

# **Northeast Multispecies (Groundfish)**

## **Amendment 23/Groundfish Monitoring and Framework Adjustment 58**

**Groundfish Advisory Panel and  
Groundfish Committee  
Meetings  
*May 8-9, 2018***





# **Amendment 23/Groundfish Monitoring**

## For Today's Meeting

- Receive progress report on the potential range of alternatives
- Discuss the draft alternatives in Section 4.1 Fishery Program Administration
- Possibly make recommendations concerning the specific questions in the PDT memo – dated April 6
- Discuss the PDT's analysis to date
- Receive a report from GARFO on compliance with catch reporting

# Amendment 23/Groundfish Monitoring – Timeline

<b>2018</b>	
<b>JAN 30-31</b>	<b>NEFMC – Receives progress report</b>
FEB 27	Groundfish PDT Meeting
MAR 22	Groundfish PDT meeting
APR 3	Groundfish PDT meeting
<b>APR 17-19</b>	<b>NEFMC – Receives progress report on potential range of alternatives</b>
APR 25	Groundfish PDT meeting
APR 26	Fishery Data for Stock Assessment Working Group meeting
MAY 1	Groundfish PDT meeting
MAY 8	Groundfish Advisory Panel meeting
MAY 9	Groundfish Committee meeting
MAY 22	Groundfish PDT meeting
MAY 31	Groundfish Advisory Panel meeting
JUNE 1	Groundfish Committee meeting
<b>JUN 12-14</b>	<b>NEFMC – Receives progress report; approves range of alternatives</b>

# Purpose and Need

To implement measures to improve reliability and accountability of catch reporting and to ensure a precise and accurate representation of catch (landings and discards).

To improve the accuracy of collected catch data. Accurate catch data are necessary to ensure that catch limits are set at levels that prevent overfishing and to determine when catch limits are exceeded. To create fair and equitable catch reporting requirements for all commercial groundfish fishermen, while maximizing the value of collected catch data and minimizing costs for the fishing industry and the National Marine Fisheries Service.

# Draft Alternatives – April 6, 2018

## 4.1 Fishery Program Administration

### 4.1.1 Sector Administration Provisions

#### 4.1.1.1 Sector Reporting Requirements

#### 4.1.1.2 Knowing Total Monitoring Coverage Level at a Time Certain

#### 4.1.1.3 Funding for the Groundfish Monitoring Program

## 4.2 Commercial Fishery Measures

### 4.2.1 Groundfish Monitoring Program

#### 4.2.1.1 Option 1: No Action

#### 4.2.2.2 Groundfish Monitoring Program Revisions\*

\*To be completed

# Draft Alternatives: 4.1.1.1 Sector Reporting Requirements

## Option 2: Streamline Sector Reporting Requirements

- 1) Granting additional Regional Administrator authority to streamline sector reporting requirements. Ex. NMFS lacks the authority to remove the current weekly reporting requirement.
- 2) Using NMFS reconciled data to determine when the trigger for sector daily catch reporting has been reached (required when 90 percent of any ACE has been caught), rather than using sector self-reported data, which is not any timelier and the reconciled data is more accurate.
- 3) Modifying trip end hails to accommodate catch reporting and to eliminate redundancy.
- 4) Evaluating and considering the requirements for sector year-end reports, in light of confidentiality protections.



## Draft Alternatives: 4.1.1.2 Knowing Total Monitoring Coverage Level at a Time Certain

<b>Fishing Year</b>	<b>NEFOP target coverage level</b>	<b>ASM target coverage level</b>	<b>Total target coverage level</b>	<b>Realized coverage level</b>	<b>Date analysis posted by GARFO to determine total coverage rate</b>	<b>Date ASM coverage rate announced</b>	<b>Date sector rosters due</b>
FY 2010	8 %	30 %	38 %	32 %			
FY 2011	8 %	30 %	38 %	27 %			12/1/2010
FY 2012	8 %	17 %	25 %	22 %			12/1/2011
FY 2013	8 %	14 %	22 %	20 %	4/12/2013	3/14/2013	3/29/2013
FY 2014	8 %	18 %	26 %	25.7%	2/21/2014	2/18/2014	3/6/2014
FY 2015	4 %	20 %	24 %	19.8%	3/2/2015	2/26/2015	2/25/2015
FY 2016	4 %	10 %	14 %	11.1%	5/6/2016	3/22/2016	3/15/2016
FY 2017	4 %	12 %	16 %	n/a*	3/15/2017	3/15/2017	3/16/2017
FY 2018	TBD	15%-NEFOP	15 %		1/25/2018	1/25/2018	3/26/2018

\*Realized coverage not available; fishing year still underway.



# Draft Alternatives: 4.1.1.3 Funding for the Groundfish Monitoring Program

## Option 2: Additional Options for Industry-Funded Costs of Monitoring

### Quota auctions and quota set-asides

- Portion of the ACL for key stocks auctioned off annually to fund monitoring
- PDT is exploring potential legal limitations to setting up a quota auction for the groundfish sector program.

# Fishery Data for Stock Assessment Working Group

- Objective: Discuss how fishery dependent data can be used to inform stock abundance.
- Working Group Members:

Steve Cadrin (Chair)	Mark Gibson
Rich Bell	Emily Keiley
Chris Brown	Brian Linton
Chad Demarest	JJ Maguire
Robin Frede	Paul Rago
Vito Giacalone	
- First meeting was on **April 26, 2018 10AM at SMAST**
- Update will be provided at June Council meeting.

# Plan Development Team Memo – April 6, 2018

Developing a memo to the Committee to include:

- Scope of the current monitoring program and any associated uncertainties
- The extent to which there is a need for change in any of the components of the current monitoring program.
- A synthesis of all work on the nature and effectiveness of current monitoring, and where necessary add additional analyses, including any newly developed work on monitoring program costs.

Approach consistent with FMP monitoring goal #6 - *Perform periodic review of monitoring program for effectiveness.*

Some, but not all, of this work will be presented at the Groundfish Advisory Panel (GAP)/Committee meetings in May.

## **PDT's Initial List of Questions for GAP/Committee**

- 1) Is there interest in joint GAP/PDT meeting(s) to identify and work through operational issues of various programs/technologies included in the alternatives?
- 2) Does the GAP/Committee have any recommendations regarding electronic reporting?

# Plan Development Team Memo – May 3, 2018

- Lays out the scope of the current monitoring program in the commercial Northeast Multispecies (groundfish) fishery and any associated uncertainties.
- Purpose of which is to identify the extent to which there is a need for change in any of the components of the current monitoring program.
- Combines and synthesizes work on the nature and effectiveness of current monitoring, and where necessary adds additional analyses.
- PDT met with GARFO staff to discuss the Council request for information on catch reporting compliance and enforcement. A brief summary of the PDT's discussion is included.

# Uncertainties in the current monitoring program

- 1) Unreported and misreported catches (landings and discards) by species/stock [A1]
- 2) Disagreement between data sources (vessel trip reports [VTR]/Dealer; VTRs/vessel monitoring system [VMS]) [A1]
- 3) The majority of analytical groundfish stock assessments contain a retrospective pattern, which may be caused in part by missing catch [A2]
- 4) Lack of an independent verification of landings may lead to catch reporting conspiracy/collusion between a dealer and a vessel, and has occurred [A3]
- 5) Fishermen behave differently when observers are on-board [*to be provided in June*]
- 6) Incentives exist in any quota-based system for misreporting/unreporting of catch (landings and discards) [A4]

# Discrepancies in catch reporting [A1]

## 1) Statistical area fished

Summary of Palmer 2017:

- Differences when reporting stock-area on VTR versus estimated by VMS
- Most pronounced starting in 2010
- Small error unlikely to substantially impact resource monitoring, but large in certain years for some stocks
- Attributed to small number of vessels

## 2) Kept catch

- Comparison of catch amount – dealer versus for nine allocated groundfish species for FYs 2010-2017,
- Assumes dealers amounts were accurate – which can be complicated (for example is a hail weight comparable for all species)
- Patterns differ across species, and for some species, across years
- Typically, catch discrepancies are small (+/- 100 lbs)

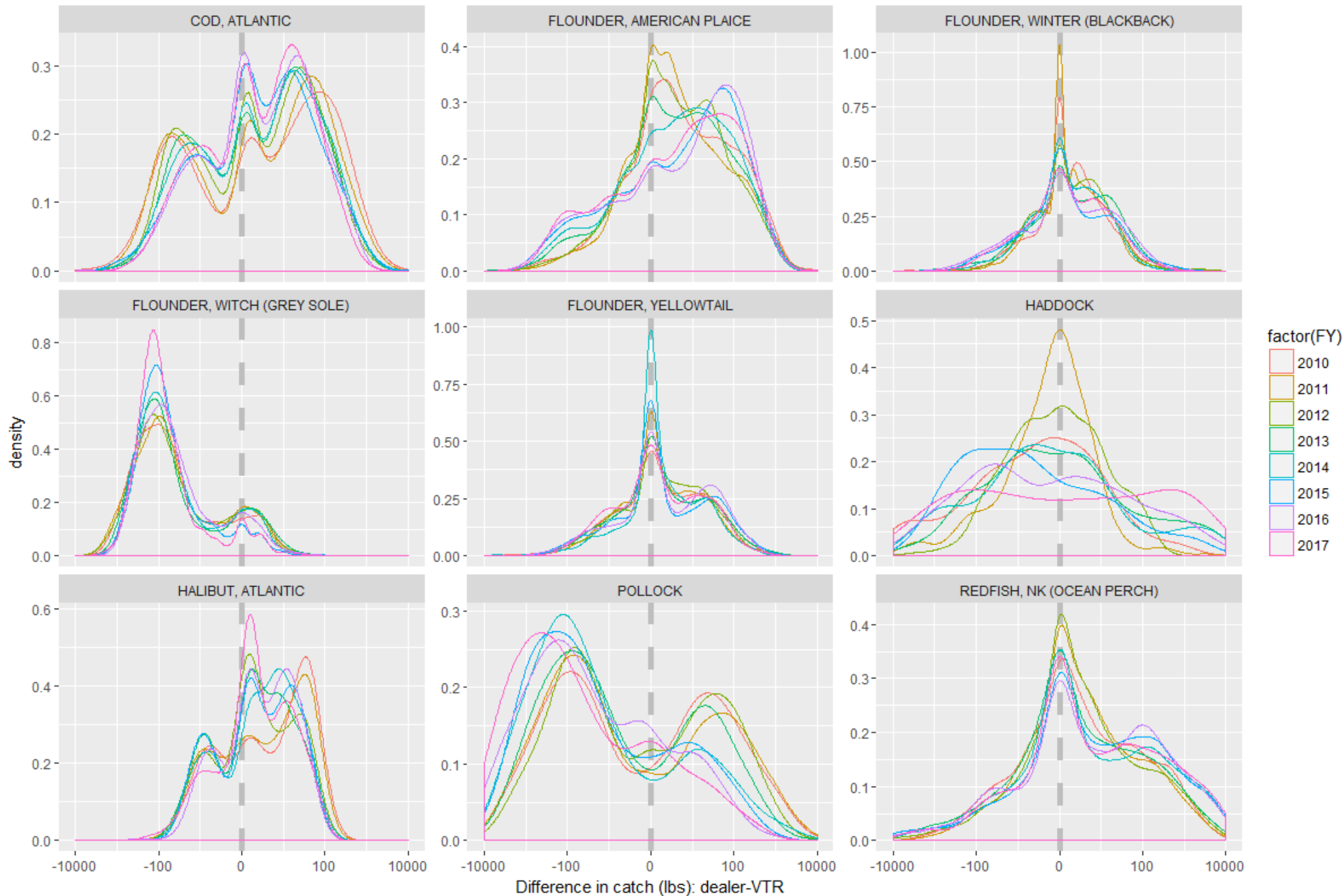




**Density differences:**  
dealer-VTR  
(log10 transformed live pounds)

**Over-reported Catch:**  
Density to the left of 0  
(VTR > dealer)

**Under-reported Catch:**  
Density to the right of 0  
(VTR < dealer)



# Retrospective errors in stock assessments [A2]

- Overview of retrospective error and patterns and how this impacts groundfish stock assessments and catch advice
- For 2017 assessments, 8 out of 11 stocks with analytical assessments had major retrospective patterns
- Also, provides a discussion of recent estimates of “missing catch” needed to “fix” retrospective problems

Stock	Model type	$\rho_{last}$	$\rho_{2016}$	$B_{2016}$	Adj.	$\rho_{last}$	$\rho_{2016}$	$F_{2016}$	Adj.	Last Assess.	2017	Proj. Adj.
CODGM	ASAP (M=0.2)	0.54	0.53	3046	1,997	-0.31	-0.31	0.23	0.33	pt. est.	pt. est.	none
CODGM	ASAP (M-ramp)	0.20	0.30	3262	2,502	-0.08	-0.17	0.24	0.28	pt. est.	pt. est.	none
HADGM	ASAP	-0.04		47821	NA	0.03		0.14		pt. est.	pt. est.	none
HADGB	VPA	0.50	0.89	549938	290,324	-0.34	-0.63	0.11	0.31	$\rho$ adj.	$\rho$ adj.	SSB
YELCCGM	VPA	0.98	0.76	2093	1,191	-0.45	-0.39	0.19	0.31	$\rho$ adj.	$\rho$ adj.	NAA
YELSNEMA	ASAP	1.06	0.97	300	152	-0.53	-0.47	0.58	1.09	pt. est.	$\rho$ adj.	NAA
FLWGB	VPA	0.83	0.54	6083	3,946	-0.51	-0.31	0.08	0.12	$\rho$ adj.	$\rho$ adj.	SSB
FLWSNEMA	ASAP	0.21		4360	NA	-0.25		0.21		pt. est.	pt. est.	none
REDUNIT	ASAP	0.26	0.21	435852	359,970	-0.19	-0.18	0.01	0.01	$\rho$ adj.	$\rho$ adj.	NAA
PLAUNIT	VPA	0.32	0.14	15148	13,351	-0.32	-0.32	0.07	0.11	$\rho$ adj.	$\rho$ adj.	NAA
HKWUNIT	ASAP	0.18	0.20	25638	21,276	-0.13	-0.12	0.06	0.07	pt. est.	$\rho$ adj.	NAA
POLUNIT	ASAP (base)	0.28	0.23	226371	183,907	-0.28	-0.28	0.03	0.04	$\rho$ adj.	$\rho$ adj.	NAA
POLUNIT	ASAP (flat)		0.41	102571	72,889		-0.35	0.05	0.08	$\rho$ adj.	$\rho$ adj.	NAA

# Dealer and Vessel Collusion/Conspiracy [A3]

- Currently, landings data for the groundfish fishery comes from dealer reports and vessel trip reports (VTRs). There is no independent verification of landings.
  - Previous dockside monitoring program from 2010-2011 was discontinued due to unresolved problems with the program.
- The lack of independent verification of landings in the groundfish fishery creates a situation in which catch reporting collusion between a dealer and a vessel is possible.
- United States vs. Carlos Rafael – case in which catch reporting collusion between a dealer and a vessel occurred.
  - Rafael pleaded guilty to misreporting 782,812 pounds of fish.
- In this case, Rafael owned both the vessels and the dealer. However, collusion could also occur between different vessel and dealer owners, and a vertically integrated vessel/dealer business does not guarantee collusion or fraud will occur.

# Discard incentives [A4]

# Estimating Incentives to Discard New England Groundfish Stocks

Anna Henry and Chad Demarest  
NEFSC Social Sciences Branch

Presentation for NEFMC  
Groundfish Advisory Panel  
Groundfish Committee  
May 8-9, 2018

# Incentives in tradeable quota systems

- Academic literature/Economic theory
  - Transferable quota-based systems generate incentives to discard fish
  - “Catch...should be discarded if the marginal benefits of discarding exceed the costs...”  
(Arnason, 1992)
- Fishermen
  - *“I don't have a good mix of fish, so I have to buy fish in order to go fish...just so I can have...quota to cover myself.”*
  - *“I should be out fishing but I'm not because I have a limited supply of fish. And...I paid for every pound of it, and so I have to try to deliver when the prices are up...”*  
(Voices from the Fishery, 2012)

# Modeling Incentives

Incentive to discard (stock, trip)

$$Id_{ik} = [(Cl_i(q_i) - C_d(q_i)) / pf_i * q_i]_k$$

Cost to land (stock, trip)

$$Cl(q_i)_k = \left\{ pq_i * q_i + (1 - \delta_k) \left[ \sum_{j=1}^n (pq_j * q_j * r_i) \right] + Cll(q_i) + sf * q_i + lf * q_i \right\}_k$$

Cost to discard (stock, trip)

$$Cd_i(q_i)_k = [pf_i * q_i + Cdl(q_i) + p(d) * s]_k$$

$i$ =stock

$k$ =trip

$j$ =allocated groundfish stock

$pq$  = quota price

$q$  = quantity (live pounds)

$\delta$  = percent of tows observed

$r$  = discard rate

$Cll$  = cost of labour of landing

$sf$  = sector fees

$lf$  = landing fees

$disc$  = quantity of discards

$q_k$  = total trip landings (allocated groundfish stocks + non-allocated groundfish stocks + non groundfish stocks)

$p_f$  = ex-vessel price

$Cdl$  = cost of labor of discarding

$p(d)$  = probability of detection

$s$  = sanction



# Modeling Incentives

$$Id_{ik} = [(Cl_i(q_i) - C_d(q_i)) / pf_i * q_i]_k$$

Incentive to discard	Cost to land	Cost to discard	Landed value
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$$Cl(q_i)_k = \left\{ pq_i * q_i + (1 - \delta_k) \left[ \sum_{j=1}^n (pq_j * q_j * r_i) \right] + Cll(q_i) + sf * q_i + lf * q_i \right\}_k$$

Cost to land	Cost of quota for landed fish	% obs	Cost of quota for discards associated with landed fish	Cost of labor to land fish	Sector fees	Landings fees
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$$Cd_i(q_i)_k = [pf_i * q_i + Cdl(q_i) + p(d) * s]_k$$

Cost to discard	Lost landings revenues	Cost of labor to discard fish	Probability of detection Sanction
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# Modeling Incentives

$$Id_{ik} = [(Cl_i(q_i) - Cd(q_i)) / pf_i * q_i]_k$$

Incentive to discard	Cost to land	Cost to discard	Landed value
-------------------------	-----------------	--------------------	-----------------

$$Cl(q_i)_k = \left\{ pq_i * q_i + (1 - \delta_k) \left[ \sum_{j=1}^n (pq_j * q_j * r_i) \right] + Cll(q_i) + sf * q_i + lf * q_i \right\}_k$$

Cost to land	Cost of quota for landed fish
-----------------	----------------------------------------

$$Cd_i(q_i)_k = [pf_i * q_i + Cdl(q_i) + p(d) * s]_k$$

Cost to discard	Lost landings revenues
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# Discard Model Assumptions

- Only accounts for stocks that are reported as landed
- Landings data are representative of true catch
  - No species substitution or other misreporting
- Modeled quota prices capture quota cost faced by fishermen

# Discard Model Assumptions

- Quota price equivalent to marginal value of quota
  - Leased and allocated quota valued equally

*“Some of these guys got 100-150k to start with. See, in the sector thing you could make it work if you have a large enough foundation of your own product that you don’t have to go and lease from anybody...But if you don’t have that foundation...if you don’t have that \$200k or \$300k stock, a boat my size, with a three or four man crew, you’re screwed.” (Voices from the Fishery, 2012)*

# Discard Model Assumptions

- Expectations of fish prices captured by ex-vessel price
- Quota prices represent marginal value of quota, and ex-vessel prices represent marginal value of landings
  - Unaffected by illegal discarding or misreporting, if any exists

# Discard Model Assumptions

- Instantaneous costs/benefits only
  - Does not account for the benefit of having that quota available in the future

*“My quota’s, I have very little of certain species, like grey sole, I don’t have any grey sole, I don’t have any, like haddock and stuff like that, I have to buy quota just to cover myself and keep fishing, in order to catch, you know, cod or yellowtail or whatever.” (Voices from the Fishery, 2012)*

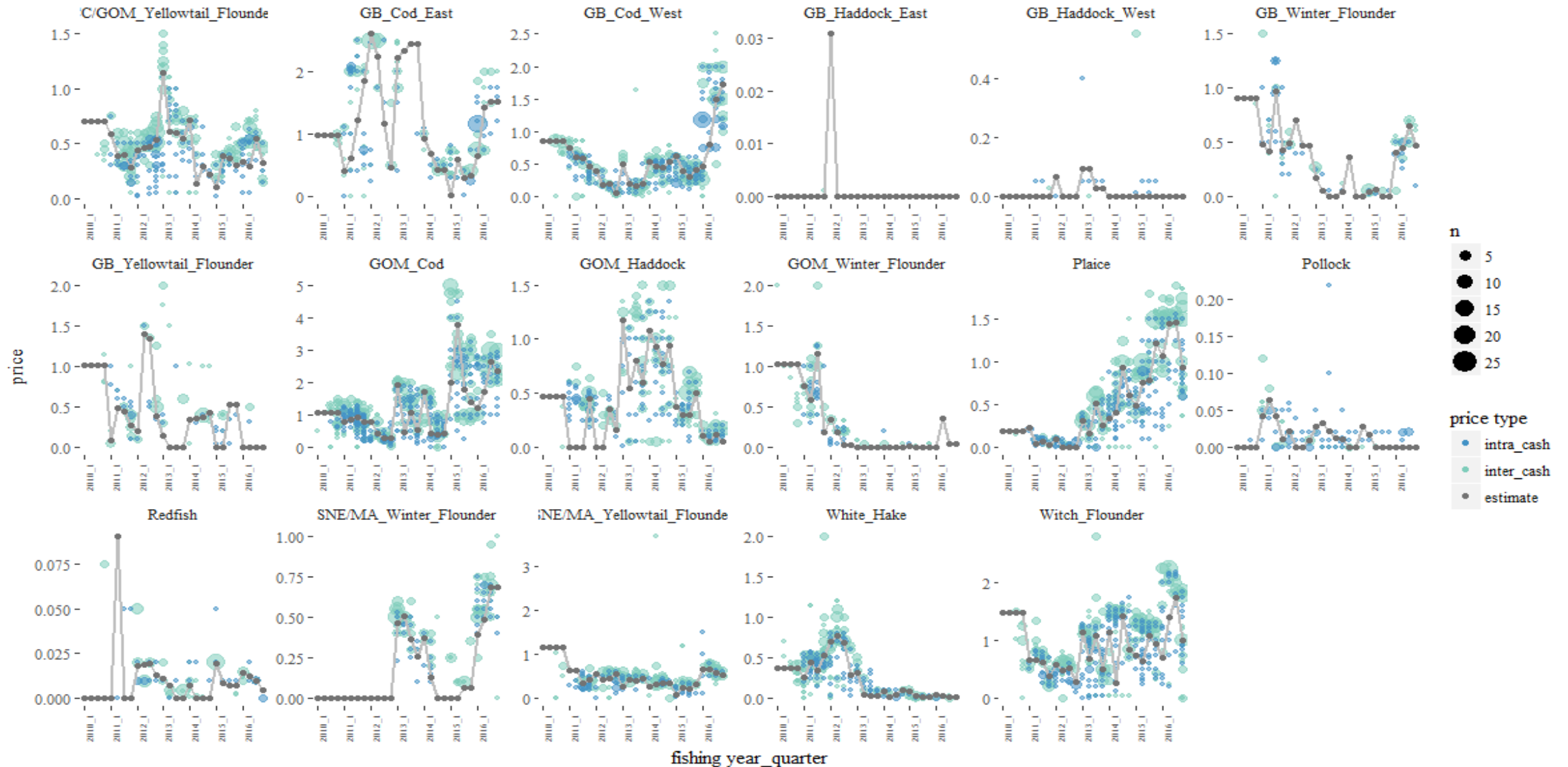
# Methods

- Quota prices
  - 2007-2009 Assumed \$0
  - 2010 Modeled annually based using inter sector trades
  - 2011-2016 Modeled quarterly using inter/intra sector trades
  - Low utilization stocks adjusted
  - Low trade volume 0 estimates adjusted

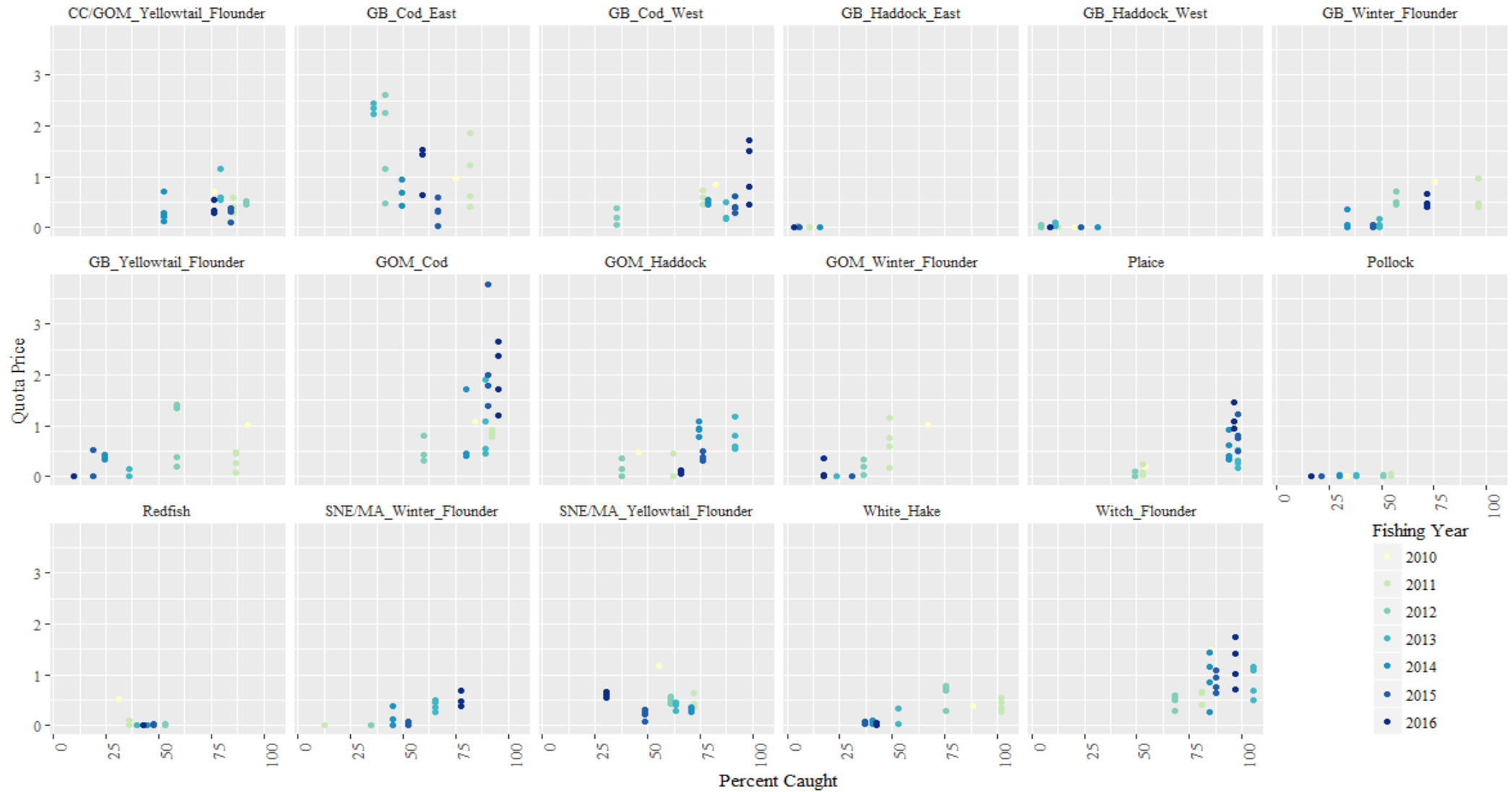
<u>Quarter with estimated zero price</u>	<u>Substituted quarter price (non zero)</u>
Q1	Q2
Q2	Average of Q1, Q3
Q3	Average of Q2, Q4
Q4	Q3



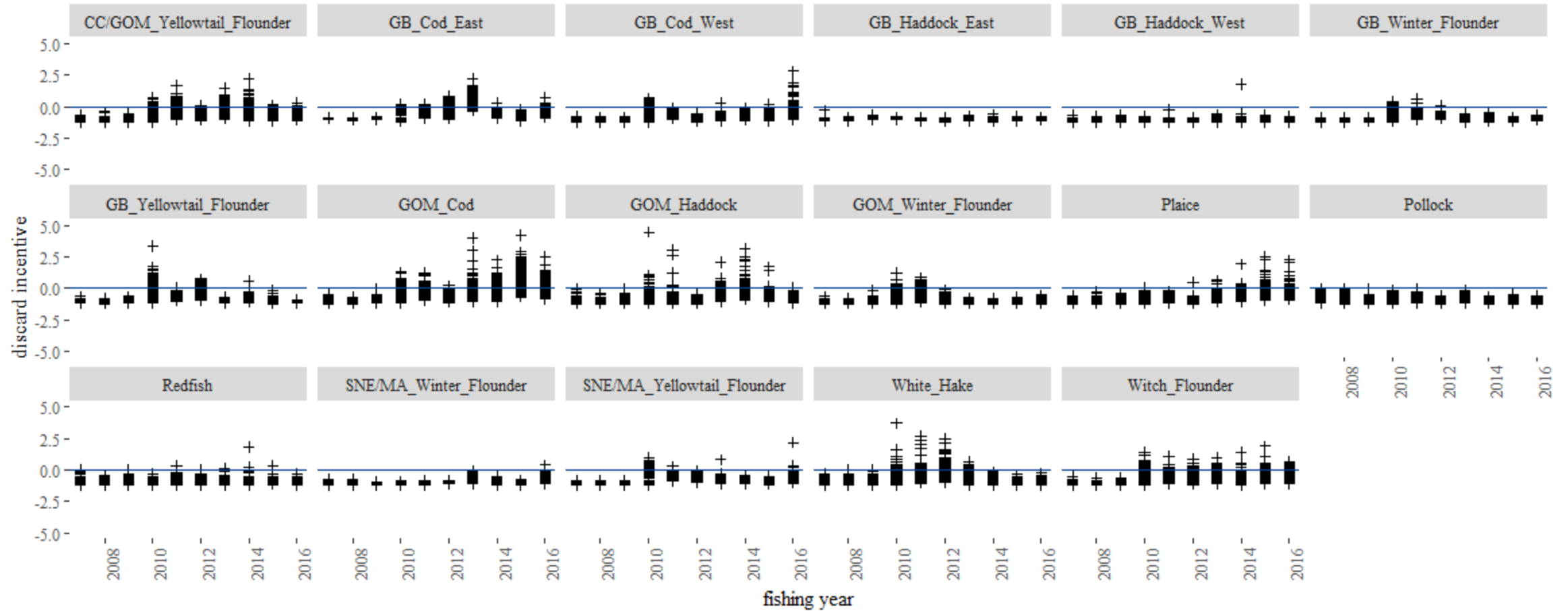
# Results- quota prices



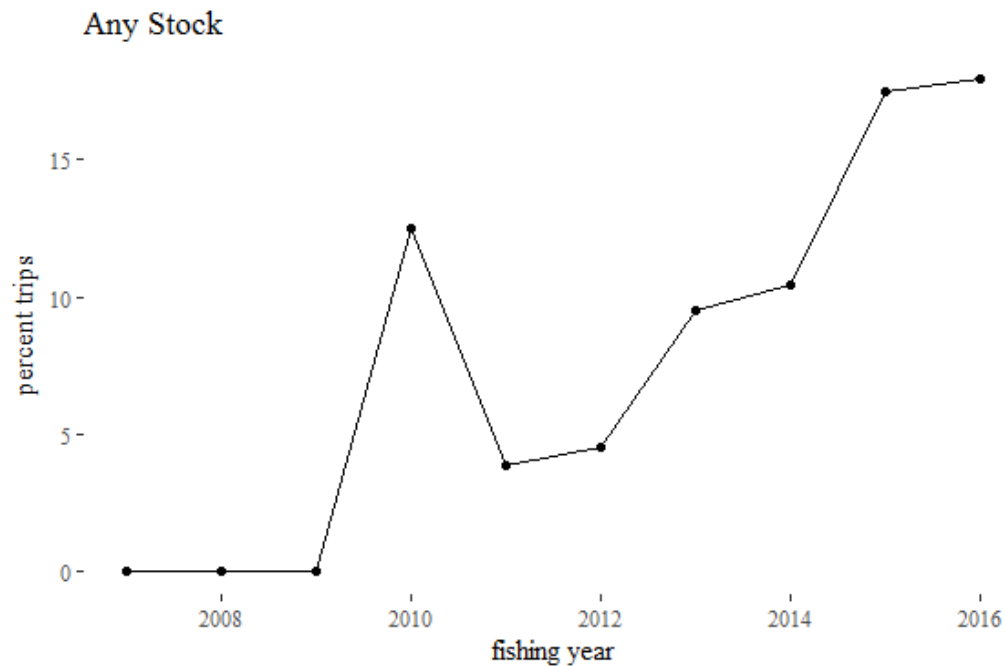
# Results- quota prices



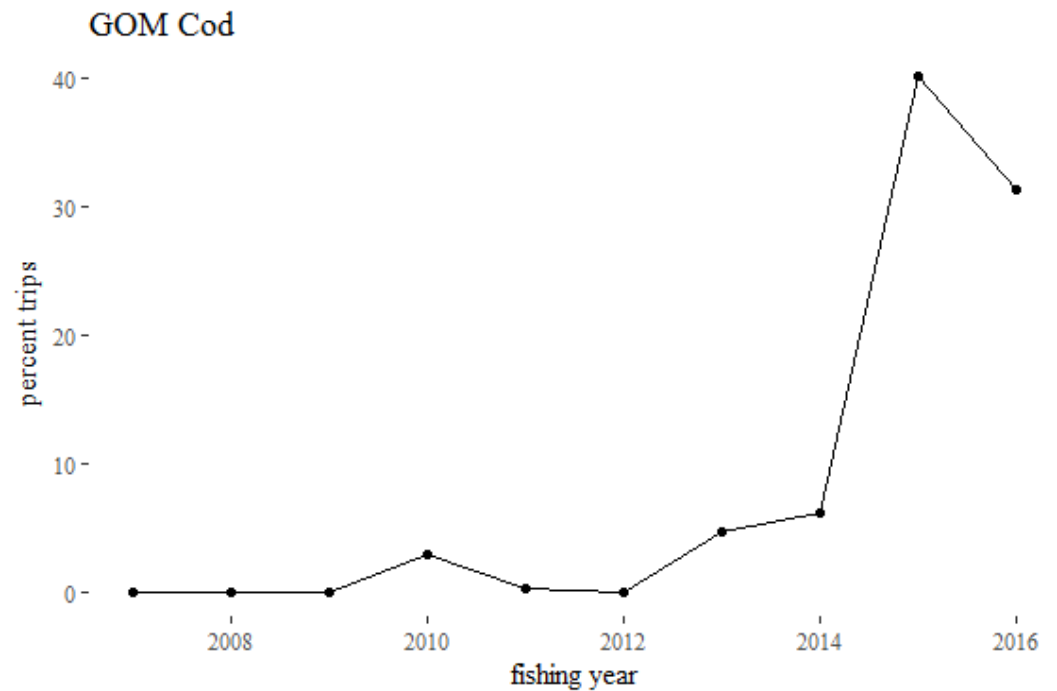
# Results- discard incentives



# Results- discard incentives



Percent of all trips landing any stock with positive discard incentive



Percent of trips landing GOM cod with positive discard incentive for GOM cod.

# Conclusions

- Discard incentives for many stocks increased notably with the implementation of the sector system
- Discard incentives change by stock and fishing year
- Any bias in catch data resulting from discarding legal sized fish is unlikely to be consistent over time



# **Preliminary Review of International Monitoring Programs [A5]**

# Review of International Monitoring Programs in Catch Share Managed Fisheries

## *Preliminary Results*

Melissa Errend, Integrated Statistics in support of NOAA Fisheries,  
Northeast Fisheries Science Center, Social Sciences Branch

# Outline

1. Research motivation & questions
2. Background
3. Structure of review
4. Preliminary results
5. Future research



# Research Motivation: Amendment 23

A-23 P&N: To implement measures to improve reliability and accountability of catch reporting and to ensure a precise and accurate representation of catch (landings and discards).

Question: How do similarly managed fisheries structure their monitoring programs?

No previous synthesis or comparison of the structure of monitoring programs

# Background: Role of monitoring under Catch Shares

From NOAA's annual National Observer Program report...

**“Catch share programs rely on observer data to monitor catch, landings, and discards. In many cases these fisheries require enhanced observer coverage to document vessel specific, or sector-level quotas. Managers and fishermen rely on observer data to ensure that vessels or sectors do not exceed their authorized quota of target or discard species.”**

Why is monitoring important for catch accountability under catch shares?

# Monitoring helps ensure landings and discards are matched against quota

- Under catch shares harvesters or groups are individually accountable to ensure the fishery does not exceed catch limits
- Because of quota limits/costs...
  - there may be an incentive to high-grade (maximize value of landings relative to quota)
  - or create an incentive to misreport landings or discards (avoid cost of quota)
- Effective monitoring supports participants who are doing the right things (e.g., adhering to quotas, or avoiding bycatch)

# Monitoring requirements may need to be greater for multispecies fisheries

- Incentives may vary under multispecies quota programs and single-species programs
- Multispecies programs:
  - Must cover landings of multiple target or incidentally caught species with quota
  - Lowest quota limits can limit landings of all other jointly-caught species
- Therefore, there are incentives to discard species without sufficient quota to continue landing other species for which quota exists.

# Structure of Review

Challenge for managers: achieve accountability & minimize incentives for discarding/misreporting in a cost-effective manner.

How have fisheries around the world approached this challenge?

21 catch share programs reviewed so far

- 15 U.S. programs
- 6 international programs in Iceland, Canada, Argentina, New Zealand, and Australia
- Multispecies finfish and unselective gear types prioritized for international programs
- 27 distinct fleets, programs or fisheries with different monitoring tools and coverage rates

# Structure of Review

Seven monitoring tools + an indicator of coverage rate:

- Dockside Monitoring (DSM)
- Vessel Monitoring System (VMS)
- Hailing notifications (either hail-in or hail-out)
- At-sea observer coverage
- Logbooks (electronic or paper)
- Dealer reports (electronic or paper)
- Electronic monitoring (EM)

# Attachment 5, Table 1: Multispecies programs


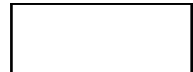


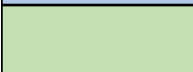
## New England Sectors

### 1. Fully monitored

### 2. Partially monitored at-sea

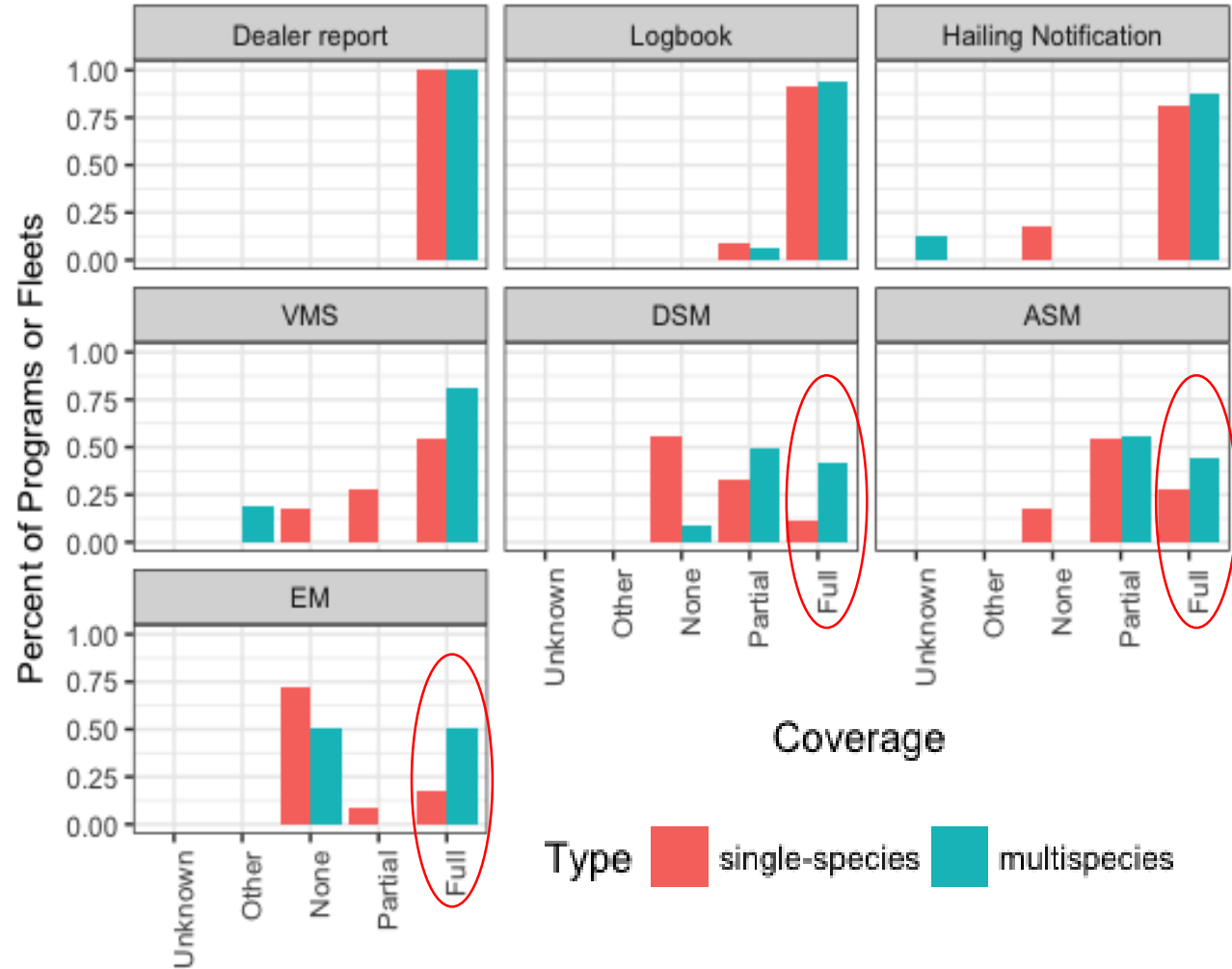
### 3. Partially monitored at-sea and dockside

Country/region	Program/Fleet	multispp	Year Impl.	DSM	VMS	Hailing not.	At sea coverage	Logbook	Dealer report	EM
U.S. New England	New England Multispecies Sector	x	2010							
U.S. West Coast	West Coast Trawl- shorebased IFQ (fixed/trawl)	x	2011							
Canada, B.C.	B.C. Integrated groundfish program (fixed/trawl)	x	2010/2011							
U.S. Alaska	Alaska CGOA Rockfish Trawl CV	x	2012							
Iceland	Iceland ITQ	x	2006-2007							
Argentina	Argentina ITQ	x	2010							
U.S. Alaska	BSAI Crab Rationalization Program- Catcher Vessels	x	2005							
U.S. Gulf of Mexico	GOM Grouper-tilefish IFQ VL/LL/trap	x	2010							
New Zealand	New Zealand QMS >28 m trawl	x	1986							
New Zealand	New Zealand QMS<28 m	x	1986							
Australia	Australian Southeast Trawl - Southern and Eastern Scalefish and Shark Fishery (CTS)	x	1988-1992			unknown				
Australia	Southern and Eastern Scalefish and Shark Fishery (CTS)- Gillnet and Hook fishery	x	1988-1992			unknown				
U.S. West Coast	West coast trawl- At-sea MS/CP cooperatives	x	2011	n/a						
U.S. Alaska	BSAI non-pollock trawl CP (Amendment 80)	x	2008	n/a						
U.S. Alaska	Alaska CGOA Rockfish Trawl CP	x	2012	n/a						
U.S. Alaska	BSAI Crab Rationalization Program- CP	x	2005	n/a						

	Full Coverage		No coverage
	Partial Coverage		Not applicable (process at sea)
	Full coverage in devel.		

# Tools and coverage: Single and multispecies programs

A greater proportion of multispecies programs implement full coverage across DSM, ASM, and EM tools





# Preliminary findings

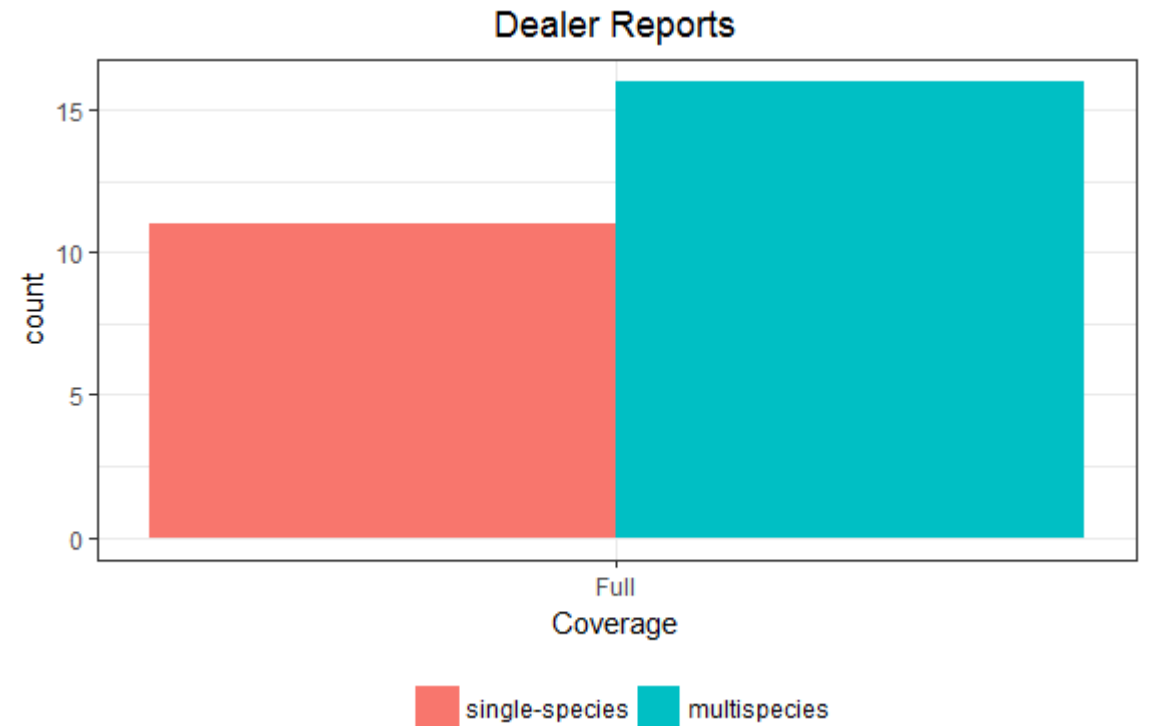
- Large diversity in the structure of monitoring programs
  - 100% DSM and ASM or EM: West Coast, B.C., and some AK programs
  - 100% DSM/partial ASM: Iceland, Argentina
  - Partial DSM and ASM: Gulf of Mexico, New Zealand, and Australia
- All multispecies programs except New England groundfish have some level of dockside monitoring
- Full coverage across DSM, ASM and EM is implemented in a greater proportion of multispecies programs than single-species programs

# Future work

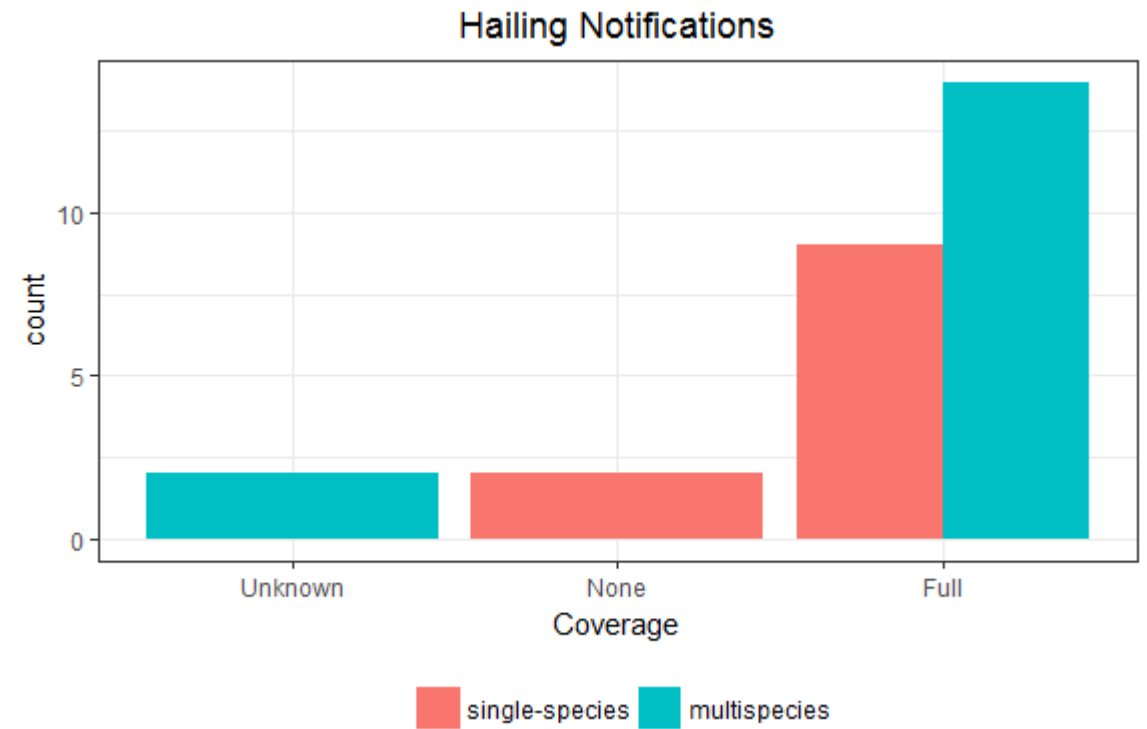
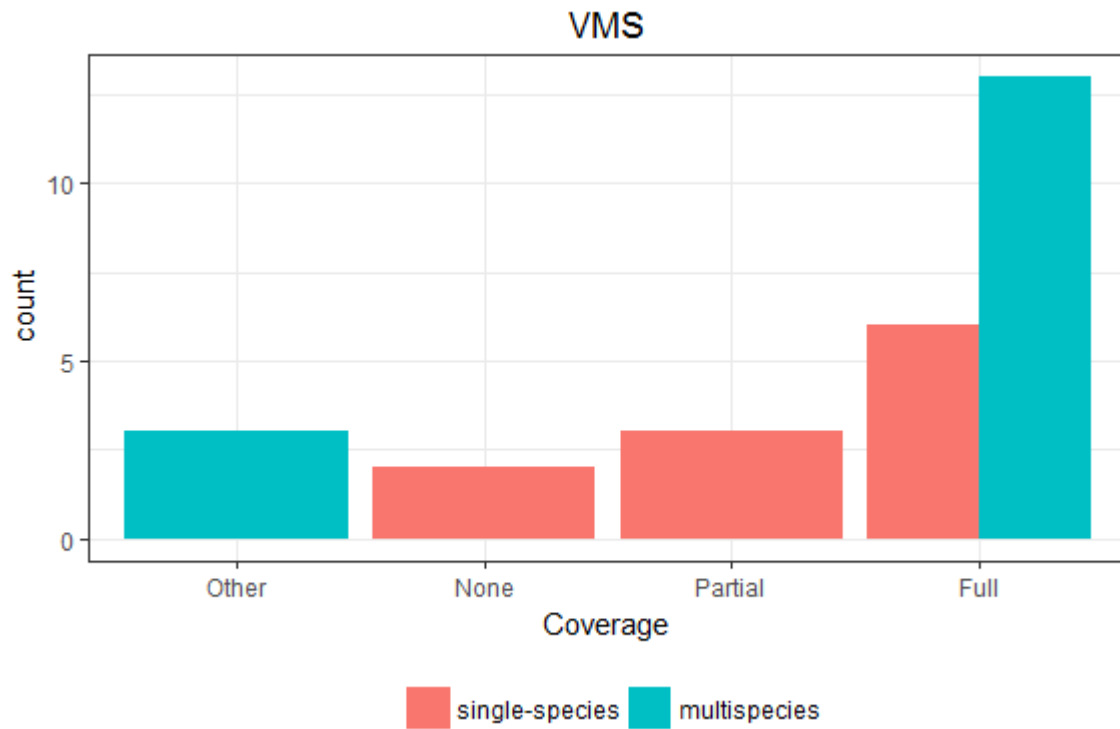
- Additional programs
- More metrics & indicators:
  - Fleet/program characteristics
  - Monitoring program goals
  - Discarding
  - Quota markets
  - Stock assessments
  - Stability and stewardship
  - Species rebuilding
- Case Studies: How does monitoring structure affect program performance? How have programs evolved?

# Additional Slides

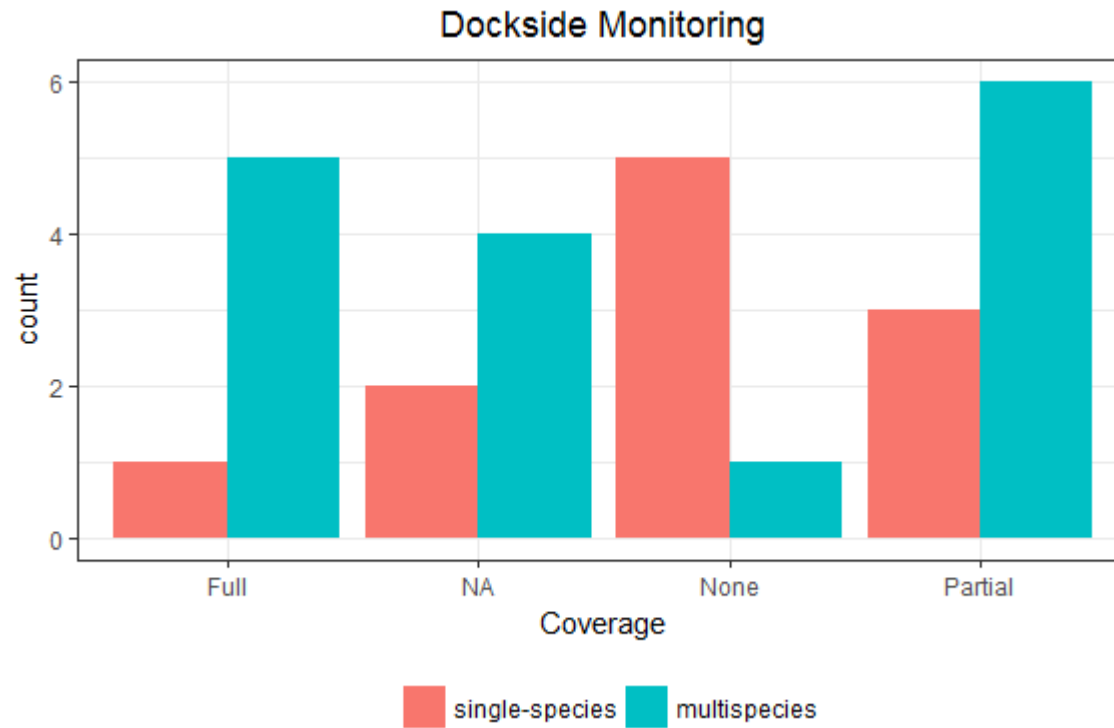
# Logbooks & Dealer Reports



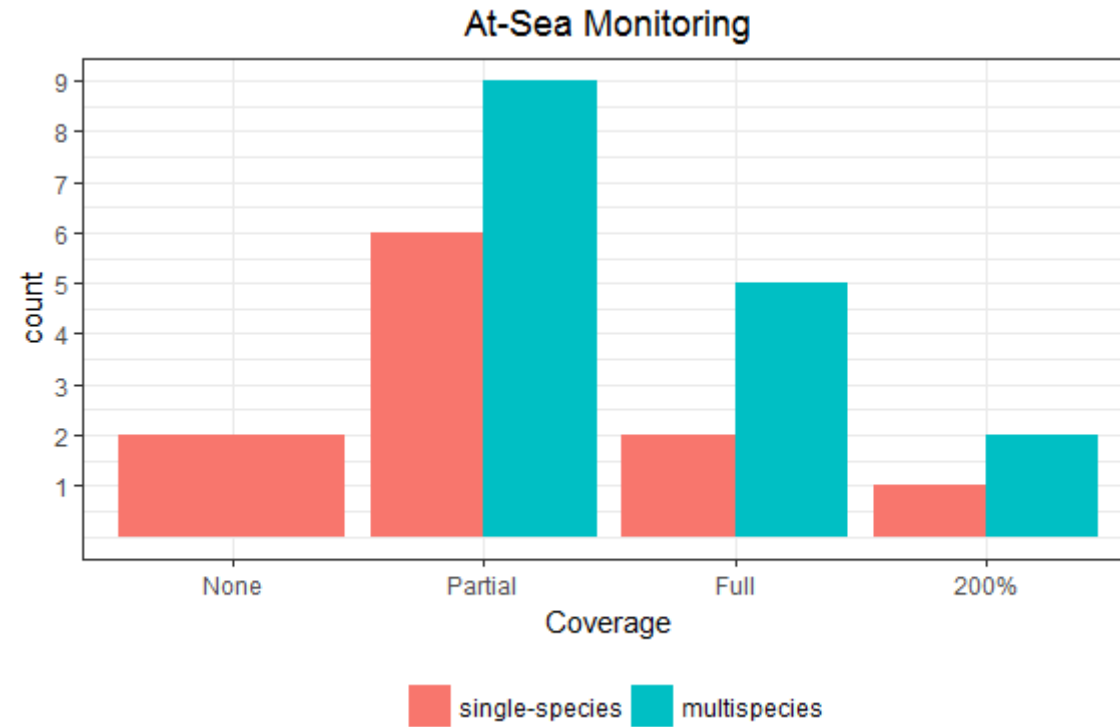
# VMS & Hailing Notifications



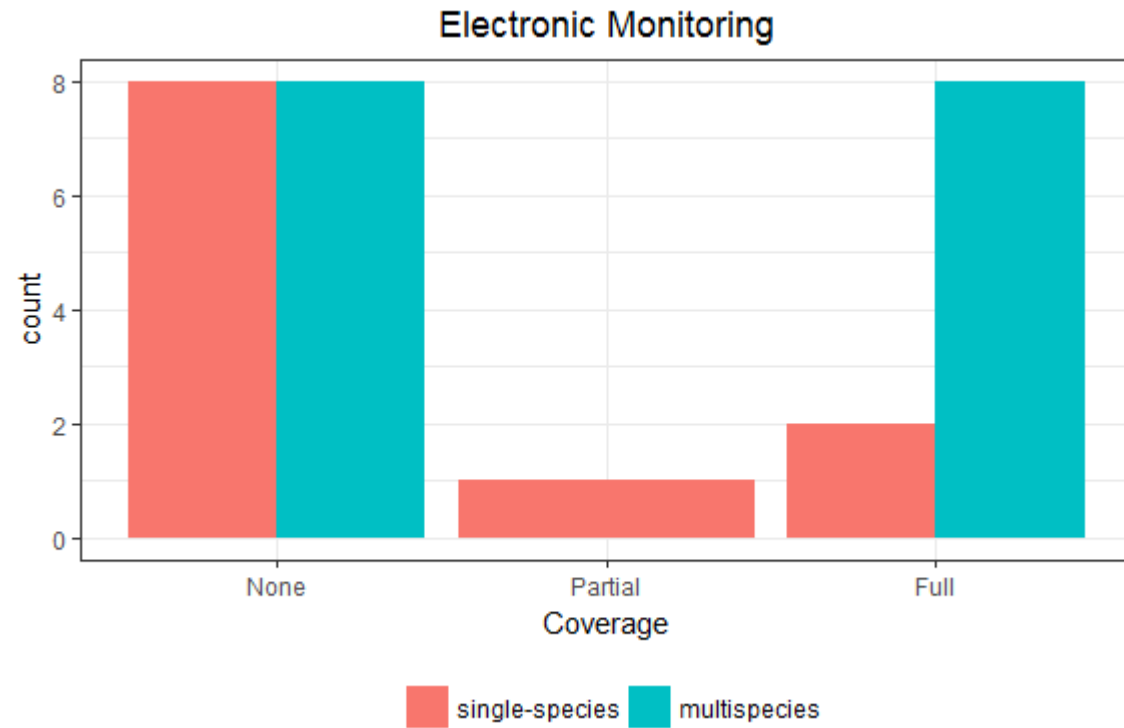
# Dockside Monitoring



# At-Sea Monitoring

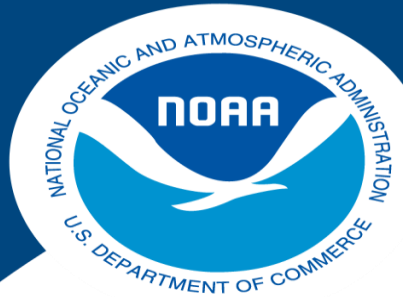


# Electronic Monitoring





# Reporting Compliance



**NOAA  
FISHERIES**

Greater Atlantic  
Regional Fisheries  
Office

# Data Processing and Quality Branch

Analysis & Program Support Division

4/24/2018

# Overview

The intent of this presentation is to provide a general overview of the Greater Atlantic Regional Fisheries Office's (GARFO) Data Processing and Quality Branch by addressing these basic questions:

- Who are we?
- What do we do?
- What fisheries data do we collect?
- What is data reconciliation and why is it so important?

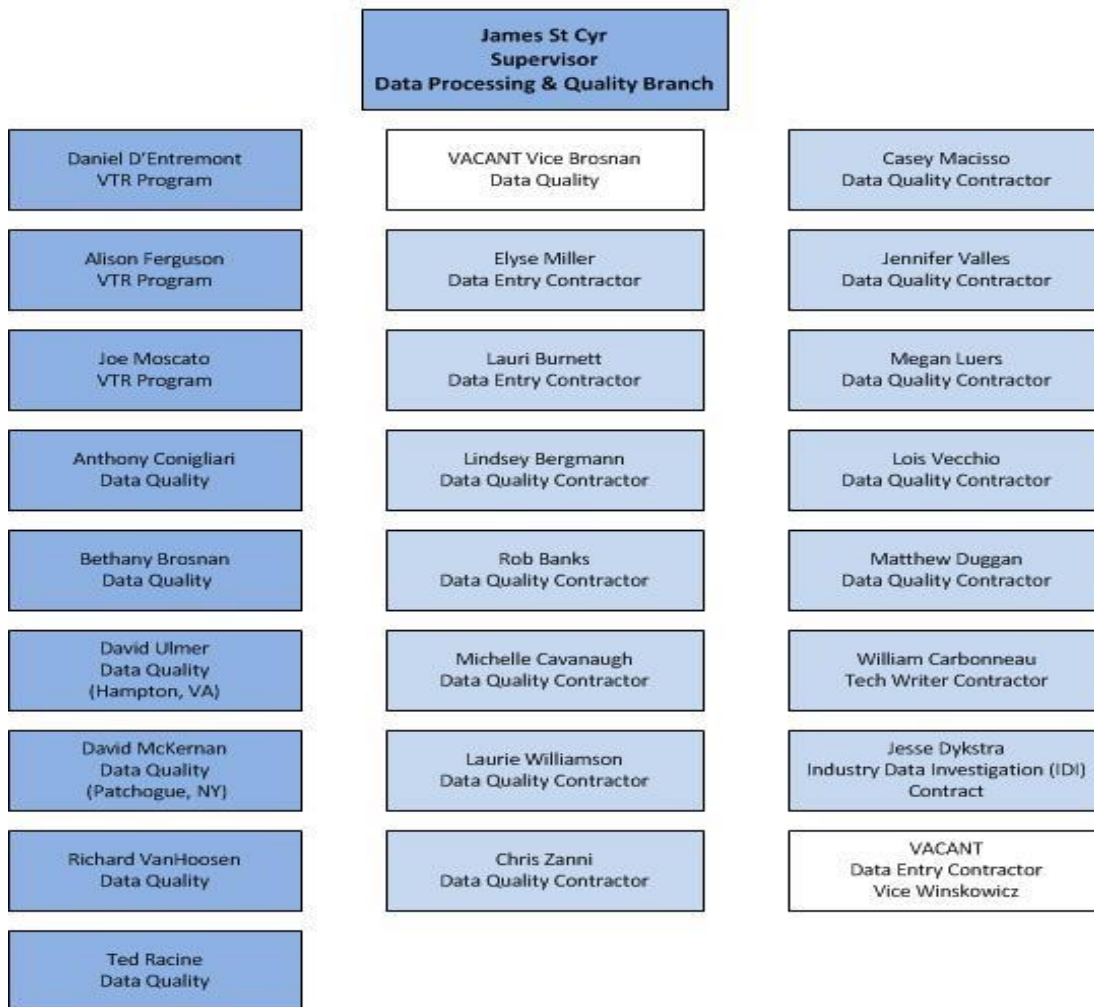
# Who are we?

- The **Analysis and Program Support Division (APSD)** has three branches that are responsible for:
  - Permits and Limited Access Programs
  - Data Processing and Quality
  - Monitoring and Analysis
- APSD provides permit services, data entry and quality control, and data analysis to support catch monitoring and fishery management decisions for NOAA Fisheries and its partners.
- APSD has 45 staff that includes 31 full time employees and 14 contractors.
- APSD is GARFO's lead for the Fishery Dependent Data Visioning (FDDV) Project

# What does the Data Processing and Quality Branch Do?

- Staffed with 10 full time employees (including Branch Chief) and 14 contractors
- Compile and review vessel trip report information.
  - Includes data entry, data quality, and compliance reporting programs.
  - Dealer data is submitted electronically so we do not perform data entry, but this team also conducts the data quality program for dealer data.
- Conduct additional data quality activities with a focus on catch share programs. As data quality has improved in those programs, this activity is being extended to non-catch share fisheries.
- The staff are heavily involved in ongoing efforts to modernize the regional fishery dependent data collection's system design and processes. This activity includes efforts to incorporate electronic technology as appropriate.

## Analysis and Program Support Division Data Processing and Quality Branch



# What fisheries do we process?

- QA Processes Standardized Across FMPs with specialized products, processes or audits implemented as appropriate.
  - Sector Comparison Report
  - Clam Tags
- All FMP's are covered with priority being given to Groundfish Sectors and IFQ based fisheries such as scallops and tilefish.

# Time Period Milestones (2010 - Present)

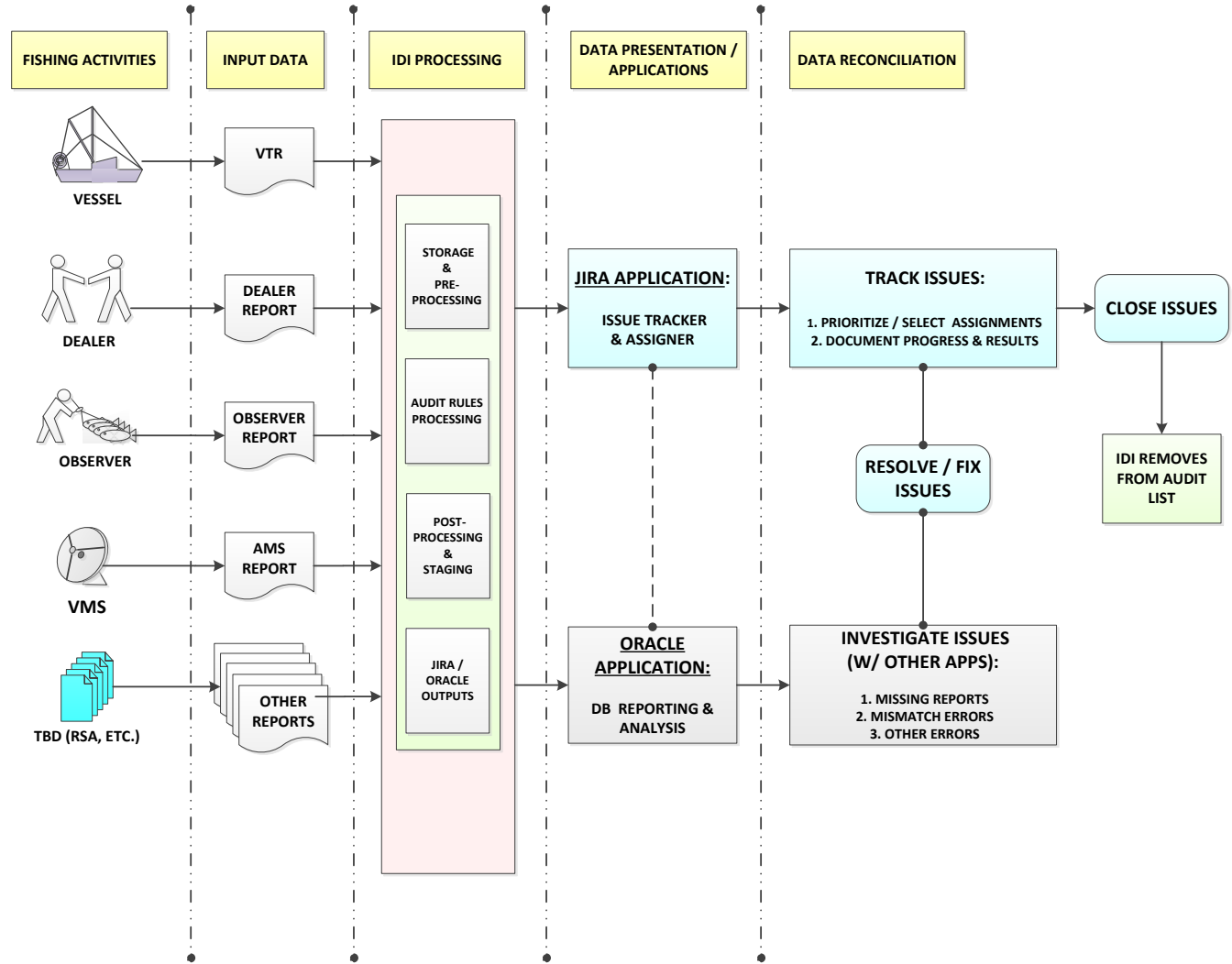
- May 2010
  - Groundfish Sectors operational
  - QA Data Reconciliation Program operational
  - eVTR approved for limited use
- July 2011
  - eVTR approved for all permit holders
- Dec 2014
  - Chart Area reporting changed to follow process used by Observers; catch is reported against the Chart Area where the haul back occurred.
- August 2015
  - Removed requirement to submit Did Not Fish (DNF) reports.
- April 2017
  - Implemented improved QA Data Reconciliation Program



# What is Data reconciliation and why is it so important?

- Reconciliation is the process where we compare similar data fields, from different sources, against each other. Some of the primary examples of this are:
  - VTR ⇔ Dealer
  - VTR ⇔ VMS
- The reason we do this cross check is to locate errors that can't be discerned by looking either source by itself.
  - For example, a dealer record can appear entirely accurate and reasonable. It's not until we compare it to the VTR that we discover that the dealer didn't report a species that was reported on the VTR.

# Reconciliation Process



# Reporting Compliance

- Compliance Mailing – VTR Only
  - Several times a year we evaluate dealer reports to identify missing VTR's and mail compliance letters to affected vessels.
- QA Process – Dealer & VTR
  - Identifies missing or incorrect reports
  - QA staff contacts dealer/vessel for missing report, or to inquire re: emended report
  - After several attempts at contact with no response, dealer/vessel referred to OLE

# VTR Chart Area Reporting Accuracy

- Area(s) fished are verified when:
  - VTR associated with VMS-equipped vessel has issues that can be resolved by reviewing the VMS Track (vTrack) for the trip in question.
  - DATE\_SAIL, DATE\_LAND, OFFLOAD\_PORT, etc.
- Vessels with Permits such as NE Mults, Scallop, and Monkfish require vTrack units.
- QA personnel check vTrack against Chart Areas when question exists.  
Methodology:
  - Areas reported on the VTR are compared with vTrack areas where it appears that fishing activity took place.

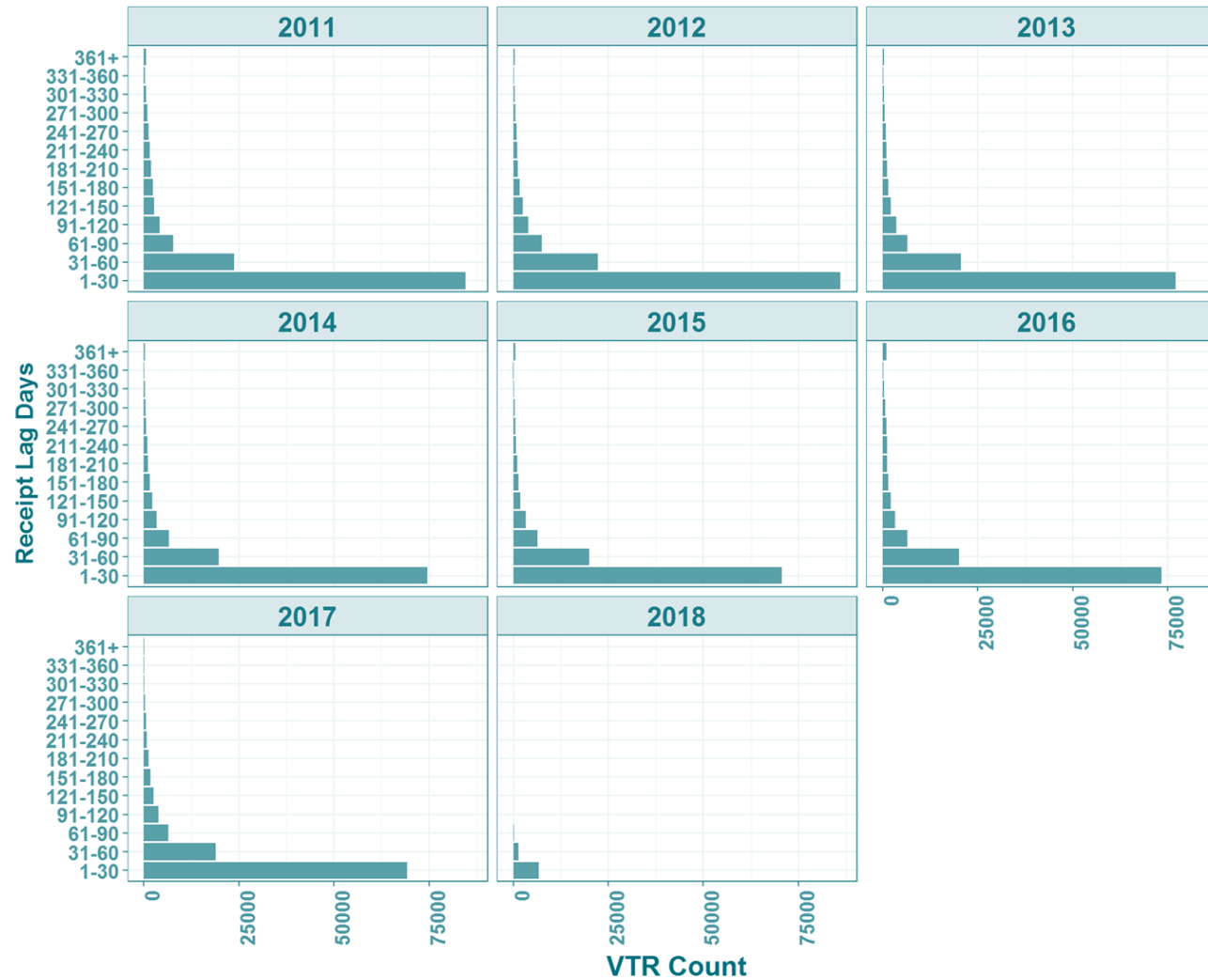
# VTR Chart Area Reporting Accuracy (Con't.)

- Frequency of occurrence in which a vessel outreach due to missing Chart Areas occurred.
  - November 2015 to Present:  
160 instances in which GARFO contacted the vessel owner/operator for a missing area.

# VTR Metric Charts

- Data Timeliness: VTR Submission Lag
- Summary of VTR Sendback Percentage
- VTRs: In-House vs. Sendback Errors
- Rate of Occurrence by VTR Sendback Type
- VTR Error Types

# Data Timeliness: VTR Lag Days



# Summary of VTR Sendback Percentage

CALENDAR YEAR	TOTAL VTR PAGES PROCESSED	TOTAL ERRORED PAGES	ERR % OF TOTAL VTR	IN-HOUSE ERROR PAGES	IN-HOUSE % OF TOTAL	SENDBACK ERROR PAGES	SENDBACK % OF TOTAL
2011	119203	3898	3.27	87	0.07	3811	<b>3.20</b>
2012	138028	35540	25.75	24458	17.72	11082	<b>8.03</b>
2013	119989	22286	18.57	16314	13.60	5972	<b>4.98</b>
2014	117374	15888	13.54	9585	8.17	6303	<b>5.37</b>
2015	111798	8871	7.93	2487	2.22	6384	<b>5.71</b>
2016	115281	34742	30.14	32633	28.31	2109	<b>1.83</b>
2017	114494	34755	30.36	32977	28.80	1778	<b>1.55</b>
2018	21157	8929	42.20	8567	40.49	362	<b>1.71</b>

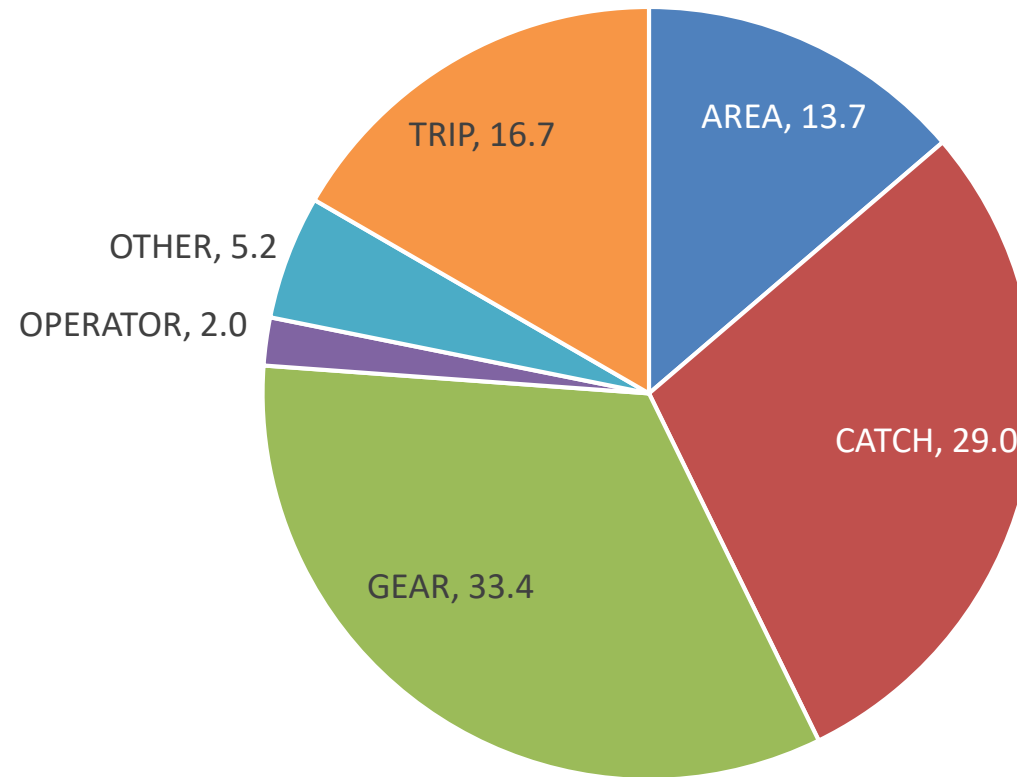


# VTR Sendback Percentage

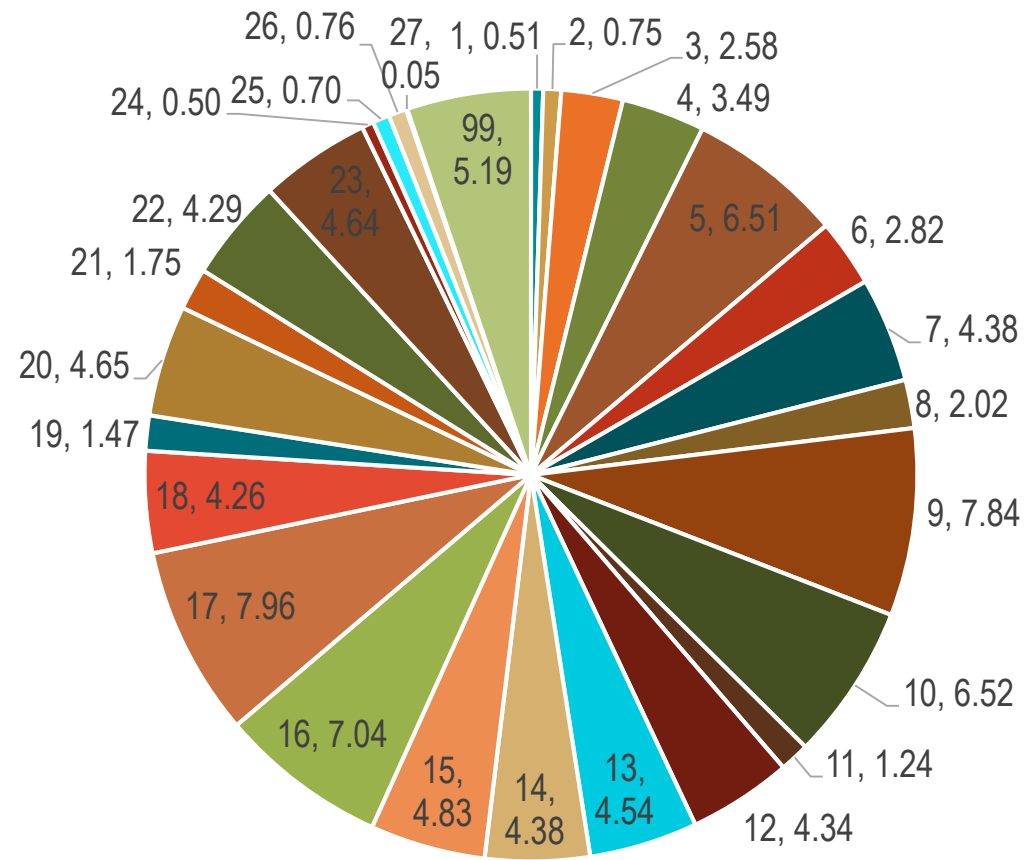
## Total VTRs Processed and Errors by Calendar Year



# VTR Error Rate By Error Category



# VTR Error Rate By Block Number



# QA Metrics and Audit Rules

- Audit Rules assist Metrics by “binning” associated information into meaningful error group categories:
  - **Dealer** (e.g., Dealer number missing or incorrect)
  - **Duplicate Report** (e.g., State or Federal duplicate)
  - **Landing** (e.g., Port / State, price, grade code)
  - **Landing Difference** (e.g., endorsement exceeded)
  - **Species** (e.g., missing or misidentified species)
  - **Trip ID** (e.g., missing, out-of-range, re-used, invalid)
  - **Trip Orphan** (e.g., missing VTR or Dealer report)
  - **Vessel** (e.g., VPN or hull number missing or incorrect)

# Audit Rules By Error Group Category

METRIC_GROUP	AUDIT RULE
DEALER ATTRIBUTE	DEALER NUMBER IS NULL
DEALER ATTRIBUTE	DEALER NUMBER IS ZERO
DEALER ATTRIBUTE	DEALER PERMIT NUMBER FMP THRESHOLD EXCEEDED (LOBSTER ONLY PERMIT EXCLUDED)
DEALER ATTRIBUTE	MISSING DEALER PERMIT NUMBER REPORTED BY DEALER BUT NOT BY VESSEL FMP THRESHOLD EXCEEDED (LOBSTER ONLY PERMIT EXCLUDED)
DEALER ATTRIBUTE	MISSING DEALER PERMIT NUMBER REPORTED BY VESSEL BUT NOT BY DEALER FMP THRESHOLD EXCEEDED (LOBSTER ONLY PERMIT EXCLUDED)

METRIC_GROUP	AUDIT RULE
DUPLICATE REPORT	DEALER SUBMITTED DUPLICATE FEDERAL REPORT
DUPLICATE REPORT	DEALER SUBMITTED DUPLICATE STATE REPORT

# Audit Rules By Error Group Category (Con't.)

METRIC_GROUP	AUDIT RULE
LANDING ATTRIBUTE	DISPOSITION CODE ISSUE
LANDING ATTRIBUTE	GRADE CODE ISSUE
LANDING ATTRIBUTE	PORT/STATE DOES NOT MATCH ACROSS SOURCE STREAMS
LANDING ATTRIBUTE	PRICE ISSUE
LANDING ATTRIBUTE	PRICE ISSUE NEGATIVE VALUE
LANDING ATTRIBUTE	UNIT OF MEASURE ISSUE

METRIC_GROUP	AUDIT RULE
LANDING DIFFERENCE	LANDING DIFFERENCE ENDORSEMENT THRESHOLD EXCEEDED

METRIC_GROUP	AUDIT RULE
SPECIES	ADDITIONAL SPECIES FMP THRESHOLD EXCEEDED
SPECIES	FEWER SPECIES FMP THRESHOLD EXCEEDED
SPECIES	NESPP3 MISSING
SPECIES	PROHIBITED SPECIES
SPECIES	SKATE SPECIES ENDORSEMENT THRESHOLD EXCEEDED
SPECIES	SPECIES ITIS ISSUE
SPECIES	SPECIES ITIS MISSING

# Audit Rules By Error Group Category (Con't.)

METRIC_GROUP	AUDIT RULE
TRIP ID	EVTR 11TH AND 12TH DIGIT <> VALID 2-DIGIT DAY
TRIP ID	EVTR 13TH AND 14TH DIGITS <> VALID 2-DIGIT HOUR
TRIP ID	EVTR 7TH AND 8TH DIGITS DO NOT MATCH TRIP YEAR
TRIP ID	EVTR 9TH AND 10TH DIGITS <> VALID 2-DIGIT MONTH
TRIP ID	REUSED VTRSERNO OR POTENTIALLY DEALER COMBINED TRIP
TRIP ID	SERIAL NUM INVALID
TRIP ID	SERIAL NUM MISSING
TRIP ID	VTRSERNO CONTAINS EMPTY SPACES
TRIP ID	VTRSERNO FMP THRESHOLD EXCEEDED (LOBSTER ONLY PERMIT EXCLUDED)
TRIP ID	VTRSERNO FORMAT INVALID (EXCLUDES LOBSTER ONLY PERMIT)
TRIP ID	VTRSERNO FORMAT INVALID NORTH CAROLINA
TRIP ID	VTRSERNO MISSING (EXCLUDES LOBSTER ONLY PERMIT)
TRIP ID	VTRSERNO MISSING NORTH CAROLINA
TRIP ID	VTRSERNO NOT LOWEST SEQUENCE FOR MULTI-PAGE TRIP
TRIP ID	VTRSERNO NOT WITHIN RANGE (ELECTRONIC)
TRIP ID	VTRSERNO NOT WITHIN RANGE (PAPER)
TRIP ID	VTRSERNO REPORTED FOR DID NOT FISH REPORT
TRIP ID	VTRSERNO REUSED ASSIGNED TO MULTIPLE VESSEL PERMITS WITHIN DEALER SOURCE STREAM
TRIP ID	VTRSERNO REUSED BETWEEN SOURCE STREAMS
TRIP ID	VTRSERNO REUSED WITHIN DEALER SOURCE STREAM SAME VPN DATE SOLD > 5 DAYS

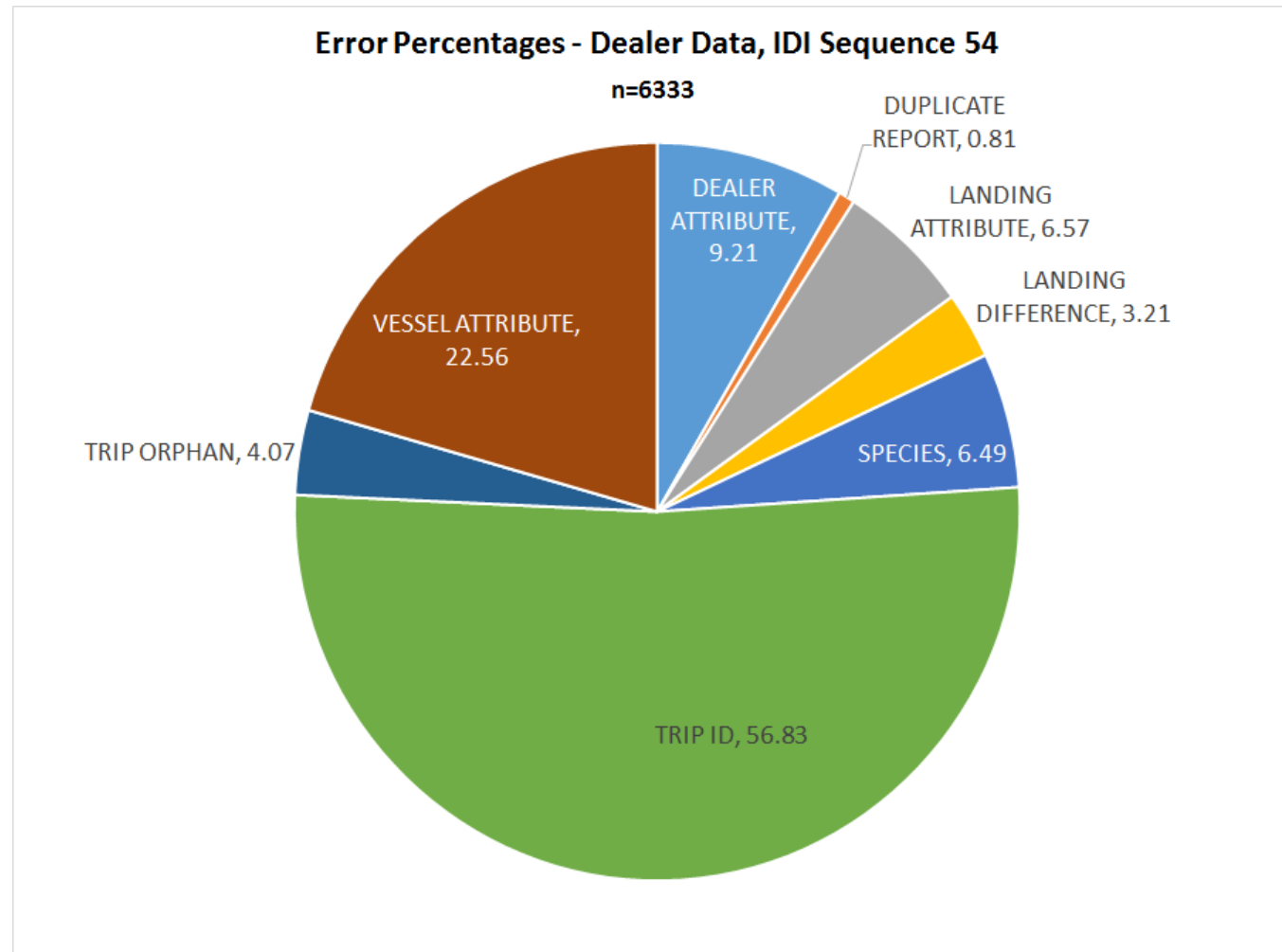
# Audit Rules By Error Group Category (Con't.)

METRIC_GROUP	AUDIT RULE
TRIP ORPHAN	AMS MISSING DECLARATION AS REQUIRED PRIORITY FISHERIES
TRIP ORPHAN	MULTIPLE DAS IDS ASSIGNED TO ONE TRIP IMPACTS QUOTA MONITORING
TRIP ORPHAN	TRUE TRIP ORPHAN DEALER FMP THRESHOLD EXCEEDED
TRIP ORPHAN	TRUE TRIP ORPHAN VESSEL FMP THRESHOLD EXCEEDED

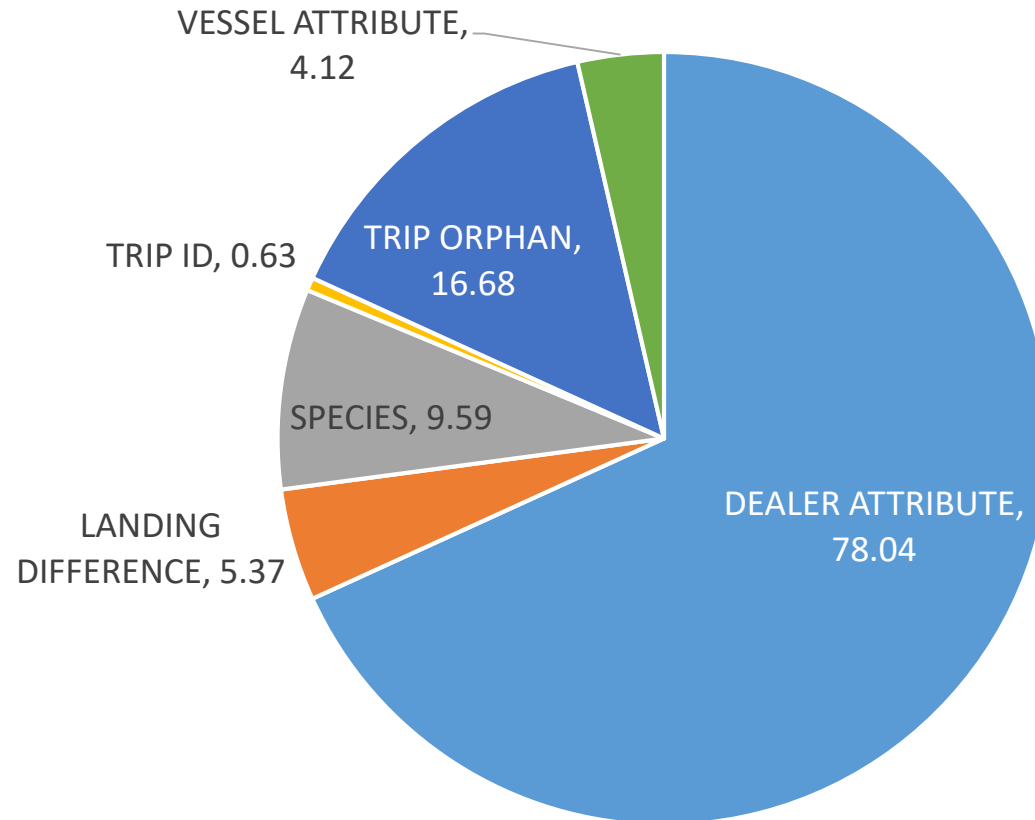
METRIC_GROUP	AUDIT RULE
VESSEL ATTRIBUTE	HULL NUMBER
VESSEL ATTRIBUTE	HULL NUMBER FROM SHORE VESSEL PERMIT NUMBER MISSING
VESSEL ATTRIBUTE	VESSEL HULL NUMBER IS MISSING
VESSEL ATTRIBUTE	VESSEL PERMIT AND HULL NUMBER MISSING
VESSEL ATTRIBUTE	VESSEL PERMIT MISSING
VESSEL ATTRIBUTE	VESSEL PERMIT NOT VALID PERMIT NUMBER
VESSEL ATTRIBUTE	VESSEL PERMIT NUMBER
VESSEL ATTRIBUTE	VESSEL PERMIT NUMBER ERROR (LOBSTER ONLY PERMIT EXCLUDED)
VESSEL ATTRIBUTE	VESSEL PERMIT NUMBER REPORTED AS 000000
VESSEL ATTRIBUTE	VESSEL TRIP DATE SAIL AND LAND OVERLAPPING WITH ANOTHER TRIP
VESSEL ATTRIBUTE	VTR DATA ENTRY INCOMPLETE
VESSEL ATTRIBUTE	VTR DATA ENTRY MARKED COMPLETE MISSING CATCH RECORDS



# Dealer Data Error Rate by Error Category



# Vessel Data Error Rate by Error Category



# QUESTIONS?

# Dockside Monitoring Discussion Paper – May 2, 2018

## 1) Objectives

- Satisfies Groundfish Committee request from April 2016 for the PDT to develop a white paper on monitoring strategies, including a review of existing shoreside monitoring programs as well as past Council decisions on dockside monitoring.

### Outline:

- Summary of the development of the Groundfish Dockside Monitoring Program (2010-2011) and modifications to the program
- Case studies of dockside monitoring programs in other regions
- PDT discussion on considerations for a groundfish dockside monitoring program

# Dockside Monitoring Discussion Paper – May 2, 2018

## 2) PDT Problem Statement

- Accurate landings data are a critical component of total fishery removals for targeted groundfish stocks – they provide the basis for the size structure and magnitude of most of the commercial catch, ensure that sectors are in compliance with their Annual Catch Entitlements, and underpin the quota allocation mechanism.
  - When true catch is biased, it can contribute to problems with assessment model performance, including retrospective errors.
  - Accurate catch reporting is also necessary to ensure that the mechanism for allocating quota between sectors provides a level playing field for all fishermen.
- In a fishery with a tradeable quota system, incentives to report inaccurately exist. There is currently no independent verification of landings data for the groundfish fishery. NOAA Office of Law Enforcement inspects only a small percentage of trips for compliance (~4% in 2017), and expressed concern that current monitoring efforts are insufficient to ensure landings are reported accurately.

# PDT Discussion – Compliance and Enforcement [A6]

## 1) Compliance

- Received an overview of the QA/QC process
- Information summarized for Greater Atlantic region
- Discussed electronic reporting, possibility of a unique trip identifier, reducing errors at the time of reporting, and importance of knowing area fished for stock monitoring

## 2) Enforcement

- Questions from the PDT and answers from OLE regarding dockside monitoring
- Also included in the Dockside Monitoring Discussion Paper

## For Today's Meeting

- Receive progress report on the potential range of alternatives
- Discuss the draft alternatives in Section 4.1 Fishery Program Administration
- Possibly make recommendations concerning the specific questions in the PDT memo – dated April 6
- Discuss the PDT's analysis to date
- Receive a report from GARFO on compliance with catch reporting



**Framework Adjustment 58- scheduled  
to be initiated at the June Council meeting**



# DRAFT Scope

- To set specifications for FY2019 for US/Canada stocks (Eastern Georges Bank (GB) cod, Eastern Georges Bank haddock, and Georges Bank yellowtail flounder),
- To revise/establish rebuilding plans for several stocks (ocean pout, GB winter flounder, witch flounder, Gulf of Maine/GB windowpane flounder, and Southern New England/Mid-Atlantic yellowtail flounder ),
- To address Status Determination Criteria issue when analytic assessments fail,
- To provide additional guidance on sector overages, and
- To revise other management measures, if necessary.

# **DRAFT Objectives**

To meet regulatory requirements to prevent overfishing, ensure rebuilding, and help achieve optimum yield in the commercial groundfish fishery.

# DRAFT Likely Range of Alternatives

1. Updates to status determination criteria, rebuilding plans, and annual catch limits

- Status Determination Criteria

- Rebuilding Plans

- Annual Catch Limits

2. Fishery administration

- Guidance on sector overages

# DRAFT Timeline - May 1, 2019 Implementation

2018	
MAR-JUN	Committee/AP/PDT preliminary discussion and analysis
<b>JUN 12-14</b>	<b>NEFMC – Council initiates framework</b>
JUL 10-12	TRAC assessments for US/CA stocks including EGB Cod, EGB haddock, and GB yellowtail flounder
JUL XX	PDT develops options for the SSC to consider for OFLs/ABCs for GB yellowtail flounder
AUG 15	SSC recommends ABC for GB yellowtail flounder
SEP 11-14	TMGC/SC recommends TACs for US/CA stocks
JUL-SEP	Committee/AP/PDT develop alternatives and analysis
<b>SEP 25-27</b>	<b>NEFMC – Receives an update on the development of the action, approve range of alternatives, including discussing US/CA stocks</b>
OCT-DEC	Committee/AP/PDT develop alternatives and analysis
<b>DEC 4-6</b>	<b>NEFMC – Council takes final action/approves framework</b>
DEC-JAN	PDT completes submission document
2019	
JAN XX	Preliminary submission
FEB XX	Final submission of framework document to NMFS
MAY 1	Implementation