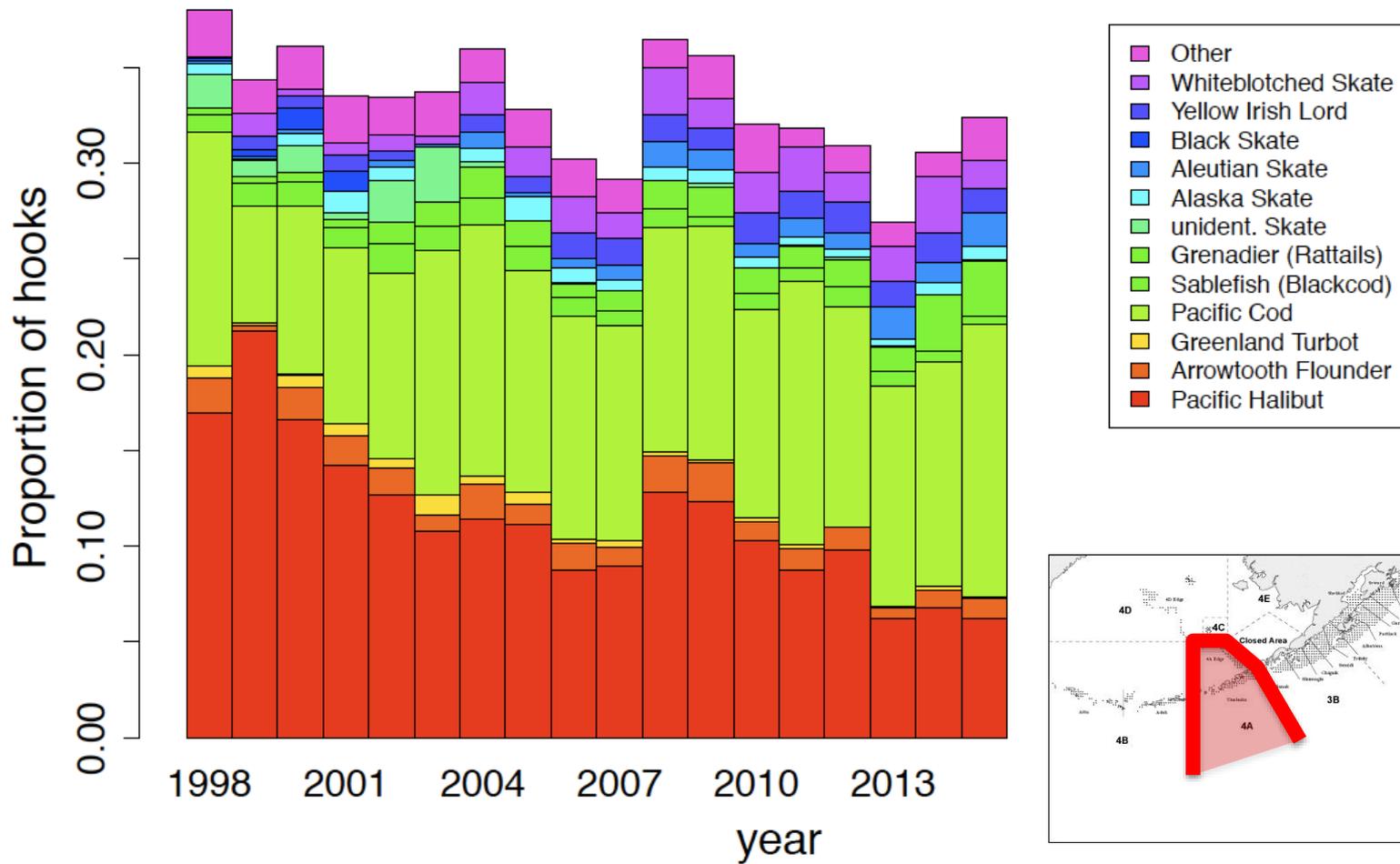
Secondary objectives

- Provide data on bycatch
- Platform for specialized data collection projects



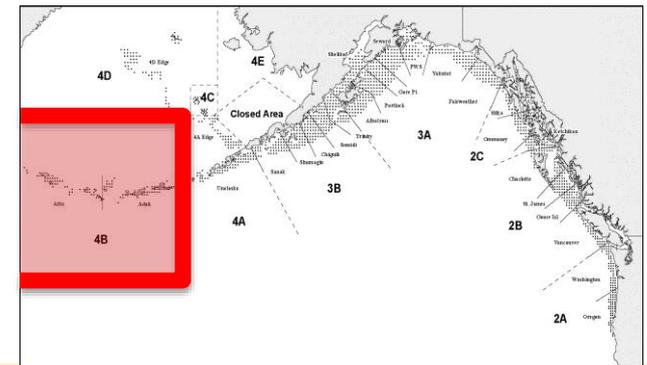
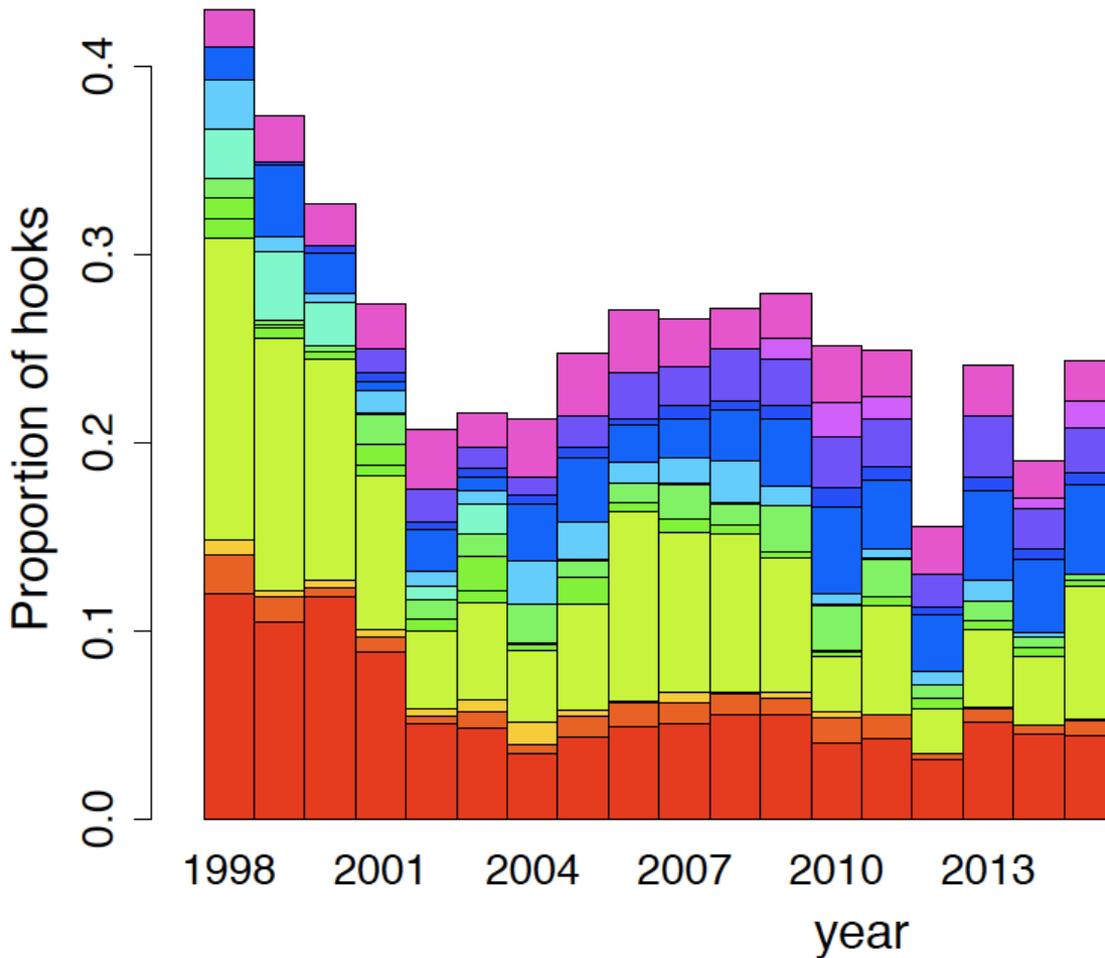
20 hook counts

Area 4A : species catch



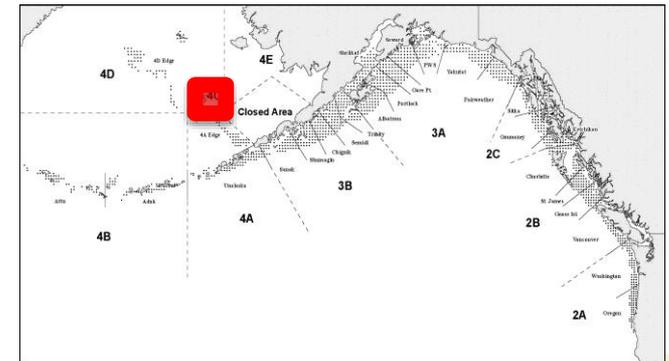
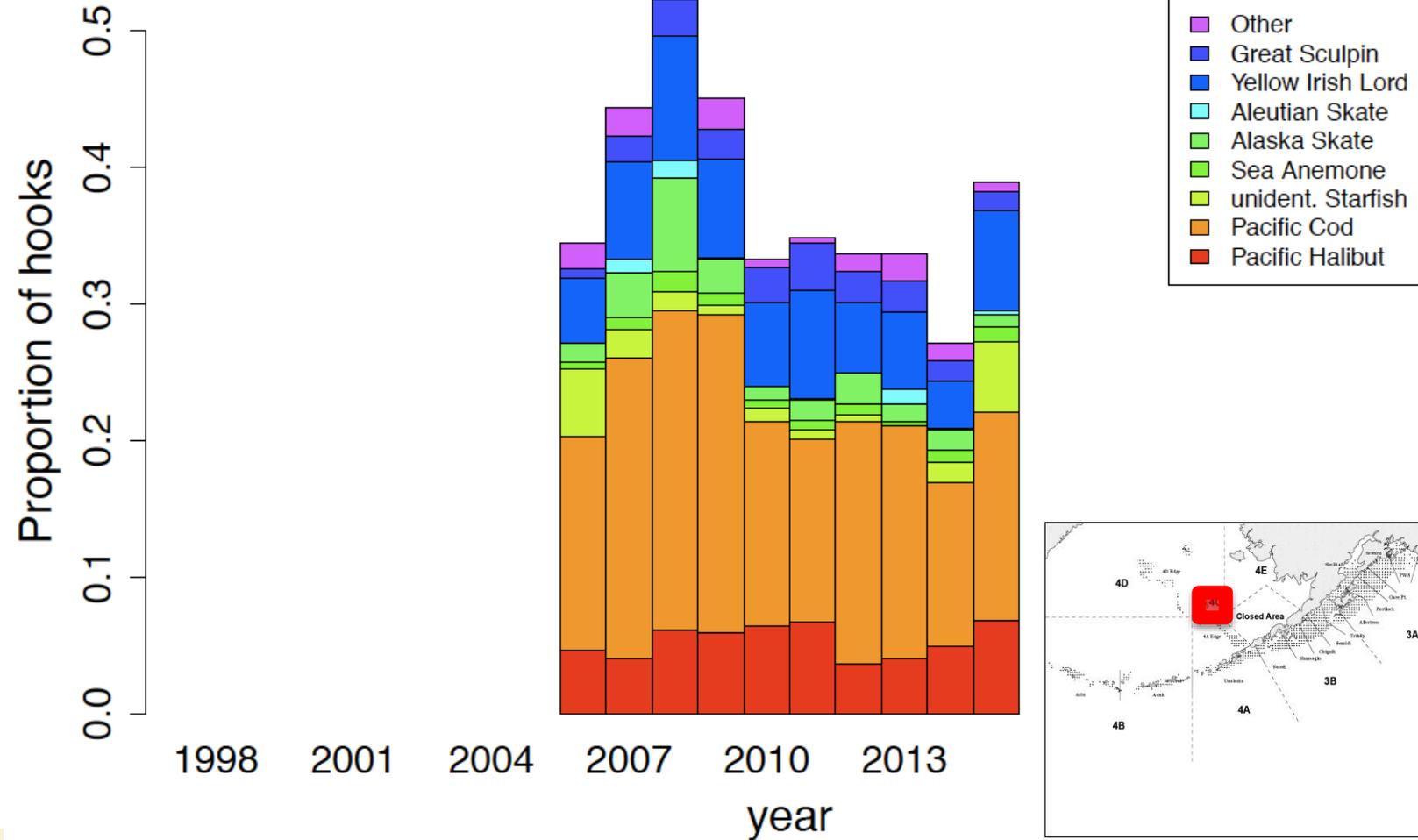
20 hook counts

Area 4B : species catch



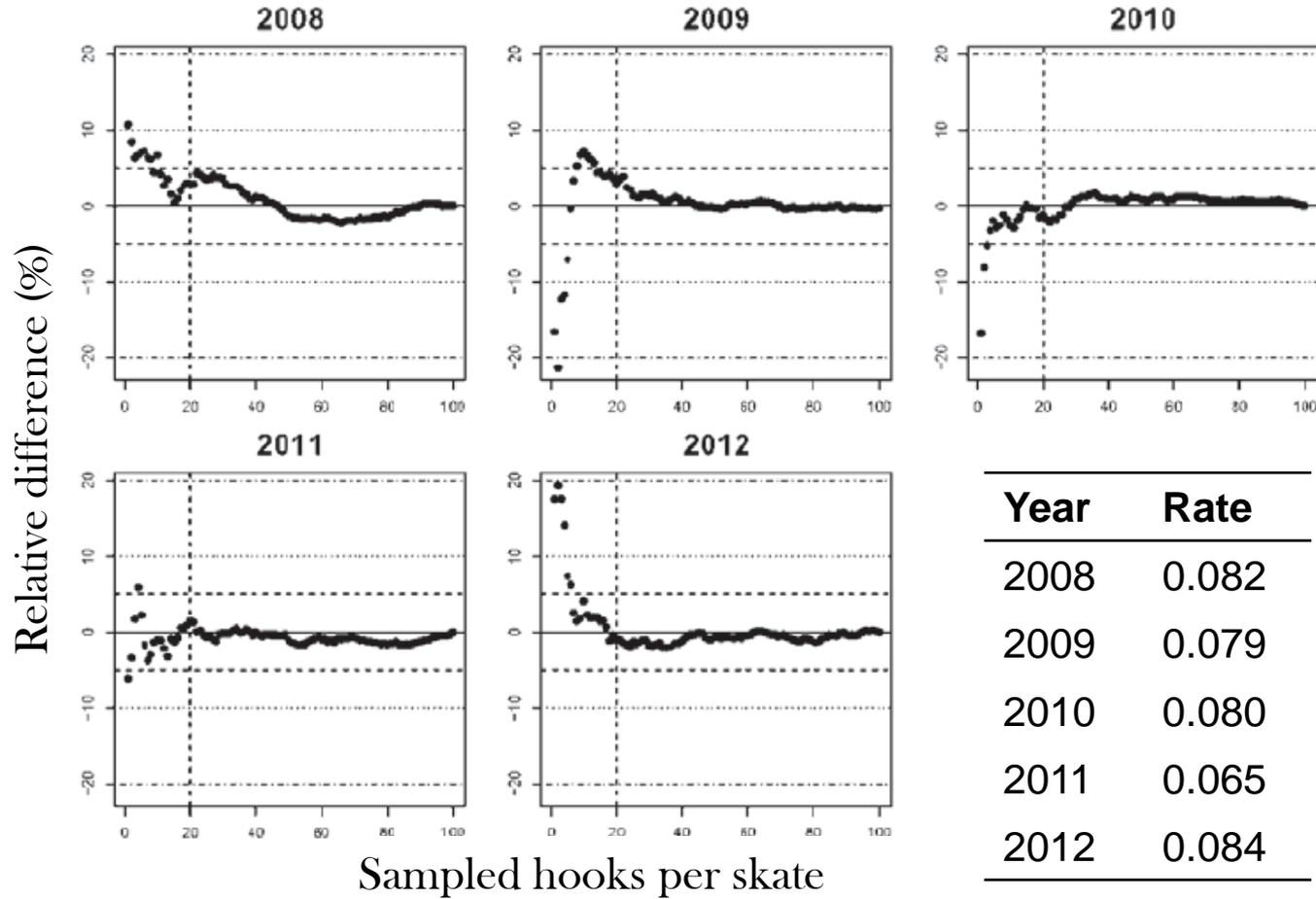
20 hook counts

Area 4C : species catch



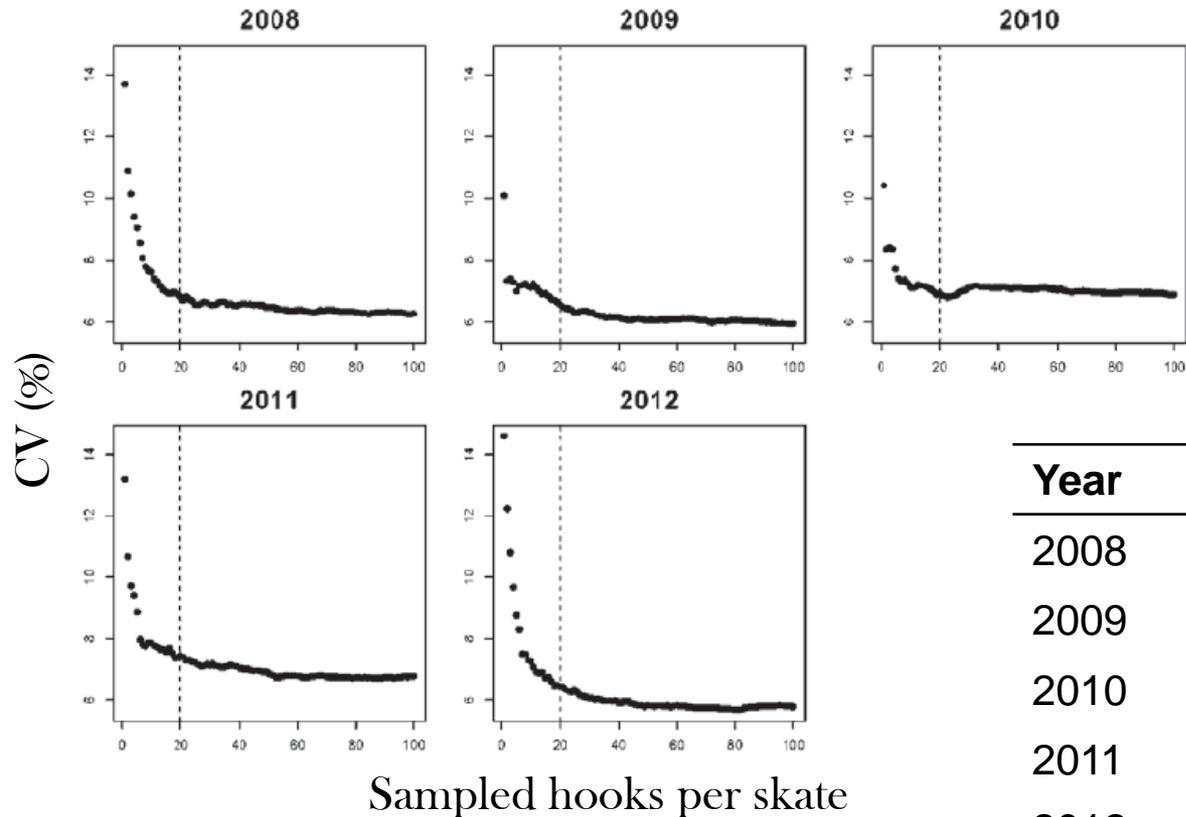
20 hook counts

- Accuracy?



20 hook counts

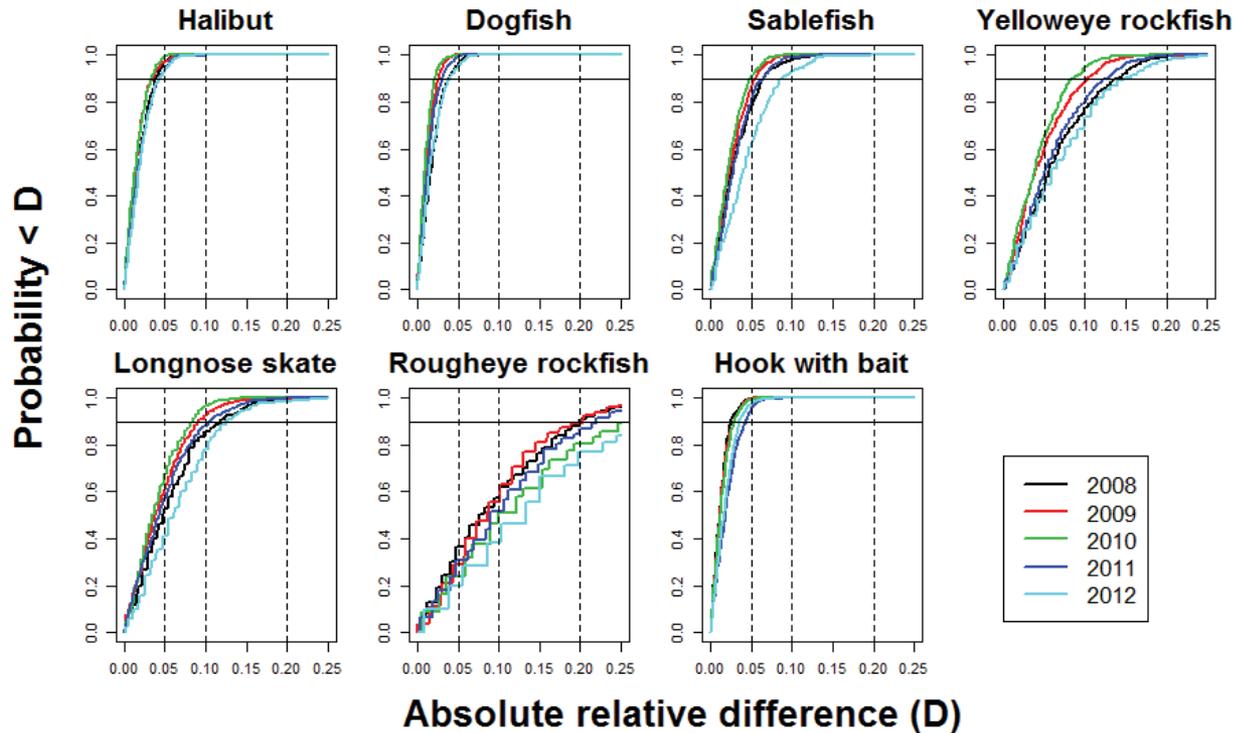
- Precision?



Year	Rate
2008	0.082
2009	0.079
2010	0.080
2011	0.065
2012	0.084



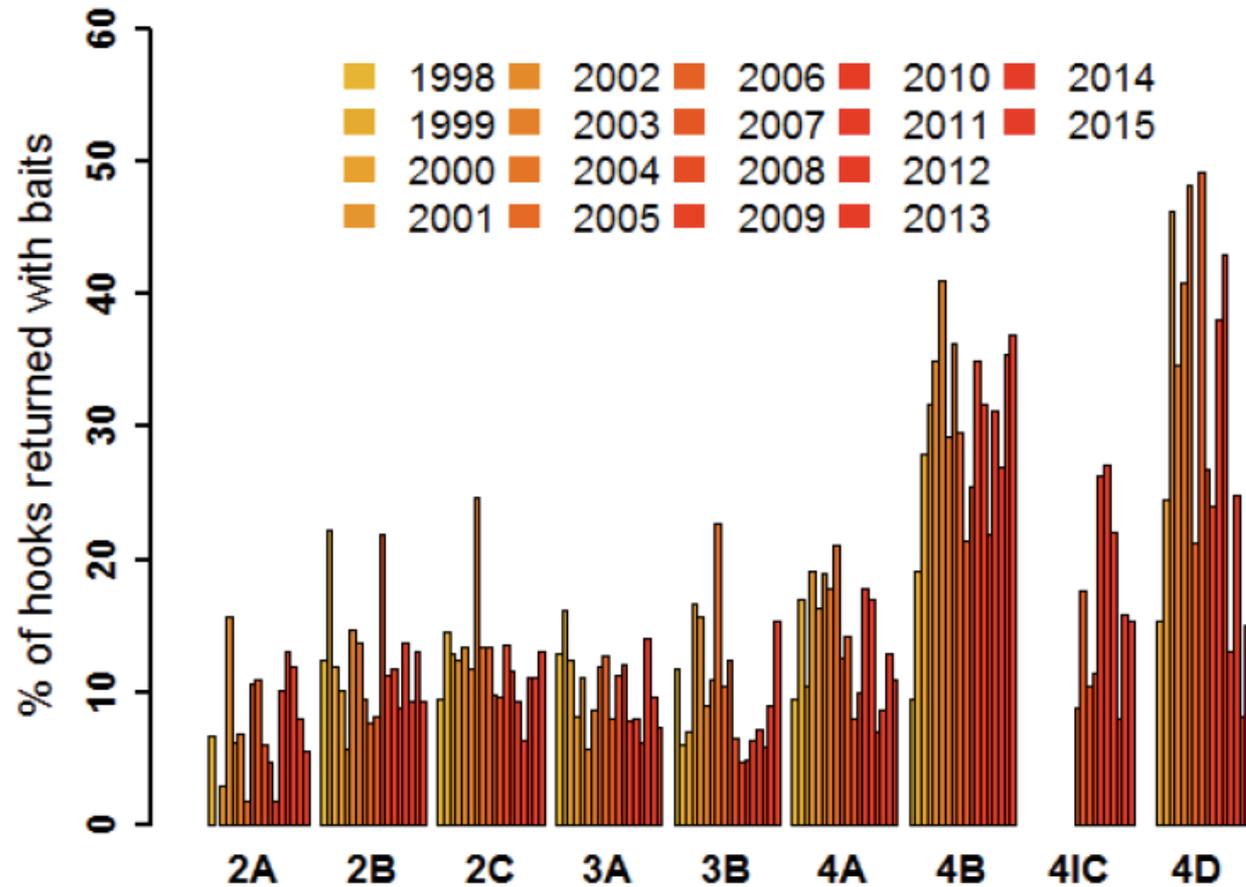
20 hook counts



Year	Halibut	Spiny dogfish	Sablefish	Yelloweye rockfish	Longnose skate	Rougheye rockfish	Returned baits
2008	0.082	0.106	0.028	0.010	0.009	0.003	0.218
2009	0.079	0.162	0.028	0.012	0.010	0.003	0.113
2010	0.080	0.130	0.030	0.013	0.010	0.001	0.117
2011	0.065	0.128	0.026	0.009	0.009	0.002	0.088
2012	0.084	0.091	0.020	0.009	0.010	0.002	0.138



Hook competition



Hook competition

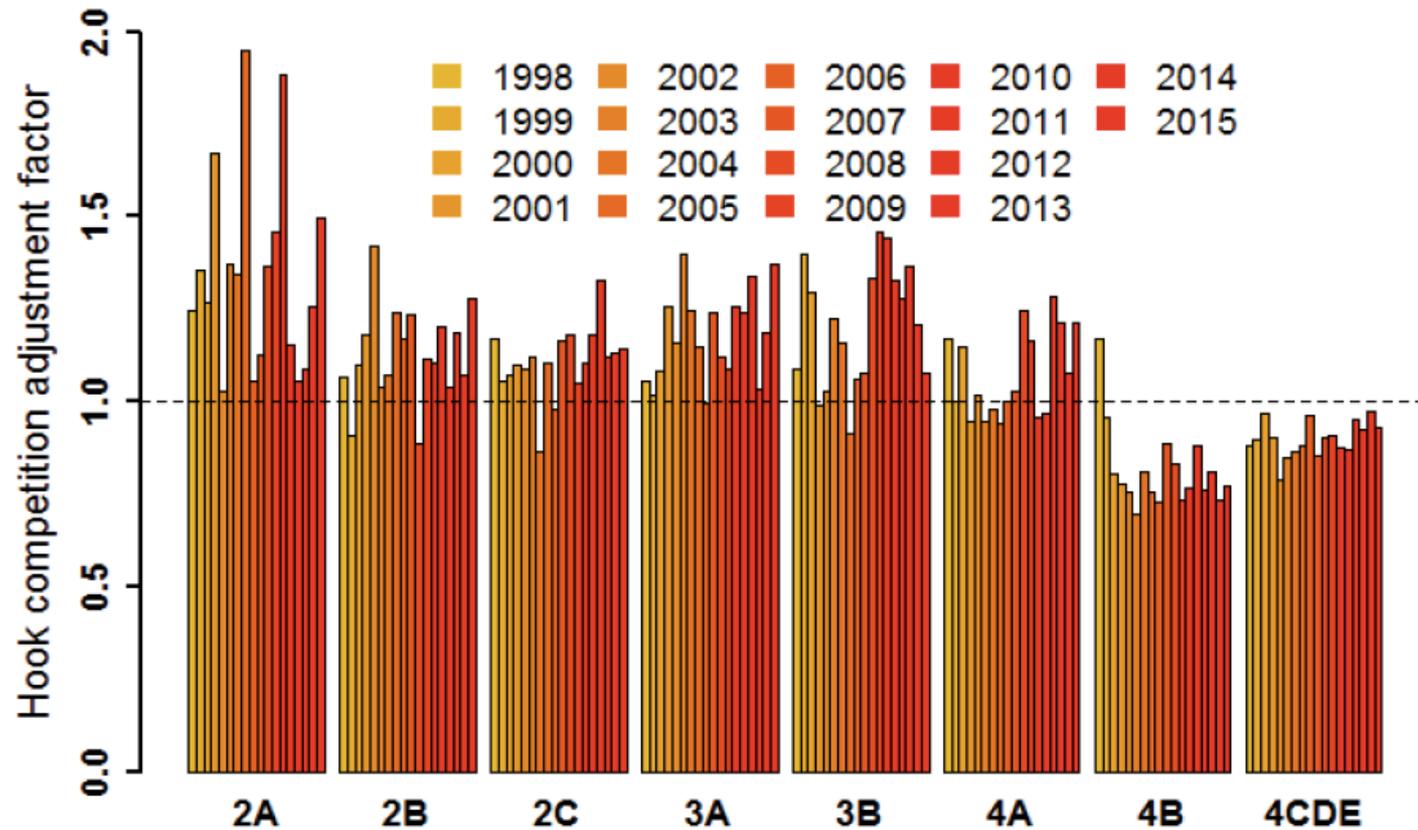
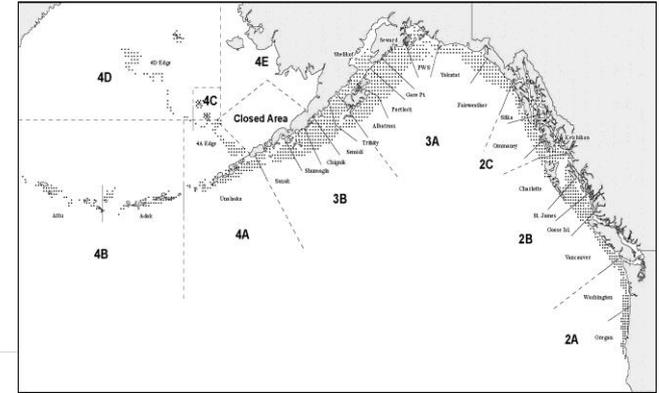


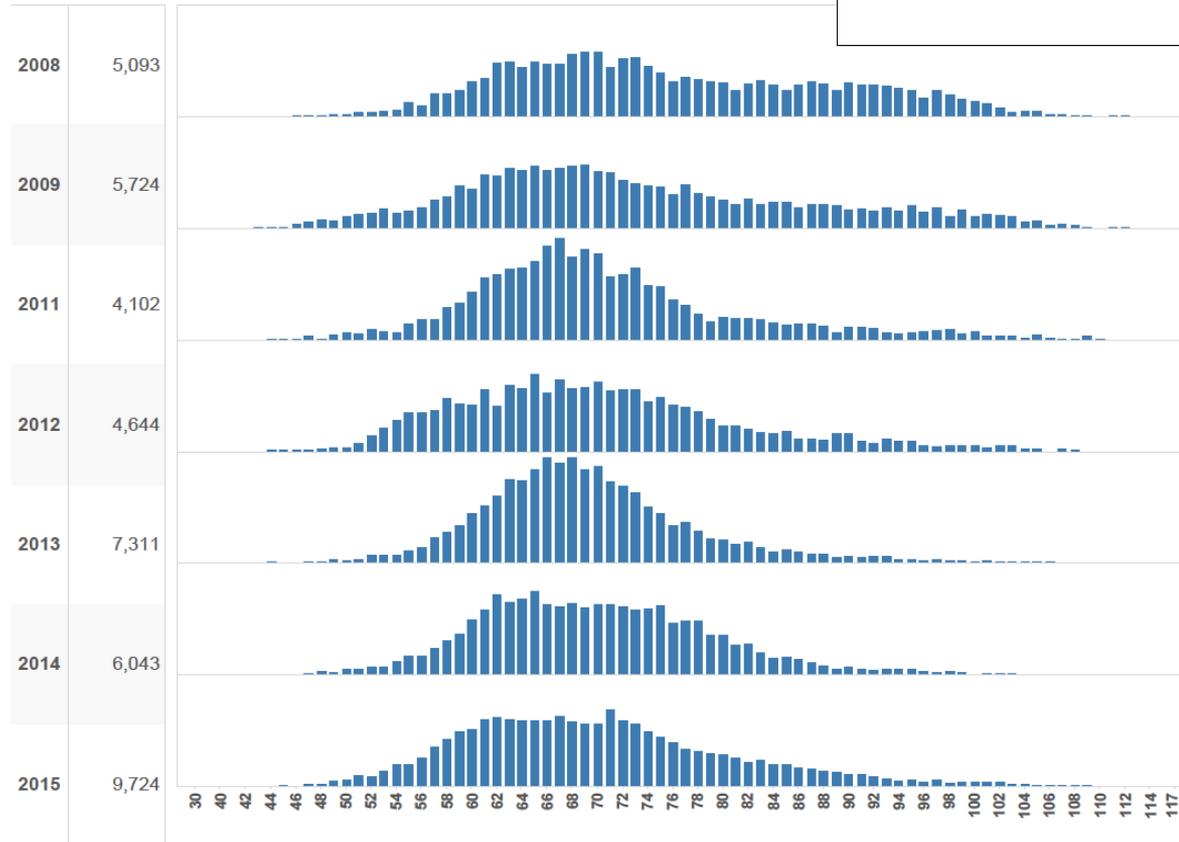
Figure 7. Hook-competition adjustment factors that have been applied to setline survey WPUE for apportionment.



Special projects



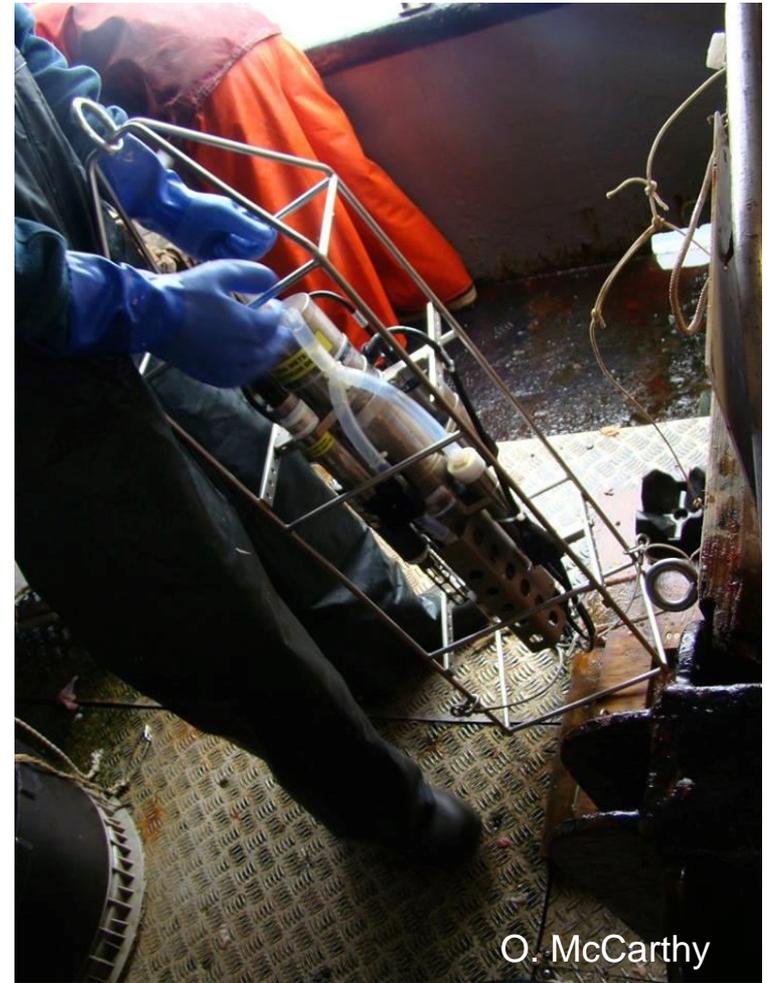
All Area 4



Special projects

- Sea-Bird™ Seacat SBE19plus V2 water column profilers
- CTD, DO, pH, fluorescence

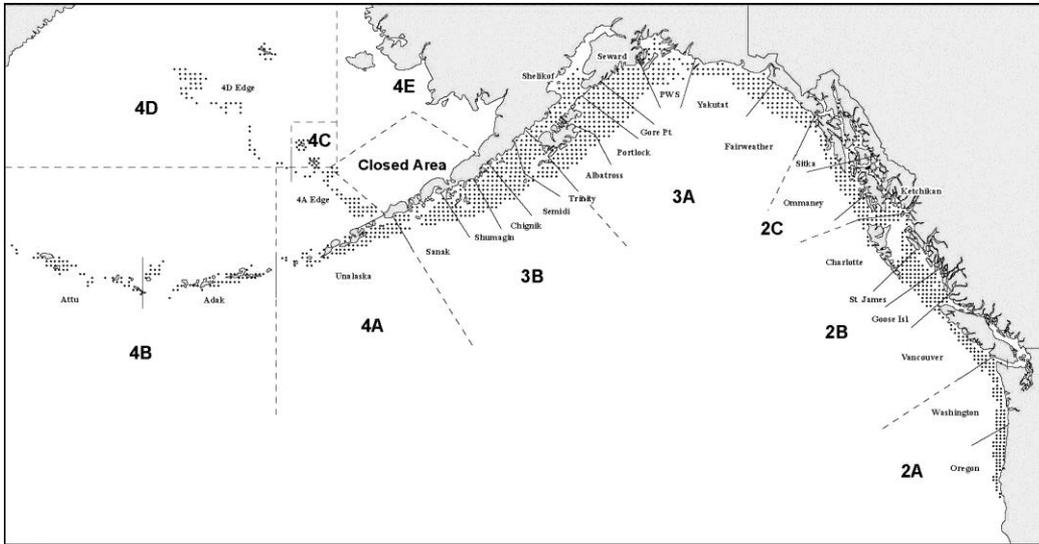
http://www.ecofoci.noaa.gov/projects/IPHC/efoci_IPHCData.shtml



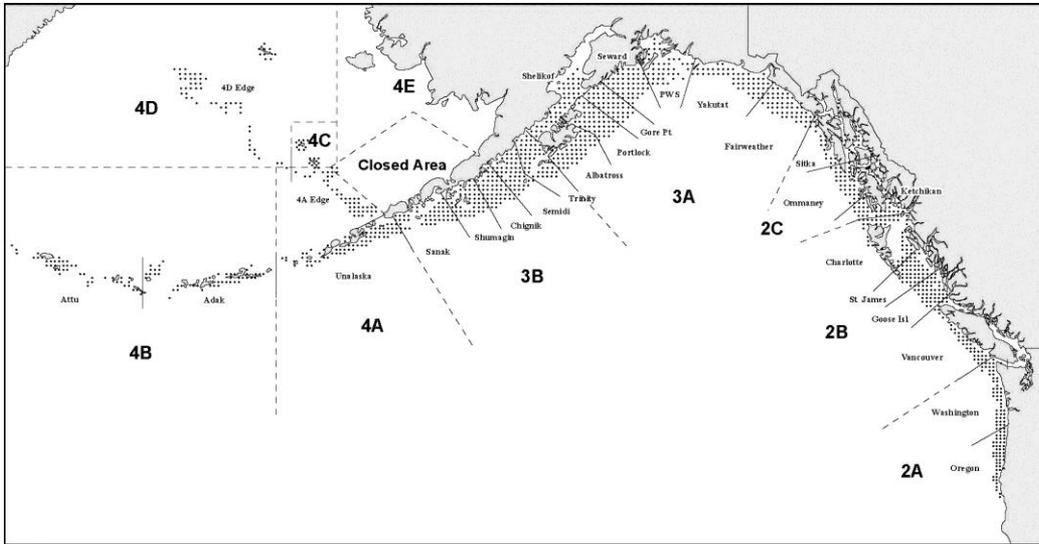
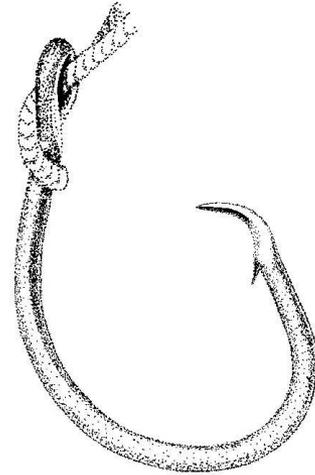
Summary



Summary



Summary



Aknowledgements

- Claude Dykstra
- Eric Soderlund
- Ian Stewart
- Ray Webster



Extra slides



Ineffective: Whale Predation



- If whales are present in the area during the haul back event, **and** the sum of gear (missing/straightened hooks) and fish damage (bite marks, lips) is greater than 10%, we assume that a number of fish have been pulled from the line unobserved, making the set ineffective.
- 14 stations since 2001



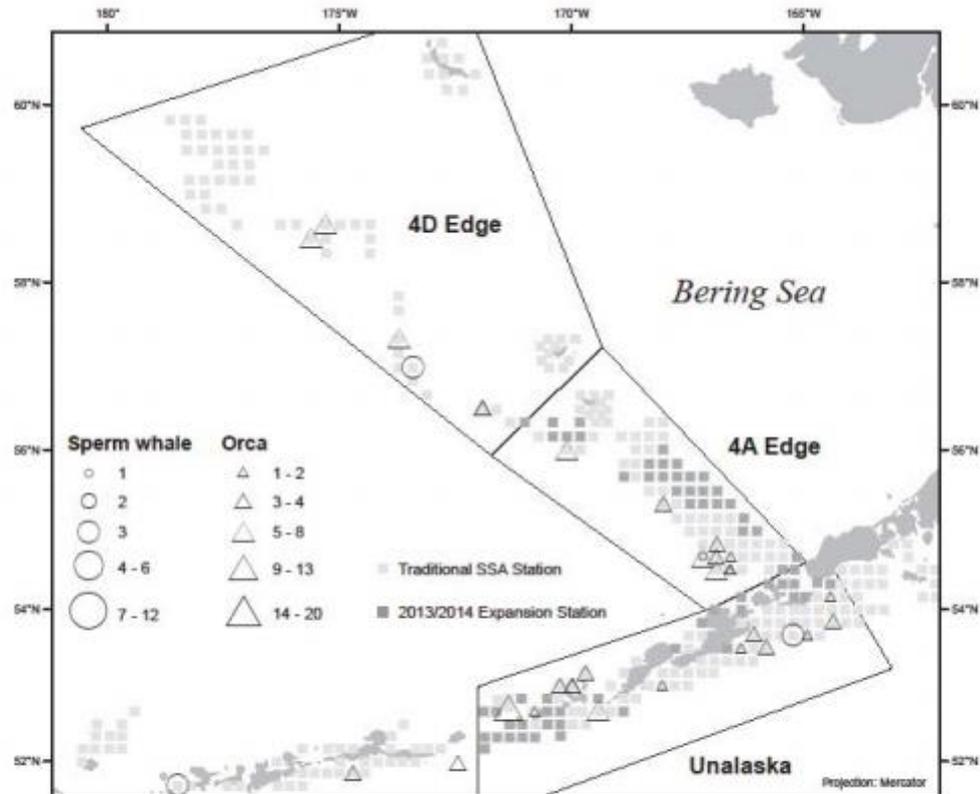
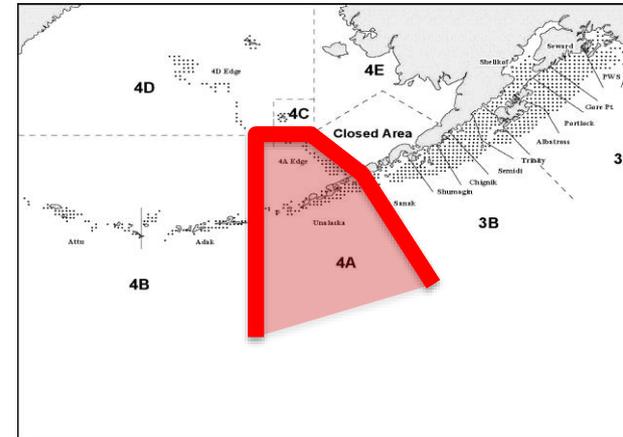
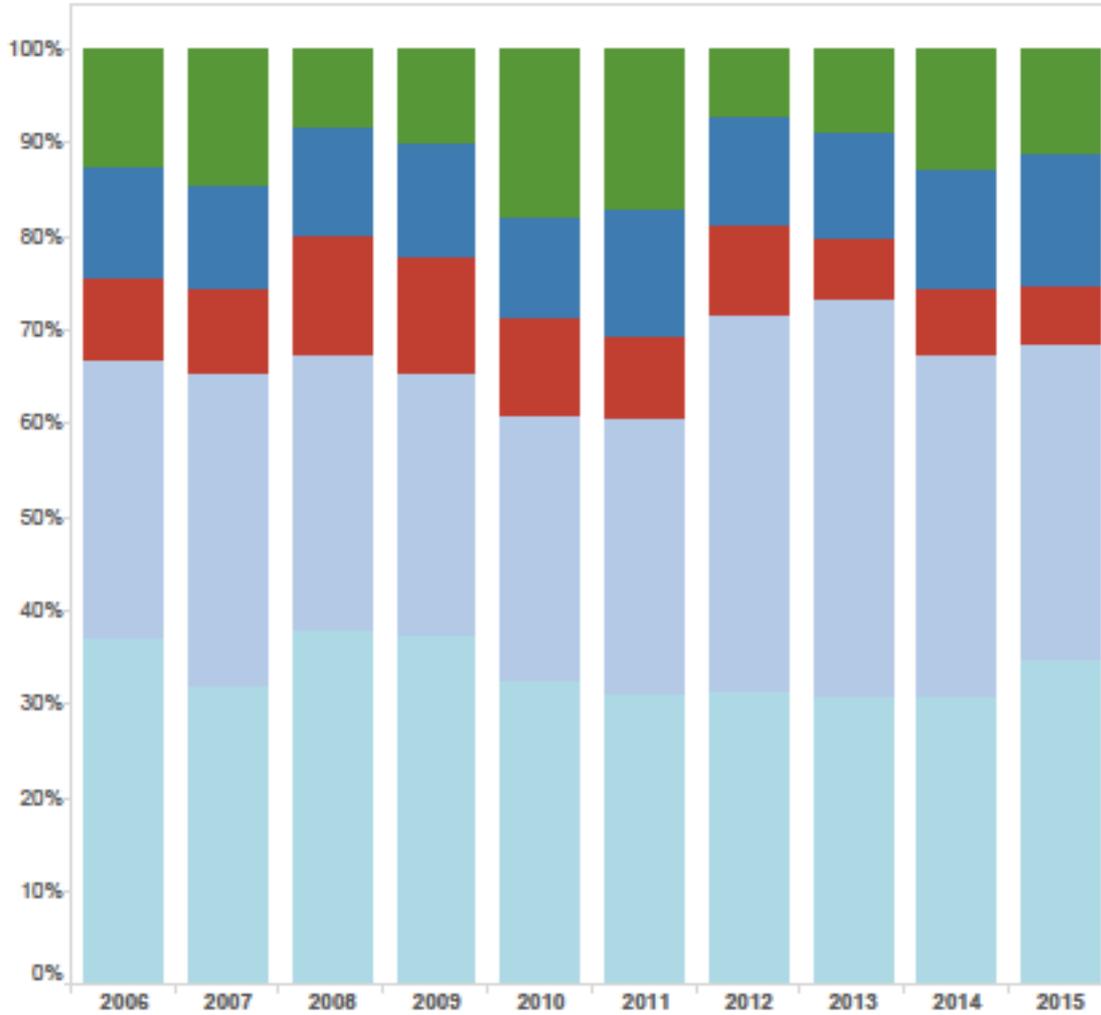


Figure 1c. Marine mammal depredation from 2009-2014 in charter regions with substantive killer whale presence.



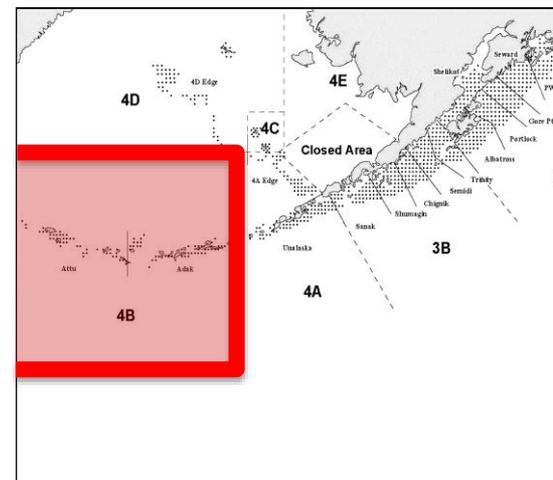
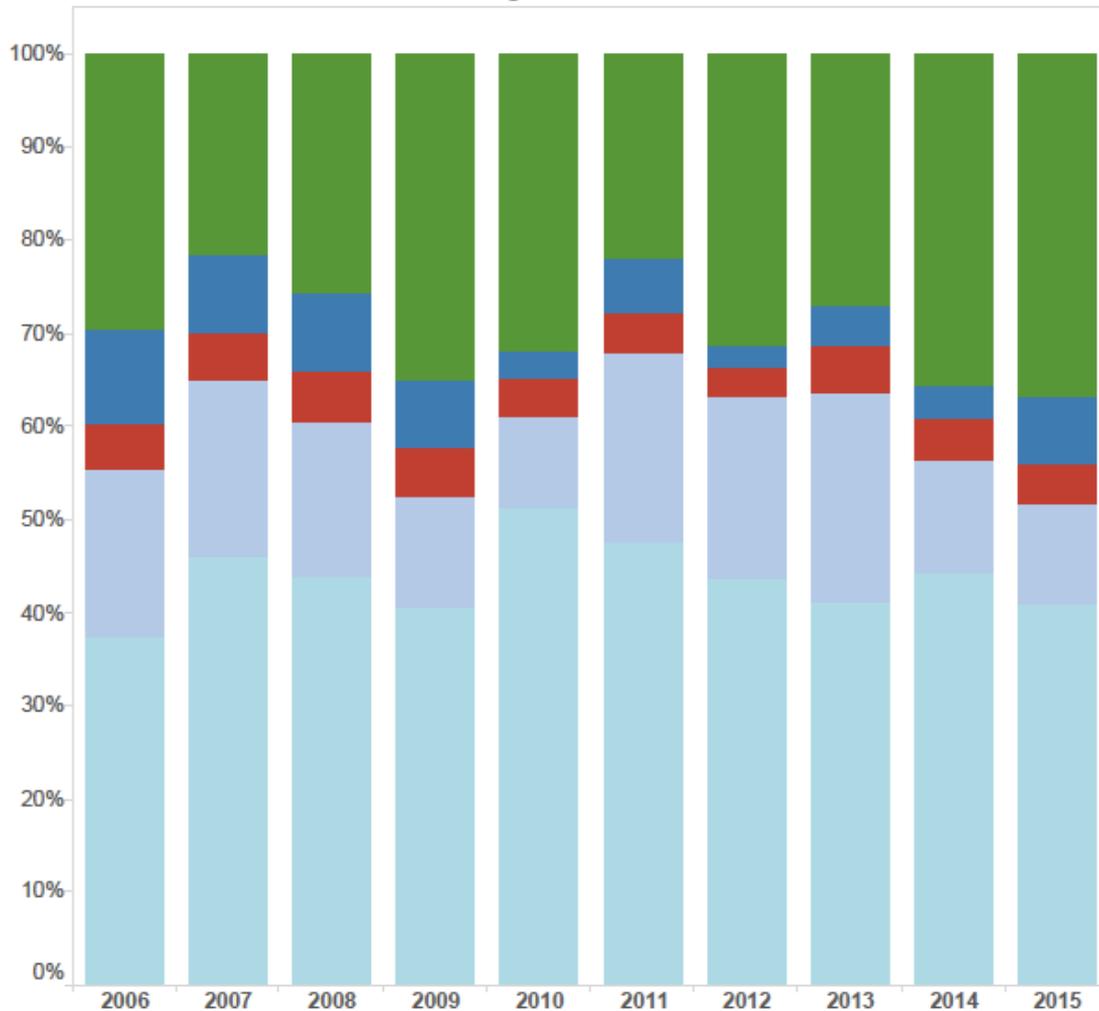
Reg Area 4A



- Hook with Bait
- Pacific Cod
- Pacific Halibut
- Empty Hook
- Other



Reg Area 4B



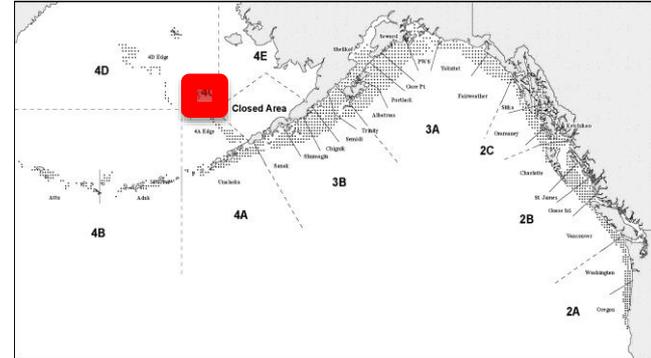
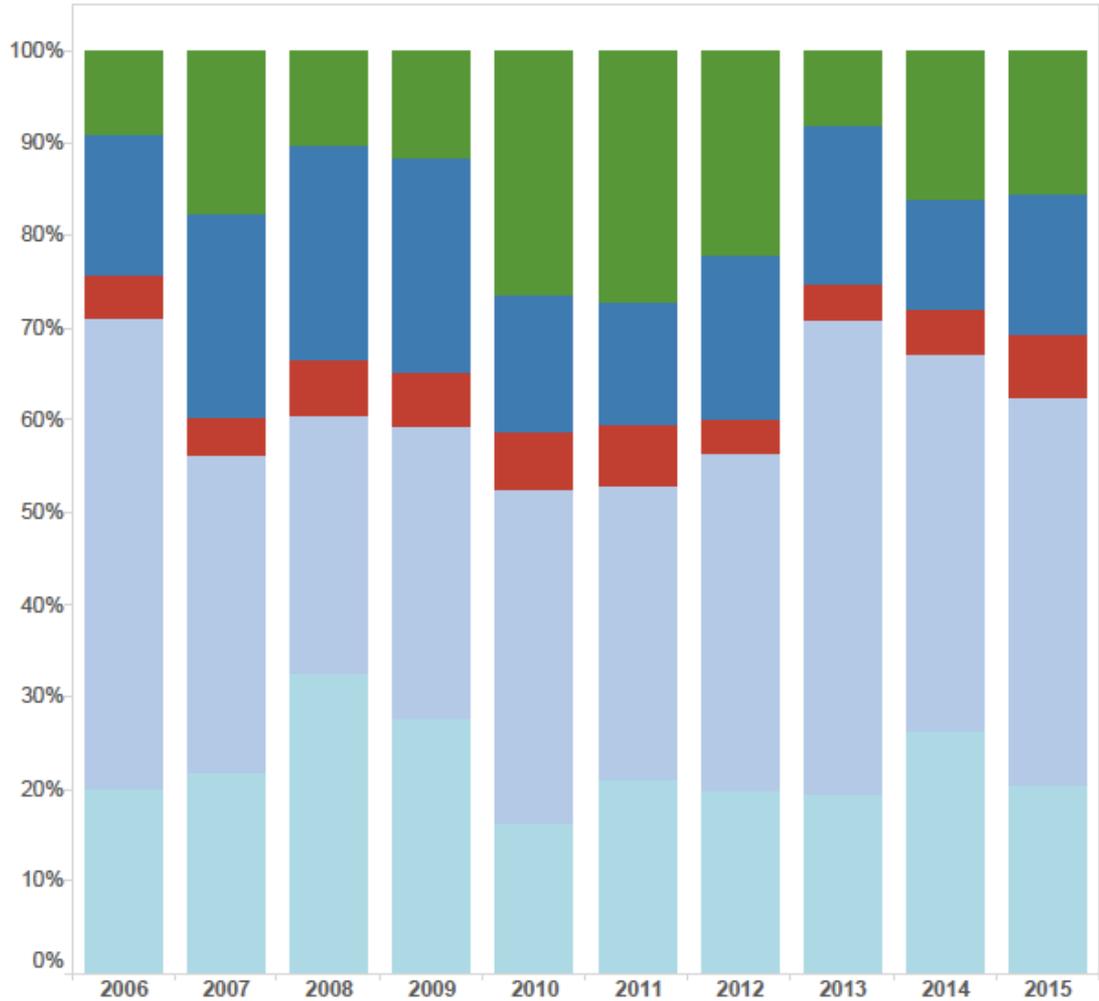
Bait, Cod, Halibut, Other

- Hook with Bait
- Pacific Cod
- Pacific Halibut
- Empty Hook
- Other



4C

Reg Area 4C



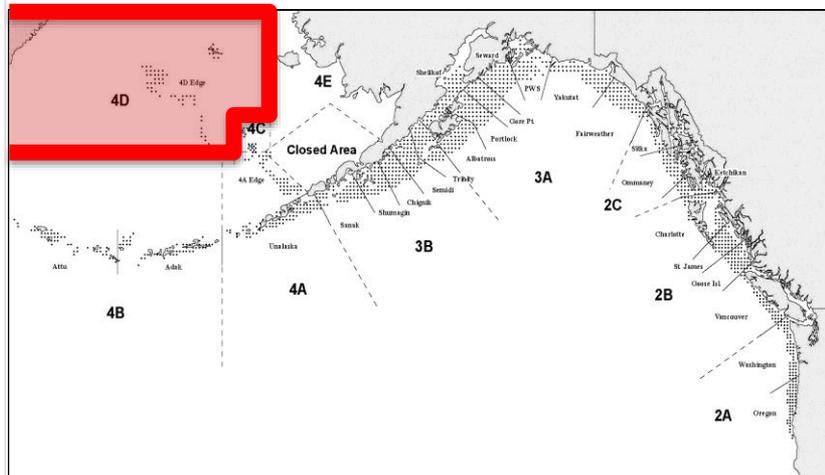
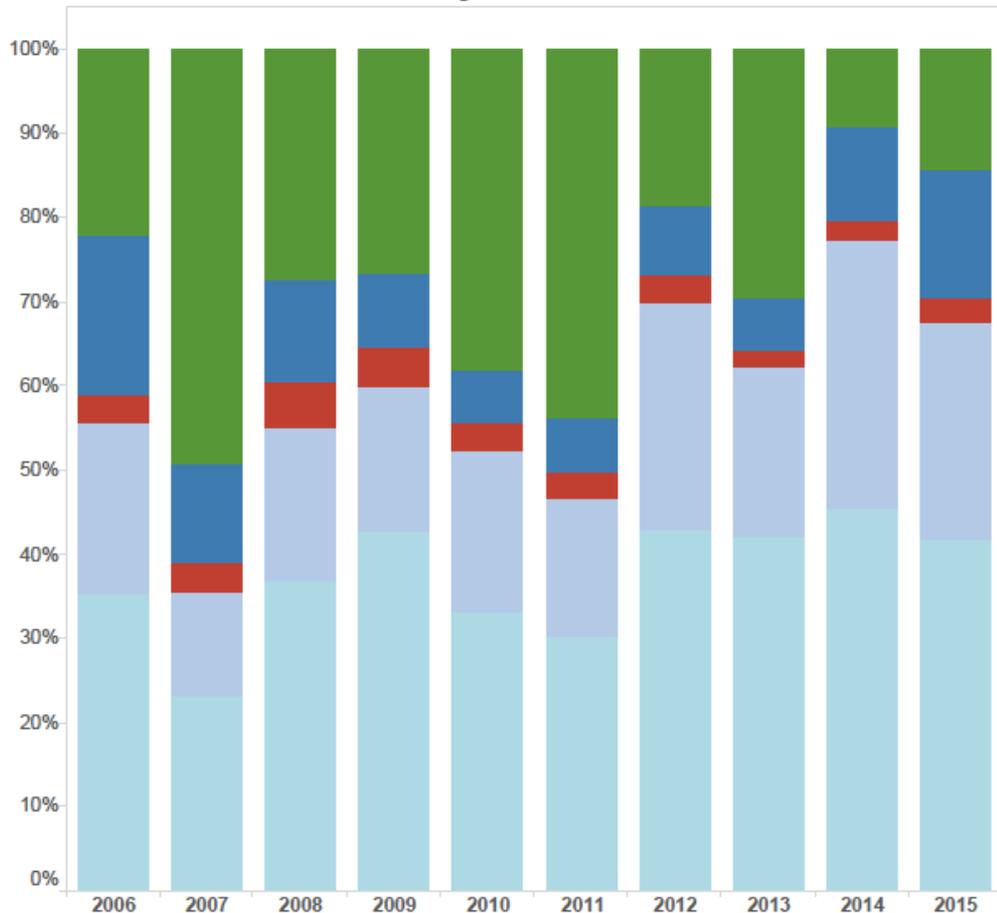
Bait, Cod, Halibut, Other

- Hook with Bait
- Pacific Cod
- Pacific Halibut
- Empty Hook
- Other



4D

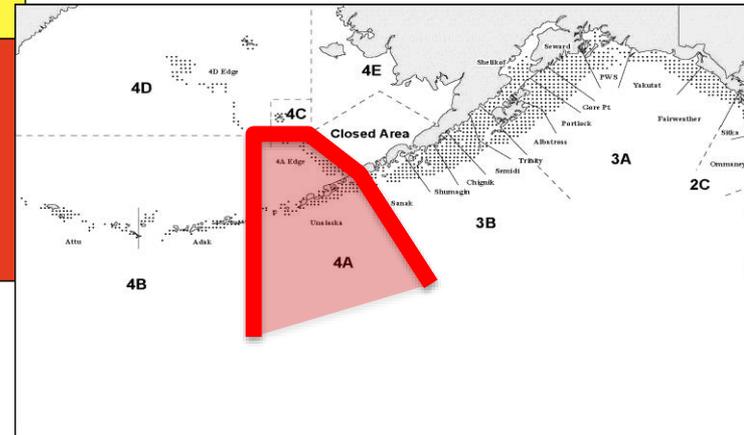
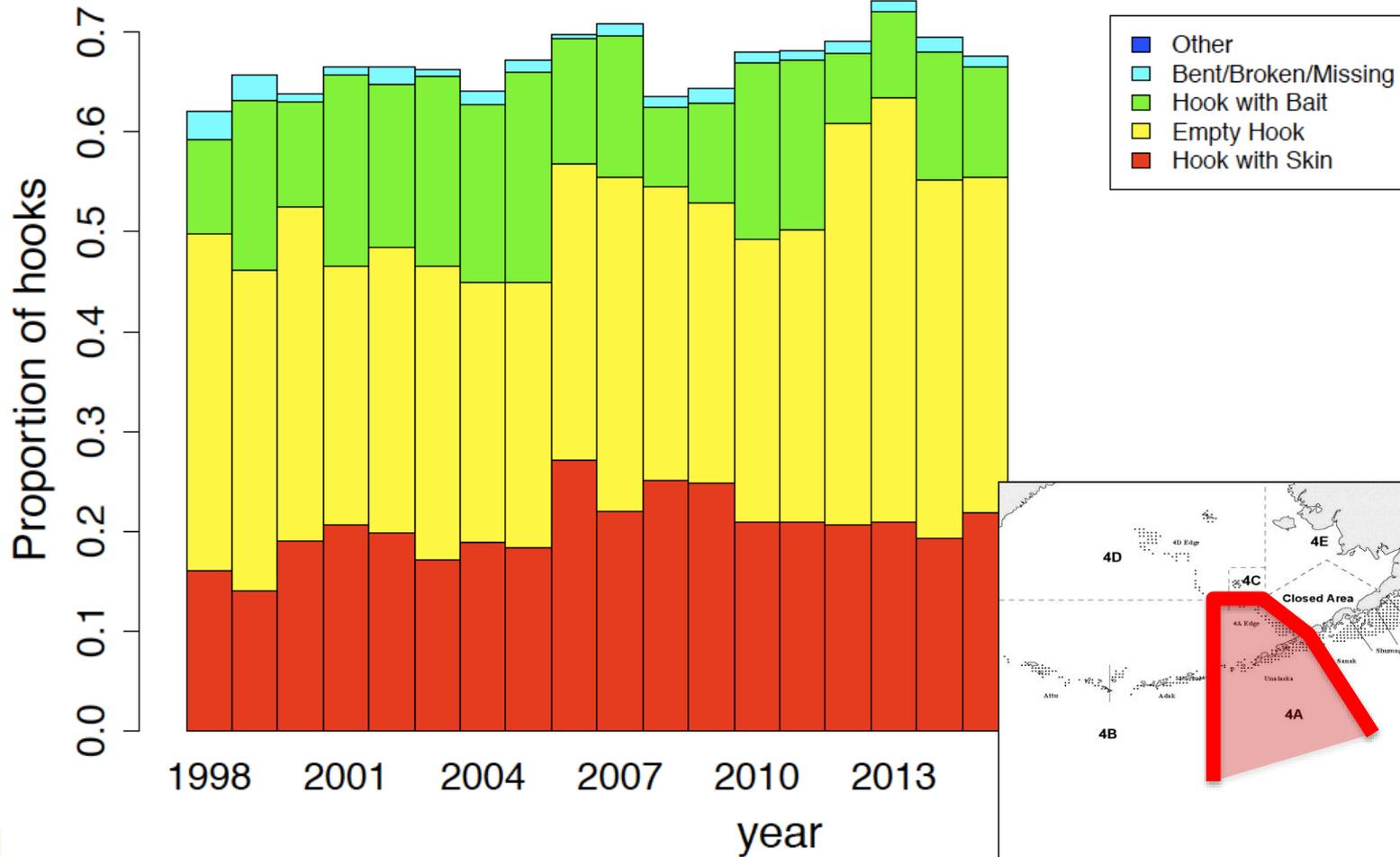
Reg Area 4D



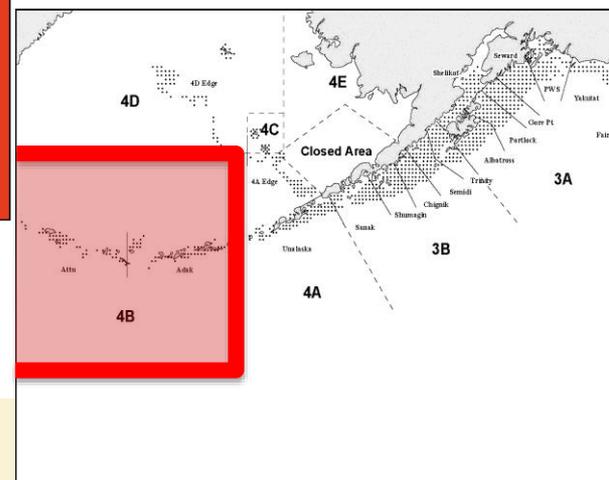
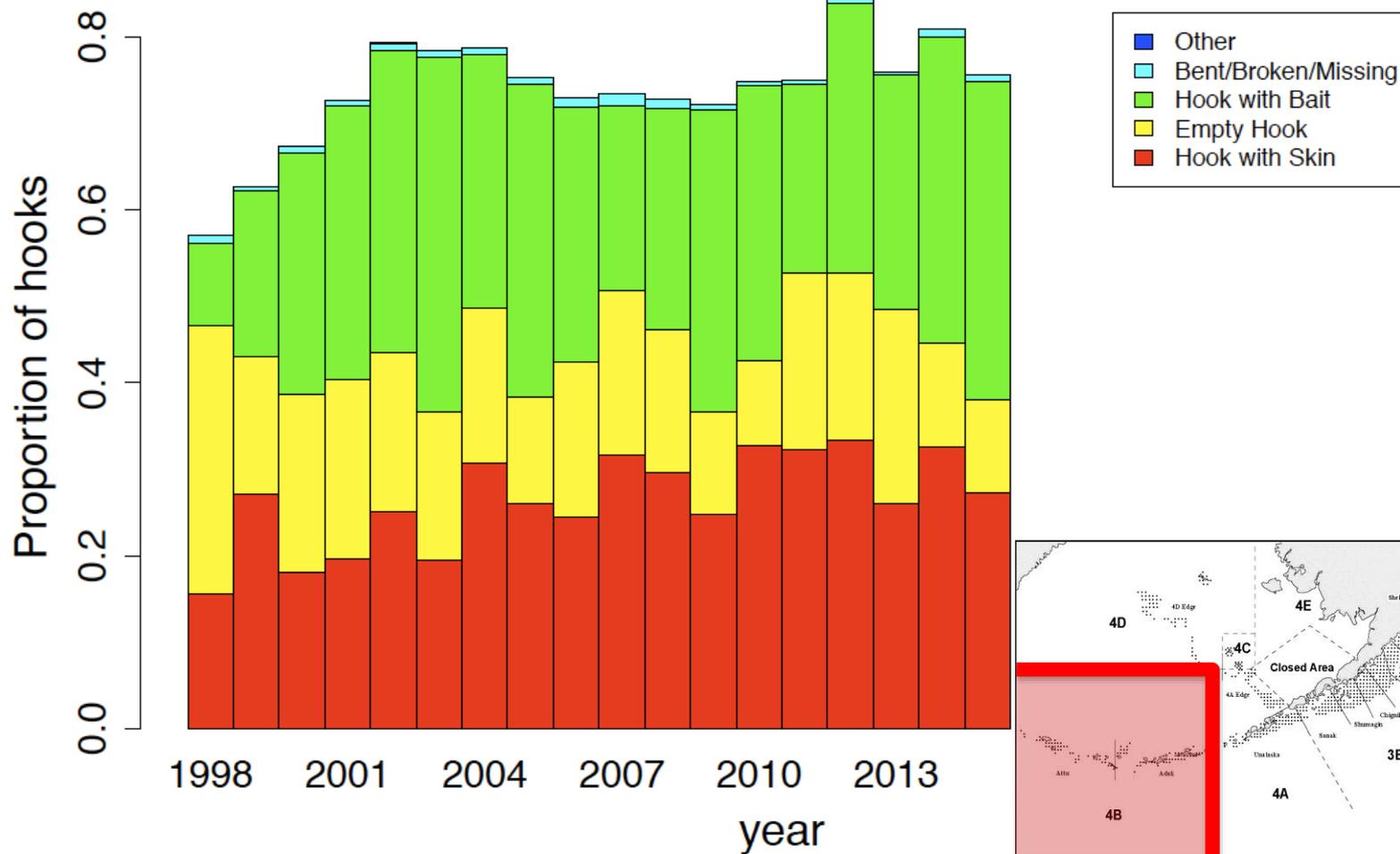
- Bait, Cod, Halibut, Other
- Hook with Bait
 - Pacific Cod
 - Pacific Halibut
 - Empty Hook
 - Other



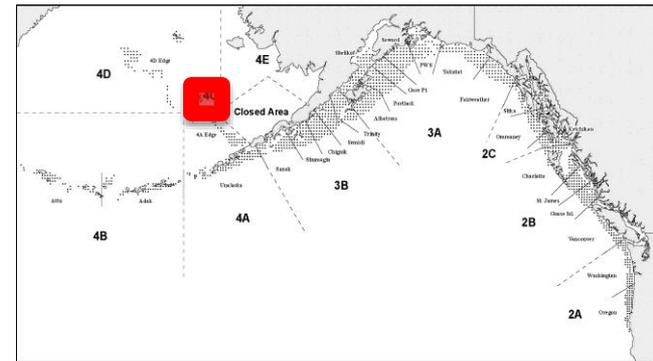
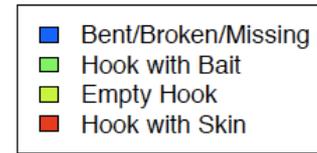
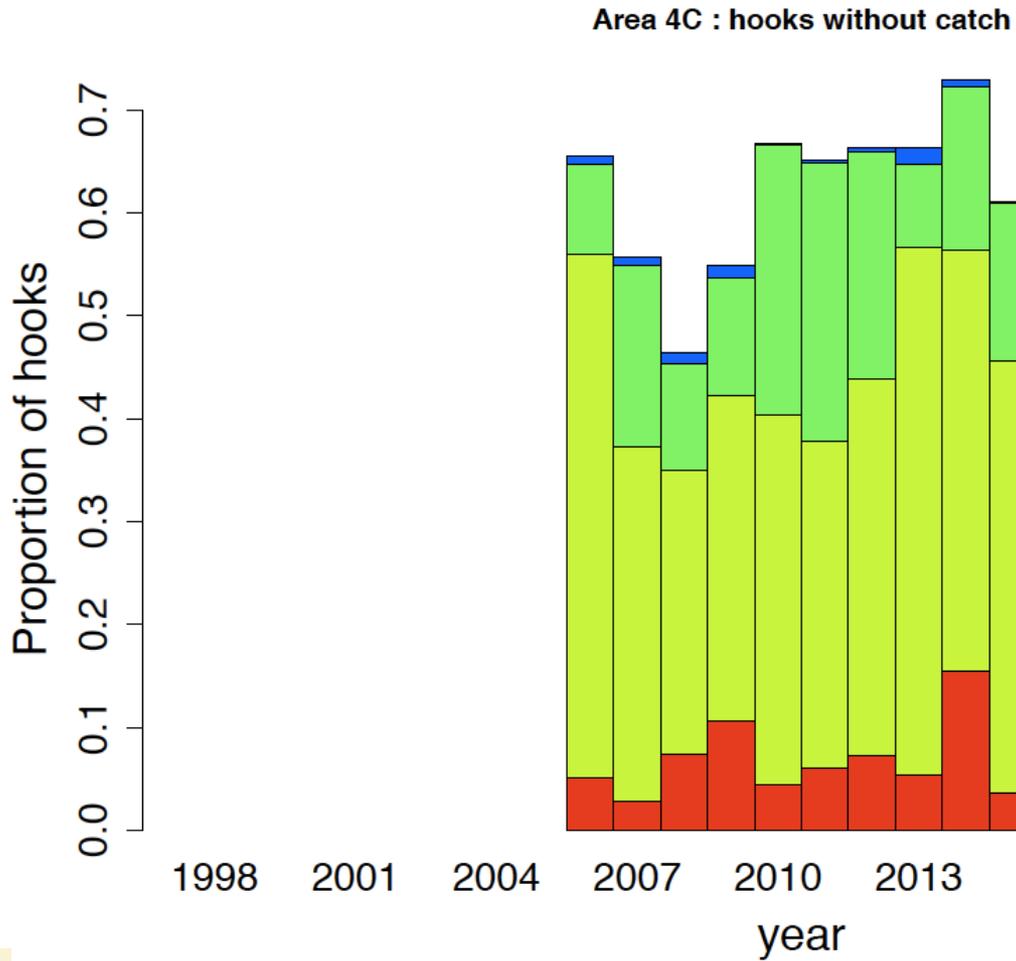
Area 4A : hooks without catch



Area 4B : hooks without catch



4C



4D

