

Bycatch Avoidance Under Amendment 80 in the BSAI Non-Pollock Groundfish Trawl Fishery

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Motivation

- Institutions are pivotal in shaping fishermen incentives
 - e.g. catch shares and bycatch avoidance
- However, the ability to avoid bycatch depends on technological, biological, and physical aspects of the fishery as well
 - e.g. “production possibilities” or “targeting ability”



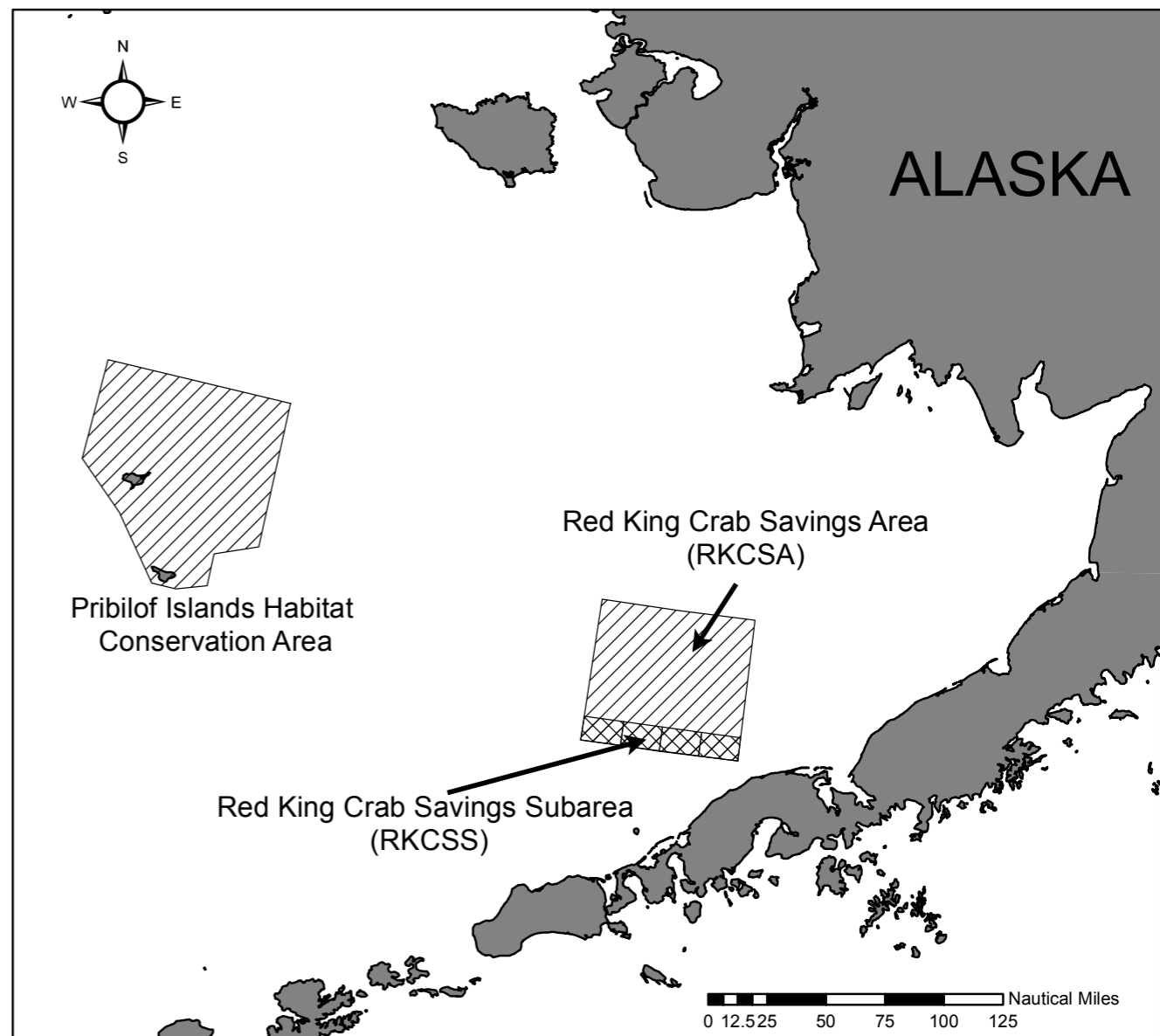
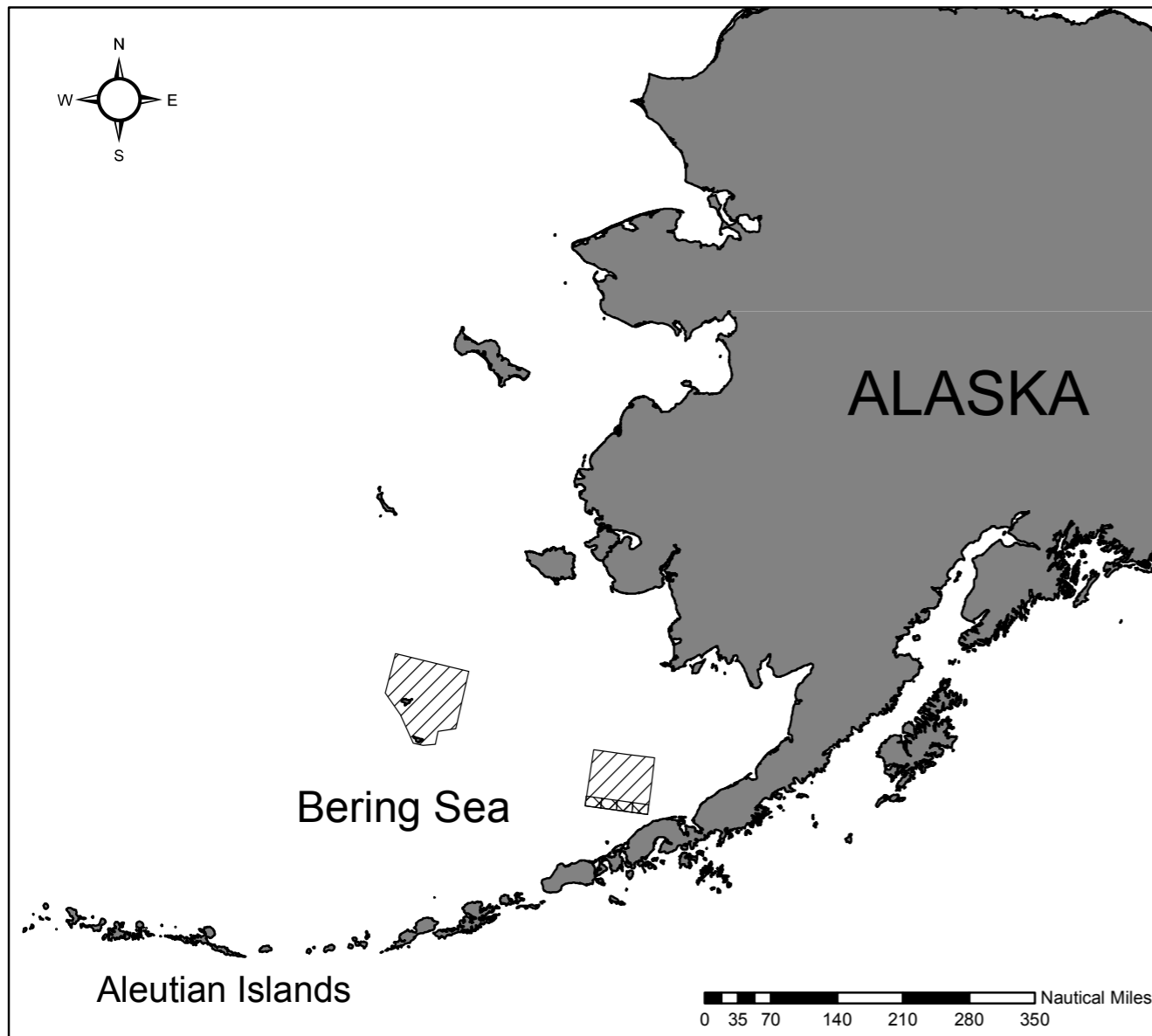
Two Questions

1. Was a new incentive structure (Amendment 80) successful in increasing bycatch avoidance and reducing bycatch rates?
2. Can institutions mask hidden flexibilities and substitution capabilities of fishermen?



The BSAI Non-Pollock Groundfish Fishery

Bering Sea and Aleutian Islands



The BSAI Non-Pollock Groundfish Fishery

Multispecies fishery

- Primary "Target" Species:

- Rock sole
- Yellowfin sole
- Flathead sole
- Pacific cod
- Atka mackerel
- Pacific ocean perch



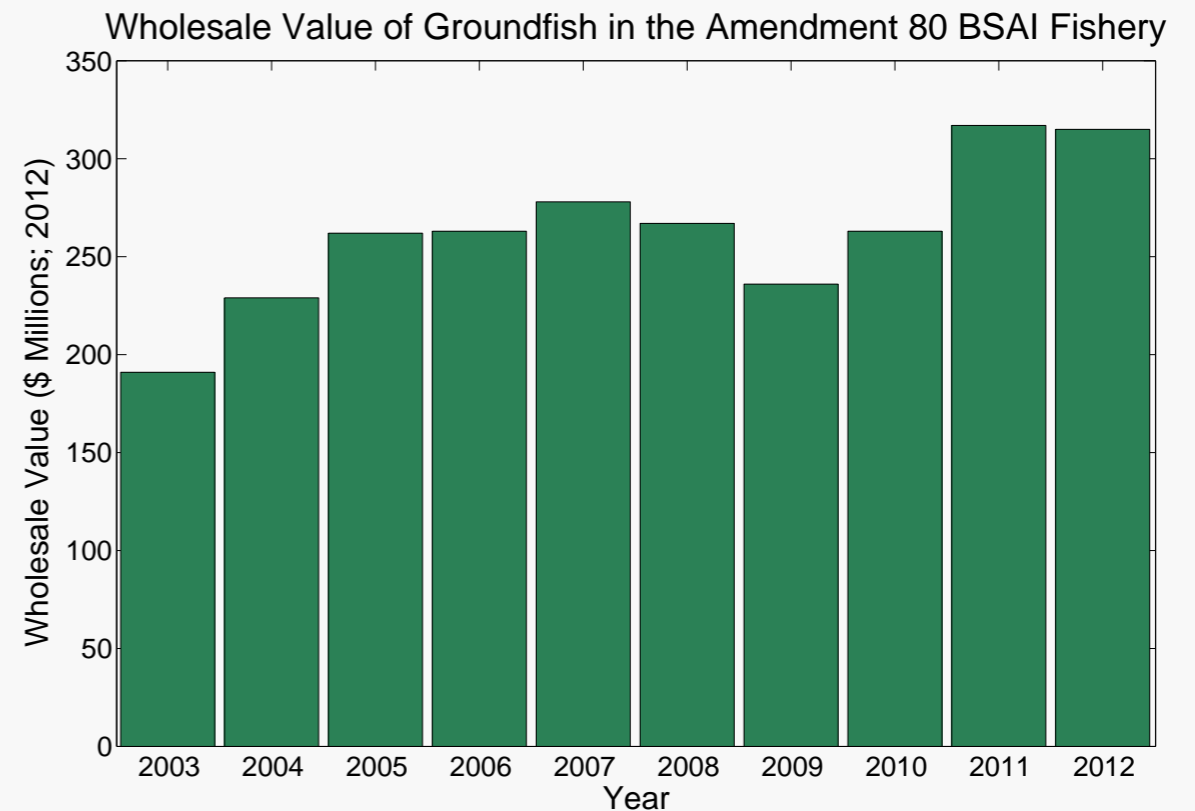
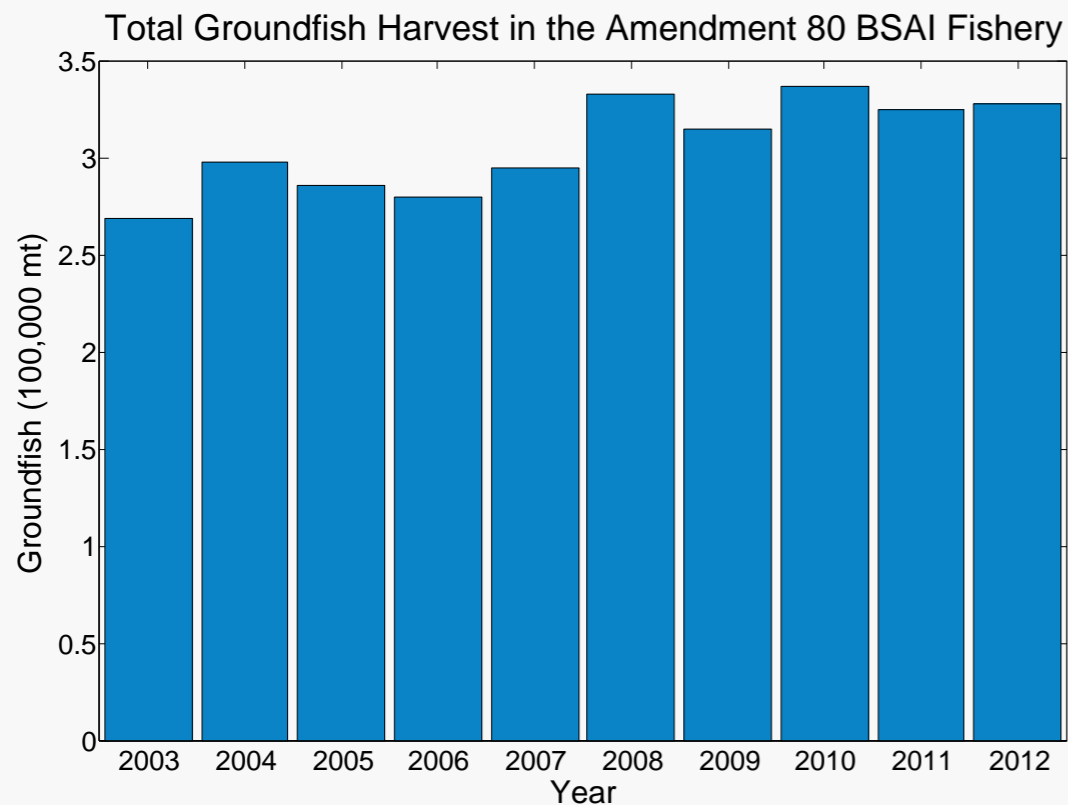
- Prohibited Species:

- Pacific Halibut
- King Crab
- Tanner Crab



The BSAI Non-Pollock Groundfish Fishery

- Catcher Processor Trawlers
 - Primarily head and gut
 - 23 CPs since 2000
 - range from 91 to 295 ft



Amendment 80

- Adopted by NPFMC in 2006 and implemented in 2008
- Goals and Objectives
 - Increase target catch and profits
 - Reduce bycatch and discards
 - Increase flexibility while complying with target and prohibited species TACS

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

15 CFR Part 902

50 CFR Part 679

[Docket No. 0612242886-7464-03; I.D. 041307D]

RIN 0648-AU68

Fisheries of the Exclusive Economic Zone Off Alaska; Allocating Bering Sea/Aleutian Islands Fishery Resources; American Fisheries Act Sideboards

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA).

obtained from NMFS Alaska Region, P.O. Box 21668, Juneau, AK 99802, Attn: Ellen Sebastian, and on the NMFS Alaska Region Web site at <http://www.fakr.noaa.gov>. The proposed rule to implement Amendment 80 also may be accessed at this Web site.

Written comments regarding the burden-hour estimates or other aspects of the collection-of-information requirements contained in this rule may be submitted to NMFS at the above address, and by e-mail to David_Rostker@omb.eop.gov or by fax to 202-395-7285.

FOR FURTHER INFORMATION CONTACT: Glenn Merrill, 907-586-7228 or glenn.merrill@noaa.gov.

SUPPLEMENTARY INFORMATION: The groundfish fisheries in the BSAI are managed under the FMP. The North

vessels; (2) allocating fishery resources among BSAI trawl harvesters in consideration of historic and present harvest patterns and future harvest needs; (3) establishing a LAPP for the non-AFA trawl catcher/processors and authorizing the allocation of groundfish species to harvesting cooperatives to encourage fishing practices with lower discard rates and to improve the opportunity for increasing the value of harvested species while lowering costs; and (4) limiting the ability of non-AFA trawl catcher/processors to expand their harvesting capacity into other fisheries not managed under a LAPP.

I. Development of the Program

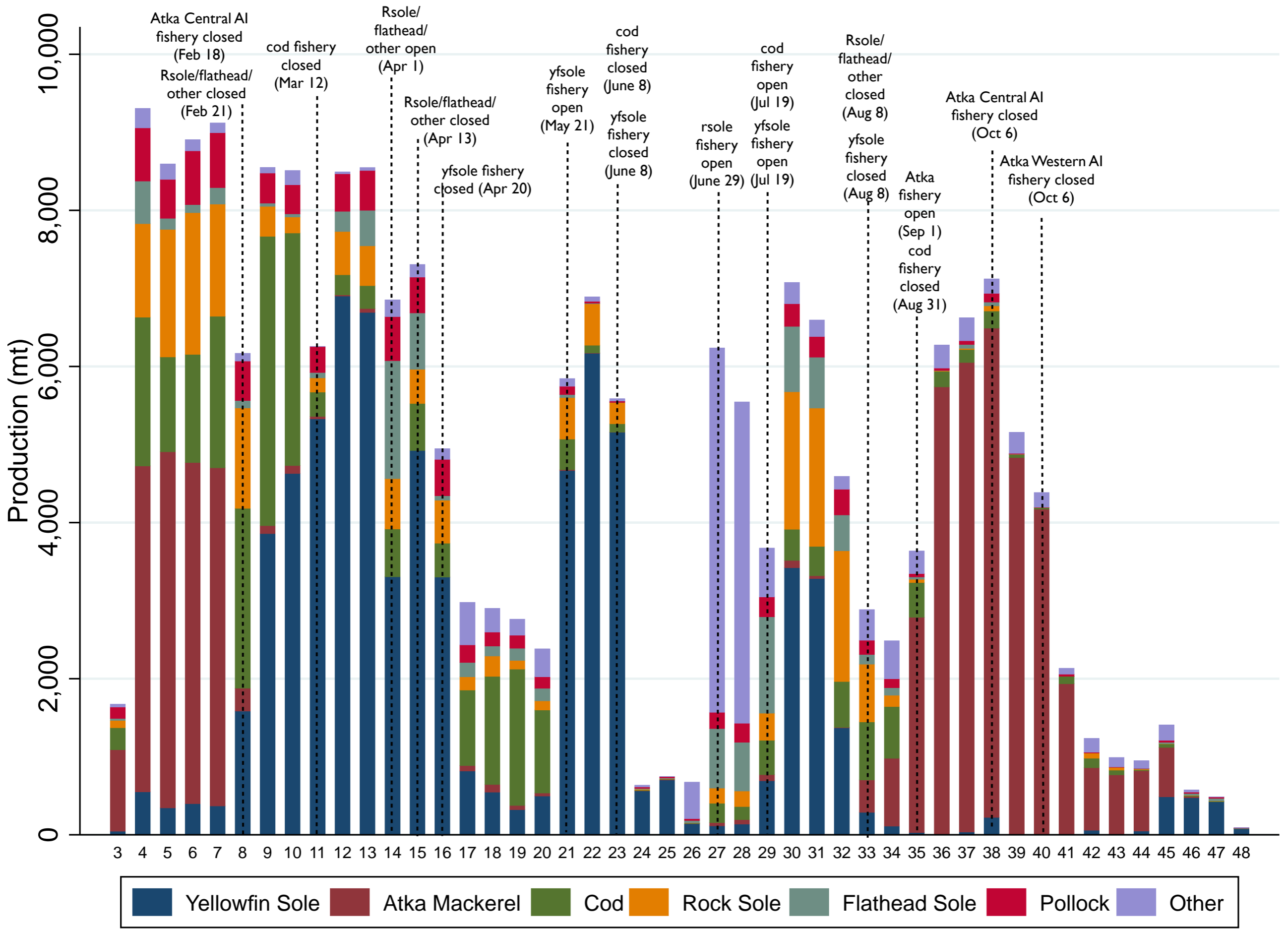
A. History of Bycatch and Discard Reduction Efforts in the BSAI

The Council has long recognized the

The BSAI Non-Pollock Groundfish Fishery

- Pre-Amendment 80 (prior to 2008):
 - Target species TACs allocated as fleet-wide common pool over multiple “sub-seasons”
 - e.g. Rock sole A, B, and C seasons, each with their own TAC
 - TAC for prohibited species allocated to each target species fisheries
 - e.g. Halibut allocated to each rock sole sub-season
 - Target fishery closed if either prohibited species or target species TAC reached.
 - Target fisheries typically closed due to binding bycatch TAC
 - Halibut was the primary “choke” species

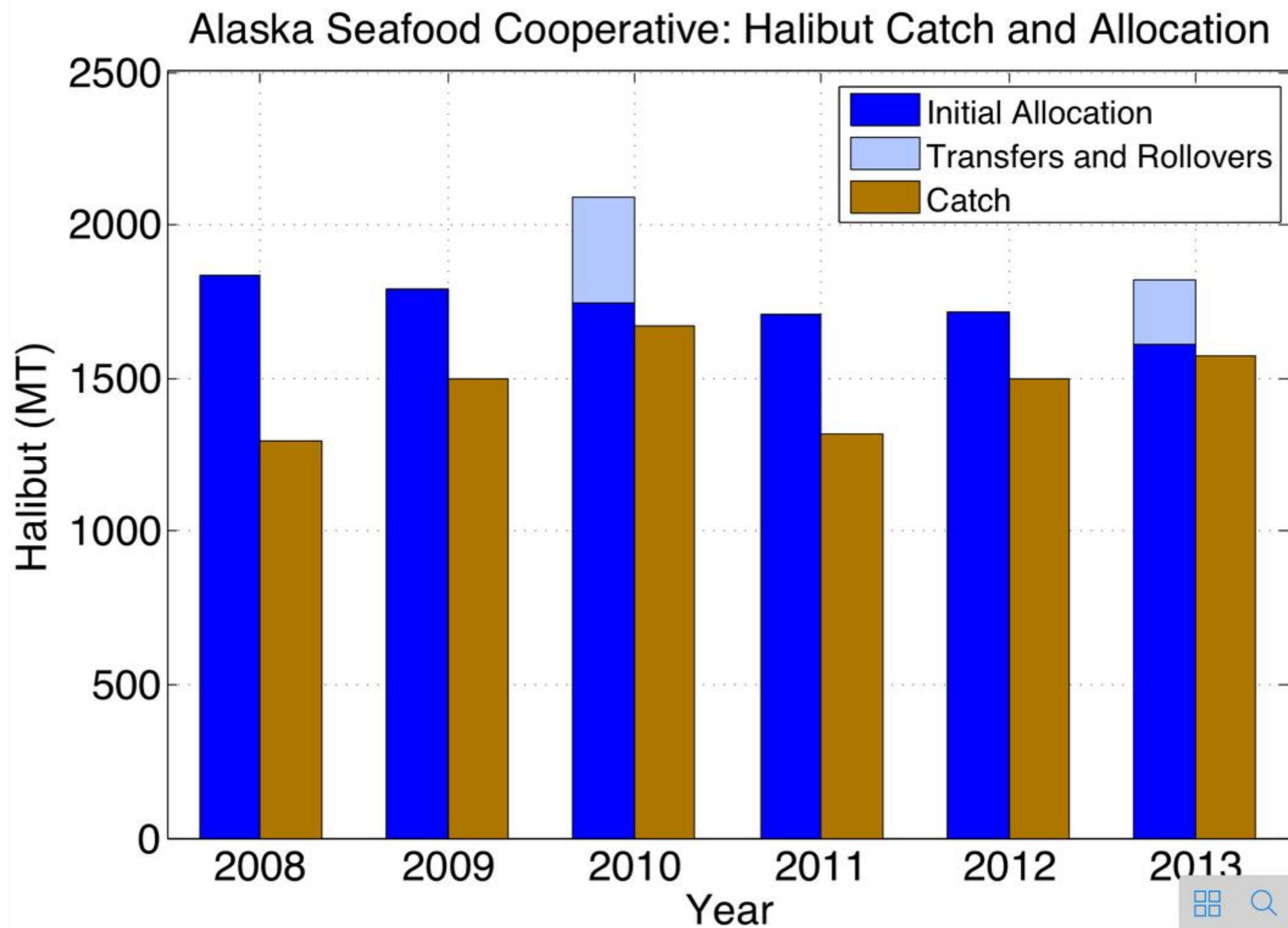




The BSAI Non-Pollock Groundfish Fishery

- Post-Amendment 80 (2008 and after):
 - Shares of target and prohibited species TACs allocated to each vessel
 - Two options:
 - (i) *cooperatives*: vest shares into cooperative, with flexibility as to how catch entitlements are internally allocated
 - (ii) *limited access*: vest shares into a common pool that is available to all non-cooperative vessels
 - Initially one cooperative formed (Alaska Seafood Cooperative): 16 vessels, 7 companies
 - Since 2011, limited access vessels formed the Alaska Groundfish Cooperative
- Also.....Amendment 85
 - NPFMC reallocated the BSAI TAC of cod across sectors
 - Amendment 80 sector received 13.4% of BSAI TAC, considerably lower than historical harvest share

Immediate Impacts: Utilization of Halibut Allocation



Observer Data.....A Deeper Look

- Observer Data

- Latitude and longitude of tow
- Time of tow
- Duration and depth of tow
- Total catch
- Catch composition

- 100% coverage for vessels > 124ft pre-2008

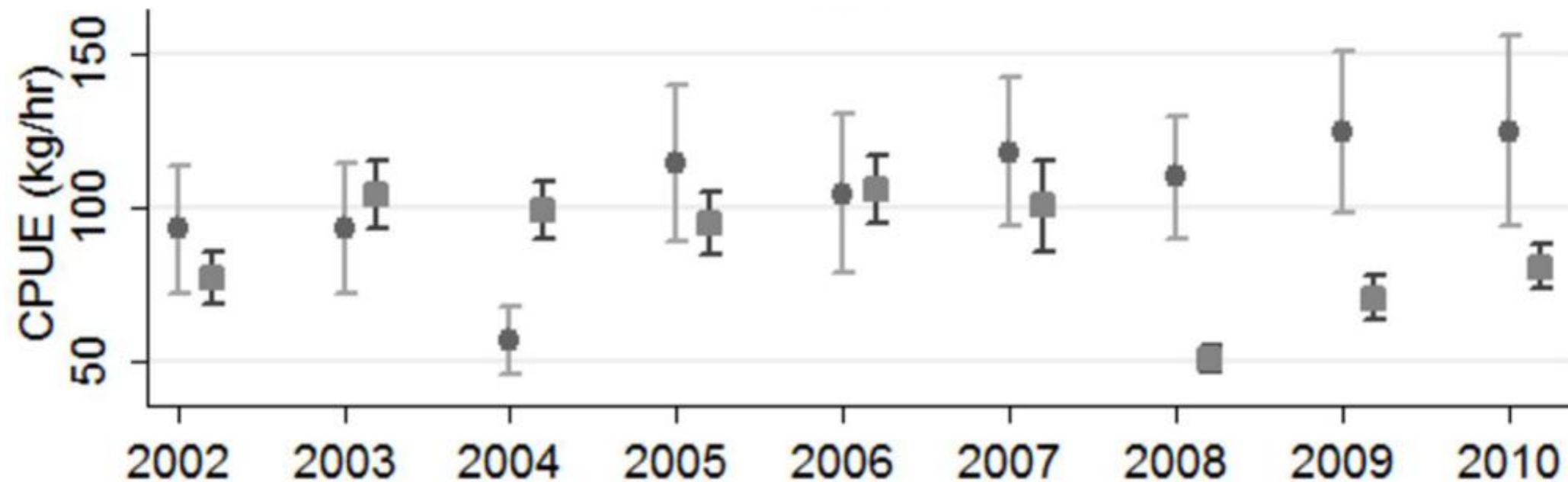
- approximately 40% species composition sampling

- 200% coverage for all vessels after 2008

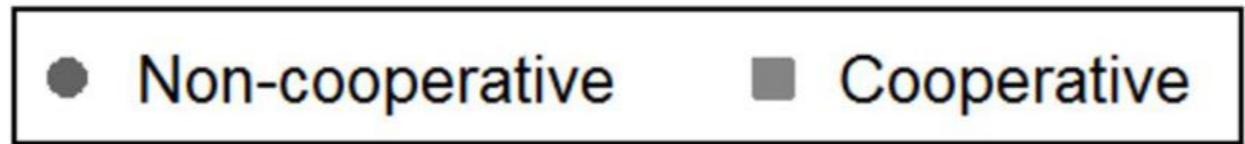
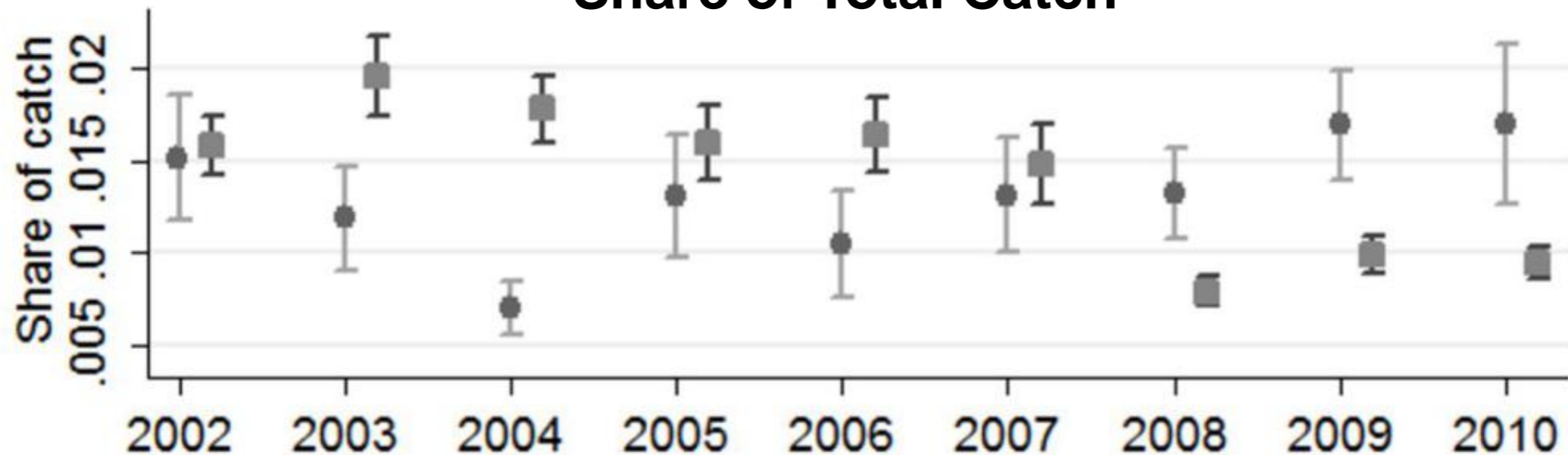
- approximately 100% species composition sampling

Halibut: CPUE and Share of Total Catch

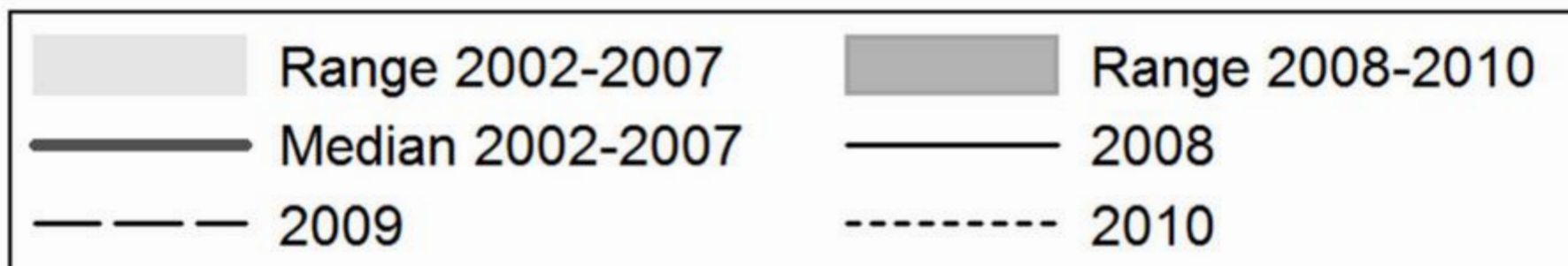
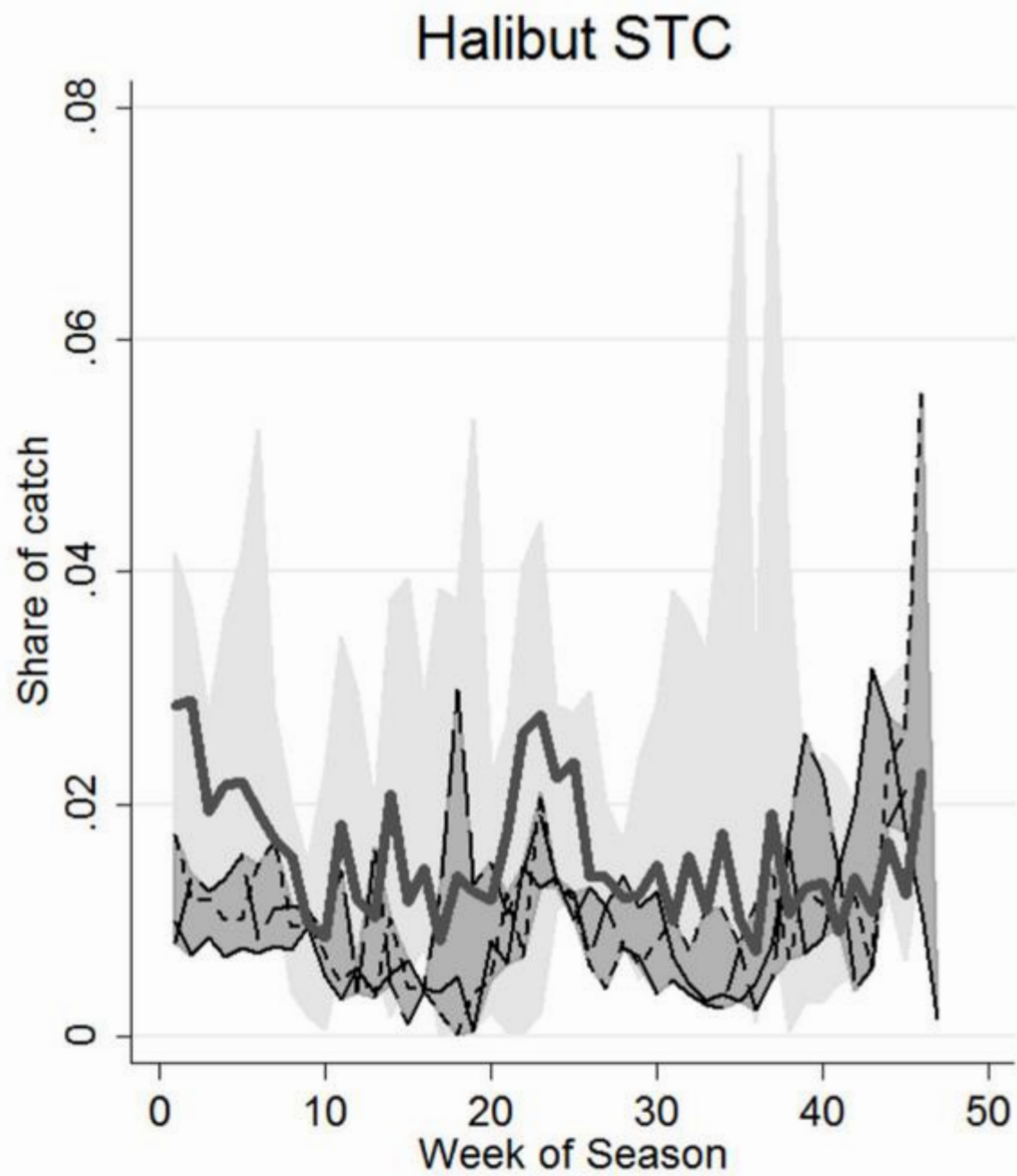
Catch per unit effort



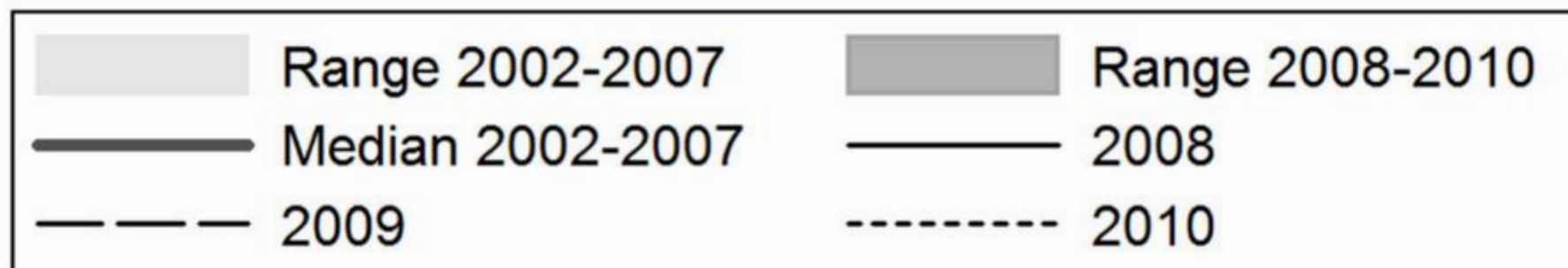
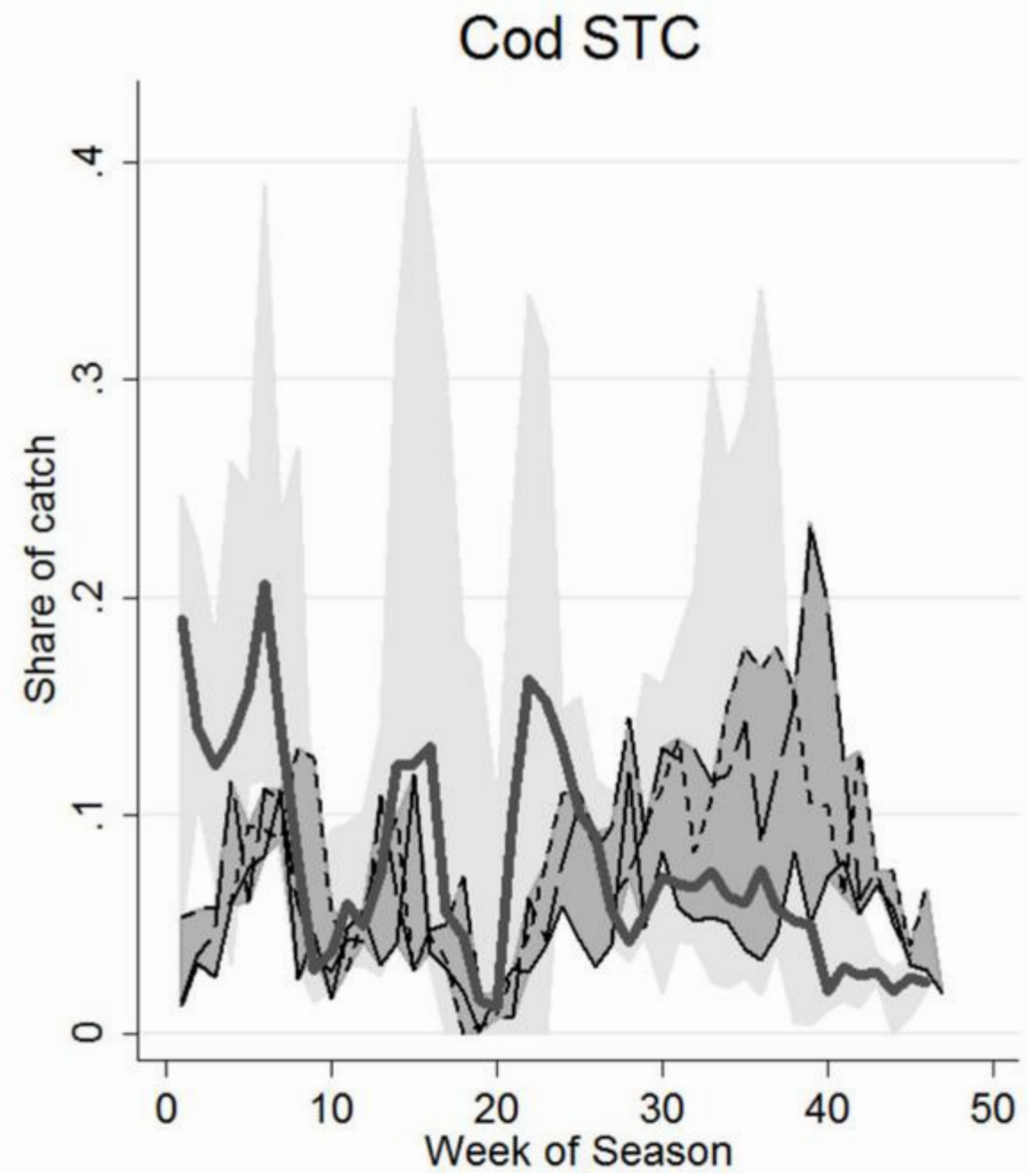
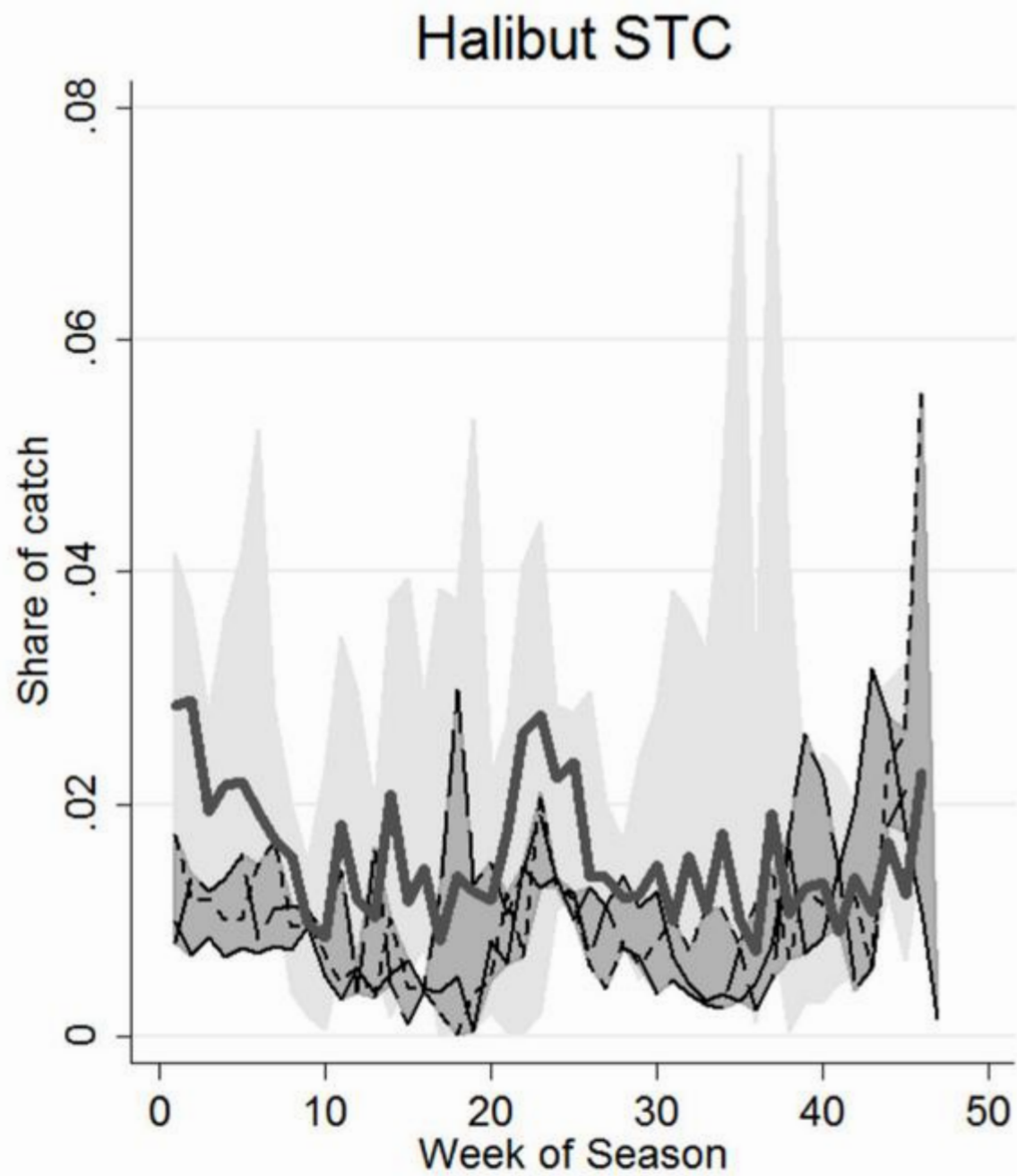
Share of Total Catch



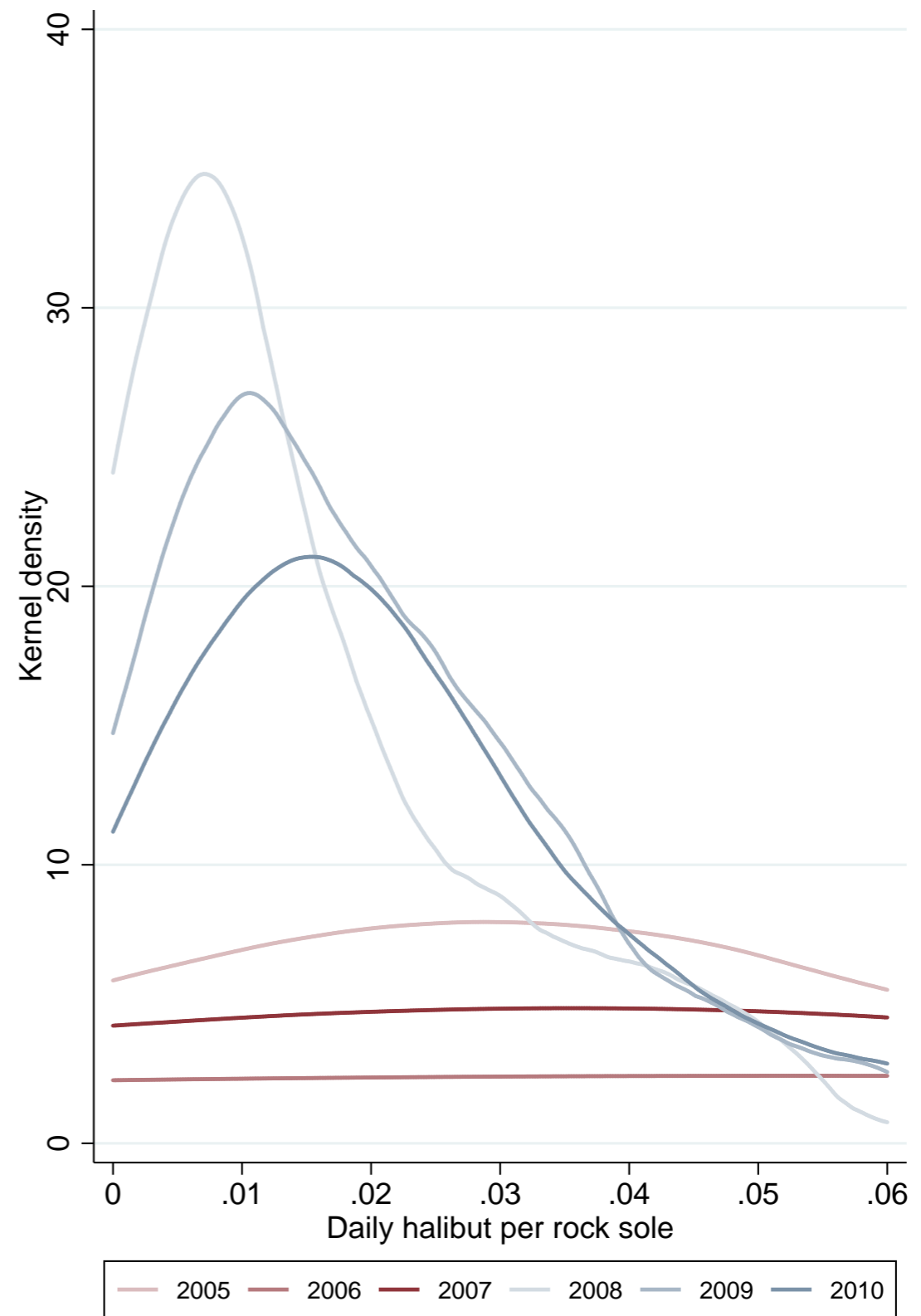
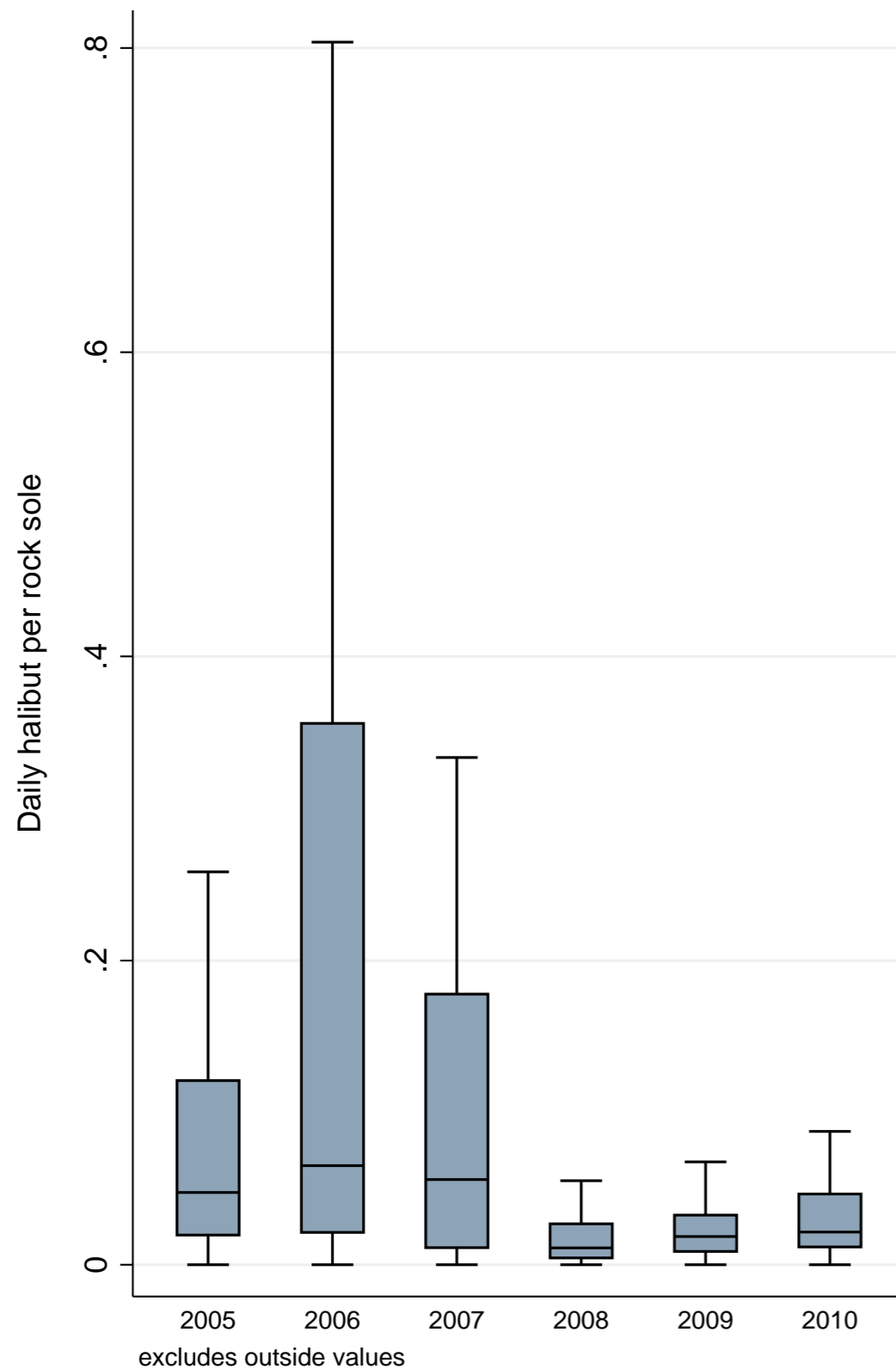
Weekly "Bycatch" Share of Total Catch



Weekly "Bycatch" Share of Total Catch

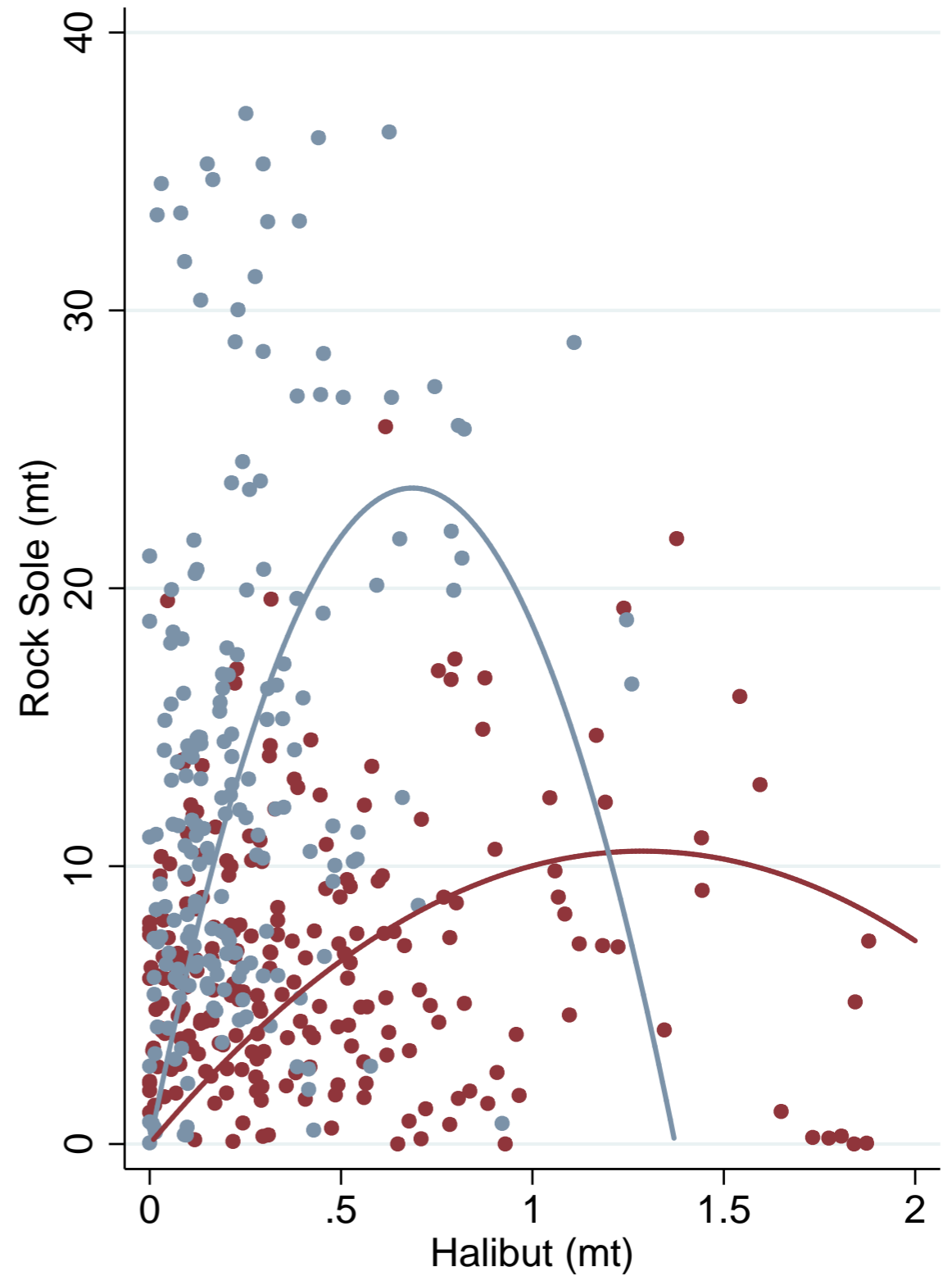
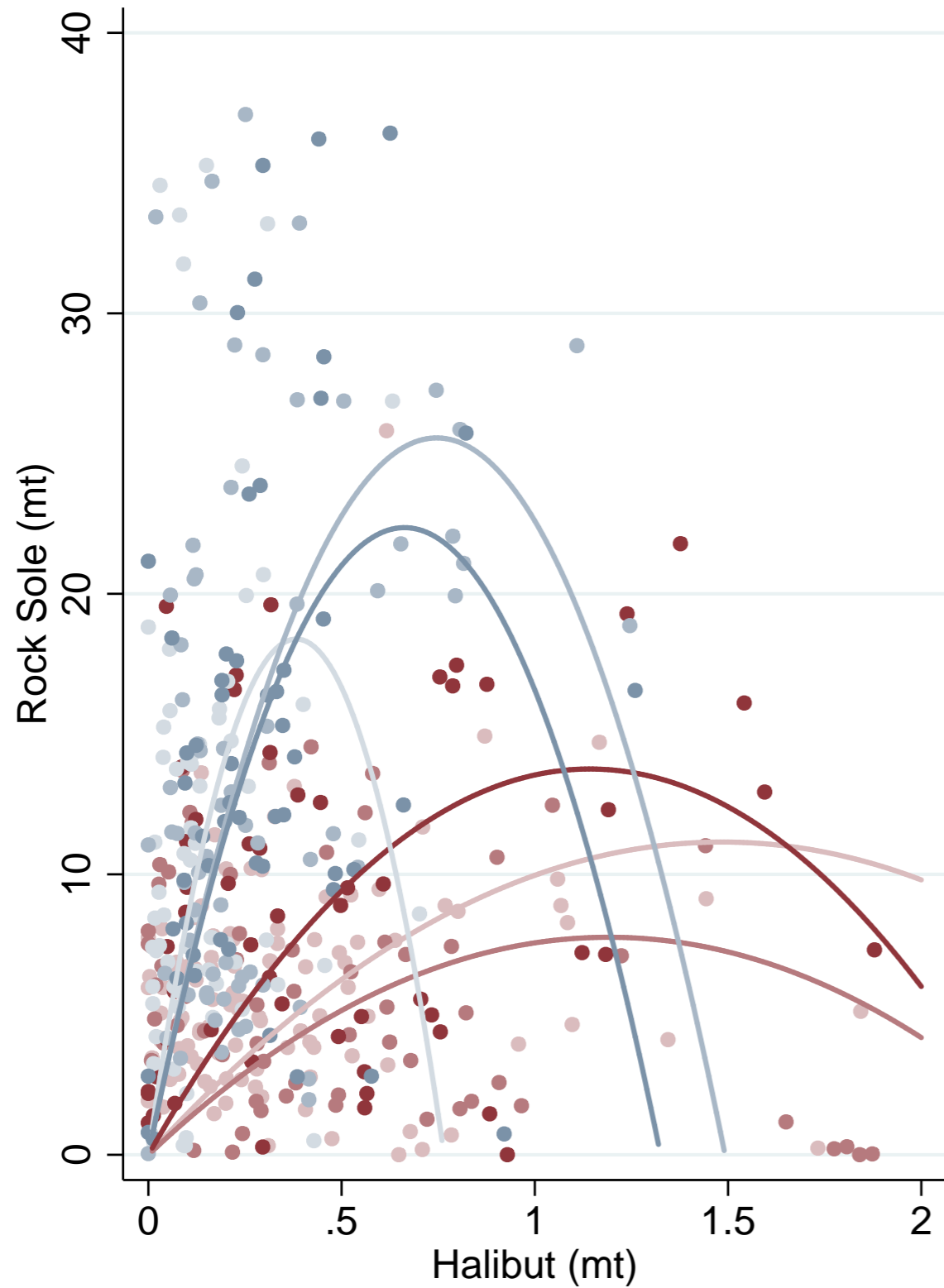


Changes in Bycatch Intensity



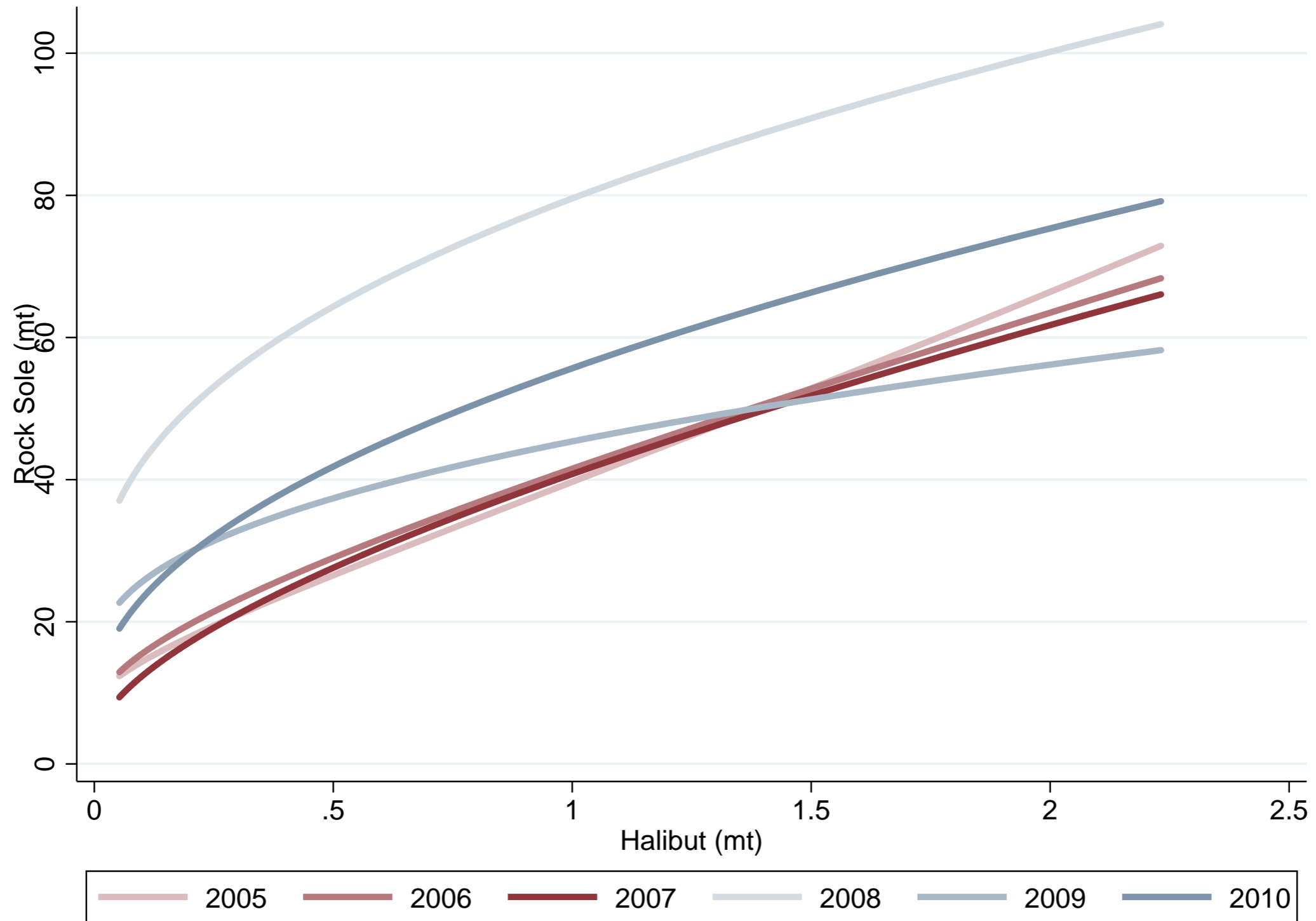
January-April (Rock sole season)

Changes in Production Possibilities



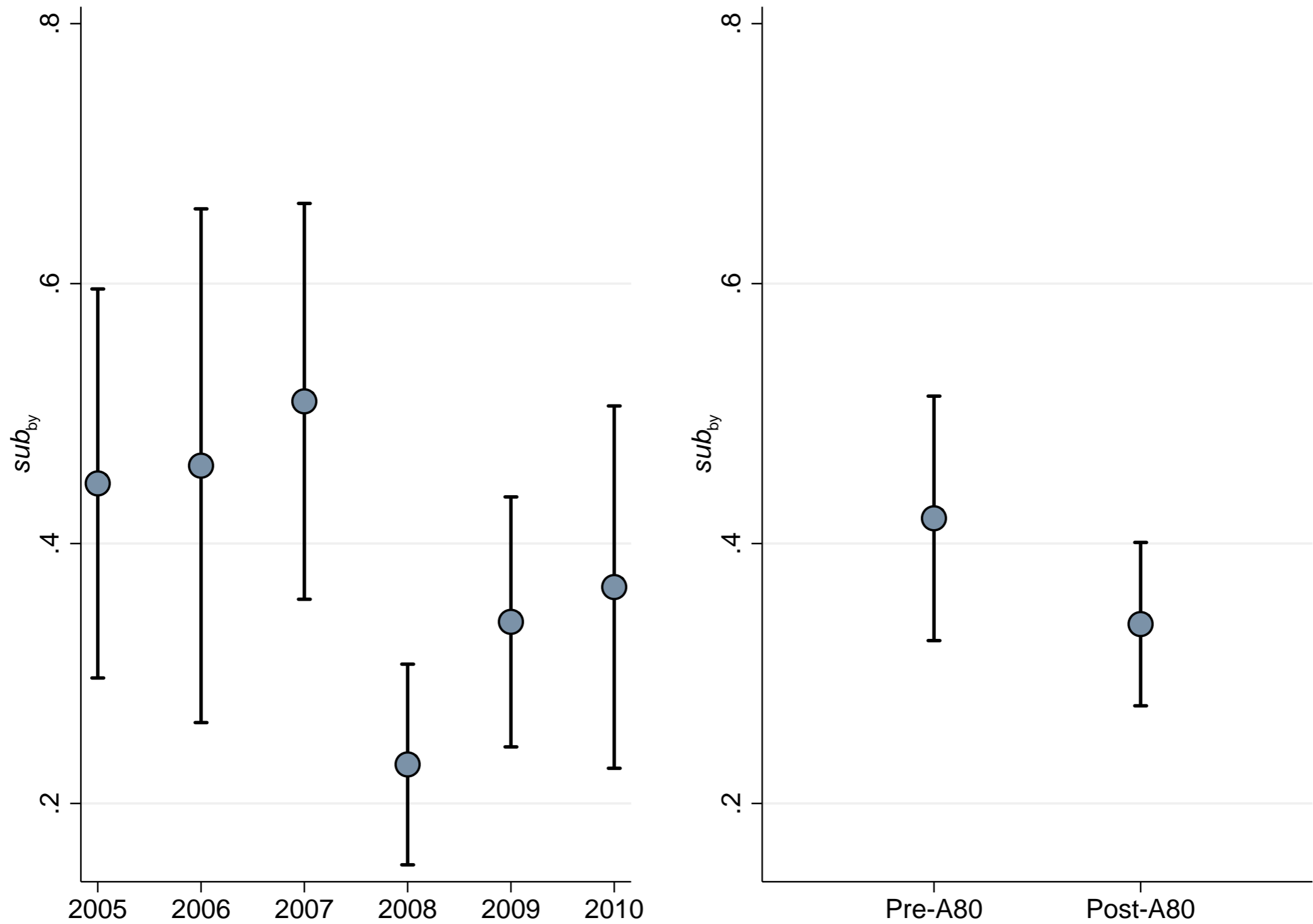
January-April (Rock sole season)

Changes in Production Frontiers



January-April (Rock sole season)

Changes in Substitutability



January-April (Rock sole season)

How did fishermen reduce bycatch rates?

.....Coming up next.....

To Conclude...

- Fishermen substantially reduced bycatch of halibut under Amendment 80:
 - New incentive structure altered fishing practices
 - Substitution potential was latent until management changes altered *incentives*
- Pre-A80 “targeting abilities” different from post-A80:
 - Estimated production relationship is a function of technology, biology, and behavioral incentives
 - Highlights the difficulty in assessing the potential for cross-species substitution in fisheries using *ex ante* data alone

