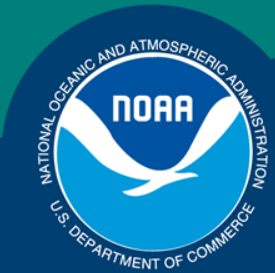


*Science, Service, Stewardship*



## **Sector ASM Coverage Requirements**

*J. Michael Lanning, Ph.D.*

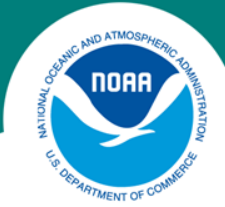
*Statistician*

*Analysis and Program Support Division*

*Northeast Regional Office – Gloucester, MA.*

*October 5, 2011*

**NOAA  
FISHERIES  
SERVICE**



## Sector ASM Coverage Requirements

Question:

What level of coverage is needed to accurately monitor Sector catch?

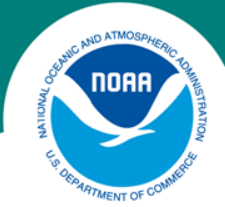
Criteria:

- Specified level of accuracy is 30% Coefficient of Variation (CV30)
- Discard Rates are applied at the Sector / Stock /Gear Strata

Example: 

Fixed Gear	Otter Trawl	Extra Large Mesh	GBE Cod	=>	Discard Rate
------------	-------------	------------------	---------	----	--------------

- The SBRM coverage levels will be met by a 8% NEFOP monitoring of the groundfish fleet
- Based on NERO FY2010 Groundfish Sector Year-End Data and NEFOP's Observer Program



## Sector Discard Rate by Strata

Example: 

Fixed Gear	Otter Trawl	Extra Large Mesh	GBE Cod	=>	Discard Rate
------------	-------------	------------------	---------	----	--------------

For each strata:

1. Count the number of FY2010 strata-trips\*
  2. From the observer data
    1. Count the number of observed strata-trips
    2. Calculate the observed discard rate\*\*
    3. Calculate the actual CV\*\*
  3. Calculate the number of trips needed to meet the CV30 criteria\*\*
- Strata-trips: Sub-trip defined by a change of gear or area
  - \*\*Calculation method as described in discard estimation peer review



## Sector Discard Rate by Strata

- FY2010 Discard Strata: 842
- Allocated and Non-Allocated Groundfish Stocks (22)

SECTOR	STRATA
Fixed Gear	78
NCCS	26
NEFS 2	53
NEFS 3	67
NEFS 5	50
NEFS 6	35
NEFS 7	70
NEFS 8	40
NEFS 9	37
NEFS 10	84
NEFS 11	57
NEFS 12	13
NEFS 13	50
Port Clyde	39
Sust. Harvest	104
Tri-State	39
<b>Total</b>	<b>842</b>



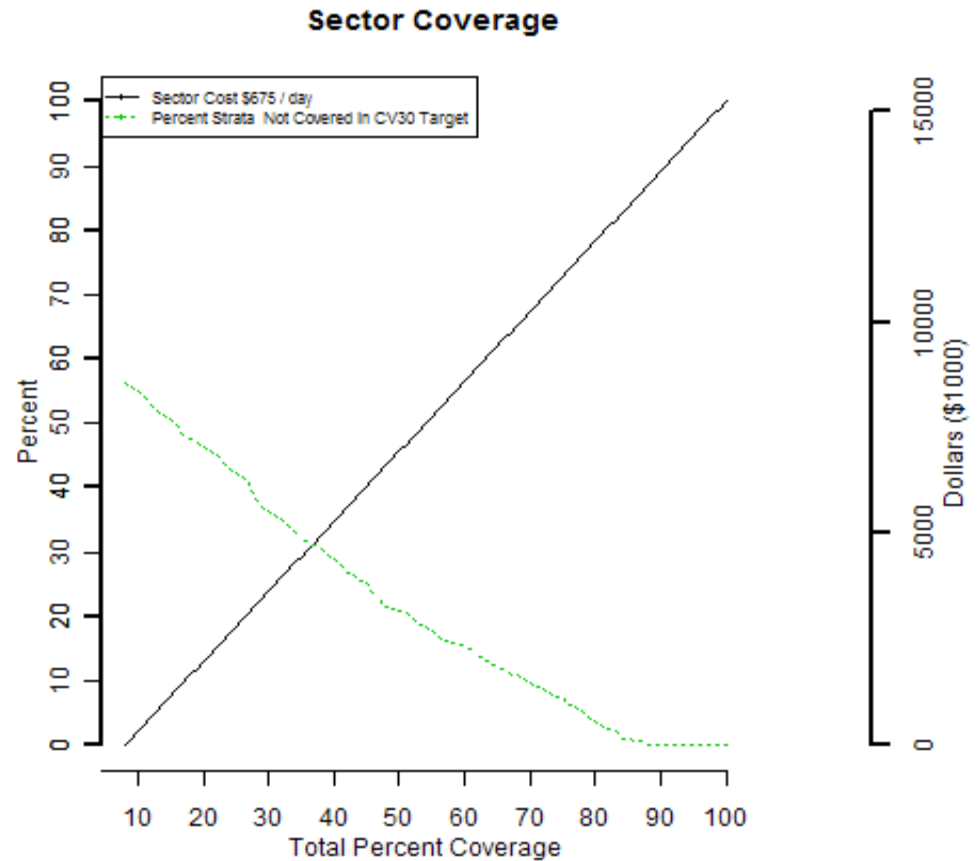
## Sector Discard Rate by Strata Example

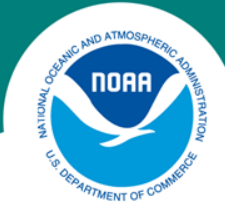
GEAR	MESH	STOCK	DISCARD RATE	CV ACTUAL	TRIPS		
					FY2010	Observed	CV30
Gill Net	Extra Large Mesh	Southern Windowpane	0.00006	92.2%	28	9	23
Gill Net	Extra Large Mesh	Witch Flounder	0.00014	47.4%	135	68	97
Gill Net	Extra Large Mesh	GOM Yellowtail	0.00000	0.0%	120	65	0
Gill Net	Large Mesh	GOM Yellowtail	0.00955	15.9%	301	125	51
Gill Net	Large Mesh	Witch Flounder	0.00002	39.6%	304	125	167
Long Line	NA	GOM Cod	0.01045	39.5%	42	9	14
Long Line	NA	Witch Flounder	0.00000	0.0%	43	9	0
Otter Trawl	NA	Witch Flounder	0.00168	17.7%	253	94	44



## FY2012 Sector Discard Rate by Strata

91% observer coverage needed to meet strata criteria of CV30





## Sector Discard Rate by Strata

Trip-Strata: Sub-trip defined by a change of gear or area

The coverage needed by a sector to have each strata meet a precision of a CV30, varies by the number of sub-trips (gears and area fished) and consistency of discards.

FY2010 Sector Realized Sub-Trip Coverage		
SECTOR	Sub-Trip	Percent Strata
	Percent Coverage	Covered CV30
Fixed Gear	40.04	57.69
Port Clyde	32.99	61.54
NCCS	47.37	84.62
NEFS 2	29.46	50.94
NEFS 3	33.47	59.70
NEFS 5	37.28	40.00
NEFS 6	15.96	40.00
NEFS 8	21.12	62.50
NEFS 9	16.87	78.38
NEFS 10	40.81	63.10
NEFS 11	34.90	38.60
NEFS 12	45.00	38.46
NEFS 13	26.92	74.00
Sust Harv	23.44	59.62
Tri-State	27.93	58.97
TOTAL Sector	31.70	57.96



## Sector Strata weighted by Discards (lbs)

- Place importance on individual strata based on expected amount of discards generated

FY2010 Sector Realized Sub-Trip Coverage		
SECTOR	Sub-Trip Percent Coverage	Percent Discards Covered CV30
Fixed Gear	40.04	93.28
Port Clyde	32.99	90.99
NCCS	47.37	8.76
NEFS 2	29.46	90.31
NEFS 3	33.47	90.90
NEFS 5	37.28	79.39
NEFS 6	15.96	67.85
NEFS 8	21.12	65.19
NEFS 9	16.87	96.74
NEFS 10	40.81	87.51
NEFS 11	34.90	67.51
NEFS 12	45.00	51.60
NEFS 13	26.92	42.26
Sust Harv	23.44	81.10
Tri-State	27.93	44.97
TOTAL Sector	31.70	81.23





## Sector Strata weighted by Discards (lbs)

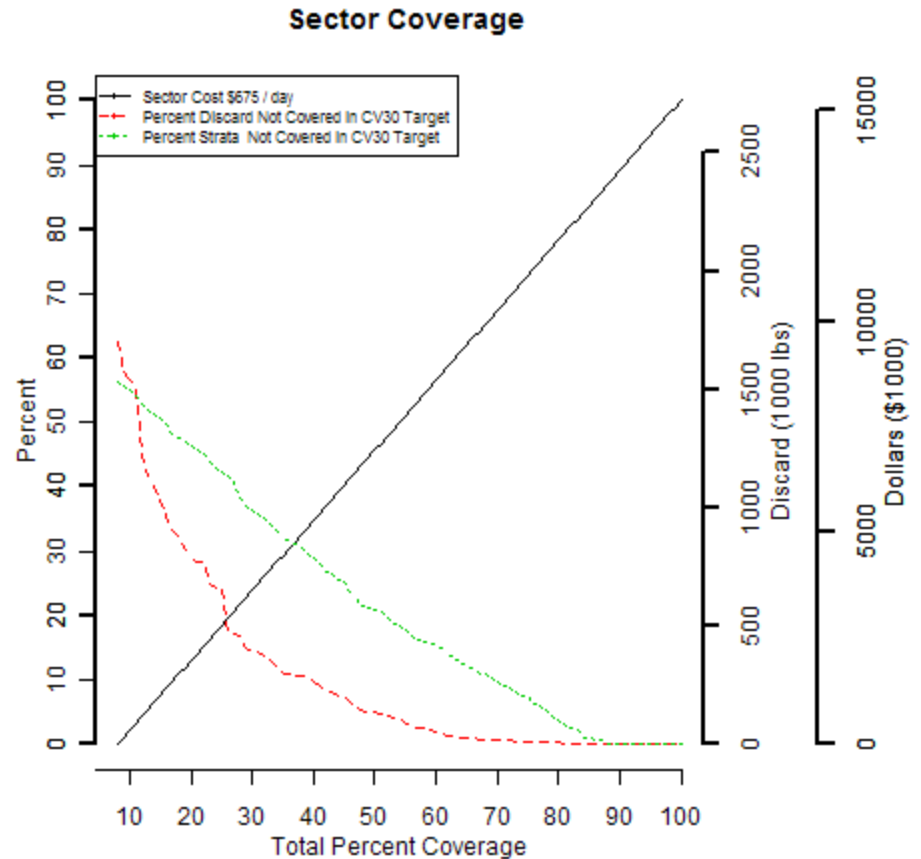
- Fleet wide performance is chosen to reduce the effect of smaller strata within sectors
  - Individual sector coverage/cost requirements would be higher in the majority of cases: ranges from 18 to 90 percent coverage
  - Sector Membership and trip behavior is based on FY2010, only one year of data

FY2010 Sector Realized Sub-Trip Coverage		
SECTOR	Sub-Trip Percent Coverage	Percent Discards Covered CV30
Fixed Gear	40.04	93.28
Port Clyde	32.99	90.99
NCCS	47.37	8.76
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Sust Harv	23.44	81.10
Tri-State	27.93	44.97
TOTAL Sector	31.70	81.23



## FY2012 Sector Strata weighted by Discards (lbs)

91% observer coverage still needed to meet strata criteria of CV30 for all discards, but a value based decision can be made





## FY2012 Sector Strata weighted by Discards (lbs)

What uniform random sample across sectors is needed to meet the performance of FY2010?

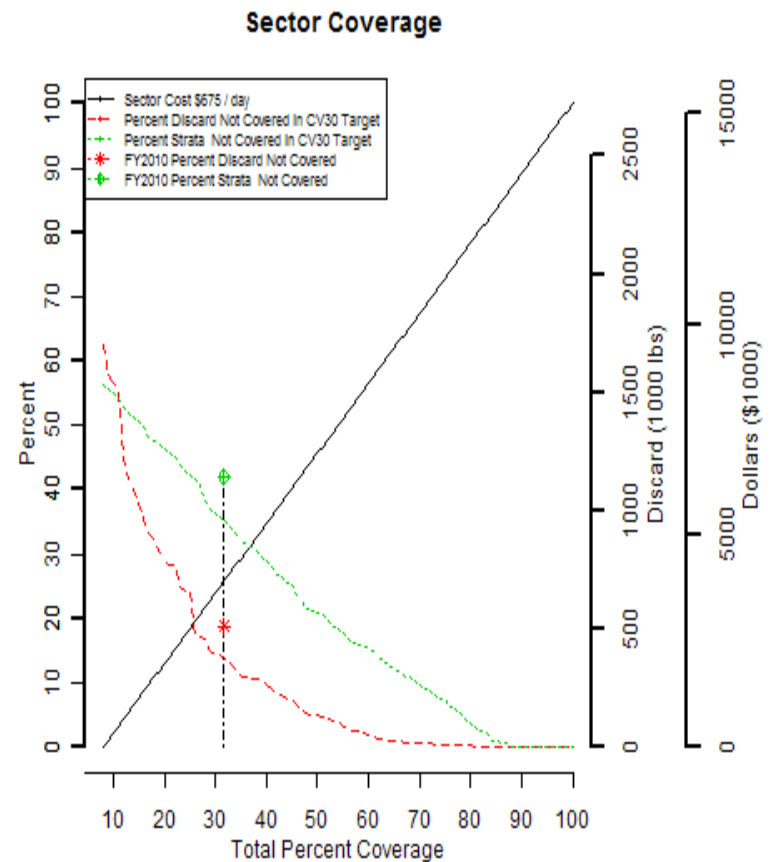
Coverage 25%\*  
(8% NEFOP + 17% Sectors)

Total Est. Discards: 2,719,353 lbs

Discards Not Covered at CV30: 657,321 lbs

Percent CV30 Discards Not Covered: 24.2%

\* Assumes Random Sampling



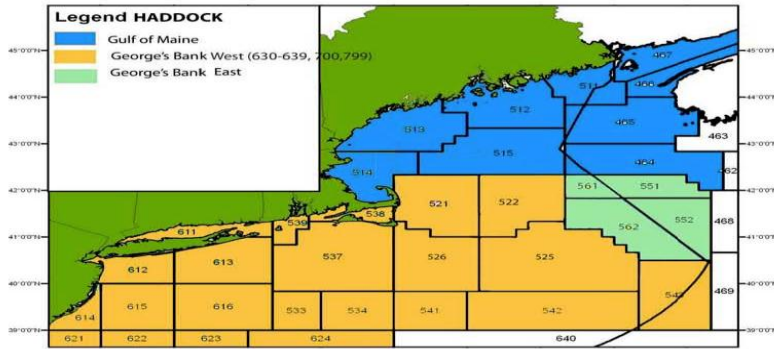


**Questions?**

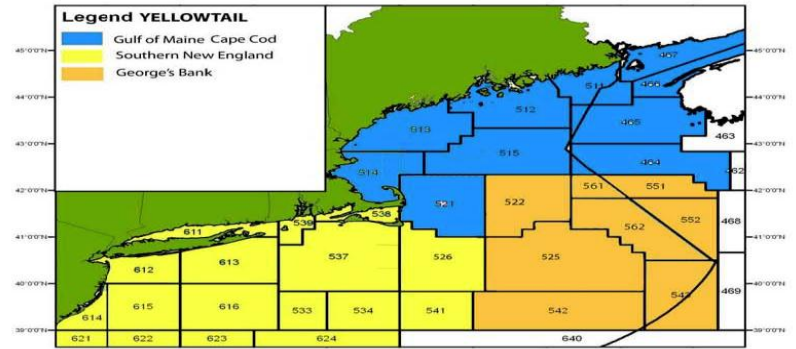
# NOAA FISHERIES SERVICE



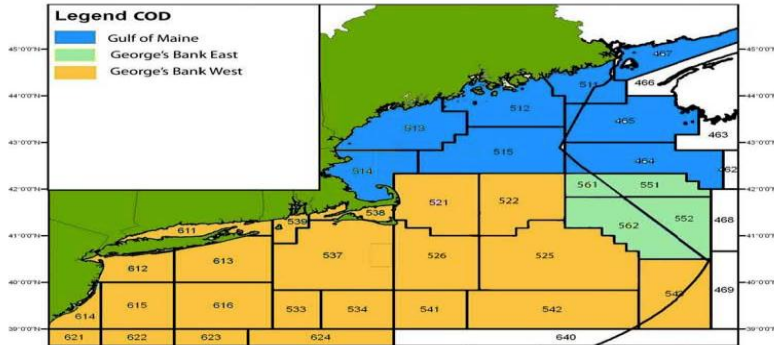
### Legend HADDOCK



### Legend YELLOWTAIL



### Legend COD



### Legend WINTER

