Northeast Multispecies (Groundfish) Catch Share Review

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Project Process

- Catch Share Review approved as a priority by the Council for 2018.
- MRAG Americas contracted in early 2019 to lead the technical development of the review
- Work Group met 8 times (in-person and remotely) between April 2019 and March 2020.
- Work Group members provided analyses and review iteratively during the development of the report.
- Concurrently, GMRI conducted a series of port meetings to discuss the review.

Purpose, Need and Scope

- NOAA Catch Share Policy “recommends Councils apply the LAPP review and duration principles to all catch share programs”

- Baseline:
  - FY 2007 to 2009 (May 1, 2007, to April 30, 2010)
- Evaluation period:
  - FY 2010 to 2015 (May 1, 2010, to April 30, 2016) → First 6 years of the program

Purpose, Need and Scope

- Eight elements outlined in NOAA's Guidance for Conducting Review of Catch Share Programs
- Key goals and objectives as specified for the FMP in Amendments 13 and 16
  - The sector program does not have independent goals and objectives by which to measure success.
- Four additional goals in Amendment 18 (2016) included for consideration

Eight Elements of NOAA's Guidance for Conducting Review of Catch Share Programs

1. Purpose and need of the review (discuss legal and policy requirements);
2. Goals and objectives of the program, the FMP, and the MSA;
3. History of management, including a description of management prior to the program's implementation, a description of the program at the time of implementation (including enforcement, data collection, and monitoring), and any changes made since the program's implementation or the previous review (including an explanation of why those changes were made);
4. A description of biological, ecological/environmental, economic, social, and administrative environments before and since the program's implementation;
5. An analysis of the program's biological, ecological/environmental, economic, social, and administrative effects;
6. An evaluation of those effects with respect to meeting the goals and objectives (i.e., program performance), including a summary of the conclusions arising from the evaluation;
7. A summary of any unexpected effects (positive or negative) which do not fall under the program's goals and objectives; and
8. Identification of issues associated with the program's structure or function and the potential need for additional data collection and/or research.

FMP Goals and Objectives from A 13 (as applied to A 16):

- Goal 1: Consistent with the National Standards and other required provisions of the Magnuson-Stevens Fishery Conservation and Management Act and other applicable law, manage the northeast multispecies complex at sustainable levels.
- Goal 2: Create a management system so that fleet capacity will be commensurate with resource status so as to achieve goals of economic efficiency and biological conservation and that encourages diversity within the fishery.
- Goal 3: Maintain a directed commercial and recreational fishery for northeast multispecies.
- Goal 4: Minimize, to the extent practicable, adverse impacts on fishing communities and shoreside infrastructure.
- Goal 5: Provide reasonable and regulated access to the groundfish species covered in this plan to all members of the public of the United States for seafood consumption and recreational purposes during the stock rebuilding period without compromising the Amendment 13 objectives or timetable. If necessary, management measures could be modified in the future to insure that the overall plan objectives are met.
- **Goal 6**: To promote stewardship within the fishery.

FMP Goals and Objectives (continued):

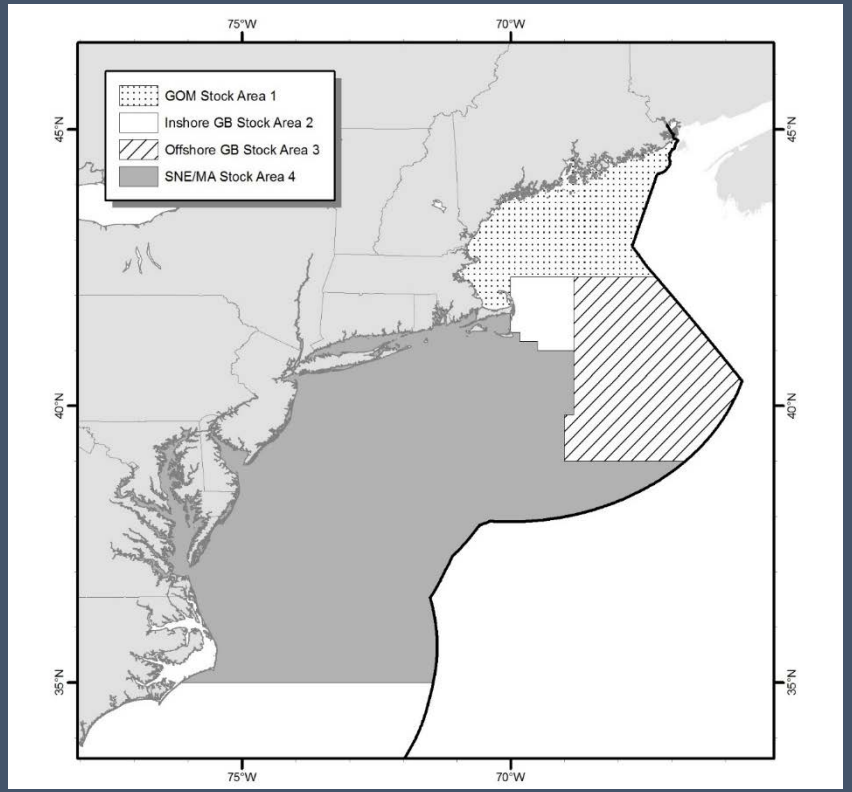
- Objective 1: Achieve, on a continuing basis, optimum yield (OY) for the U.S. fishing industry.
- Objective 2: Clarify the status determination criteria (biological reference points and control rules) for groundfish stocks so they are consistent with the National Standard guidelines and applicable law.
- Objective 3: Adopt fishery management measures that constrain fishing mortality to levels that are compliant with the Sustainable Fisheries Act.
- Objective 4: Implement rebuilding schedules for overfished stocks, and prevent overfishing.
- Objective 5: Adopt measures as appropriate to support international transboundary management of resources.
- Objective 6: Promote research and improve the collection of information to better understand groundfish population dynamics, biology and ecology, and to improve assessment procedures in cooperation with the industry.
- Objective 7: To the extent possible, maintain a diverse groundfish fishery, including different gear types, vessel sizes, geographic locations, and levels of participation.
- Objective 8: Develop biological, economic and social measures of success for the groundfish fishery and resource that insure accountability in achieving fishery management objectives.
- Objective 9: Adopt measures consistent with the habitat provisions of the M-S Act, including identification of EFH and minimizing impacts on habitat to the extent practicable.
- Objective 10: Identify and minimize bycatch, which include regulatory discards, to the extent practicable, and to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

Data considerations

- Relies primarily on existing analyses where available and where feasible data and analysis were updated
  - Recent Council actions and supporting documents
  - GARFO & NEFSC datasets
  - 2015 Final Report on the Performance of the Northeast Multispecies
  - An Economic Analysis of the Multispecies Catch Share Program
  - Updated analyses and select CRD reports from NEFSC
- Identifies limitations and gaps for consideration in future evaluations

Northeast Multispecies Fishery

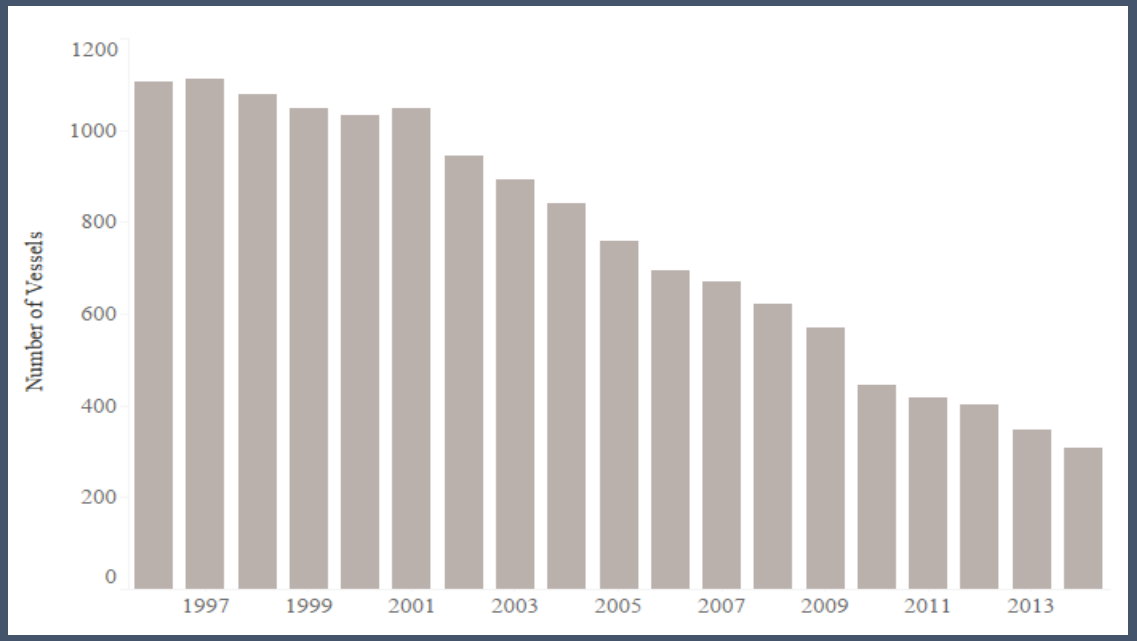
- Diverse group of (13) species managed as two or more separate stocks (20), based on geographic region
- Status of groundfish resources (2008 GARM III → 2019 Operational Assessment)

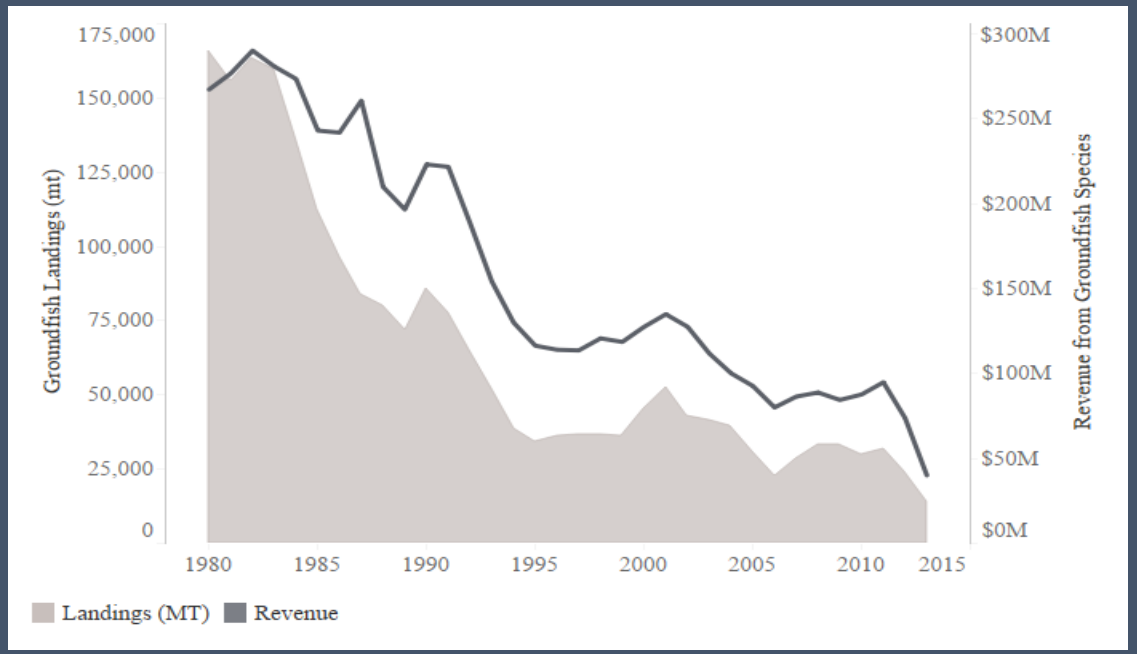


	Overfishing	Overfished
Start of Sector Program	Yes = 11 No = 7 Unknown = 2	Yes = 13 No = 6 Unknown = 1
Current Status (2019)	Yes = 3 No = 16 Unknown = 1	Yes = 12 No = 7 Unknown = 1

Northeast Multispecies Fishery

- Historical groundfish activity:
  - Decrease in number of vessels
  - Decrease in groundfish landings
  - Decrease in groundfish revenue



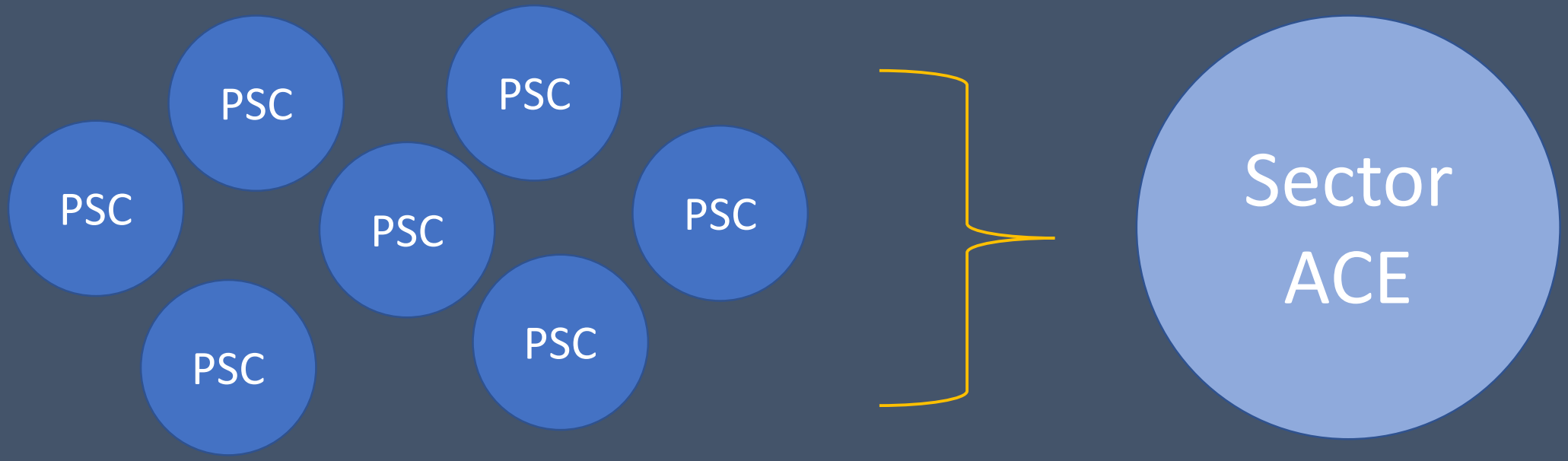


Northeast Multispecies Fishery

- In 2006, the MSA reauthorization implemented additional requirements to prevent and end overfishing and rebuild overfished stocks
  → Annual Catch Limits (ACLs) and Accountability Measures (AMs) ←
- In 2003, Amendment 13 specified a process for the formation of sectors
- In 2010, Amendment 16:
  - Sets ABCs, ACLs, and AMs for all 20
  - Expands sector-based approach
  - Provides for “common pool”
  - Provision for ACE transfer
  - Provision for inactive permits held in confirmation of permit history (CPH)

Sector Program

- Commercial Sub-ACL→ divided between sectors and common pool
- Sector Allocations: Combined Individual Potential Sector Contributions (PSC) of each member for each stock, based on historical activity × Sector Groundfish sub-ACL



Sector Program

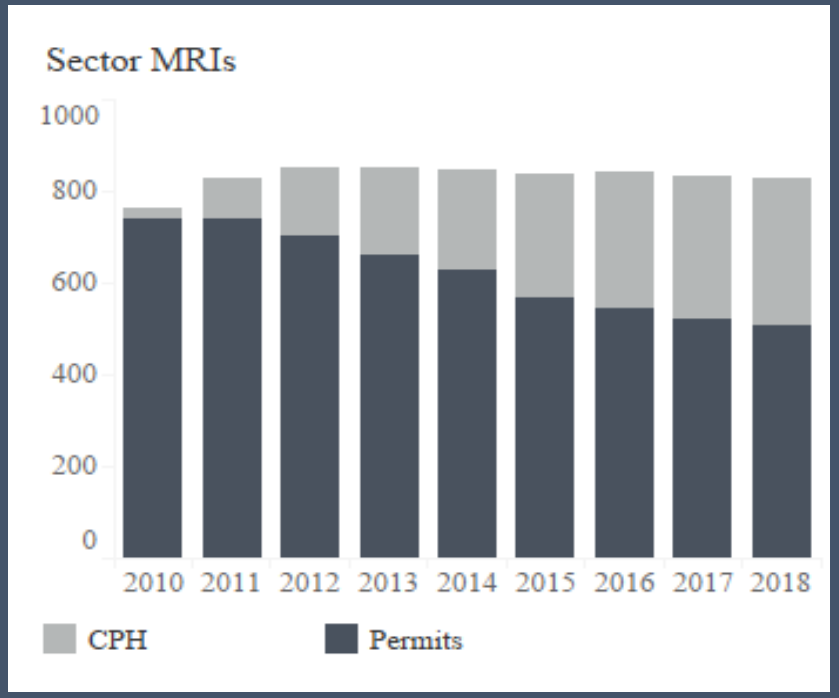
- Complex program represented a significant change in management
- Accountability measures to minimize frequency and magnitude of ACL overages
- Sector membership is annual, additional operation fees, reporting requirements
- ACE is transferable within & between sectors
- Catch monitoring: At Implementation dockside & At-Sea Monitoring joined NEFOP
- Major Challenges Faced
  - Fishery disaster declaration
  - Convicted misreporting
  - Failure of cod stocks to recover

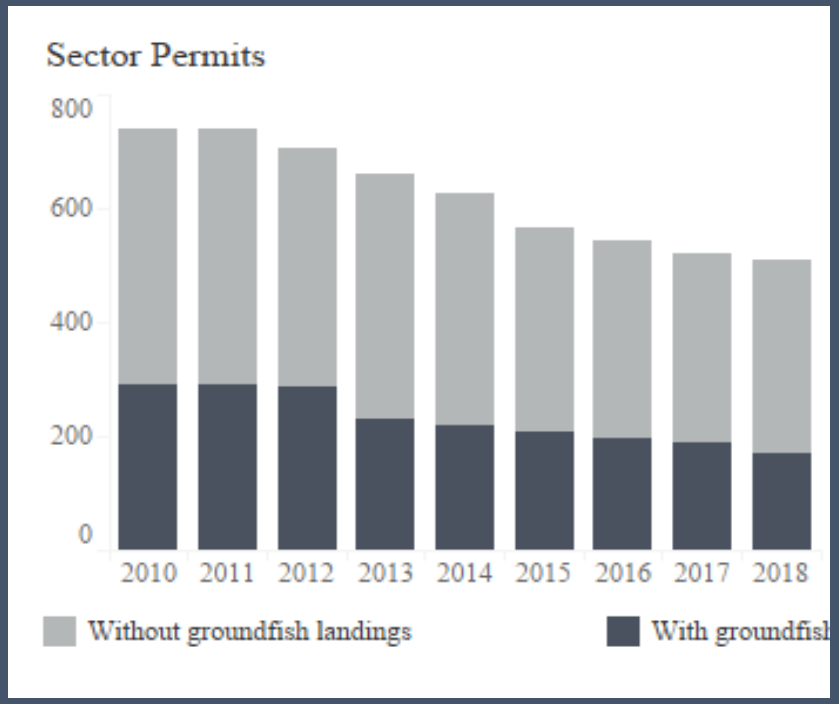
Groundfish Fishery Participation since Catch Shares

- Initial declines in both the number of northeast multispecies permits and active participation
- Increase in the number of sector permits held in CPH
- Relative increase in sector participation as more MRIs enrolled from common pool

	MRIs in Sectors	MRIs in Common Pool
FY 2010	761 (52%)	714 (48%)
FY 2015	838 (62%)	522 (38%)

(Source: GARFO)





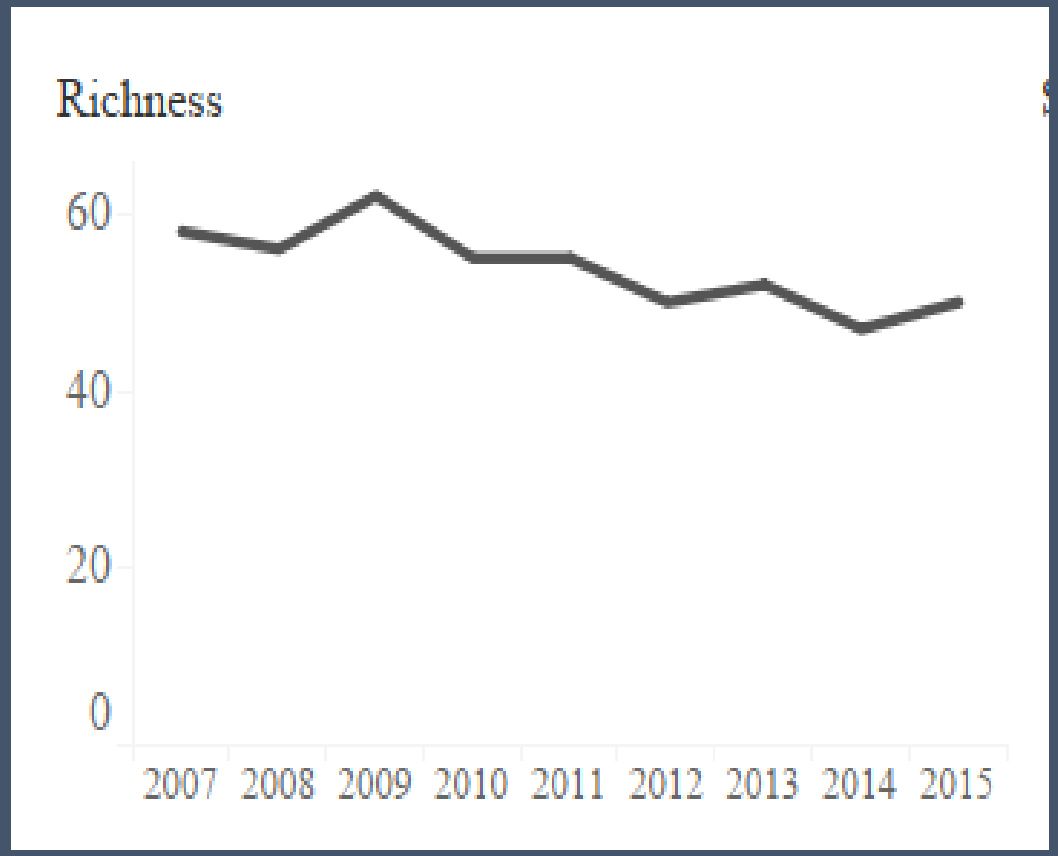
Fleet Activity

- Continued decline in number of vessels taking GF trips
  - FY 2010 – 2015: ↓ 37%
  - FY 2007 – 2015: ↓ 58%
- Decrease in the overall number of groundfish trips
  - FY 2010 – 2015: ↓ 38%
  - FY 2007 – 2015: ↓ 69%

- Declines experienced across fleet segments and geographies unequally
- Increased fishing restrictions, poor stock recruitment, management changes among possible contributing factors

(Source: Murphy et al. 2018)

Diversity

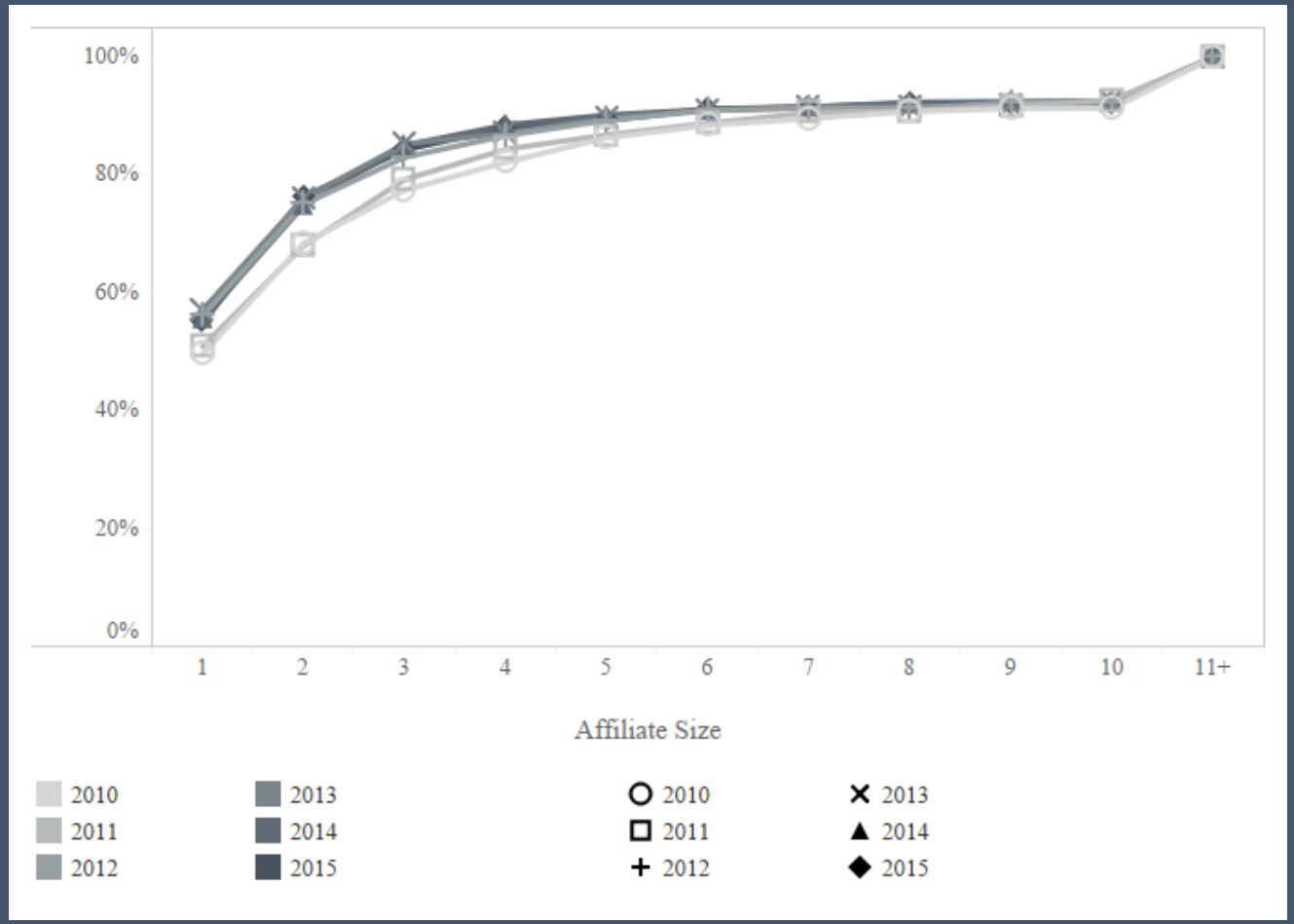


(Source: Thunberg 2019)

- Despite declines in participation, diversity did not appreciably change
- The number of vessel types (“richness”) ranged from 62 (2007) to 47 (2015)
- The “core” fleet: 31 types present in each year 2007 - 2015

Ownership

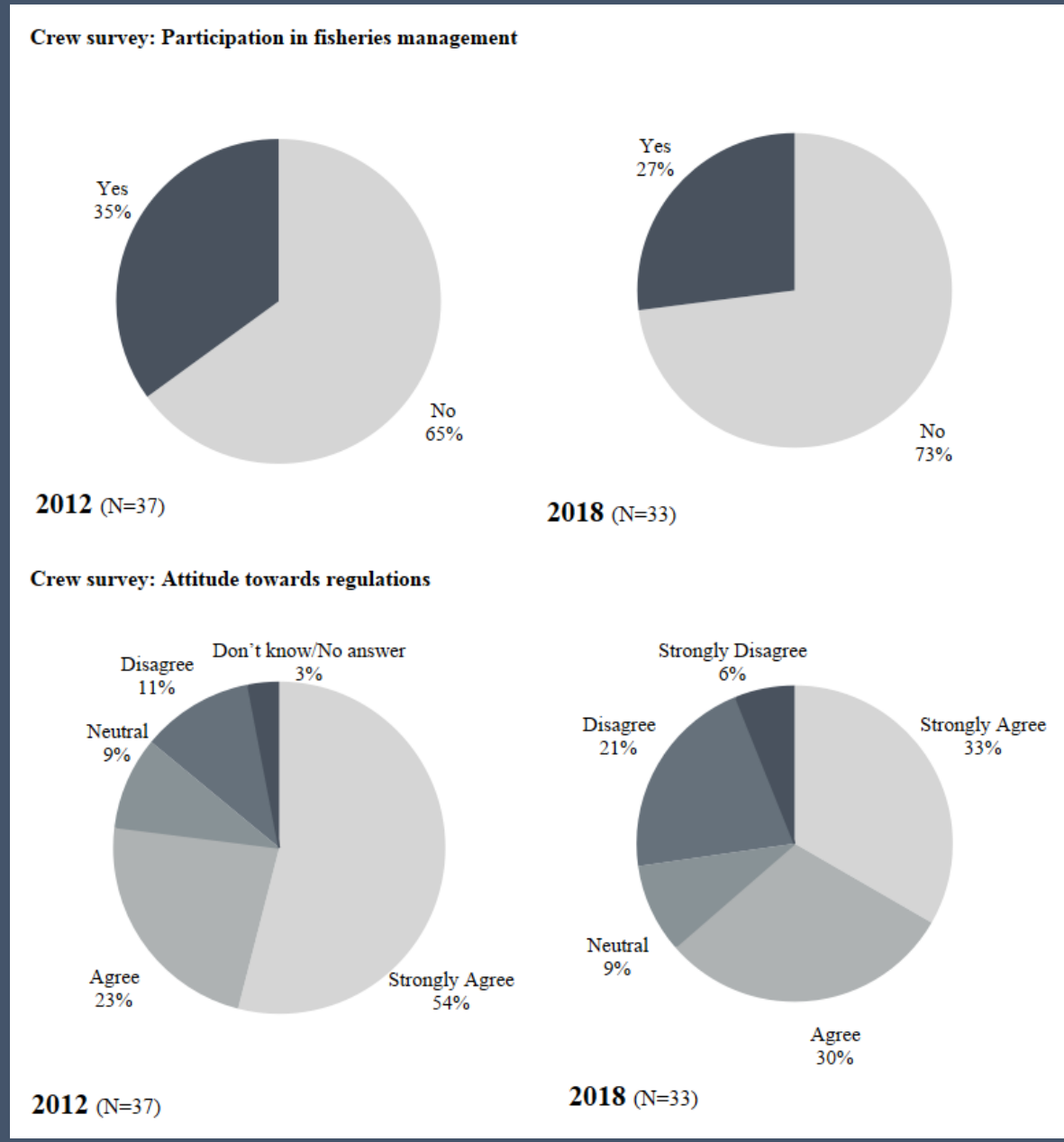
- No evidence of consolidation in ownership-- Larger share of one-permit owners than in initial catch share years
- The number of affiliates with active groundfish permits and the total number of active groundfish permits declined over time
- Decline in number of permits largely those that transferred into CPH
- Proportion of permits owned by a single owner or owner group increased from 50% in 2011 to an average of nearly 56% during 2012 to 2015



(Source: Thunberg 2019)

Employment & Crew Survey

- Estimates of employment are challenging
- Based on VTR, crew positions ↓ 29% over the nine-year period
  - Corresponds with decreased number of trips across all vessel size categories and home port states
- Differences in incomes, satisfaction and other variables between groundfish crew and crew in other fisheries – and between survey waves
- Crew surveyed concentrated in Gloucester and New Bedford, followed by Portland and Boston



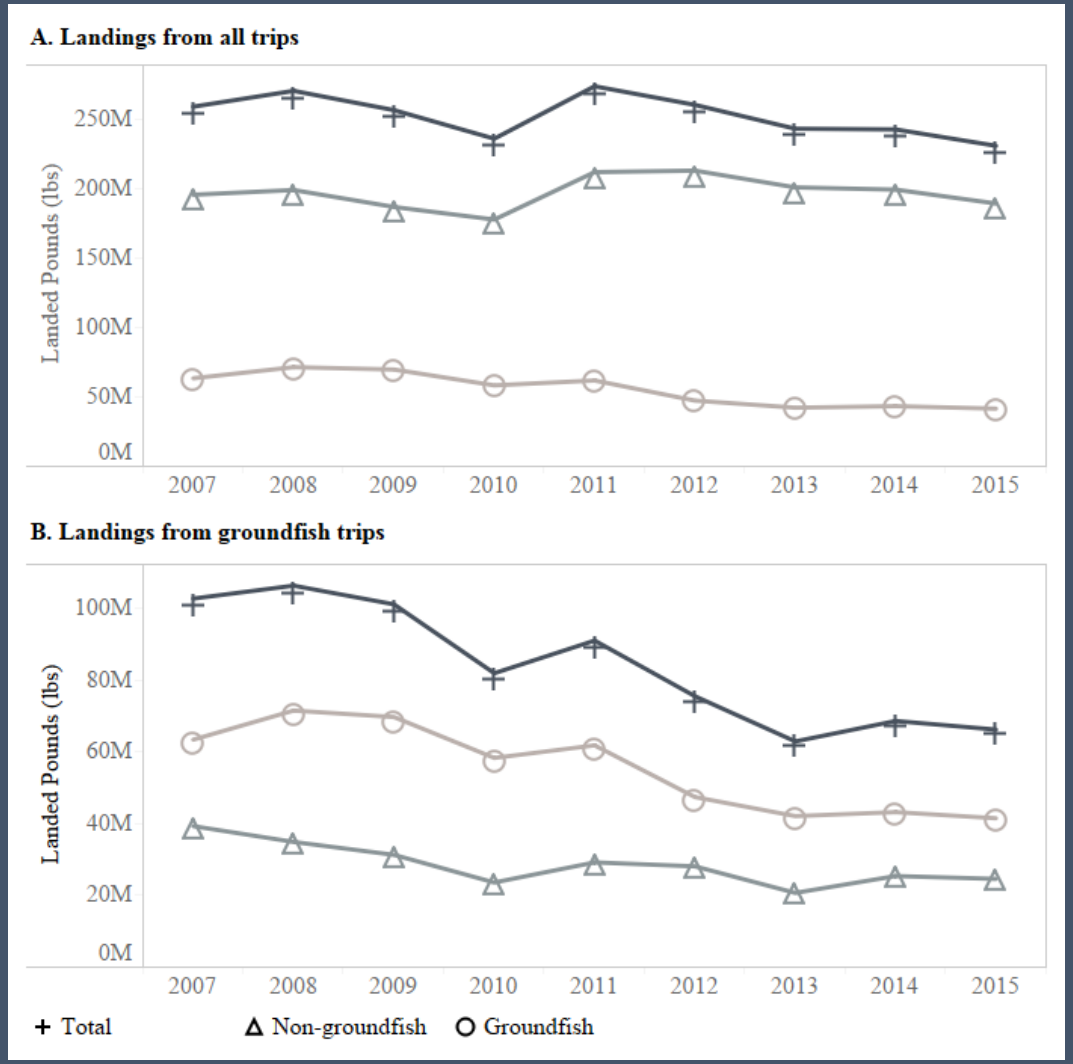
(Source: NEFSC SSB)

Monitoring, Enforcement & Compliance

- At implementation, additional monitoring put in place: DSM (removed in FY2011), ASM, pre-trip notifications, additional VMS reports, sector level reporting, sector year end reports
- Monitoring programs were made more robust but there are still concerns with accurate catch accounting
  - Target combined at-sea coverage levels not achieved in most years
  - VTR/VMS catch estimate differences for quota limited stocks
  - Observer bias effects demonstrated between observer & unobserved trips
  - USCG stock area misreporting documentation
- Unlawful discards and stock area misreporting are primary concerns
- *The monitoring program is the subject of analysis on A23*

Landings & Gross Revenues

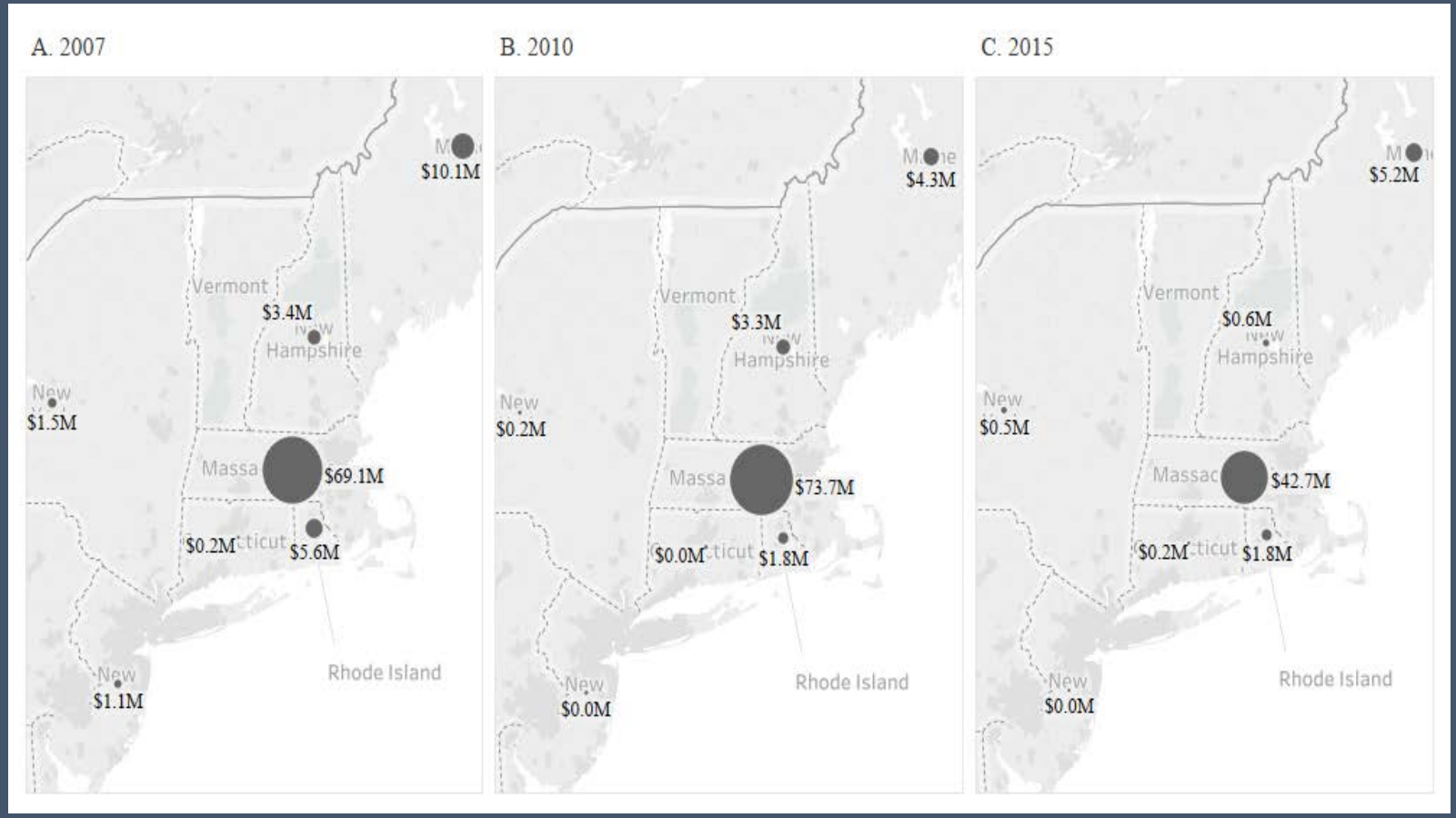
- Declines in landings and revenues since the 1980s
- On all trips - landings and revenue of non-gf exceeded those of gf landings revenue across the nine-year review period.
- Groundfish landings and revenue were at a nine-year low in FY 2015



(Source: Murphy et al. 2018)

Landings & Gross Revenues

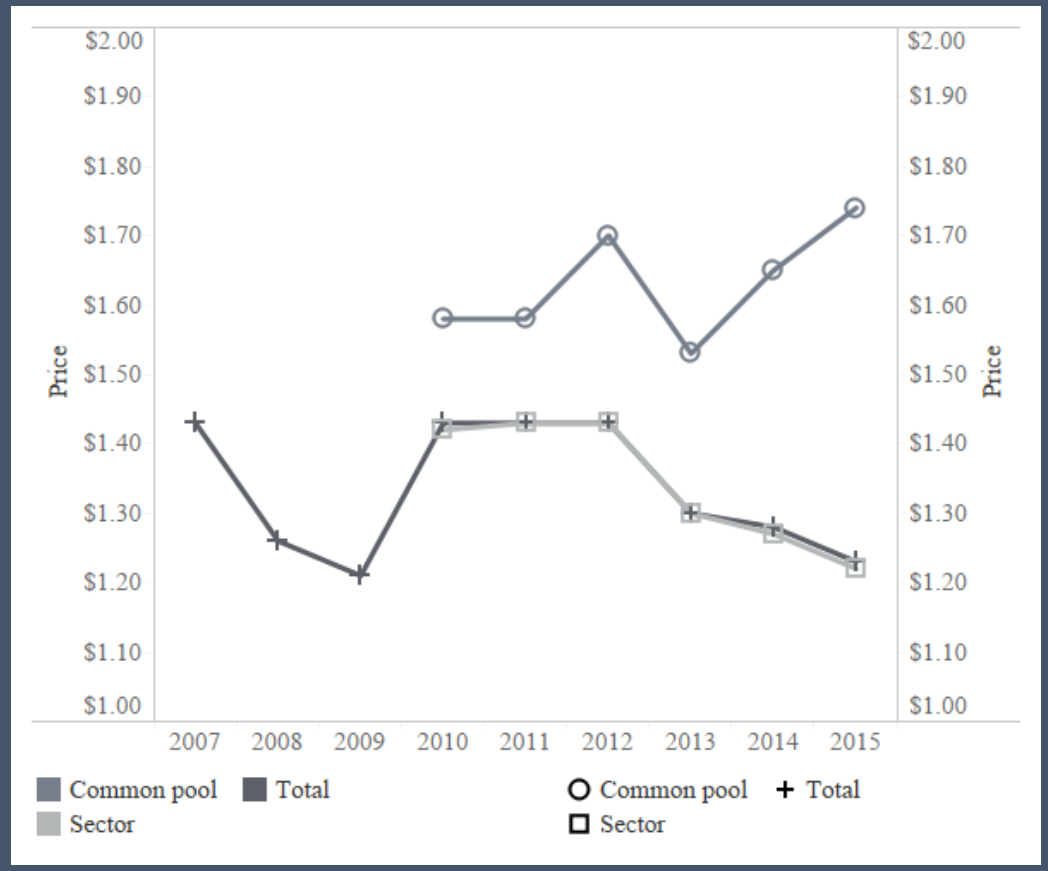
- By port of landing – decreasing trends, some variability, throughout
- MA remained top earner
- Top revenue by species:
  - Cod: FY 2007-2012
  - Pollock: FY 2013
  - Haddock: FY 2014-2015
  - Redfish: Lowest



(Source: Murphy et al. 2018)

Ex-vessel Price

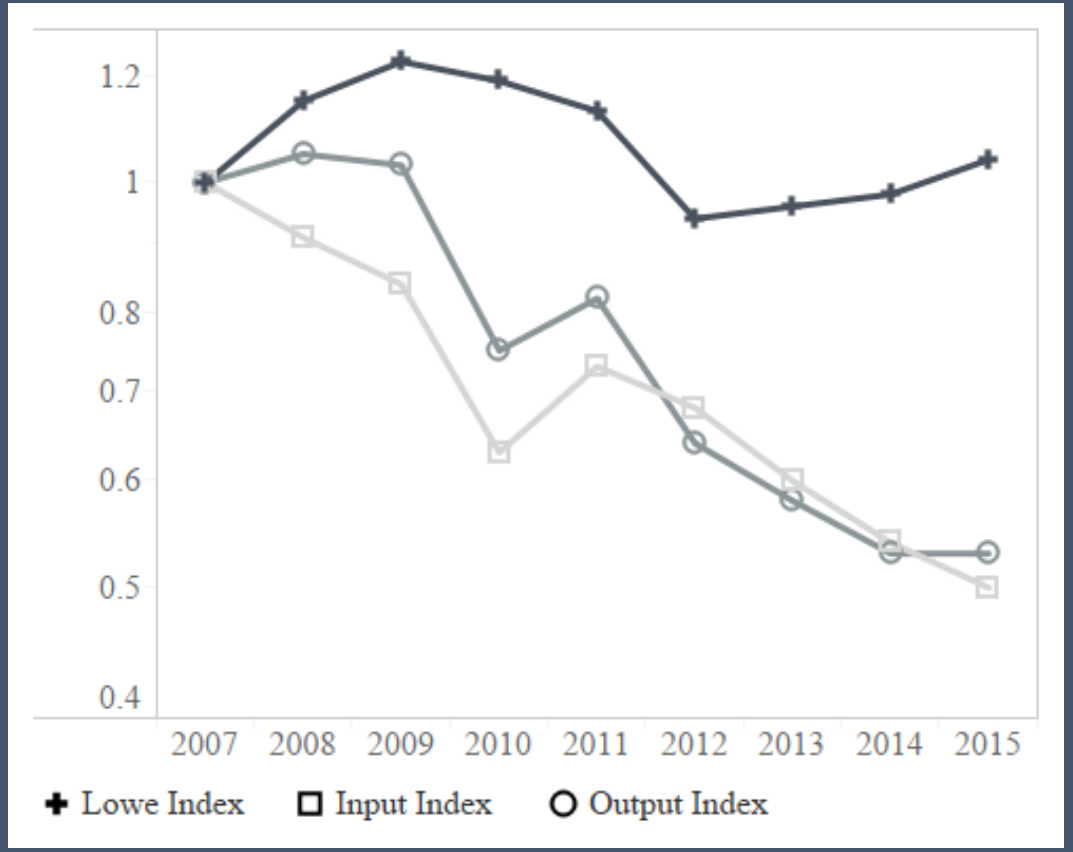
- Combined average ex-vessel price (FY2010 $) remained steady at $1.43/lb. from FY 2010 through FY 2012
- FY 2015 – lowest price during six year review time period



(Source: Murphy et al. 2018)

Productivity

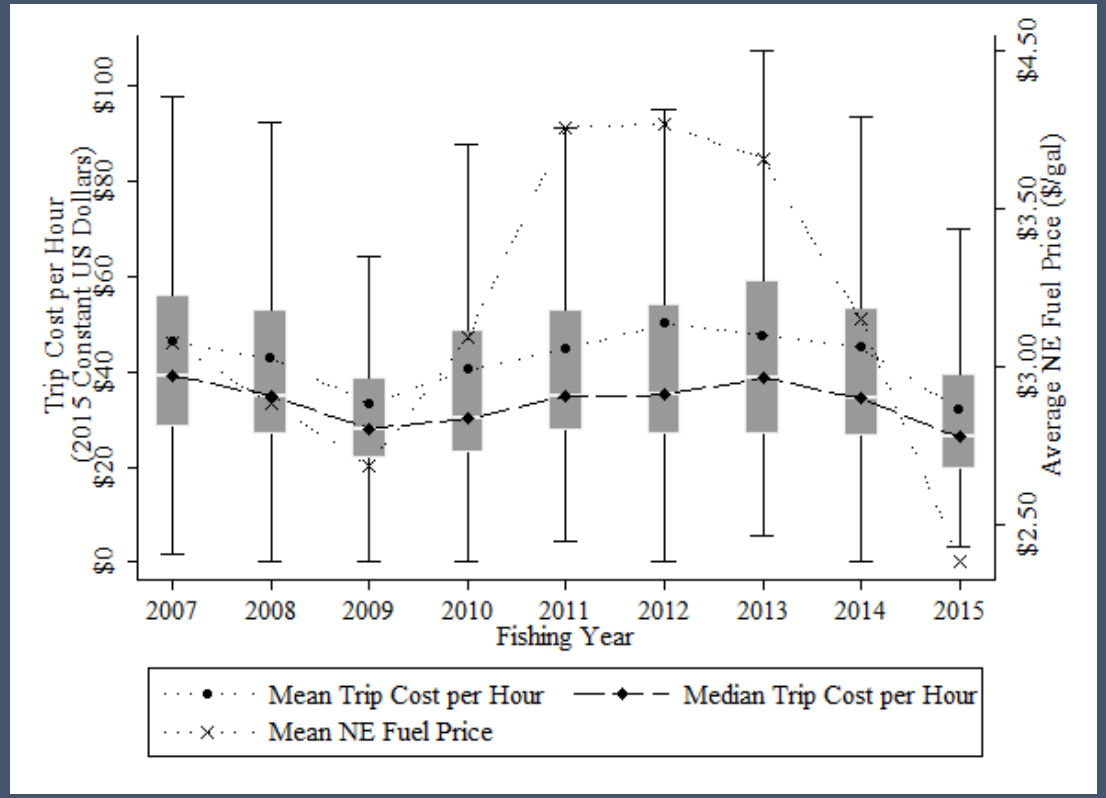
- Value of output obtained with one unit of input - the higher the ratio, the more productive the system
- Complex system requires multiple inputs (labor services, fuel, etc.) and outputs (value of species landed on gf trips)
- ↑ FY 2007-2009, ↓ FY 2010-1012, ↑ FY 2012-2015
- Despite decreasing outputs, increase largely driven by decreasing inputs (in part due to decreases in vessels)



(Source: Murphy et al. 2018)

Net Revenues & Costs

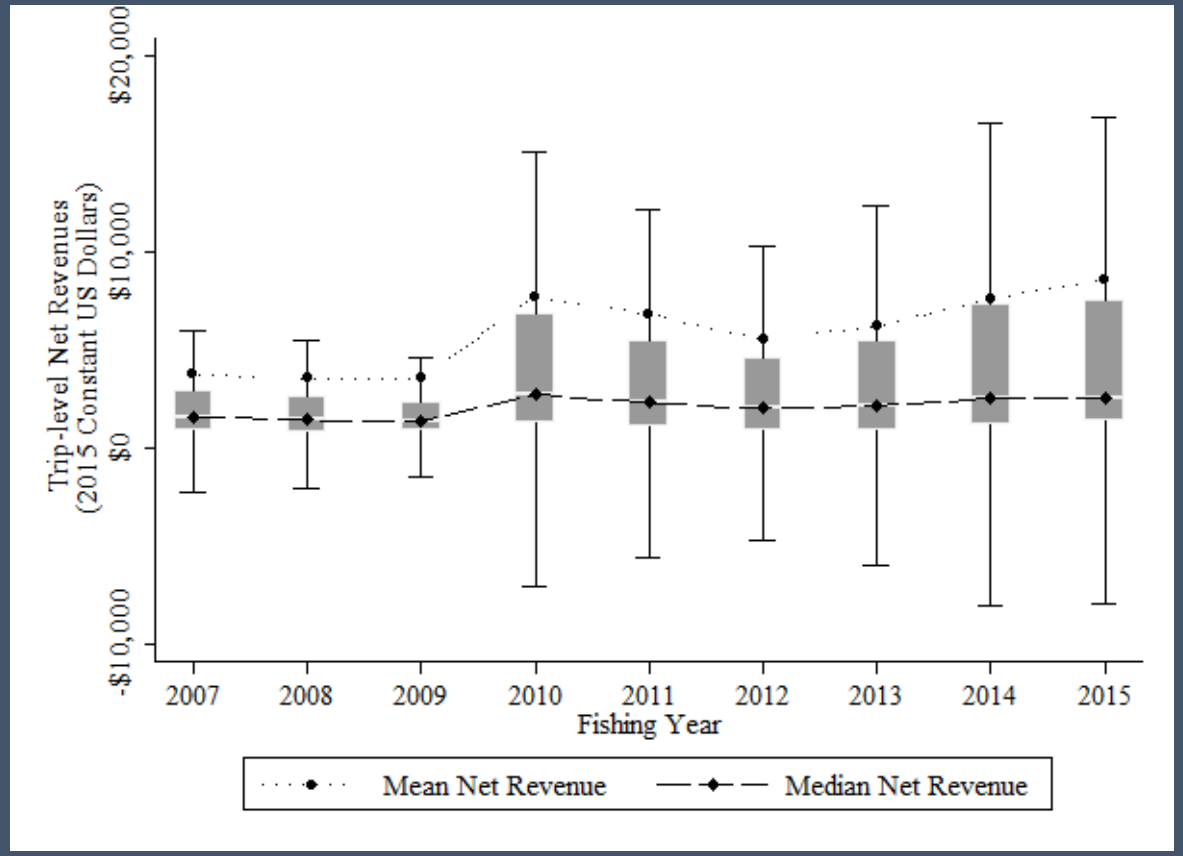
- Costs associated with trips (supplies, fuel, ice, etc.), no estimation of additional sector costs (ACE lease, sector fees, ASM costs)
- Average and median trip costs per hour change marginally across the pre and post-catch share time period, low in FY2015
- May imply that vessels with low fuel efficiency more active pre-cs → decline in average vessel age post-catch



(Source: Werner 2019)

Net Revenues & Costs

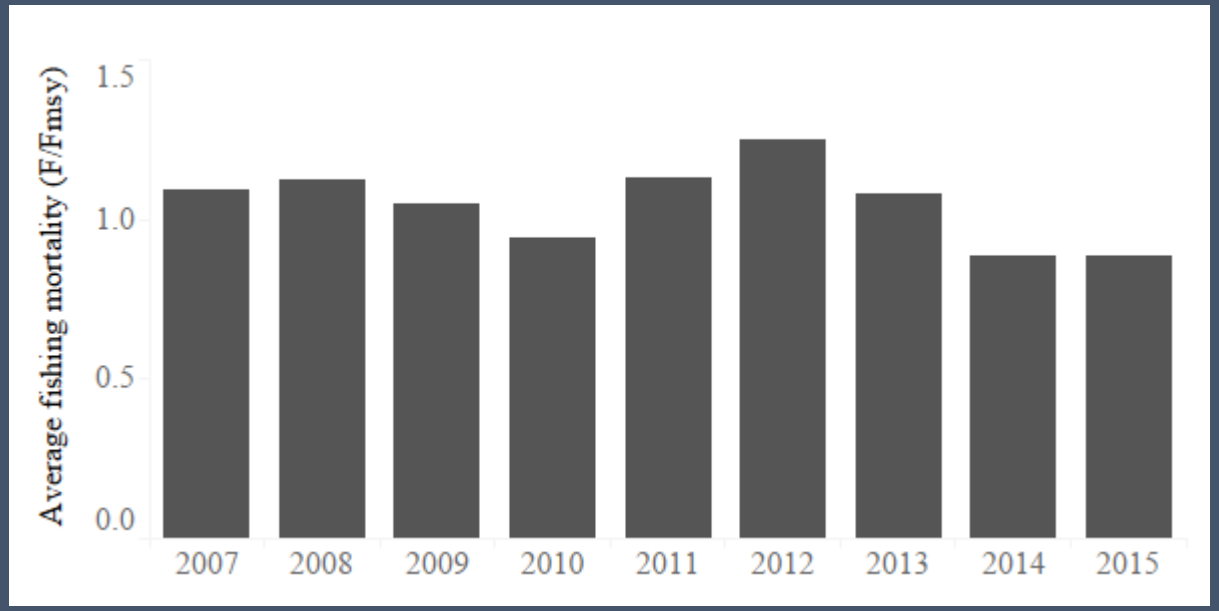
- At gf trip and vessel level, net revenues higher during post catch share years
- Average and median groundfish net revenues, assessed at the trip-level, were higher post-catch share implementation
- Greater variability – max and min within catch share years

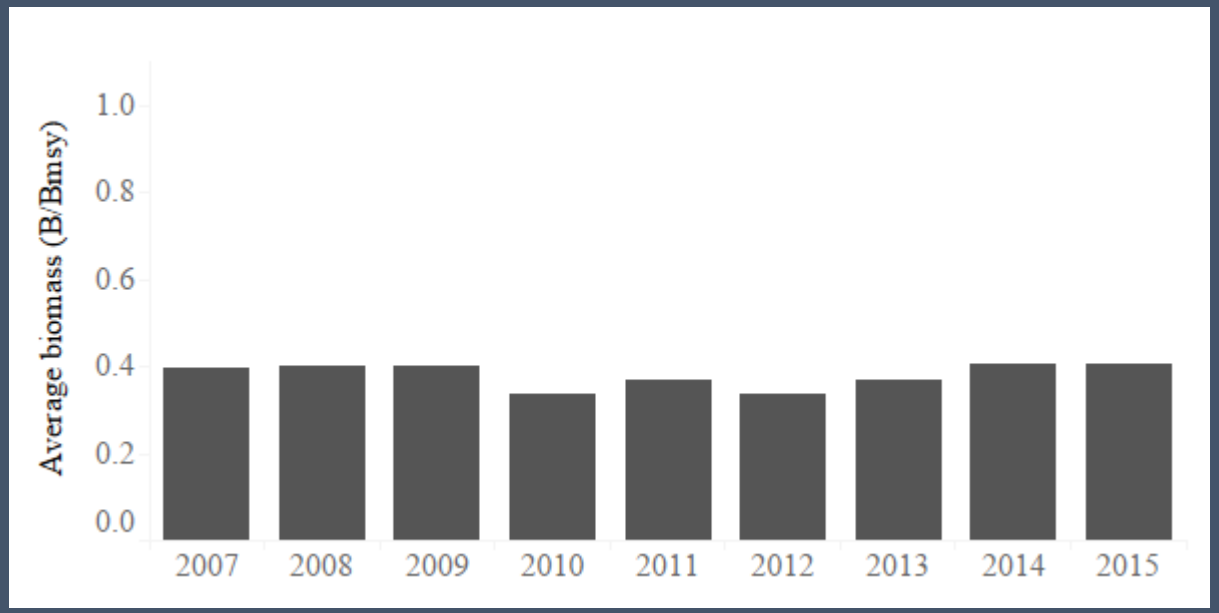


(Source: Werner 2019)

Status of Regulated Stocks

- Overfishing at levels greater than 150% F_{MSY} remained common for some stocks (E GB cod, W GB cod, GOM cod, and witch flounder)
- Many stock fished below F_{MSY} during time period
- Variability in proportion of stocks overfished, >50% in 2010, down to 36% in 2015
- Increase in average biomass
- Some stocks remained overfished (GB & GOM cod, SNE/MA yellowtail flounder), others have recovered (e.g. haddock)





(Source: MECS 2018)

Catch Utilization

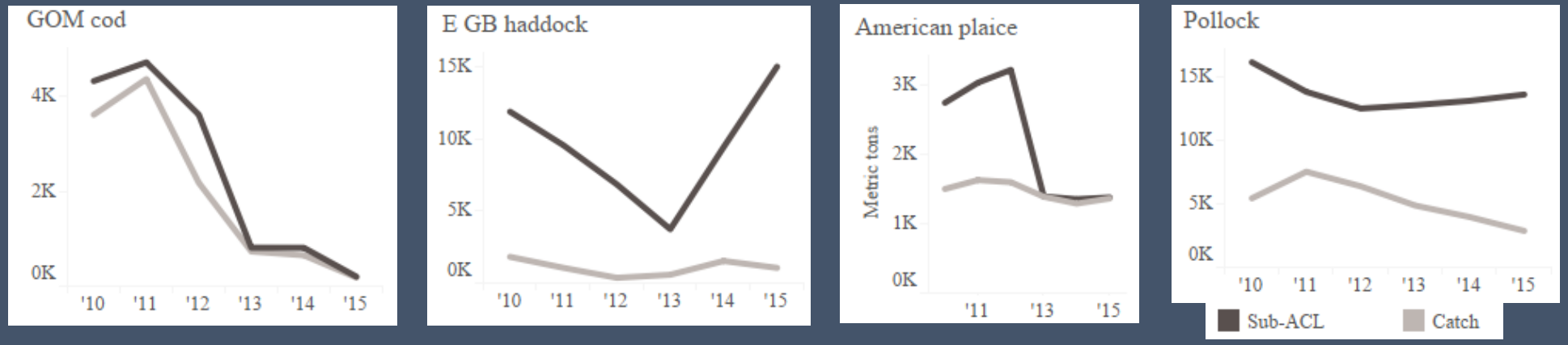
- Allocated groundfish were caught below their total ACL with exception of GOM haddock
  - FY 2013 overage from common pool & recreational catch *
  - FY 2014 overage from recreational catch *
- Non-allocated stock catch exceeded total ACL more frequently
  - Northern windowpane flounder – FY 2010^, 2011^, 2012^*, 2013^*, 2014^* & 2015*
  - Southern windowpane flounder – FY 2010, 2011, 2012^*, 2013^ & 2015^*
  - Atlantic halibut – FY 2015
- Allocated groundfish sector sub-ACL exceeded twice:
  - white hake - FY 2011
  - witch flounder – FY 2013*

^ Commercial groundfish fleet catch contributed to overage; * AM triggered

(Source: GARFO)

Catch Utilization

- ~ 97 % of commercial groundfish catch attributed to sector vessels
- Annual sector total utilization rate ranged between 50% (FY 2012) & 67% (FY 2011)
- GOM cod and witch flounder most utilized stock by sector vessels
- GB haddock (east & west) least utilized stocks by sector vessels
- Sector catch not always indicative of sector sub-ACLs



(Source: GARFO)

Discards & Bycatch

- Total sector discards of allocated stocks ranged between 3.0 & 6.3% of total ACE used
- 52 out of 99 stock/fishing year combinations had discards of < 5% of total ACE used
- Three stocks had discards > 20% of total ACE used
  - Eastern GB cod – FY 2011, 2012 & 2013
  - Eastern GB haddock – FY 2012
  - Western GB haddock – FY 2012

- Five stocks had discards of < 5% of total ACE used across all six review years

  white hake, pollock & winter flounder (GOM, GB & SNE/MA)
- Observed groundfish trip bycatch predominated by all skate species

  62-70 % between FY 2007 & FY 2015

(Sources: GARFO & NEFSC Observer Data)

Discards & Bycatch

- Scallop fishery exceeded groundfish bycatch allocations five times across three stocks in the six year catch share period:
  - GB yellowtail flounder – FY 2012 & FY 2014
  - SNE/MA yellowtail flounder – FY 2011 & FY 2013
  - Southern windowpane flounder – FY 2015*

- Atlantic herring mid-water trawl fishery exceeded GB haddock allocation in three fishing years – FY 2012, FY 2013* & FY 2015
- GB small mesh fishery did not exceed its GB yellowtail flounder bycatch allocation in the six year catch share period

* AM triggered

(Source: GARFO)

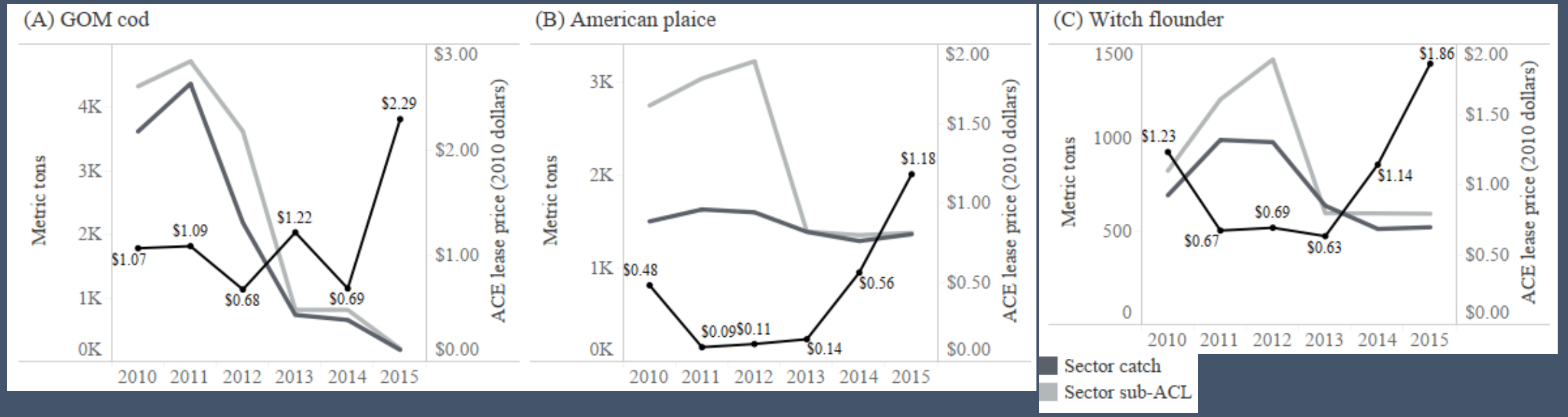
Quota Market & Leasing

- Total of 2,531 inter-sector leases between FY 2010 & FY 2015
- Total of 95,017,350 live pounds between FY 2010 & FY 2015
- GOM cod (770 transfers) & witch flounder (730 transferred) most common stocks transferred between sectors
- GB haddock (east & west) were least transferred stock
- Pollock & redfish had greatest weight transferred between sectors
- No stock had ≥ 50% of sector sub-ACL transferred between sectors
- Network analysis indicates level of participation in inter-sector leasing market varies by sector

(Source: GARFO)

Quota Market & Leasing

- Modelled average annual lease prices for most stocks declined across the review period
- Exceptions were GOM cod, American plaice and witch flounder
- Increase in lease price possibly from increased utilization & reductions in sub-ACL but delayed by one year



(Source: Murphy et al. 2018)

Community Impacts

- New Bedford and Gloucester, MA most engaged ports in commercial groundfish activity
- Chatham and Gloucester, MA most reliant on commercial groundfish
- New Bedford, MA highest level of social vulnerability among highly engaged commercial groundfish ports
- Chatham, MA and Montauk, NY highest level of gentrification pressure among highly engaged commercial groundfish ports
- Very limited data on shoreside infrastructure
  - Number of dealers purchasing groundfish increased in Maine and mid-Atlantic states (FY 2010 – FY 2015)
  - Number of dealers purchasing in groundfish decreased in New Hampshire (FY 2010 – FY 2015)
- Annual occupational fatality rates in groundfish fishery decreased between 2006 & 2015

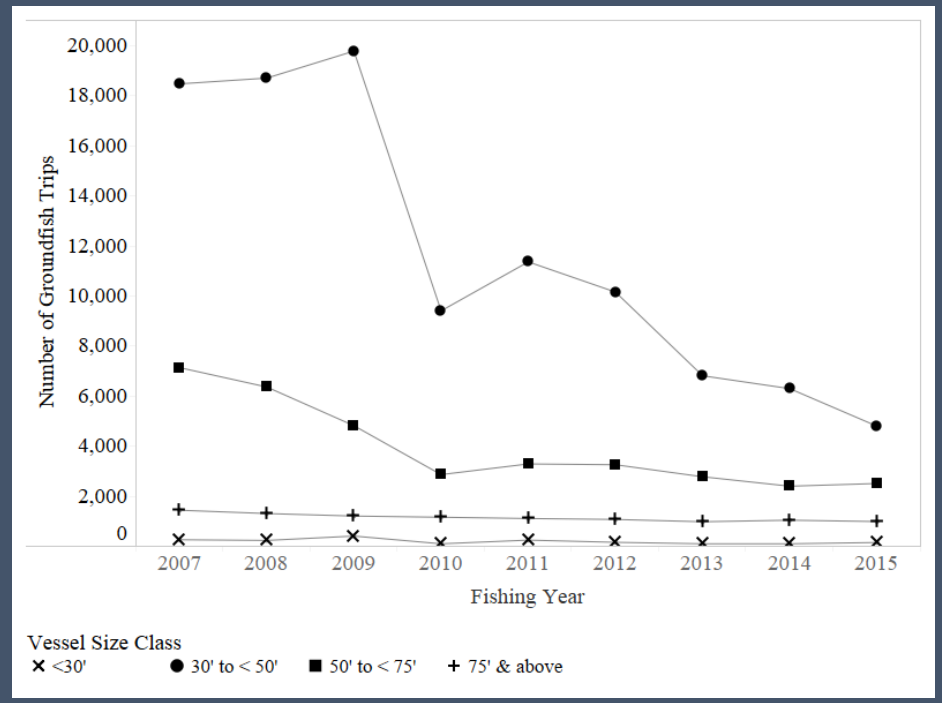
(Sources: NEFSC SSB, GARFO & NIOSH)

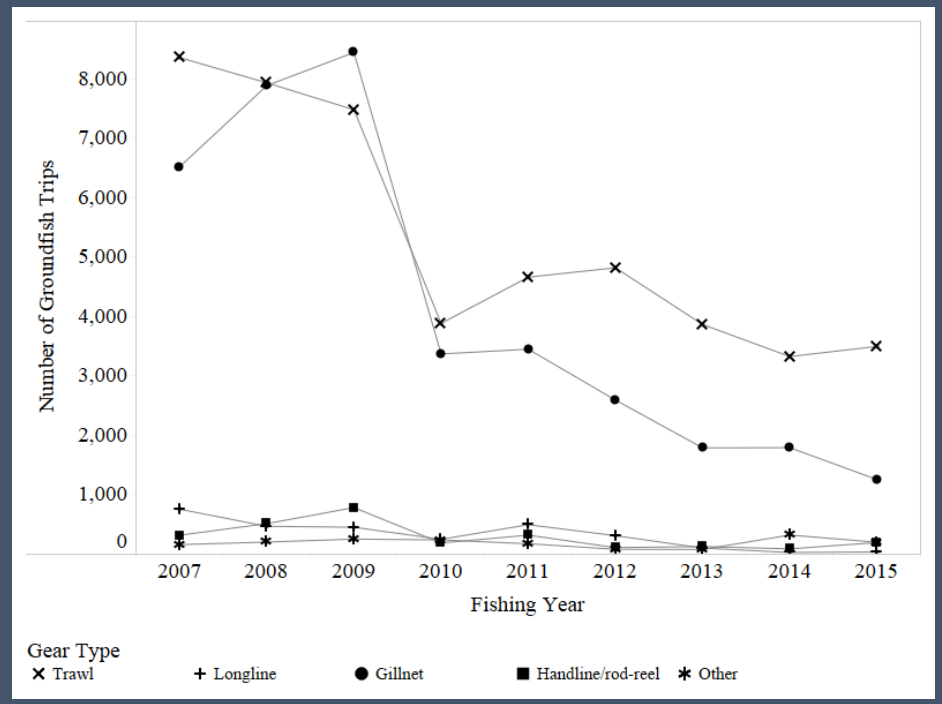
Stakeholder Engagement & Cooperation

- NEFSC PopDy Brach pre-assessment meetings remained in place to provide outreach and opportunities for input on groundfish stock assessments
- Dedicated groundfish sector assistance and research projects were funded by NEFSC Cooperative Research and private NGO foundations
- Monthly phone conferences (and in person meetings as needed) between NMFS SFD staff and sector managers
- Various workshops convened throughout region for fishermen, scientists, managers & stakeholders to discuss sector groundfish related issues

Essential Fish Habitat

- Declines in groundfish effort (trips & vessels) implies less bottom disturbance & disturbance to EFH
- Declines in effort were not equally distributed across all segments of the groundfish fishery which implies not all habitats were affected equally
- Displacement of effort from groundfish to other fisheries may have negated some of the gains realized from the reduction in groundfish effort





Recommendations for future reviews

Broad Considerations

- Timeliness of the review challenges the efficacy of the results
- The timing of the next programmatic review should not coincide with a major amendment process, as this limited the availability of key staff to participate
- Stakeholder engagement should be designed from the onset
- Consider convening a stakeholder workshop; focus on program effects at the individual sector level in addition to program level
- Deepen investigations into responses between the common pool and sectors

Recommendations for future reviews

Social Sciences Survey Work

- Improvements across sampling designs, reliance on data sets that mask individual and community specific vulnerability and dependencies, lack of crew statistics and data on fishing industry health and safety, lack of detail on perceptions of specific management actions

Net Revenues

- Provides a partial view of economic performance of the groundfish fleet, restricted by data availability. Cost data (e.g. operations, crew payments, sector participation costs) are primary limiting factor.

Shoreside Infrastructure

- Limited information available, not sector (e.g. commercial, recreational) or fishery specific, need to understand support industries better

Safety

- Health and safety analysis is virtually non-existent, limited to CDC statistics on fatalities and occasional surveys capturing perceptions of safety.

Recommendations for future reviews

Effort/Activity

- Further analysis on effort/ activity/catch differences between common pool and sector vessels
- Closer look at redistribution of effort and dependency on the groundfish fishery
- Understand how people are using their GF permits

ACE Leasing

- Need improved data, consistent reporting on ACE leasing activity
- Comparisons across inter and intra sector leasing activity to improve understanding of the performance of the ACE lease market

Shoreside Infrastructure

- Limited information available, not sector (e.g. commercial, recreational) or fishery specific, need to understand support industries better

Safety

- Health and safety analysis is virtually non-existent, limited to CDC statistics on fatalities and occasional surveys capturing perceptions of safety.

Recommendations for future reviews

Monitoring and Enforcement

- Improve catch accounting under the sector system
- Explore why observer/ASM target coverage levels are not met
- Develop automated comparison reports and metrics, available to sector managers to better monitor fishing behavior and vessel stock BSA reporting
- More information or analysis on sector participant incidents investigated by OLE
- Further development of sector incident reports or enforcement self-reporting

Habitat Interactions

- Understanding of fine-scale geographic patterns of fishing activity
- Changes in spatial footprint of groundfish trawling across evaluation period

Questions?

What's next for the review?

- TODAY: No Council action required. This is your opportunity to ask questions and comment on results.
- NEXT: Two technical correspondence reviews by
  - the Groundfish PDT, and
  - a sub-panel of the SSC
- THEN: Groundfish AP and Committee will review the report for any management recommendations and possibly make recommendations for future Council priorities