



Gulf of Maine Winter Flounder

Outline

- Update Catch and Survey Data.
- Review GARM III modeling issues.
- Survey based exploitable biomass estimates and exploitation rates.

GOM WF ABC

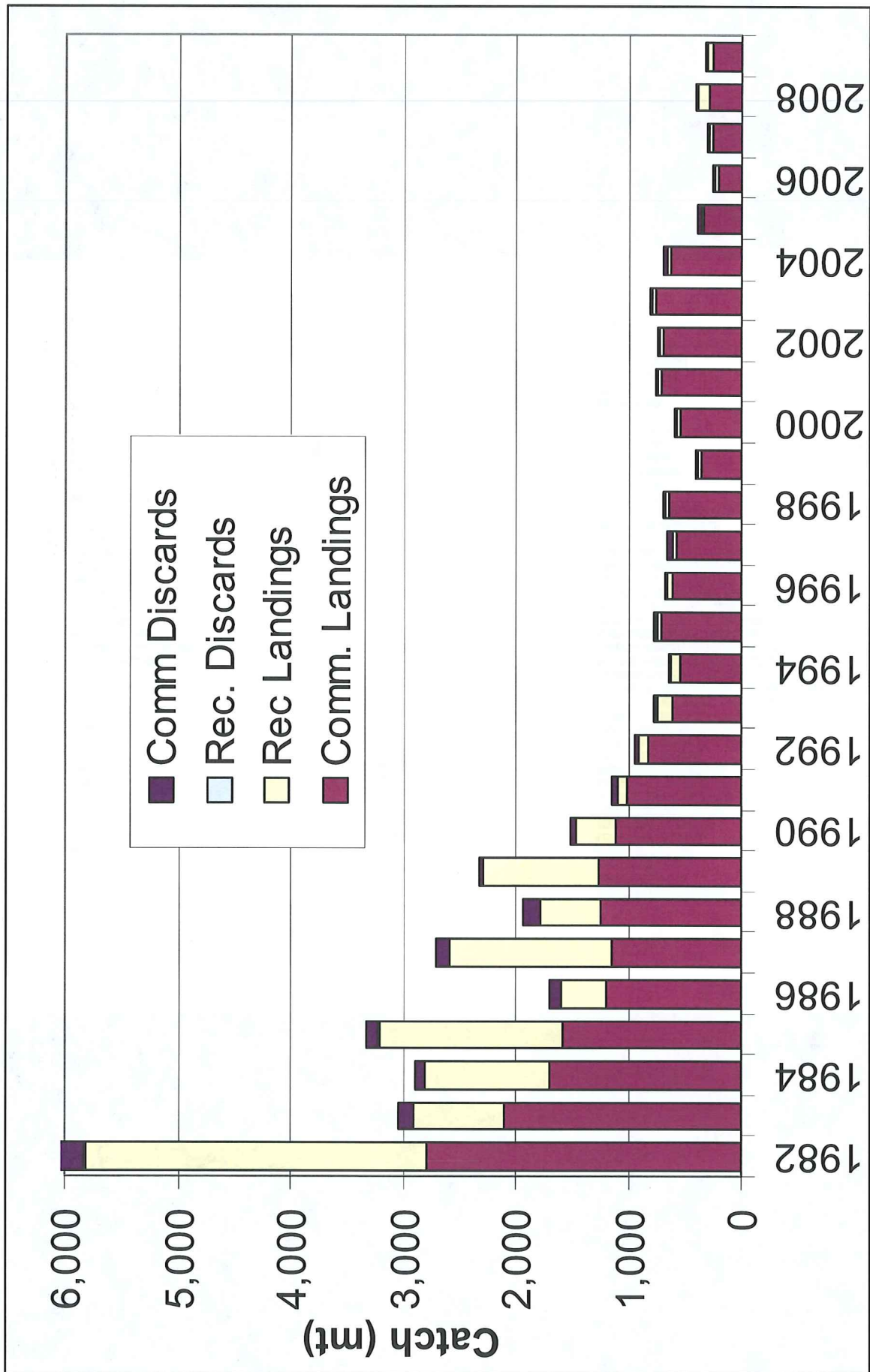
ABC = 75% of 3 year average catch

ABC = 238 mt

(sector ACL = 132 mt)

Updated 75% ABC (07-09 avg) = 258 mt

“to ask the SSC to examine any recent fisheries independent and fisheries dependent data collected since GARM 3 for GOM winter flounder and to evaluate whether this new information would affect their current ABC recommendation for GOM winter flounder”



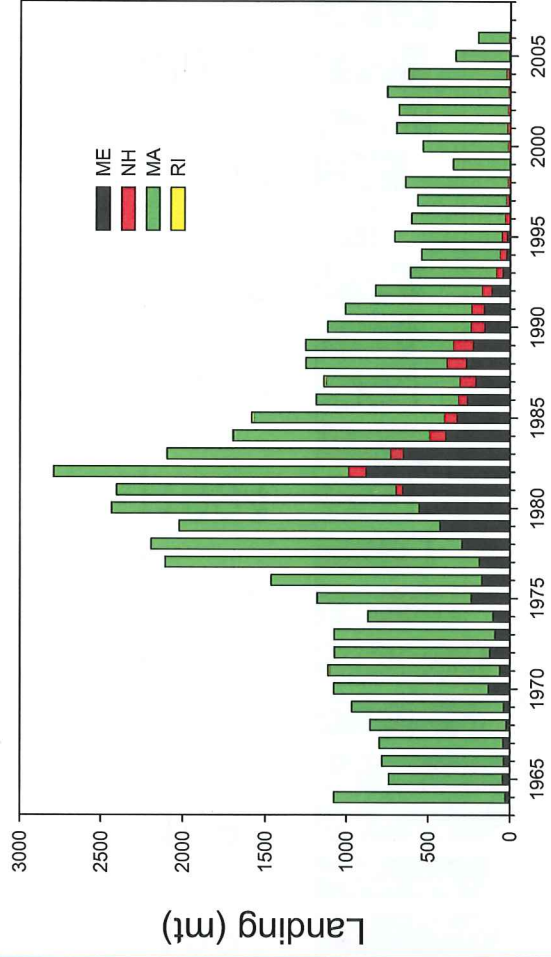


Figure Commercial landings by state from 1964-2006.

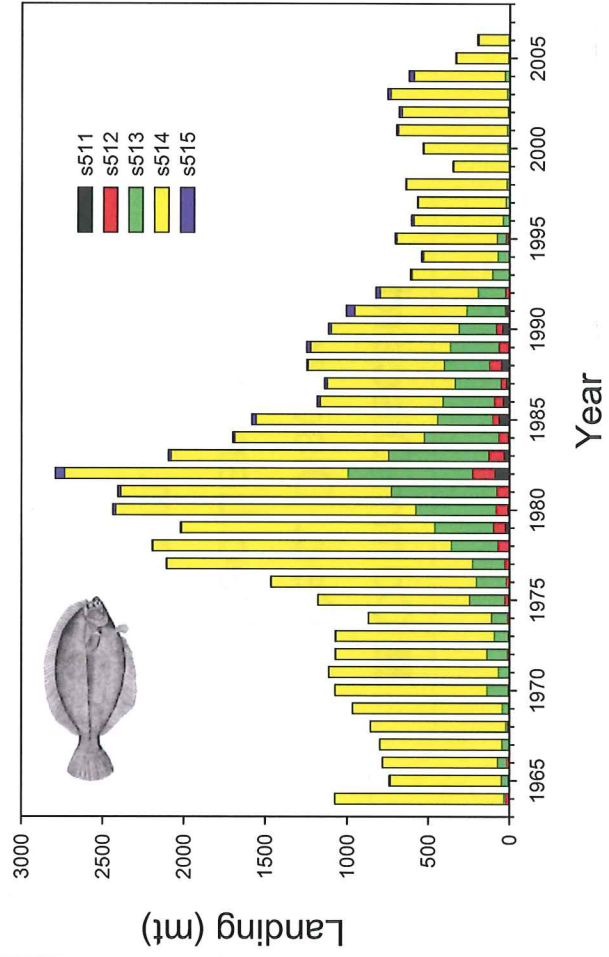


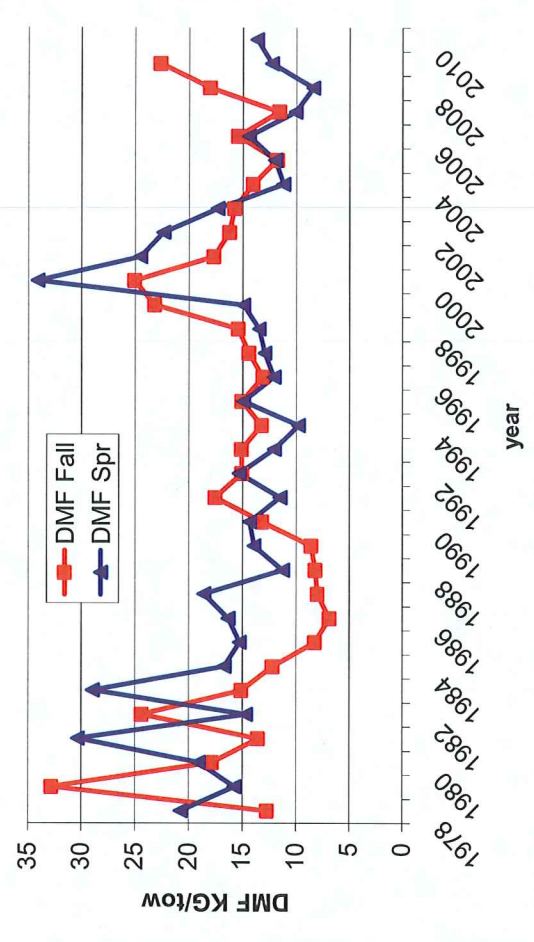
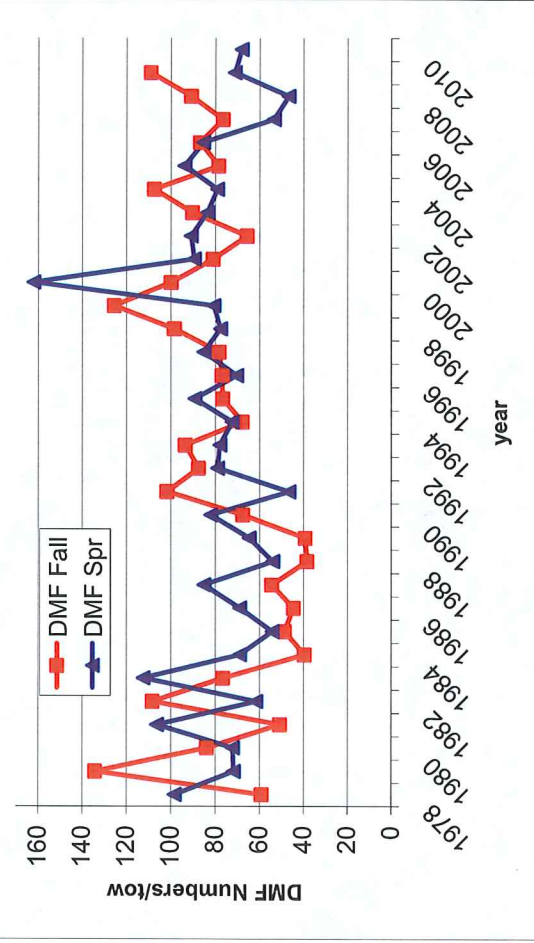
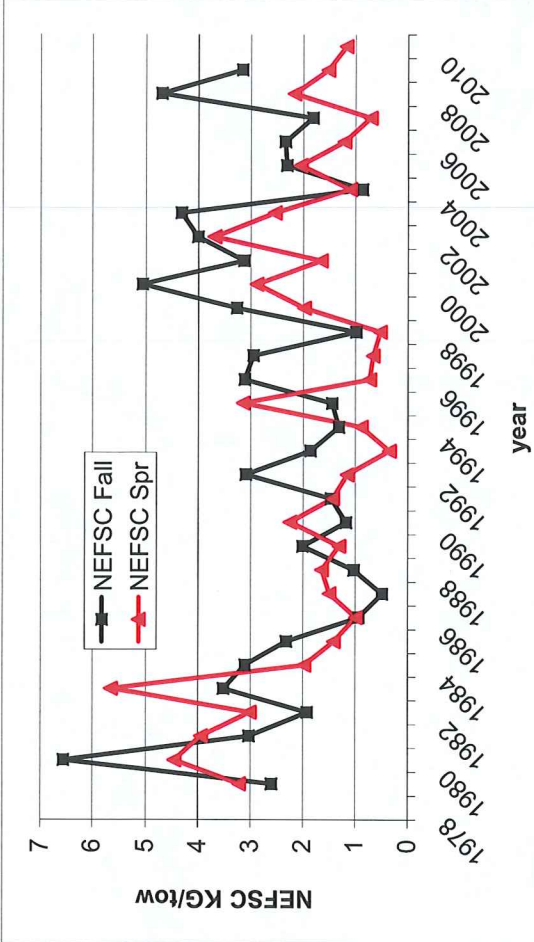
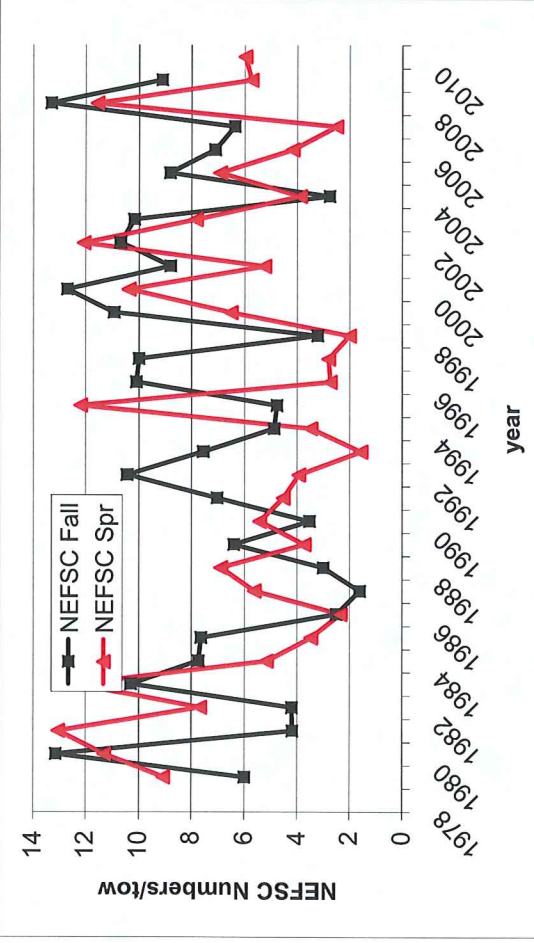
Figure Commercial landings by statistical area from 1964-2006.

GOM winter flounder
Bigelow to Albatross conversion factors

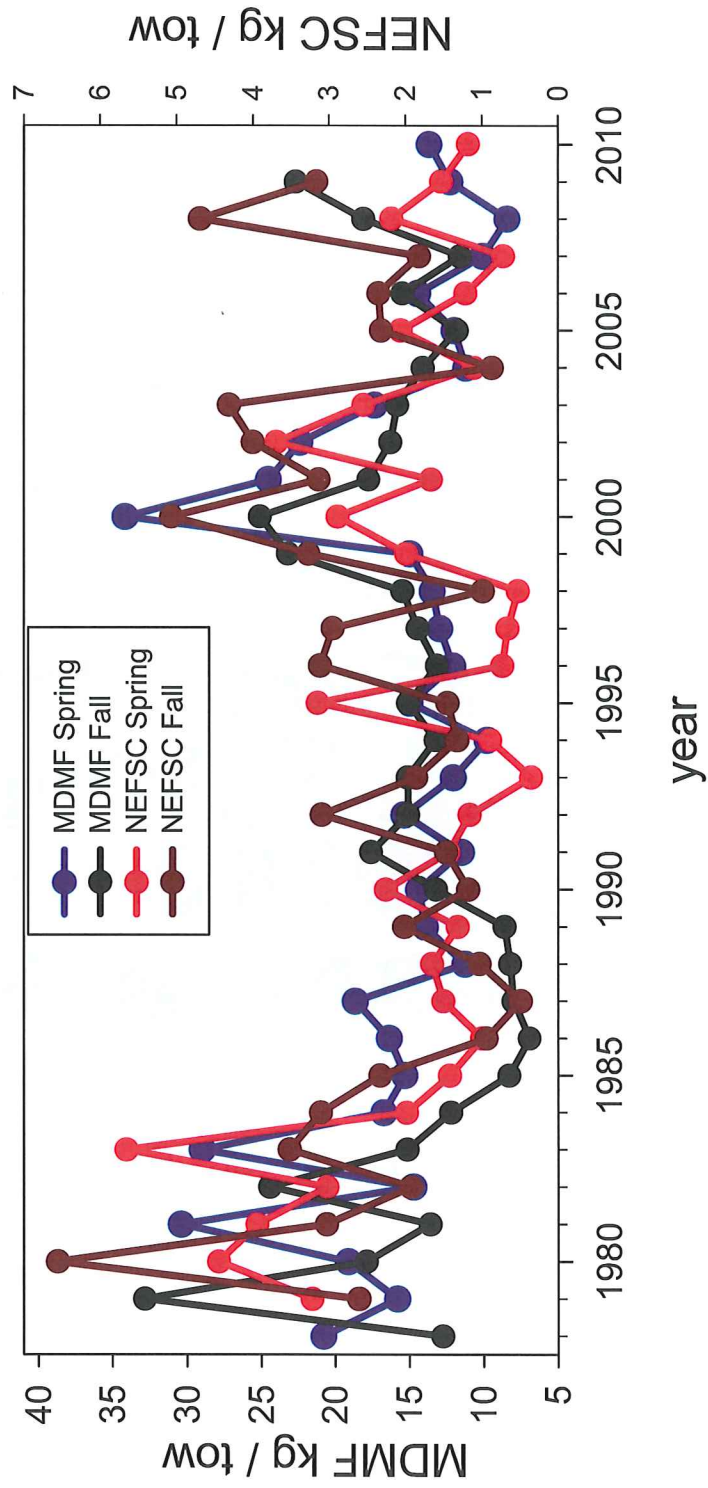
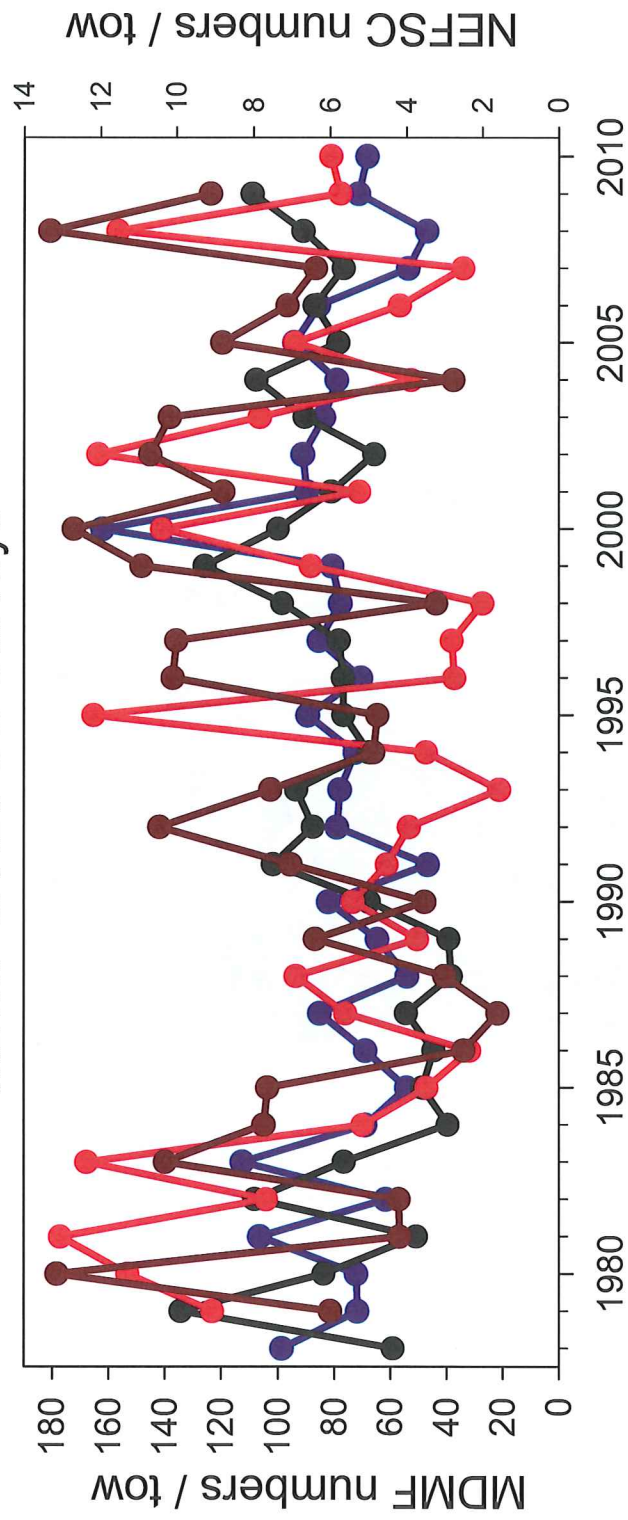
Abundance 2.49

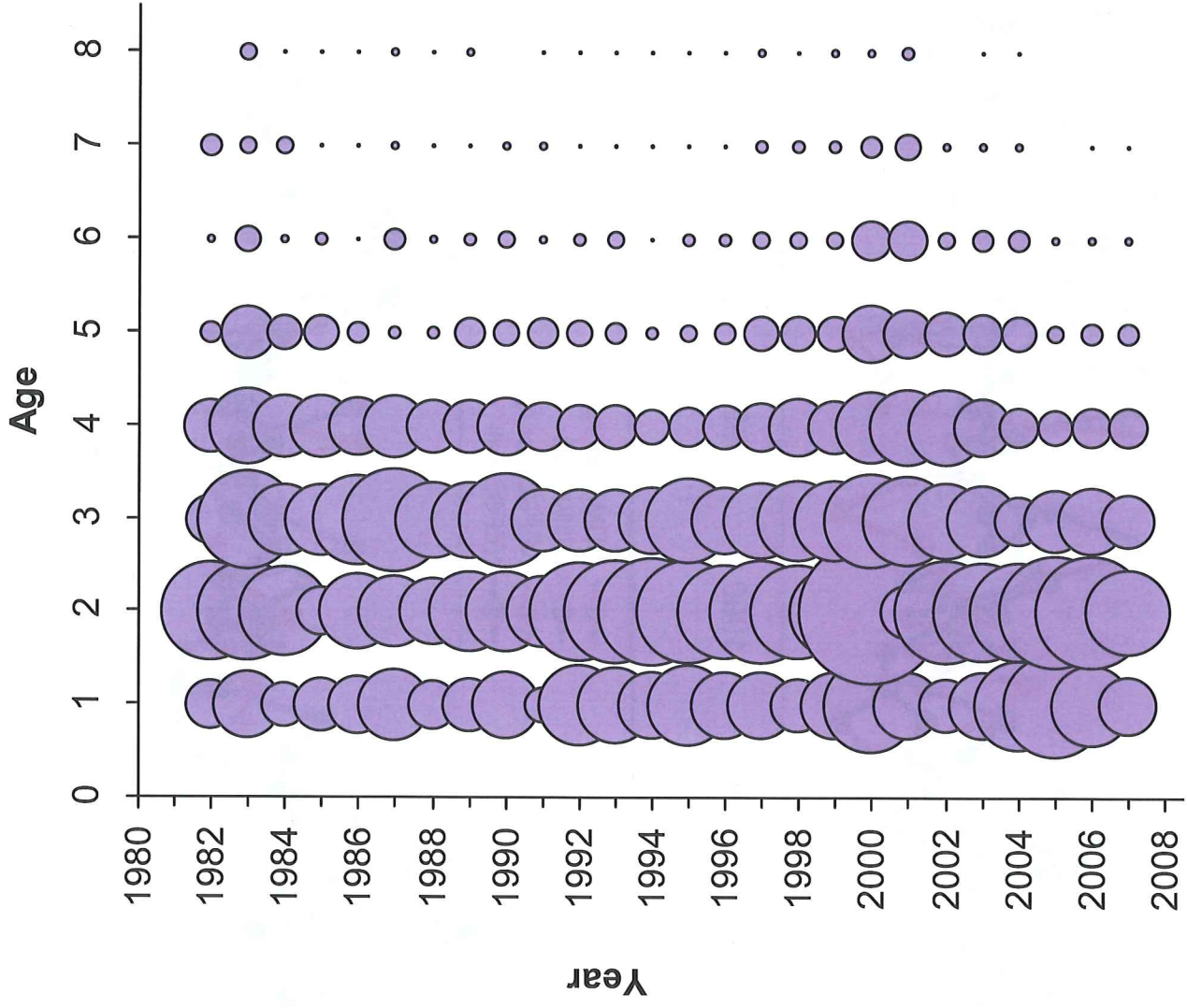
Biomass 2.086

Length based conversions are in
development...

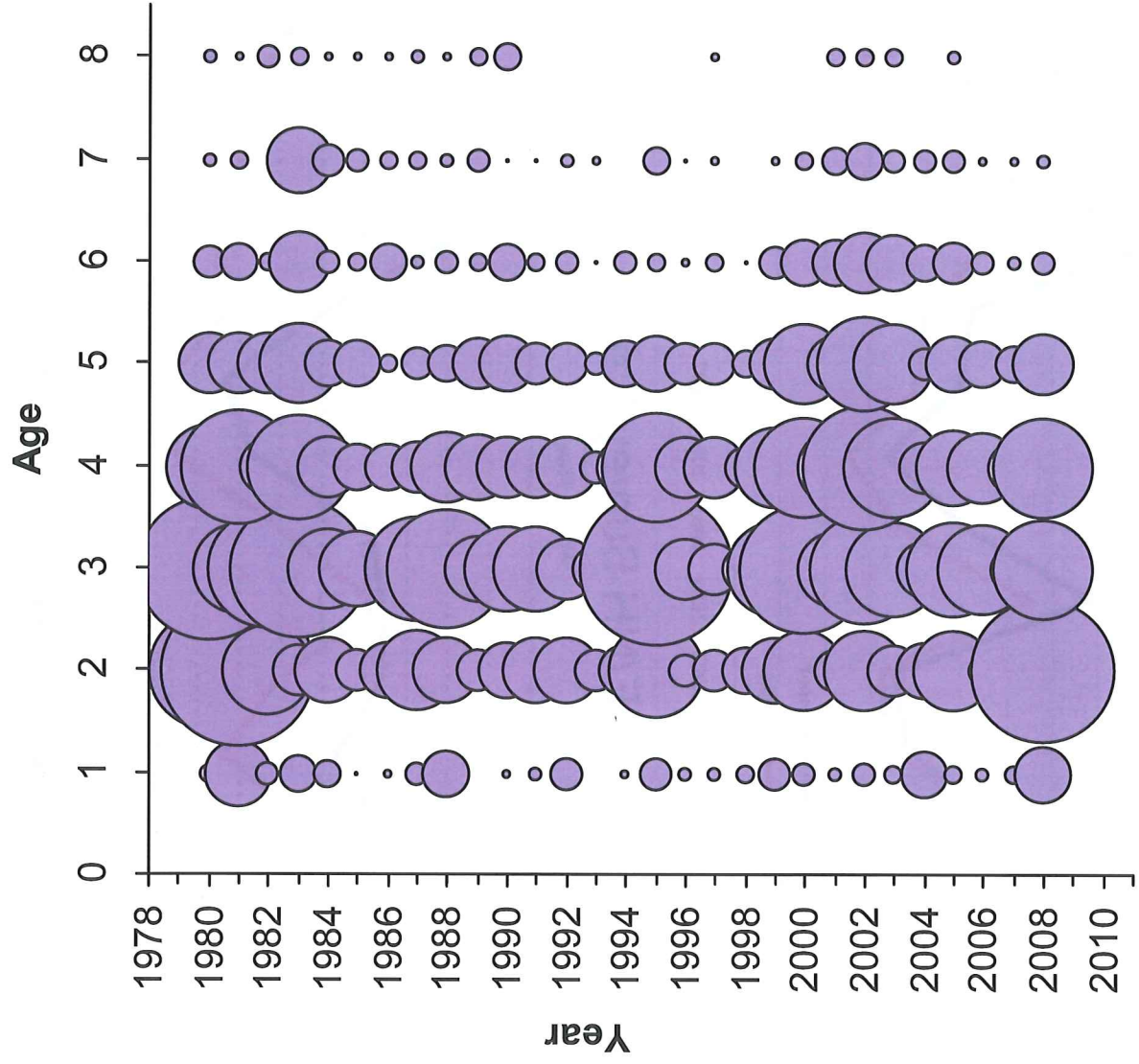


MDMF & NEFSC Surveys



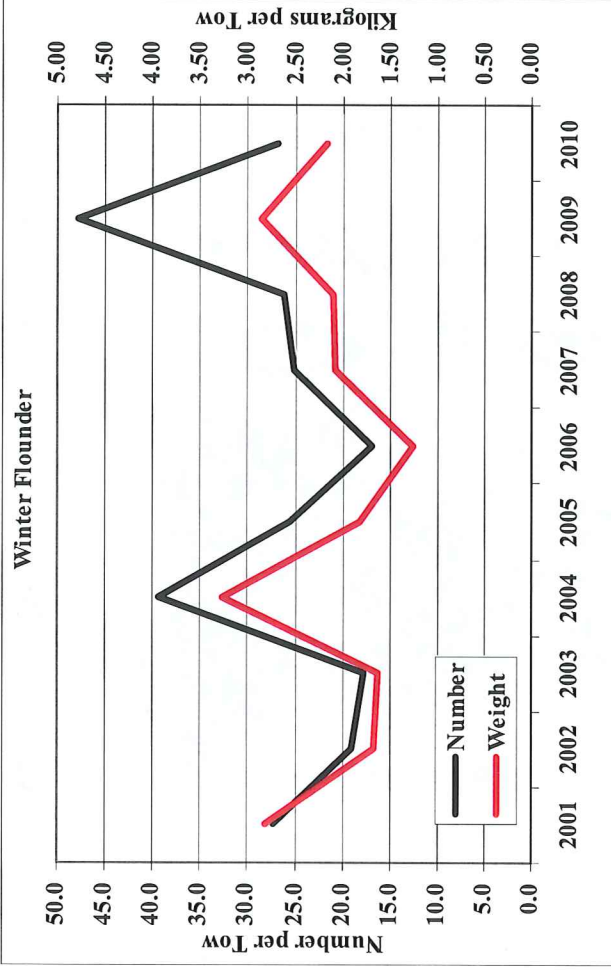


MDMF Spring bubble plot by age.

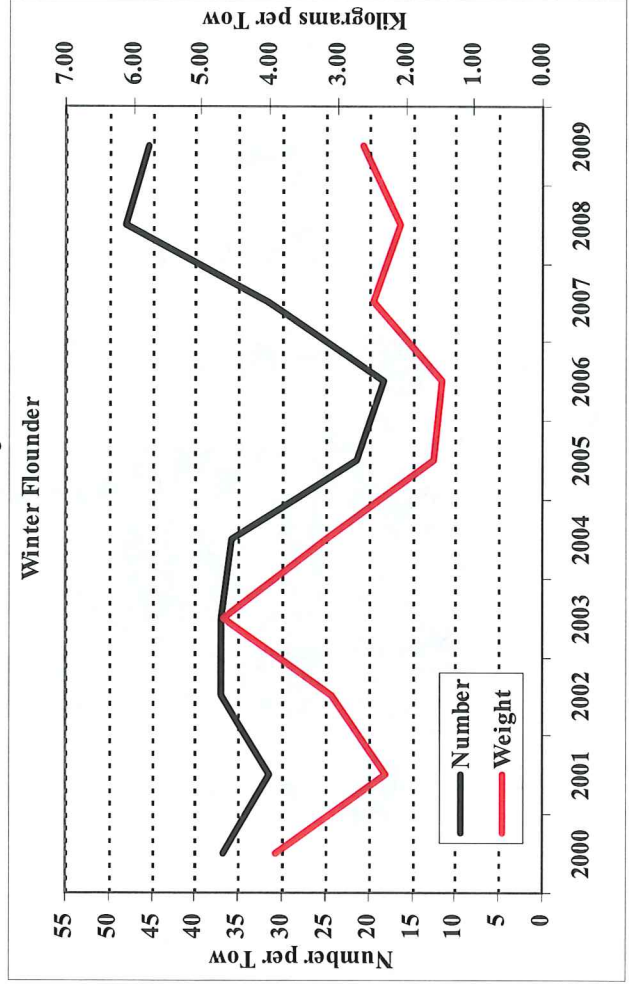


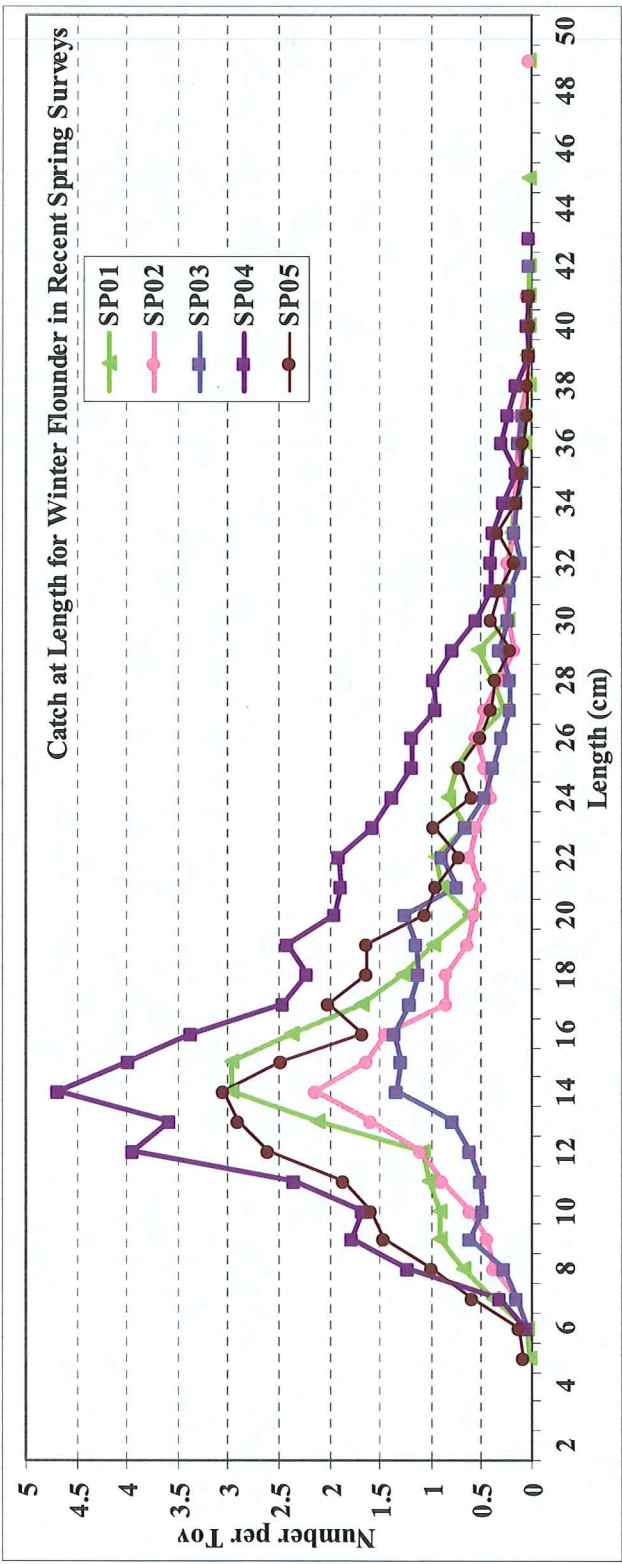
NEFSC Spring bubble plot by age.

ME/NH Survey Spring

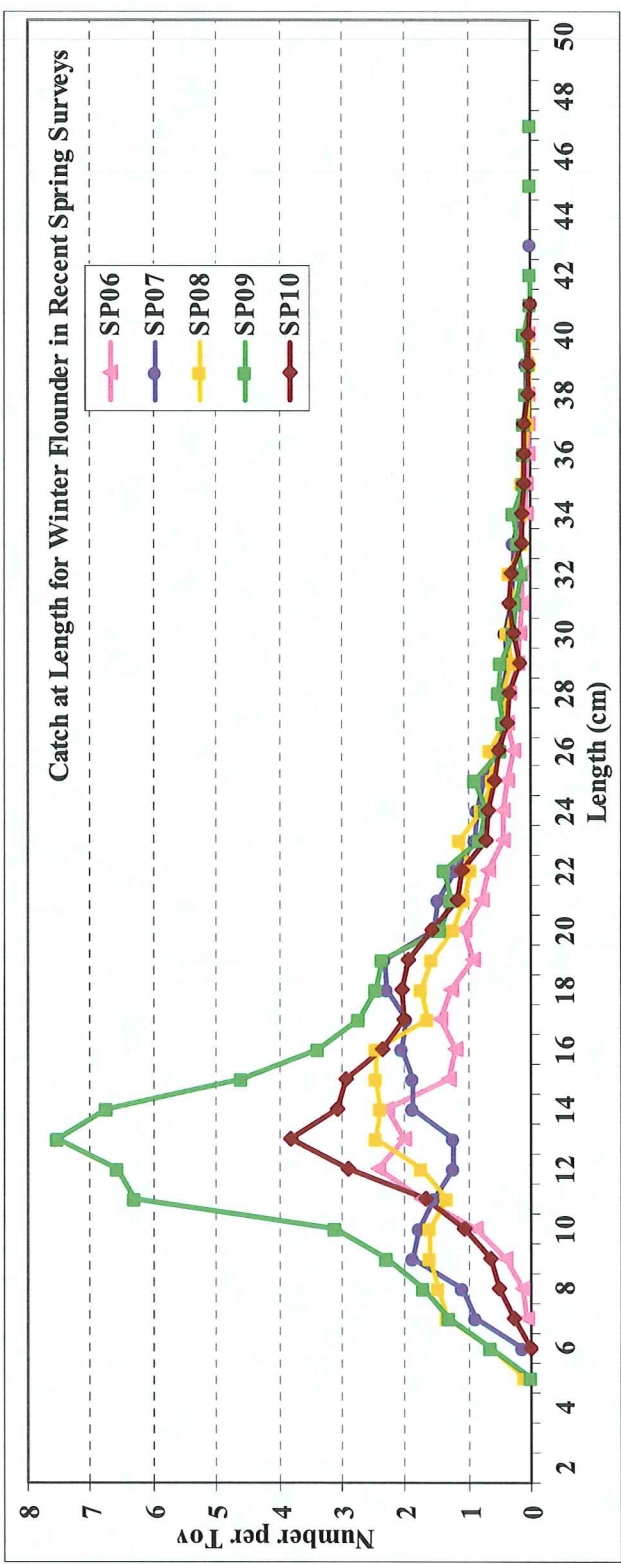


ME/NH Survey Fall





ME/NH Survey Spring



PDT Conclusion

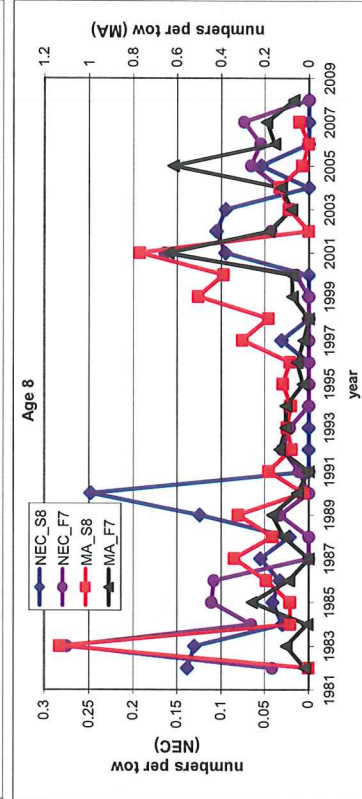
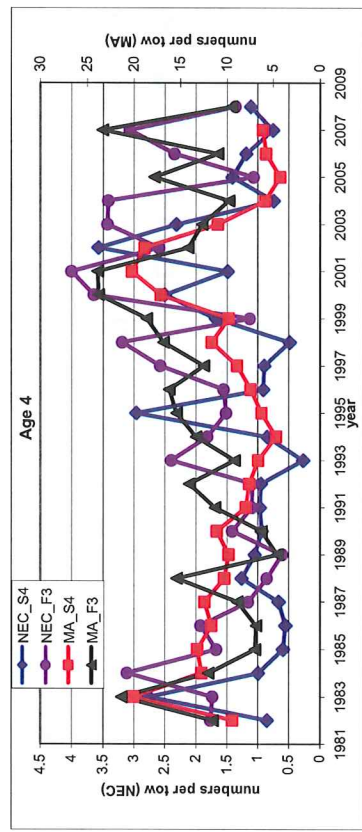
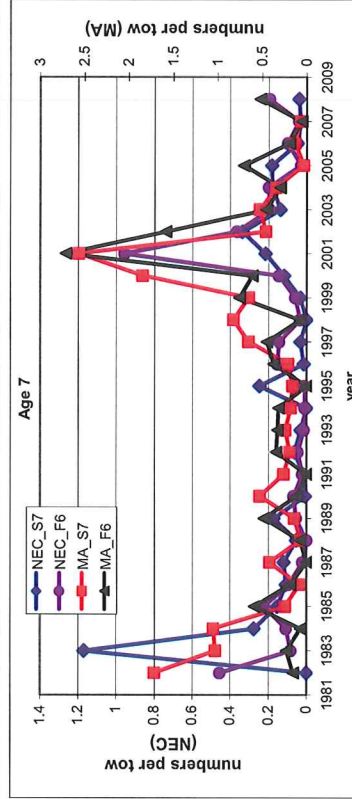
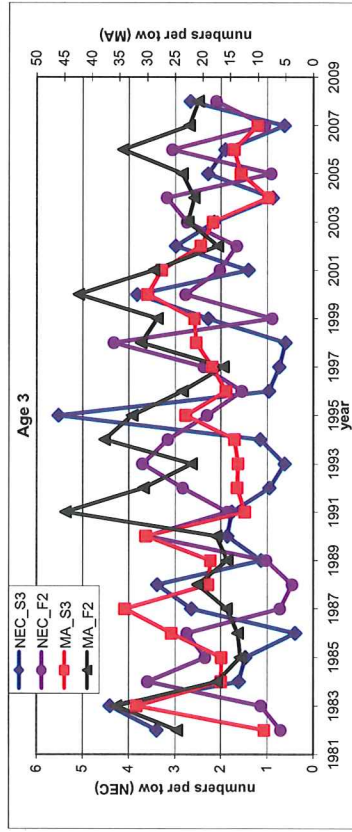
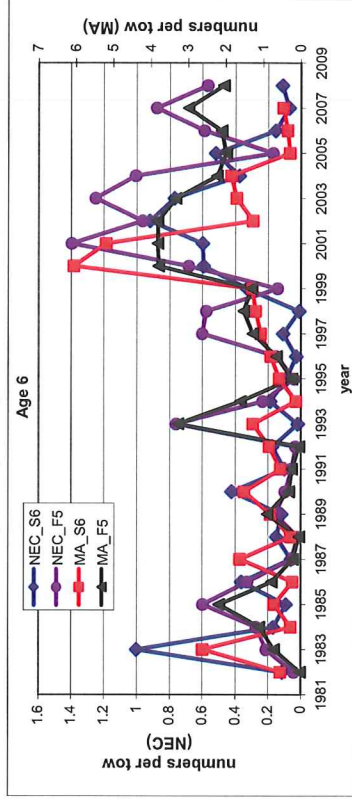
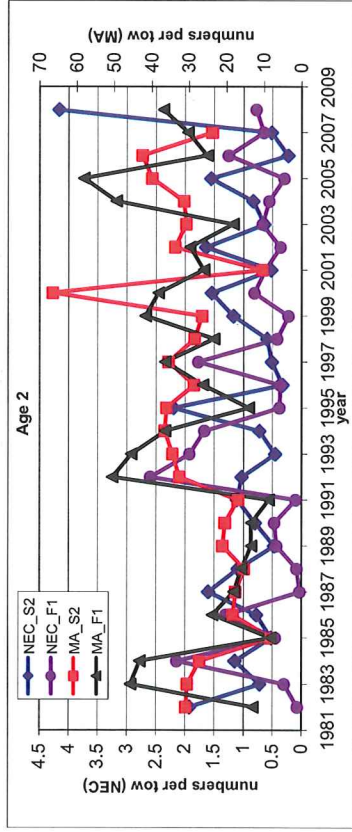
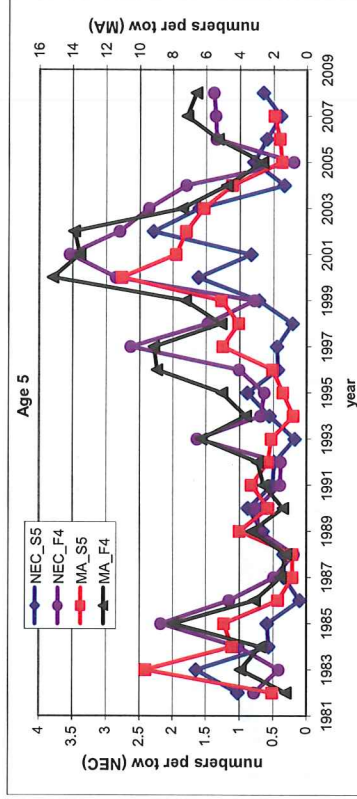
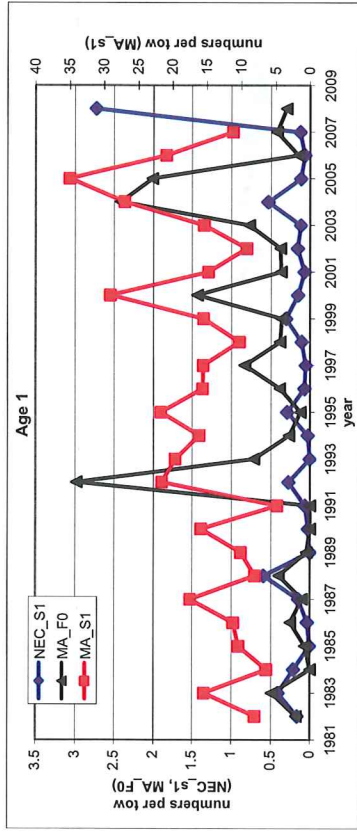
Judging from the updated data since GARM III there is little justification for a change in the ABC.

However...

PDT Conclusion

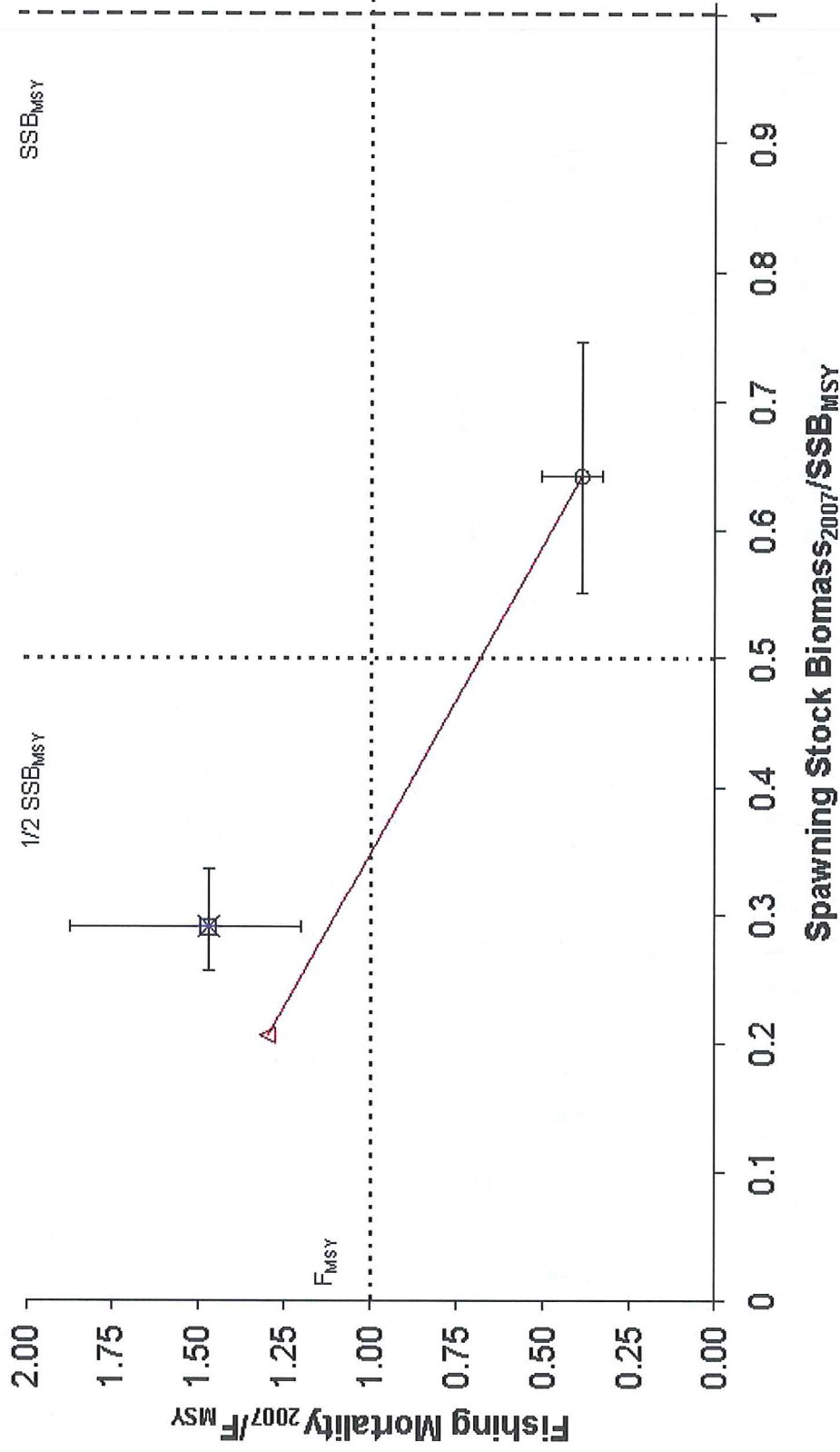
As in GARM III the conflicting signals still exist between the survey indices and the reduction in catch.

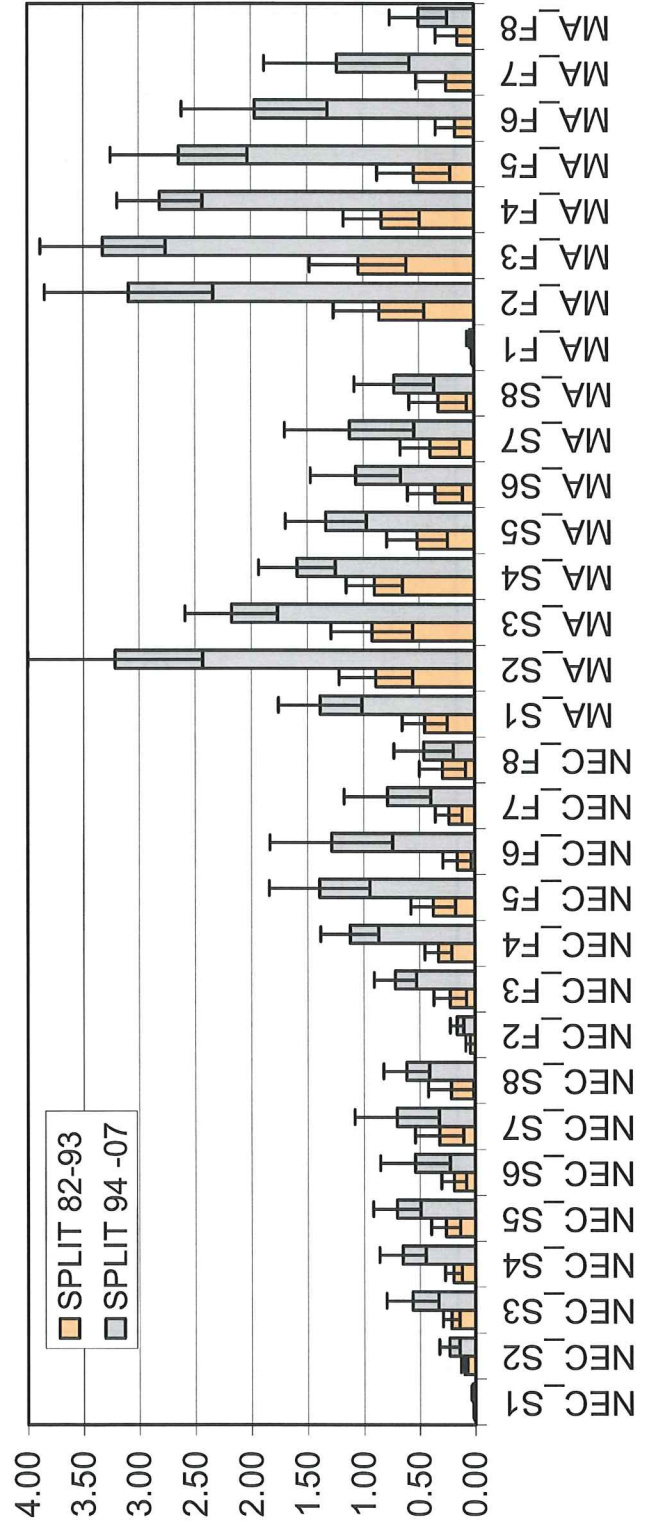
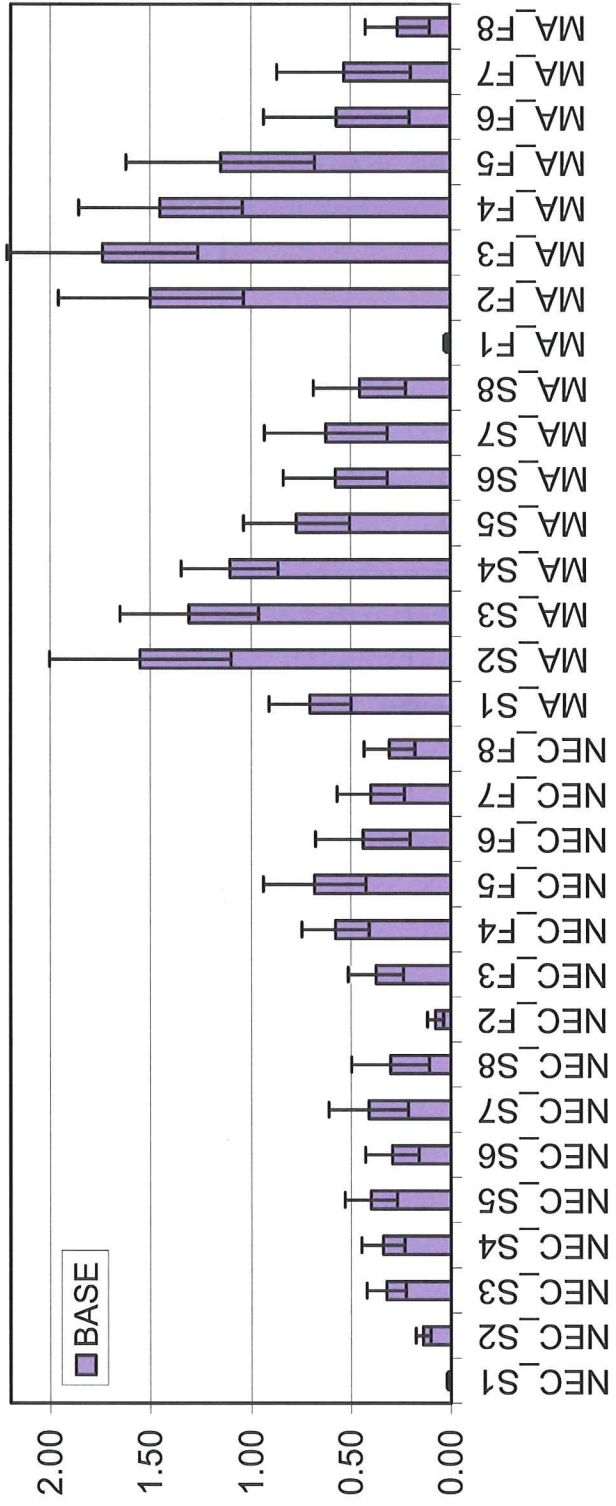
Quick review of the modeling
issues observed with GOM winter
flounder in GARM III.



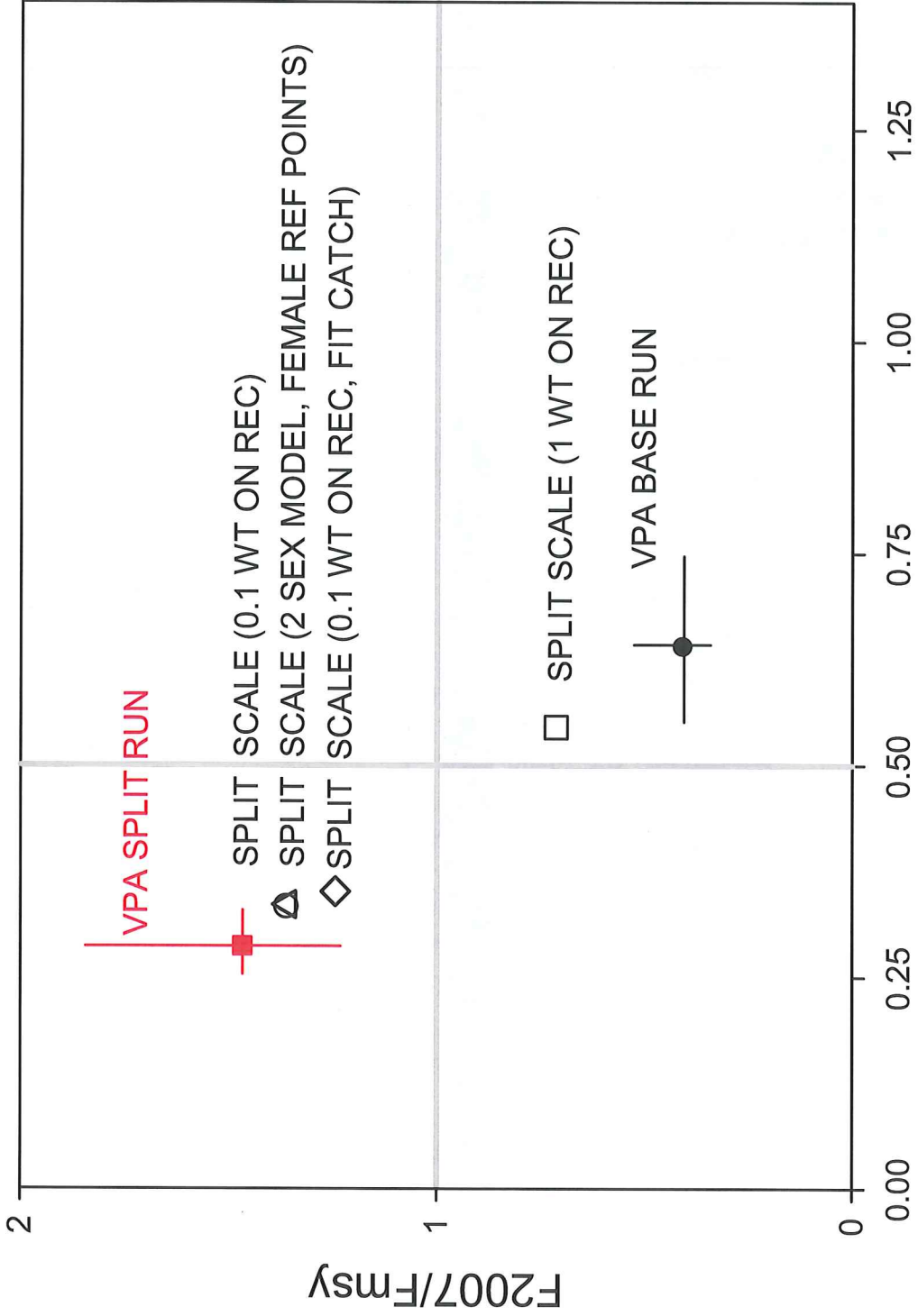
Gulf of Maine Winter Flounder

○ Base △ rho adj Base □ Split × Final





GOM WF Current Status



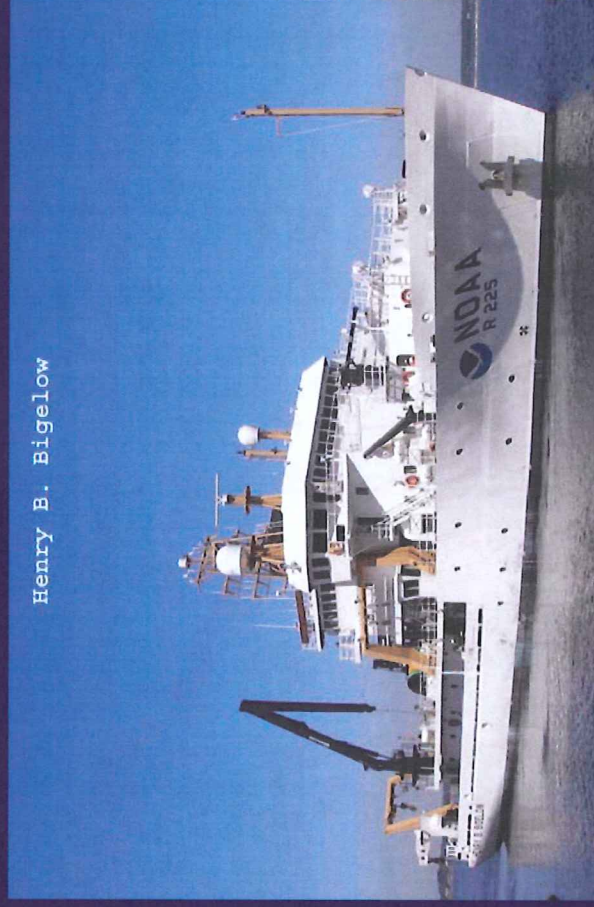
SSB2007/SSBmsy

Conflicting trends between the catch and surveys in the population models



These modeling issues will likely persist
without the use of some heroic assumptions

MDMF and NEFSC (RV Bigelow) surveys catch significant numbers of winter flounder in the Gulf of Maine

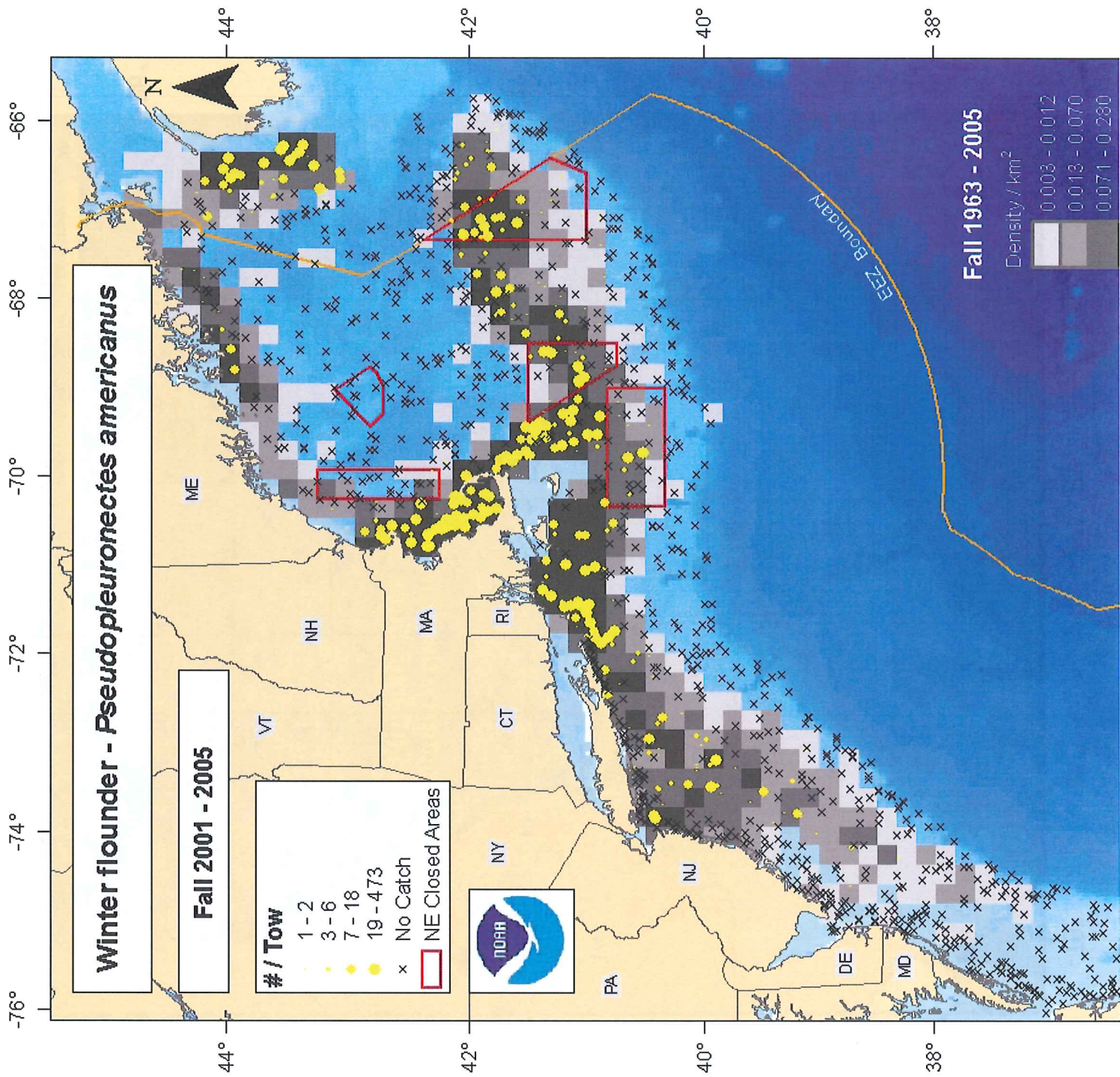


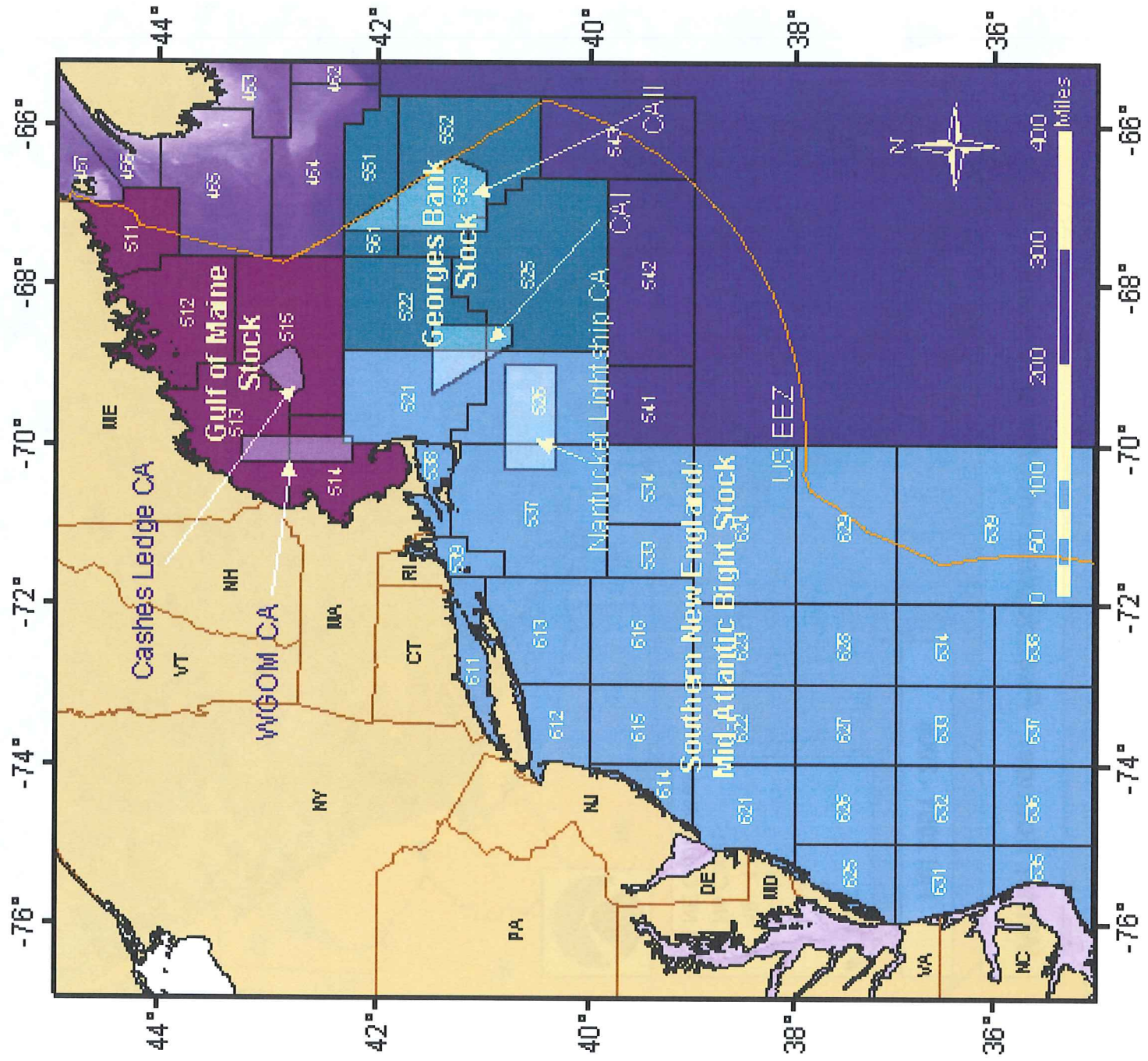
Catch/survey based exploitable biomass
may provide some additional insight on
exploitation.

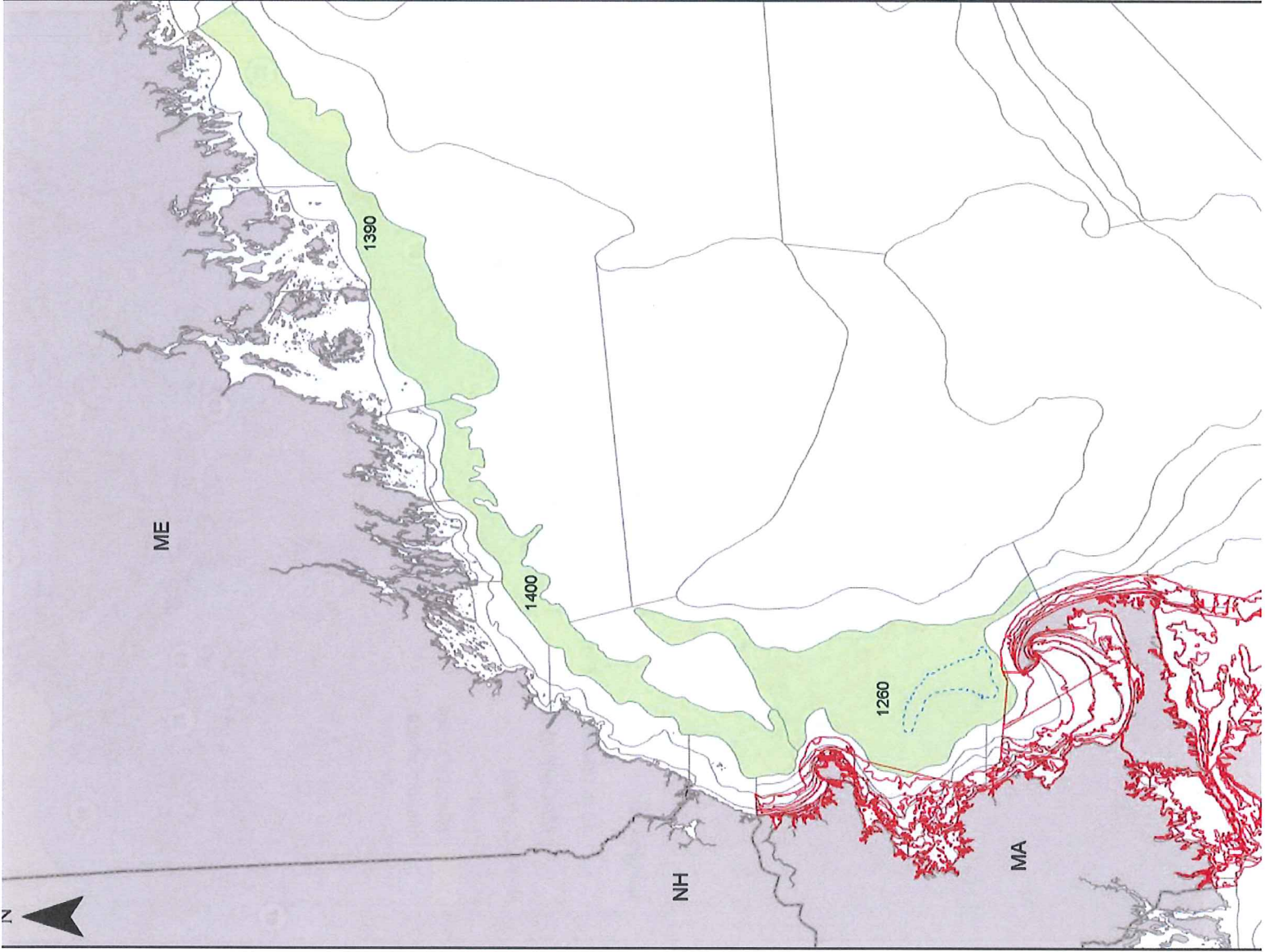
Exploitable Biomass =
30cm+ biomass index per tow / 1000 x
total survey Area/tow footprint x 1/q

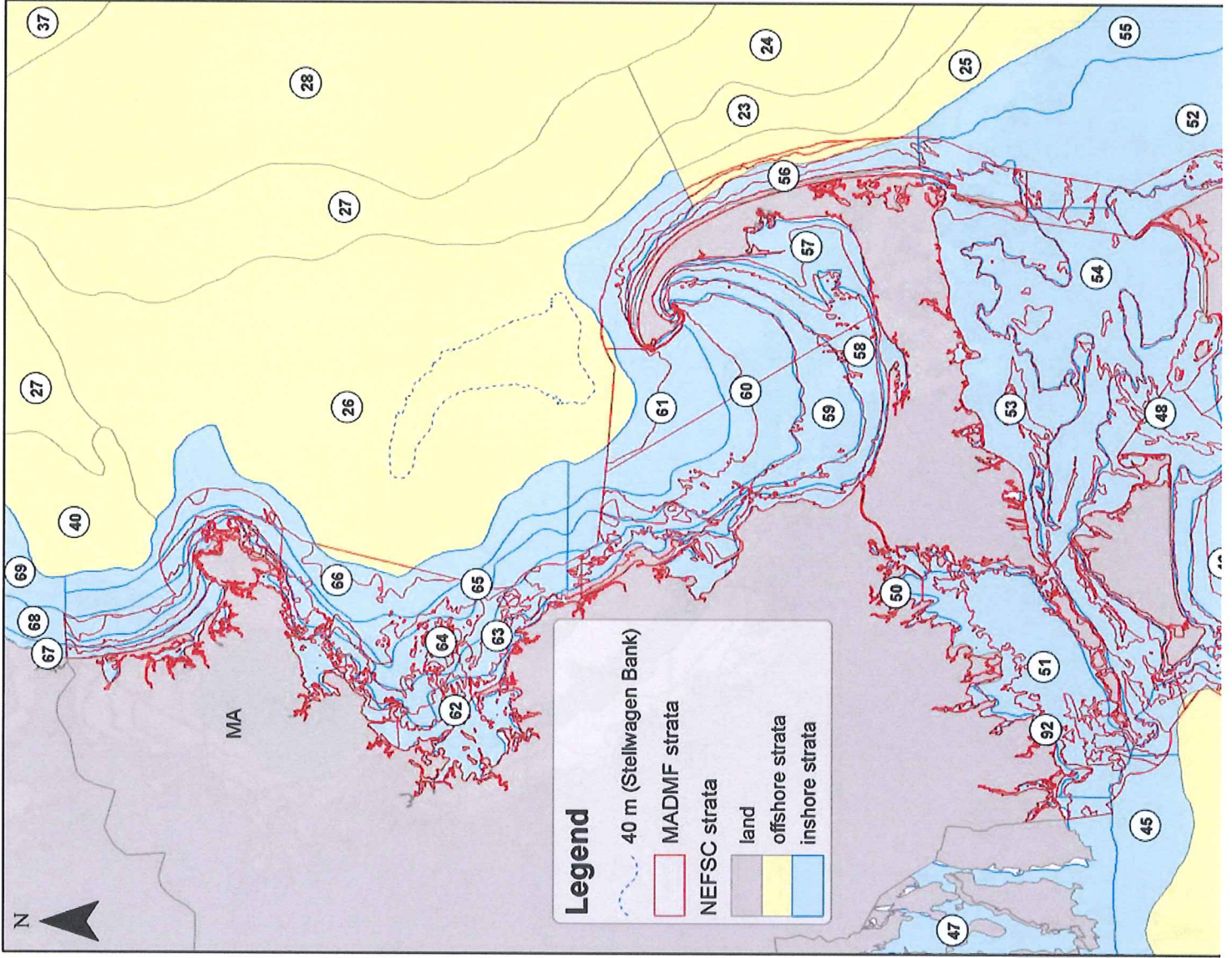


Exploitation rate = catch / 30cm+ biomass.





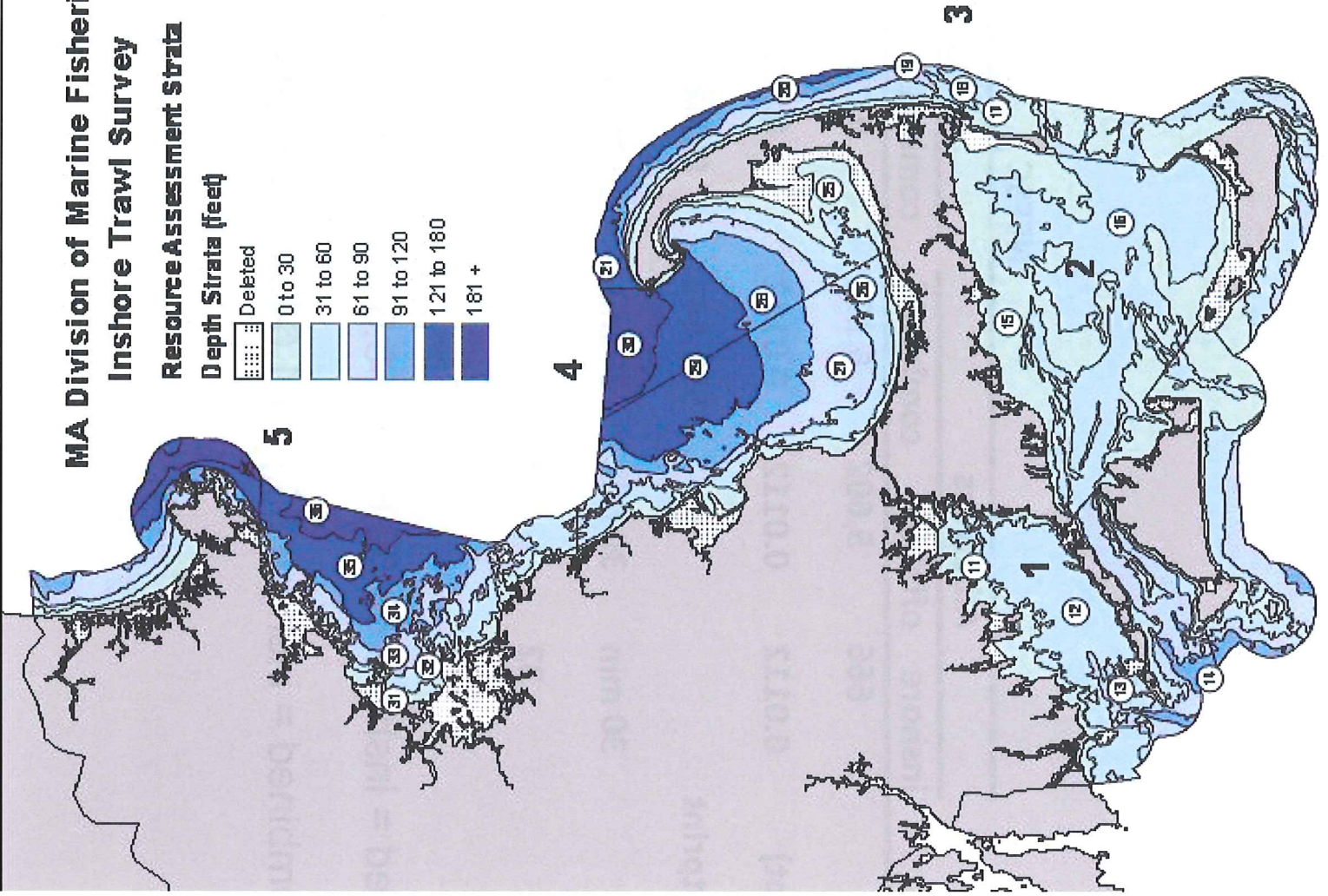
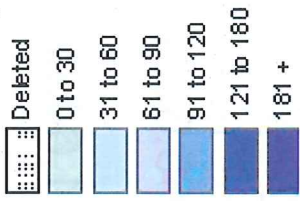




MA Division of Marine Fisheries Inshore Trawl Survey

Resource Assessment Strata

Depth Strata (feet)



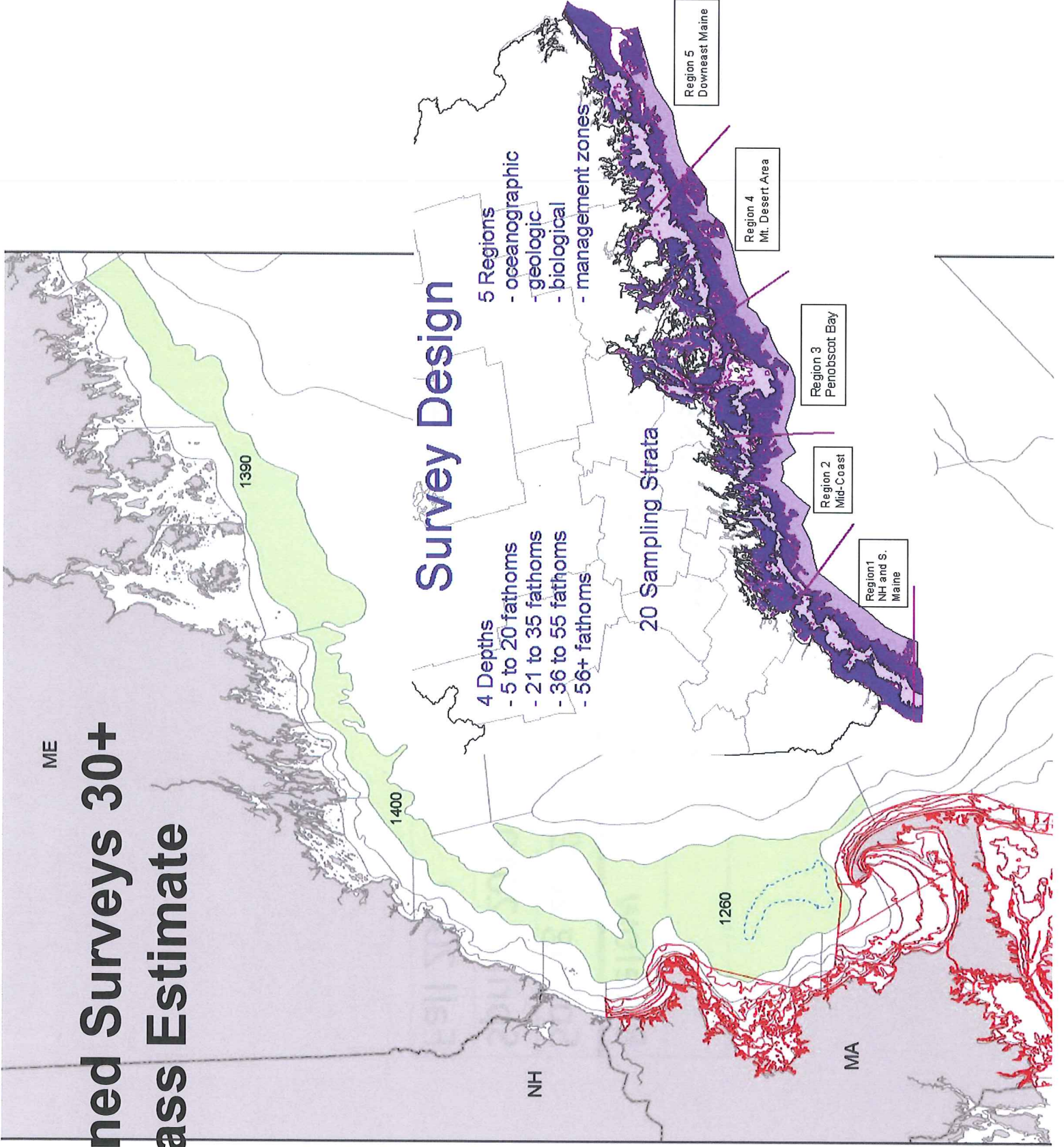
	NEFSC				MDMF
	Albatross		Bigelow		
	inshore	offshore	combined	new combined	
survey area (nm2)	666	5,602	6,268	2,990	793
Avg tow (area swept)	0.0112	0.0112	0.0112	0.007	0.003846
Total area/tow footprint			559,643	882,857	206,188
Tow duration	30 min	30 min	30 min	20 min	20 min
Numbers per tow	32	2	6	14-22	80

Combined = inshore 58,59,60,61,65,66 & offshore 26,27,38,39,40

New Combined = inshore 59,60,61,64,65,66 & offshore 26,39,40

	Proportion Biomass	
	Inshore	Offshore
Bigelow		
Spring 2009	0.42	0.58
Spring 2010	0.73	0.27
Fall 2009	0.55	0.45

ME Combined Surveys 30+ Biomass Estimate



	Combined Survey Estimate		
	NEFSC	ME/NH	MDMF
survey area (nm2)	2,990	3,475	309
Avg tow (area swept)	0.007	0.00462	0.003846
Total area/tow footprint	427,143	752,154	80,343
Tow duration	20 min	20 min	20 min
Numbers per tow	34-65	35	80
Proportion of 30+ biomass	0.59	0.09	0.33

Exploitation Rates

Q = 0.4	Catch	Bigelow		Bigelow		MDMF		MDMF		Combined	
		Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall		
30+ Biomass		3,520	10,271	2,895	3,713	5,982	12,462				
ABC	238	0.07	0.02	0.08	0.06	0.04	0.02				
3yr avg	344	0.10	0.03	0.12	0.09	0.06	0.03				
	500	0.14	0.05	0.17	0.13	0.08	0.04				
	800	0.23	0.08	0.28	0.22	0.13	0.06				
Q = 0.6											
30+ Biomass		2,347	6,847	1,930	2,475	3,988	8,308				
ABC	238	0.10	0.03	0.12	0.10	0.06	0.03				
3yr avg	344	0.15	0.05	0.18	0.14	0.09	0.04				
	500	0.21	0.07	0.26	0.20	0.13	0.06				
	800	0.34	0.12	0.41	0.32	0.20	0.10				
Q = 0.8											
30+ Biomass		1,760	5,135	1,448	1,856	2,991	6,231				
ABC	238	0.14	0.05	0.16	0.13	0.08	0.04				
3yr avg	344	0.20	0.07	0.24	0.19	0.12	0.06				
	500	0.28	0.10	0.35	0.27	0.17	0.08				
	800	0.45	0.16	0.55	0.43	0.27	0.13				
Q = 1											
30+ Biomass		1,408	4,108	1,158	1,485	2,393	4,985				
ABC	238	0.17	0.06	0.21	0.16	0.10	0.05				
3yr avg	344	0.24	0.08	0.30	0.23	0.14	0.07				
	500	0.36	0.12	0.43	0.34	0.21	0.10				
	800	0.57	0.19	0.69	0.54	0.33	0.16				

Comparison of Total Biomass Between the GARM 3 VPA and Survey Based Area Swept Estimates

Base VPA total biomass = 4,533 mt
Split VPA total biomass = 2,065 mt

Q	Bigelow		MDMF		Combined	
	Spring	Fall	Spring	Fall	Spring	Fall
0.4	7,514	17,597	5,958	8,842	9,976	19,788
0.6	5,009	11,731	3,972	5,894	6,651	13,192
0.8	3,757	8,798	2,979	4,421	4,988	9,894
1	3,006	7,039	2,383	3,537	3,991	7,915

There may be some scope for change in the present ABC calculation considering the conflicting trends in the data, the stock status bounds that results from this conflict within the population models and the relatively high survey area swept biomass estimates relative to catch.

Questions ?

