Update Scallop Assessment

With PRELIMINARY projections to 2005-2007

PRELIMINARY

- Catch data for 2004 recently released
- Subject to correction and revision
- Context – Amendment 10 implemented in stages
- Baseline projection results conditioned on assumed fishing activity and estimated dredge efficiency

Catch data

- Dealer data was collected under new system – growing pains
- VTR data used in its place, although both sets agree within about 1 million lbs.
- Total landings of about 63 million pounds were apportioned to area and time of year based on a combination of VTR and VMS information.

Incremental implementation of Amendment 10

- Emergency Action – March 1, 2004
  - Open area allocations: 42 days
  - HCA trip allocations: 4 trips, 48 DAS
- Amendment 10
  - 4” rings in HCA – July 23, 2004 (substantial effort before ring inc)
  - ETA closure – July 23, 2004 (substantial effort before closure)
  - Open area DAS increased to 62 – September 15, 2004
  - 4” rings required in all open areas – December 23, 2004
  - Open area DAS=40 and HCA trips=3, 36 DAS – March 1, 2005
- Framework 16/39 – November 2, 2004
  - 1 NLSA trip and 2 CA2 trips, total 36 DAS
  - 4” rings in access areas

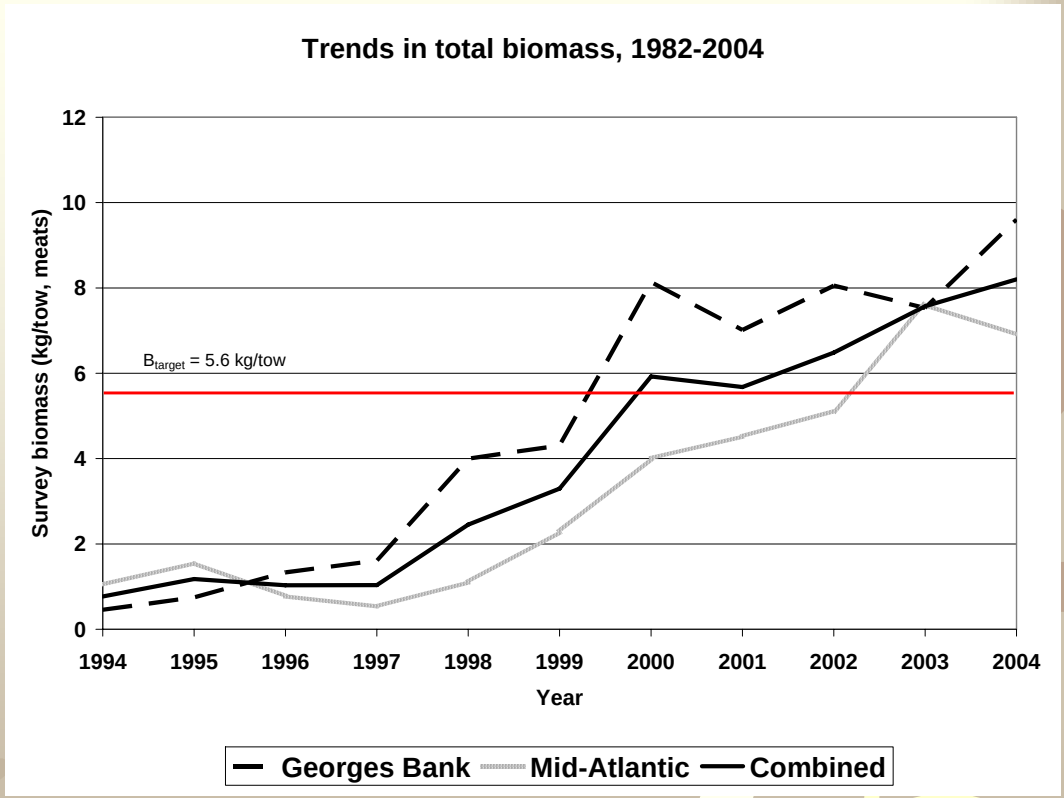
Projections

General assumptions

- Results conditioned on amount of DAS use, general category fishing, and access area trips actually taken
- Subject to correction/revision
- Catches by region/area distributed by LPUE sub-model, tuned to 2003 and 2004 data
- Allocated TACs used for access areas and the Hudson Canyon Area
- Assumed DAS use remains around 30,000, accounting for the lower limited access DAS and higher general category landings
- Total biomass estimated, a function of dredge efficiency (revised to 40% Georges Bank and 60% Mid-Atlantic)
- Uses average scallop growth rate data for each region. However, preliminary analyses suggests that the Mid-Atlantic region growth is too fast and would overestimate scallop growth

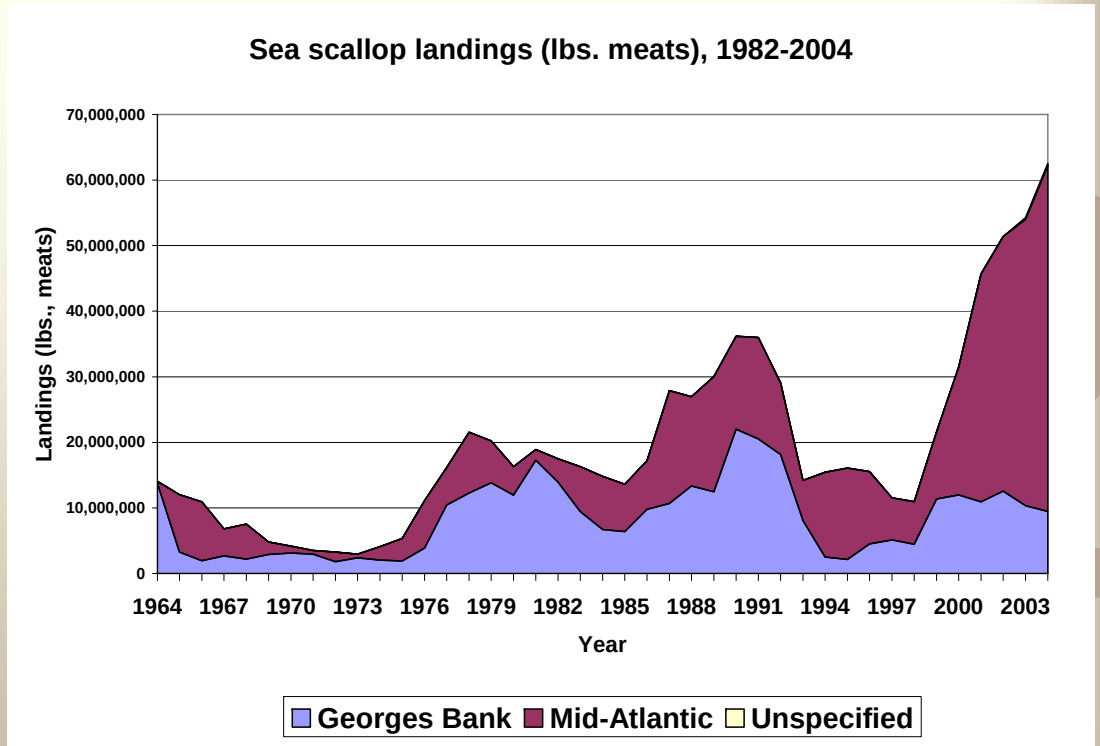
2004 Biomass

- Survey biomass observed in July & August
- GB biomass increased 34% (2000 YC CA2S)
- MA biomass declined 4% (HCA effort)
- Stock biomass time series high (1982-2004)
- Stock biomass 54% above target



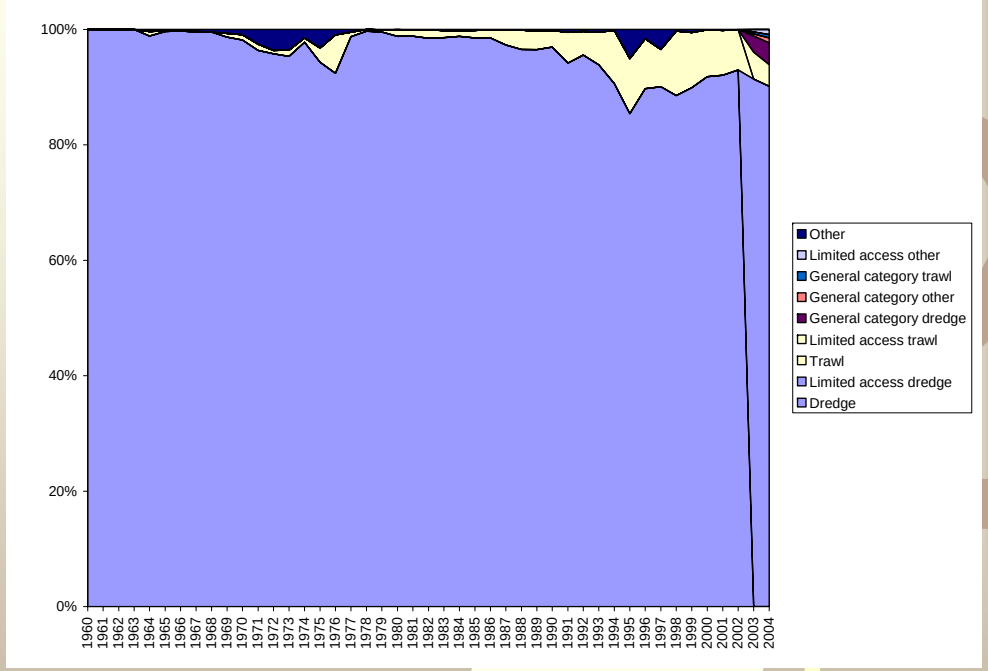
2004 Landings

- Landings (preliminary) increased to a record 63 million lbs. in CY 2004
- GB landings declined, despite access to closed areas in Nov. & Dec.
- MA landings increased
- Target TAC for 2004 (Mar-Feb): 55.8 million lbs.



2004 Landings by category

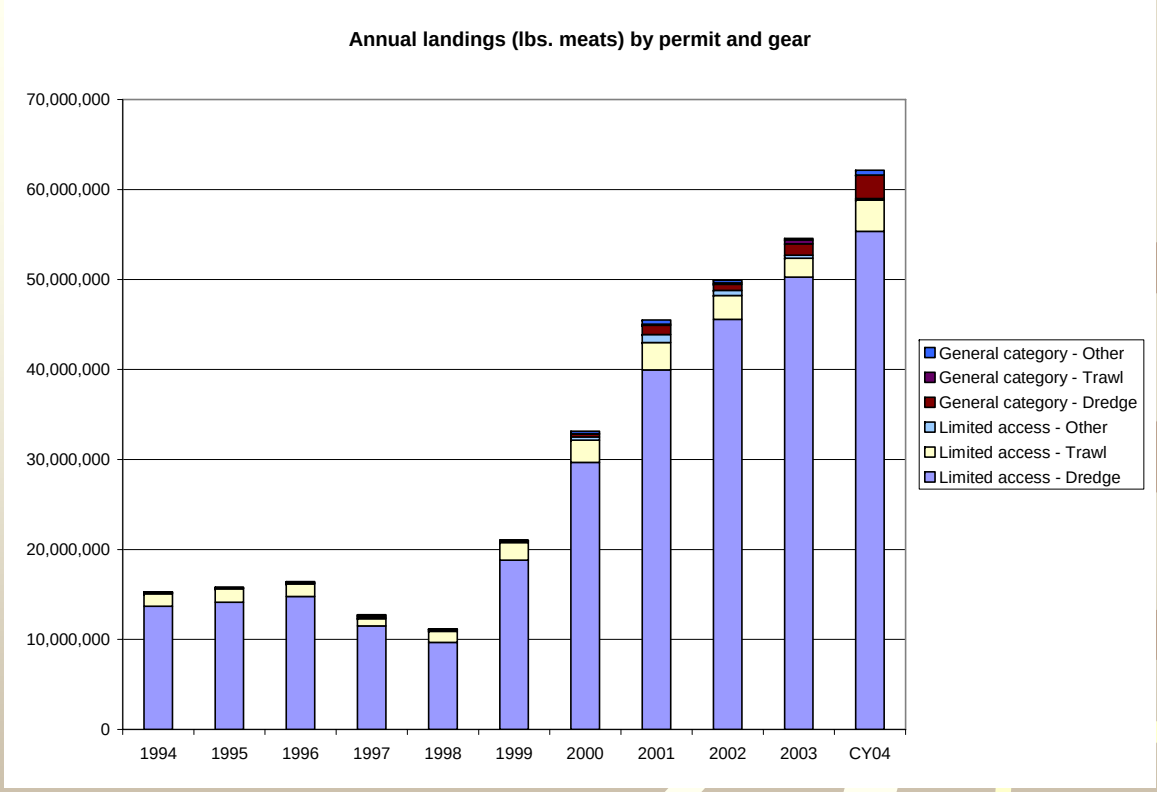
- Landings by LA vessels using dredges declined in 2004 to 90% of total landings
- Landings by LA vessels using trawls also declined, to 3.7%
- Landings by vessels with GC permits increased to 3.1 million lbs. or 5.2% of the total.



2004 Landings by category

0011

- Increase in total landings for all categories

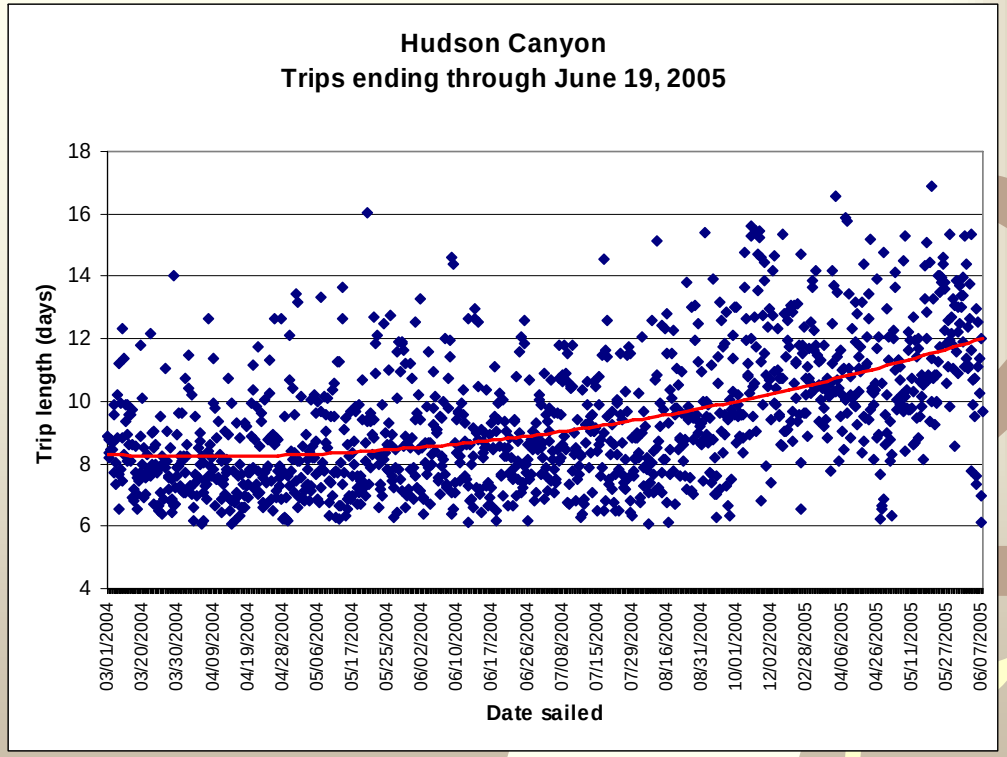


2004 TACs and Landings

	TAC (million lbs)	Allocations (million lbs)	CY04 landings (million lbs)	% of TAC
Hudson Canyon Area	**18.79**	**20.50**	**17.07**	**90.9%**
Nantucket Lightship Area	**7.72**	**5.26**	**1.31**	**16.9%**
Closed Area II	**8.40**	**10.46**	**3.00**	**35.7%**

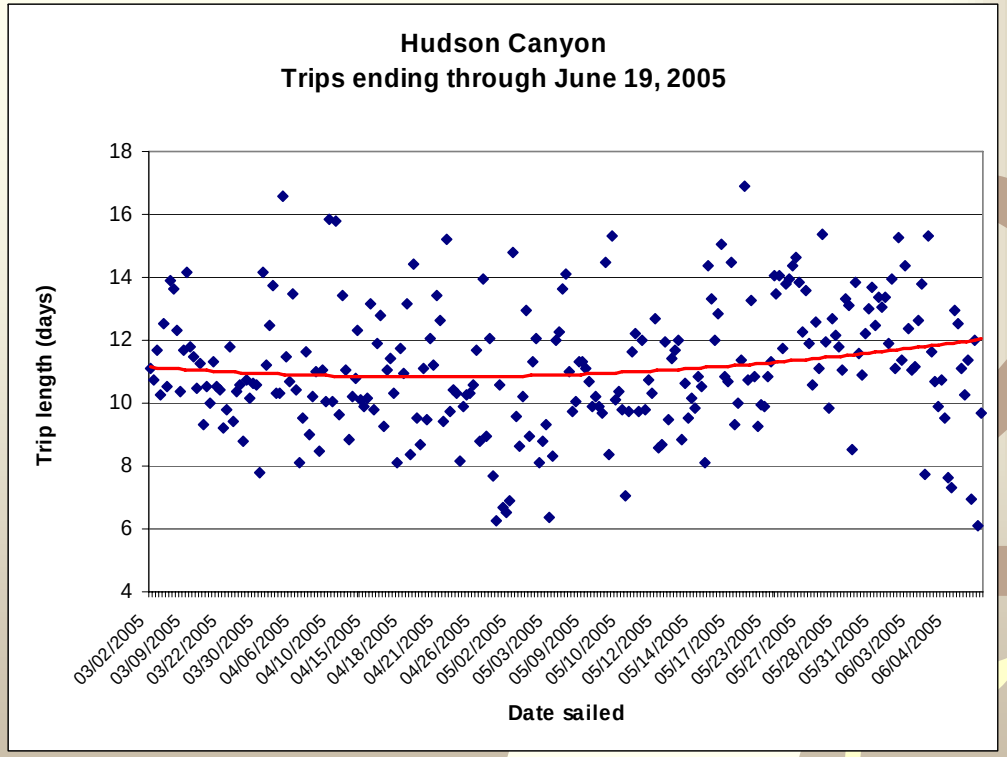
Hudson Canyon Area Trends

- Average trip length has increased from 8.5 days to 12 days through mid-June
- Assuming vessels landed 18,000 lbs., the average catch so far has increased to the 1,500 lbs./day tradeoff
- Fishing is no longer shucking-limited, which could affect the cull size



Hudson Canyon Area Trends

- In 2005 fishing year, slight trend toward longer trips catching 18,000 lbs.
- 296 Hudson Canyon Area trips landed so far in 2005.

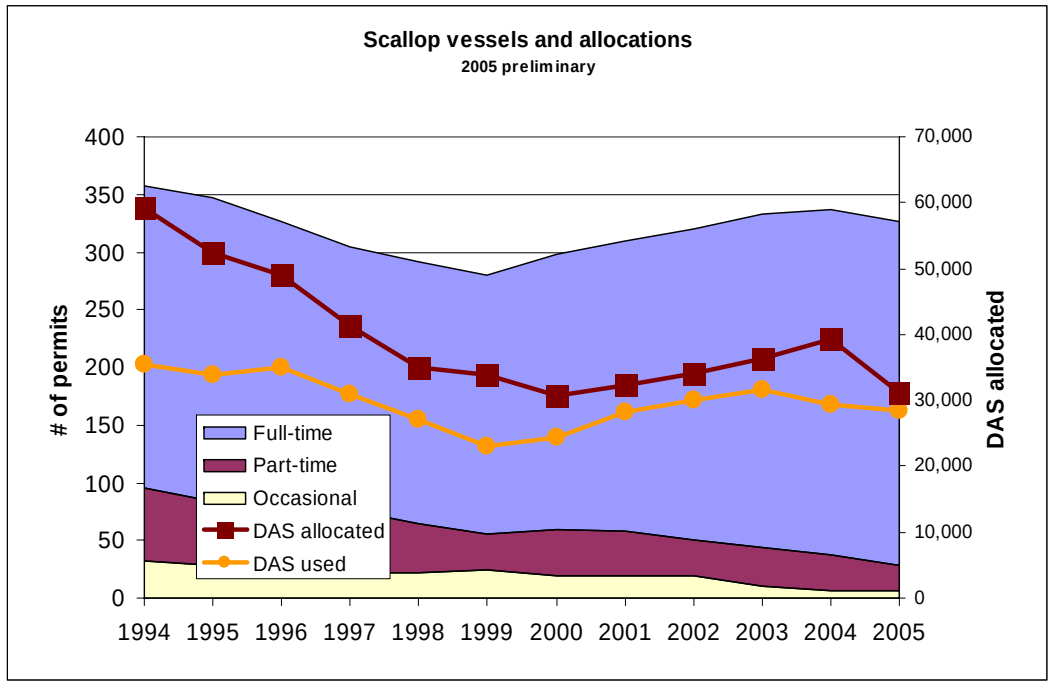


Hudson Canyon Area Trends

- Fewer trips are being taken than through the end of May 2004. Despite the longer trips, DAS use dropped from 3,727 to 2,610.
- Appears to be more trips that are cut short, presumably making use of the broken trip redemption (57 < 8 days; 44 < 6 days)
- Appears that vessels with small dredges are having more difficulty keeping up with vessels using large dredges (i.e. not catching 18,000 lbs. in 12 days)

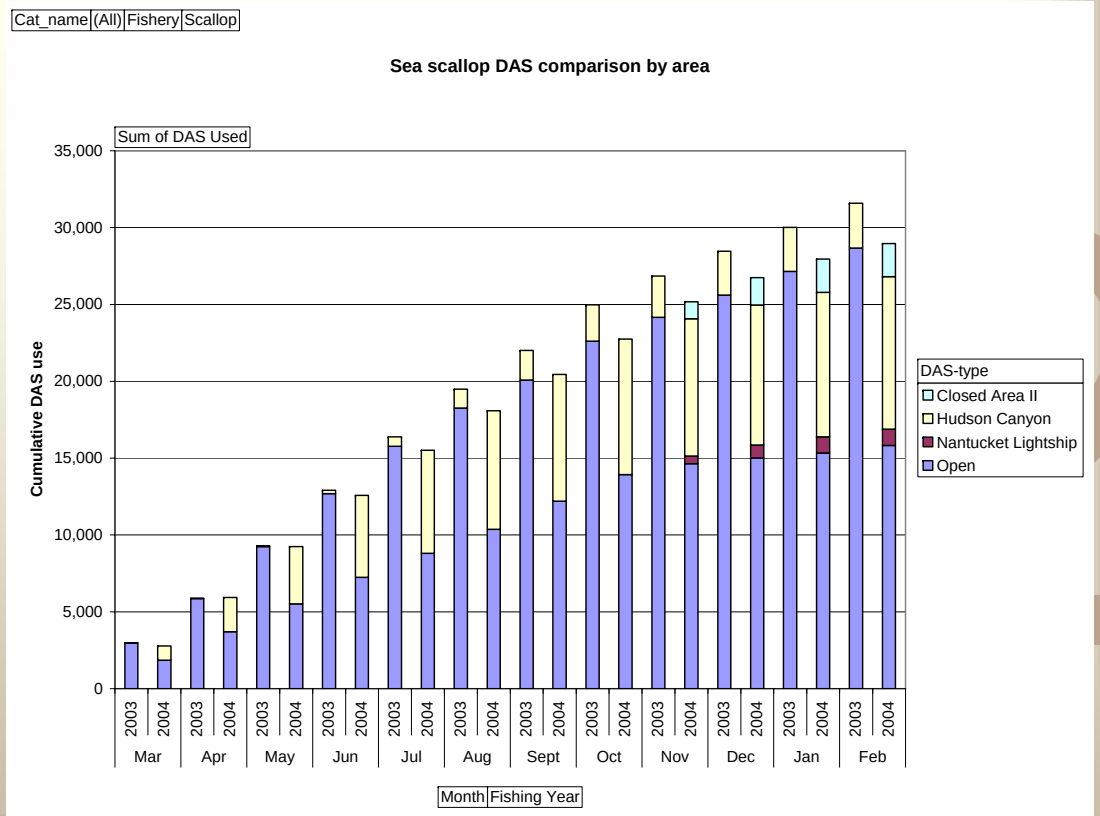
Permit and DAS trends

- Number of LA permits has steadily increased since 1997
- Although allocations increased to near 40,000 DAS, DAS use declined by 7% in 2004 to 29,300
- GC permits in 2004 increased by 11% to 2,805, most of the increase presumably for targeting scallops



Permit and DAS trends

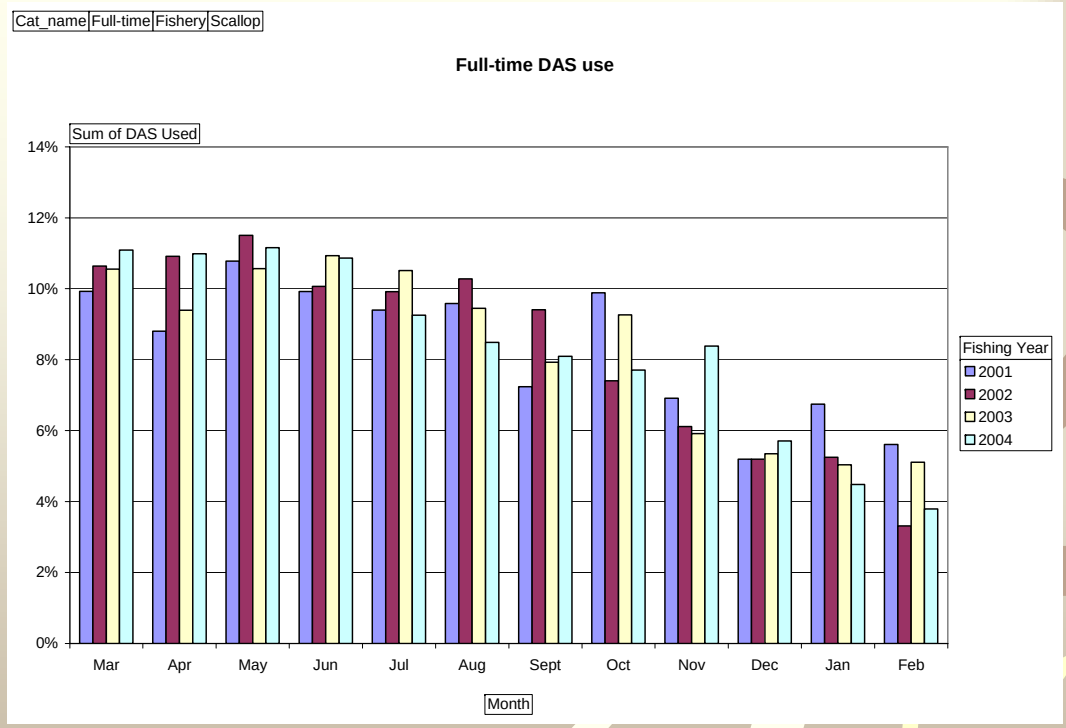
- Plotted cumulatively by month, there was a slight tendency toward earlier fishing during the year, particularly in the HCA and open areas (management effect)
- Open area DAS were nearly cut in half, compared to 2003



Permit and DAS trends
All areas

- Compared to recent years, 2004 fishing effort was front-loaded into Apr. to Jun., when the ETA was open and 3½-inch rings were required

- Effort spiked again in Nov. when GB access areas opened.

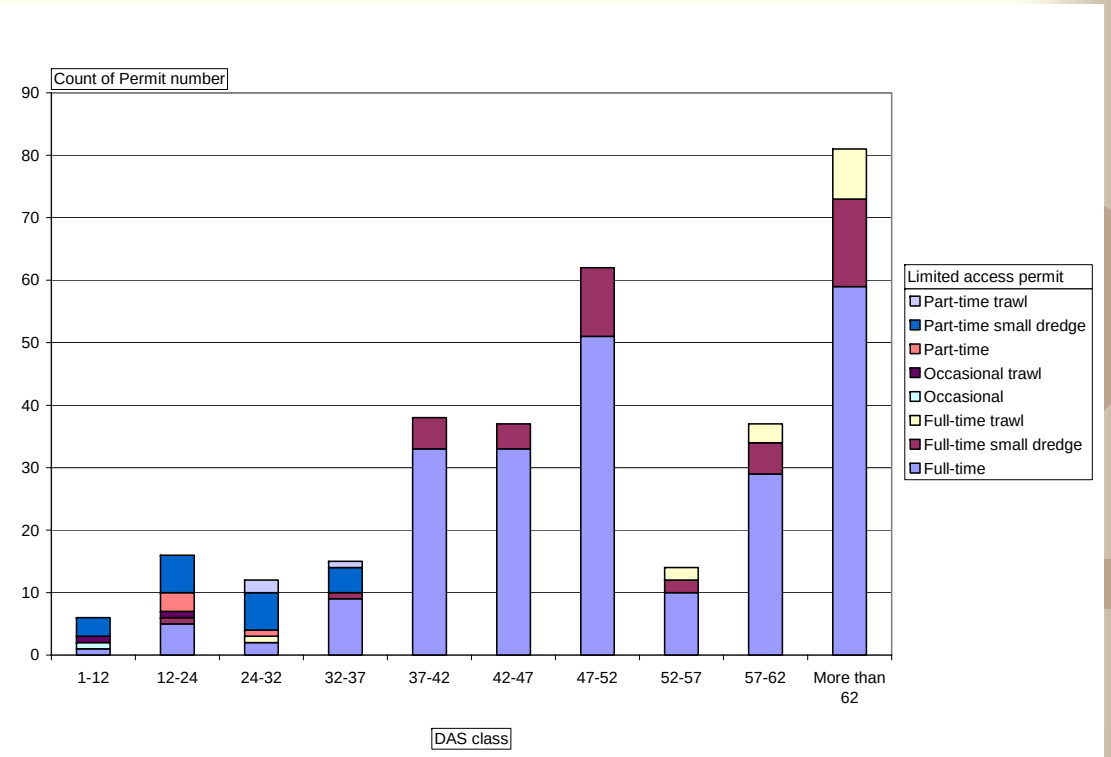


Permit and DAS trends

Open areas

0011

- 166 vessels did not take trips in the GB access areas and had default (62) open area DAS allocated, totaling 3,023 DAY-AT-SEA
- 153 vessels fished for 2,569 DAS as a result of the ‘default’ allocation
- 195 vessels fished more than their own baseline, fishing down carry forward DAS, totaling 1,003 DAY-AT-SEA
- Total DAS shifted to open areas: 3,572 DAS by 252 vessels
- 318 vessels used a total of 15,777 open area DAS out of 17,830 DAS allocated

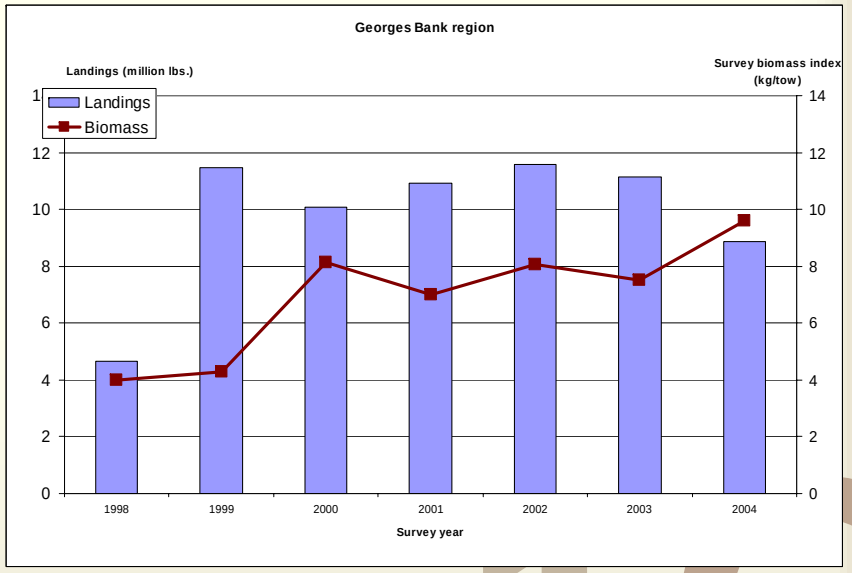


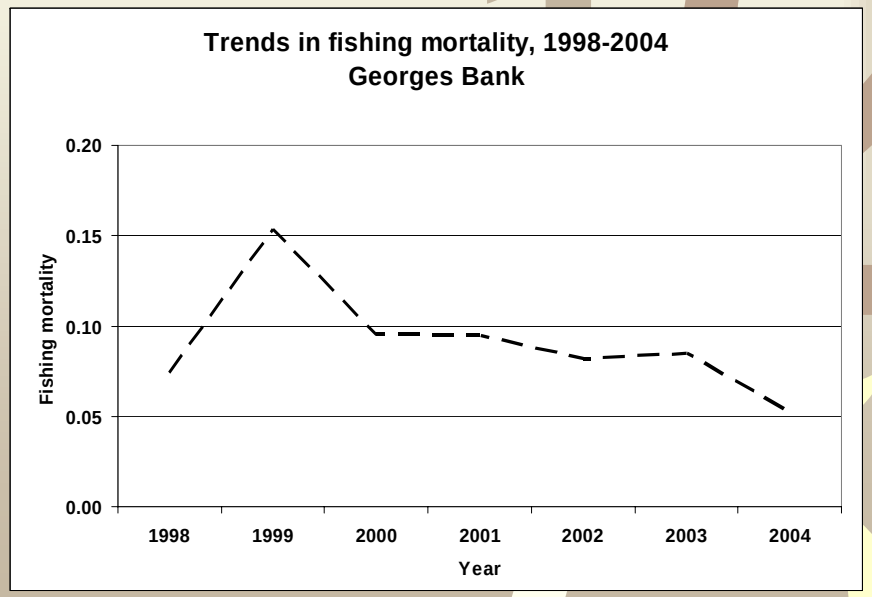
2005 DAS use
Open areas

- Based on these factors, projected open area DAS use in 2005 is expected to decline to 12,700 days.
- Open area DAS use declined to 3,140 days, compared to 3,709 days through the end of April 2004
- However, general category effort is expected to increase from the 1,500 DAS equivalent estimated for 2004.

Fishing mortality estimate Georges Bank

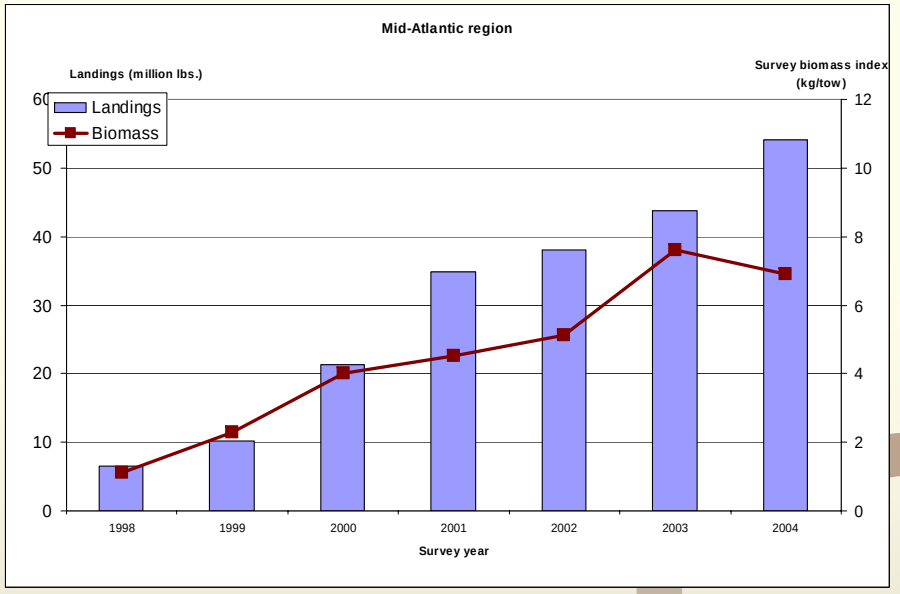
- Biomass in 2004 increased
- Landings in 2004 decreased
- Fishing mortality declined
- Late access to GB areas
- Diversion of effort from default DAS used in the Mid-Atlantic region

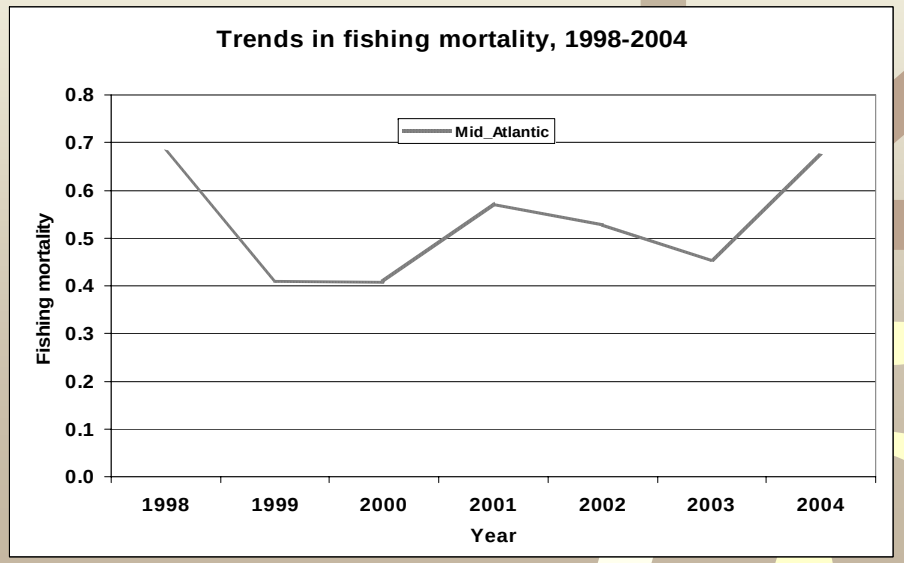




Fishing mortality estimate Mid-Atlantic

- Biomass in 2004 declined
- Landings in 2004 increased
- Fishing mortality increased
- Diversion of effort due to default DAS
- Early fishing with 3½" rings, before ETA closed, HCA high F target (affects survey value)

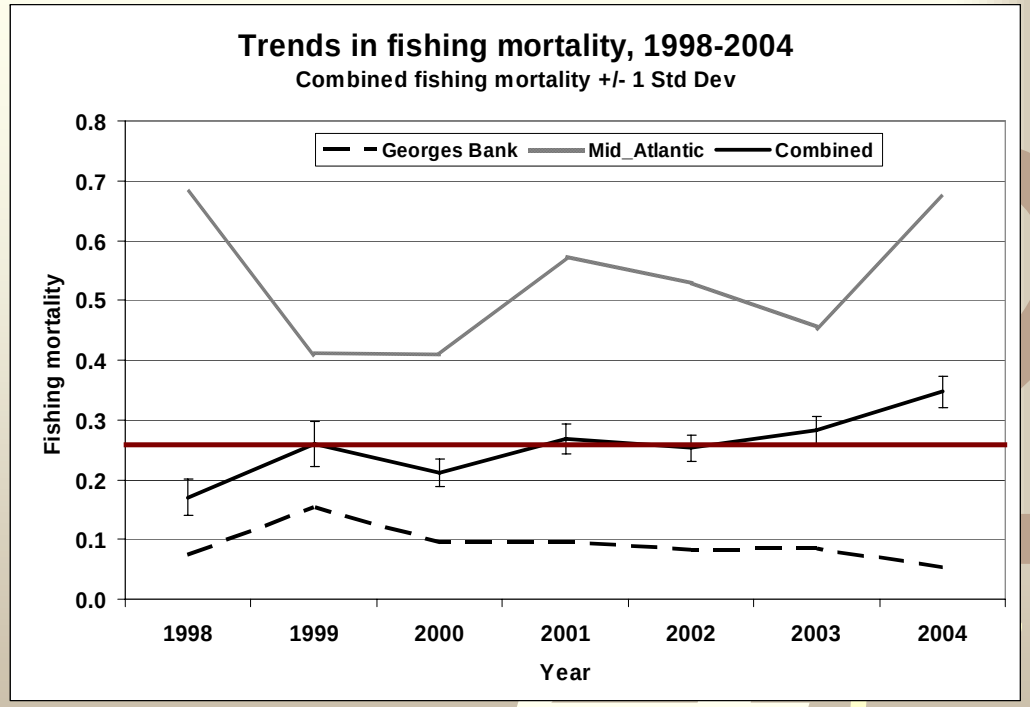




Combined 2004 fishing mortality

Numbers-weighted

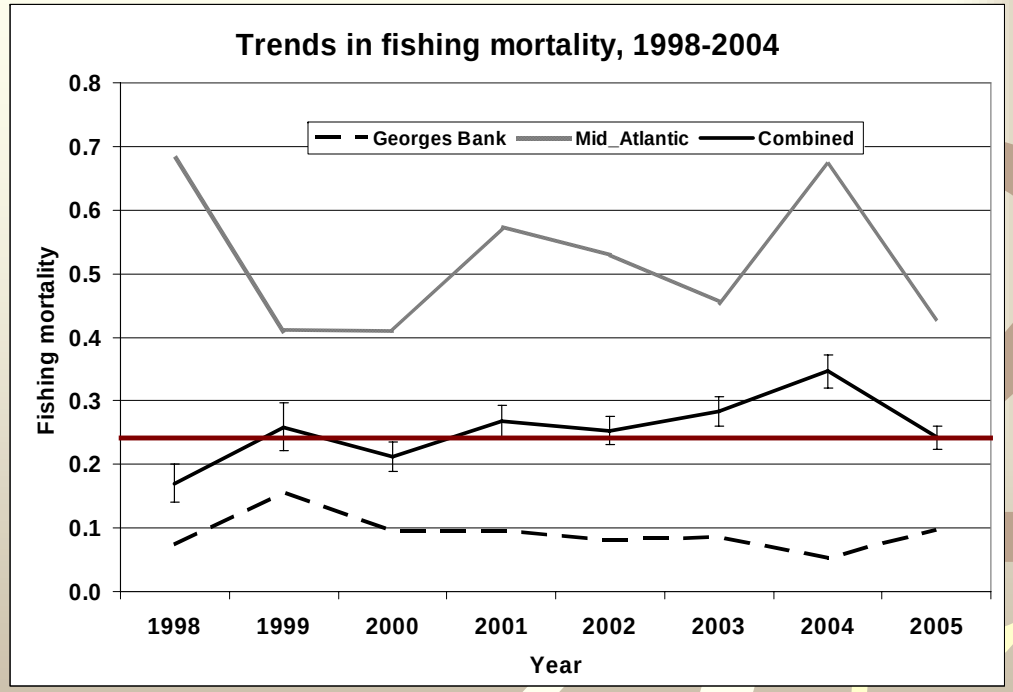
- Combined fishing mortality increased to 0.35, significantly above the max. F threshold
- Overfishing occurred in 2004
- Gradual drift in the average toward the Mid-Atlantic, due to high scallop productivity there
- Moderately small shifts in effort toward the GB region would bring the weighted average mortality down
- Target for 2006-2007 is F = 0.20



Combined 2005 fishing mortality

Numbers-weighted

- Assuming 100% of area access and rotation allocations are landed
- 2005 open area DAS projected from 2004 carry forward and allocation of 40/16/3 DAS for all vessels
- No catch from the closed ETA
- F projected to decline in 2005 to 0.24, not significantly different than the threshold, but still higher than the target

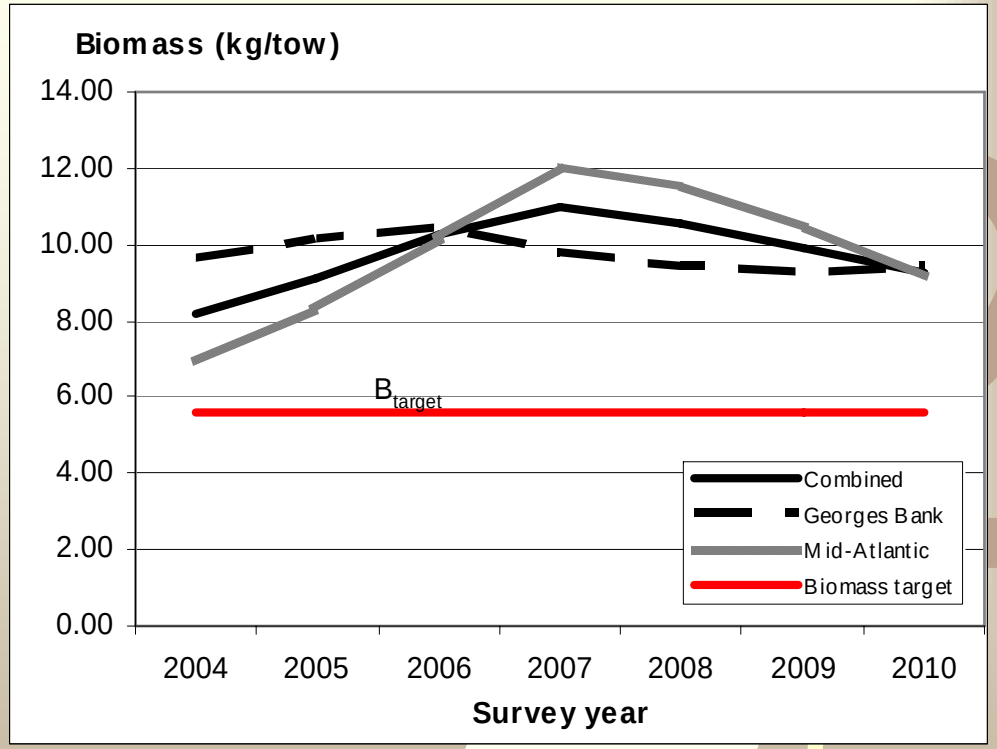


Baseline projection assumptions 2006-2007

- Allocated TACs (FW16) are assumed for GB access areas
- ETA opens in 2007 with a 0.32 mortality target (consistent with time averaged mort policy)
- As of 2006, HCA no longer exists and is pooled in the open area DAS allocations
- Open area DAS set to achieve F around 0.20 (overall target DAS about 29-30 thousand
- Actual fishing mortality and yield in 2006 and 2007 will depend on decisions made in Framework 18 (holds true as well for finfish bycatch, turtle interactions, and habitat effects)

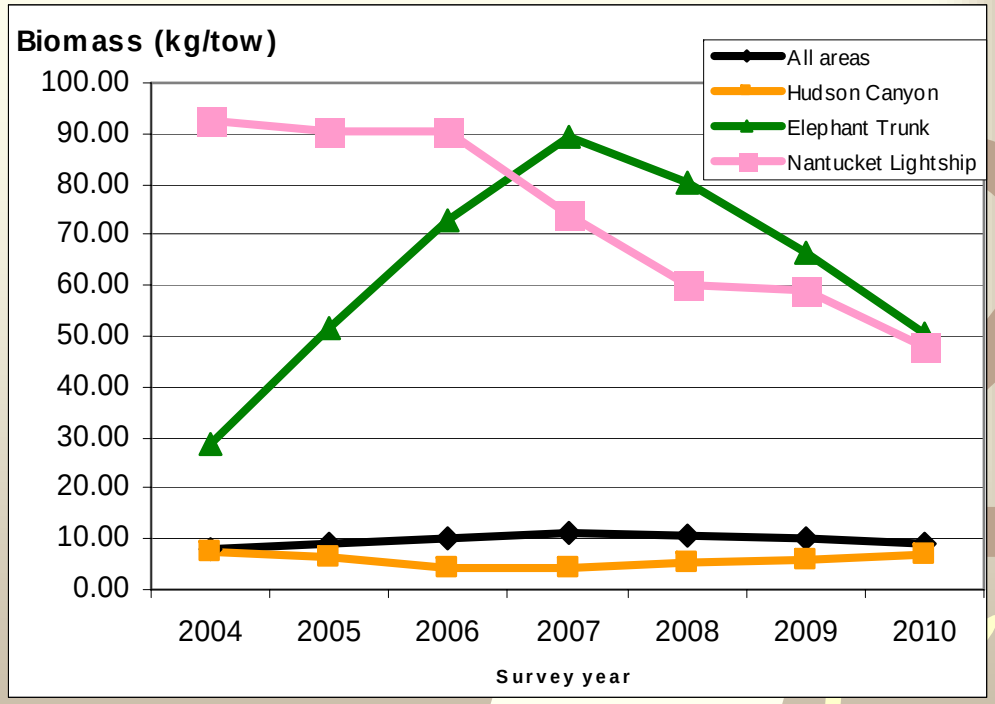
Projected biomass

- Biomass in Mid-Atlantic expected to increase, primarily from the ETA
- Georges Bank biomass expected to remain high
- Combined biomass expected to increase and stay above the target, therefore the stock is unlikely to approach being overfished with planned levels of fishing and area rotation



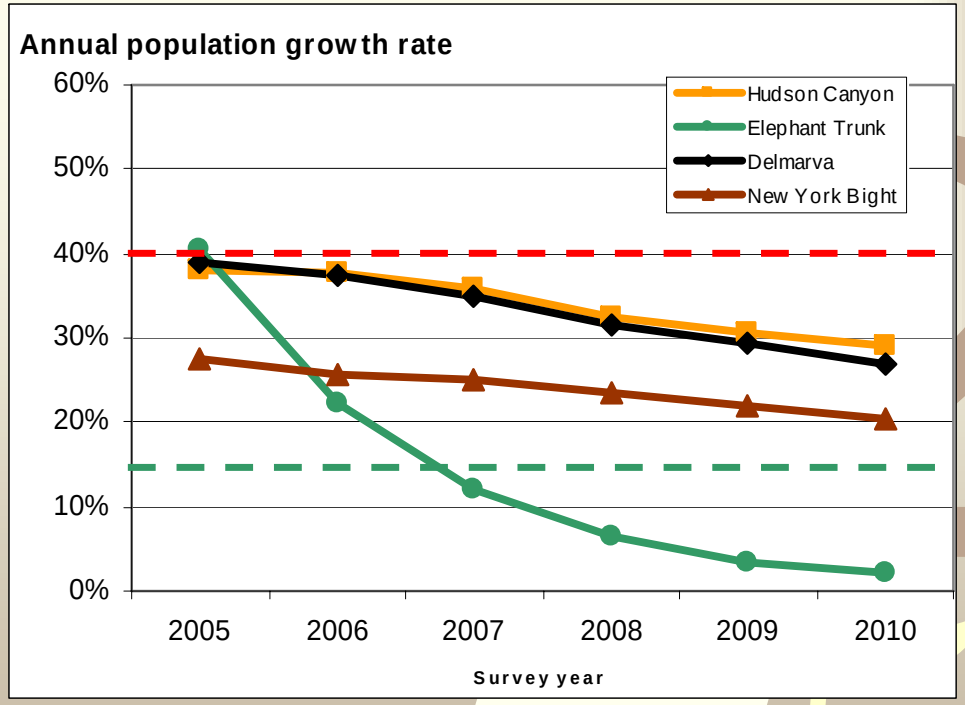
Projected biomass by management area

- ETA abundance at extraordinary levels and biomass expected to reach extraordinary levels, comparable to those currently in the NLSA



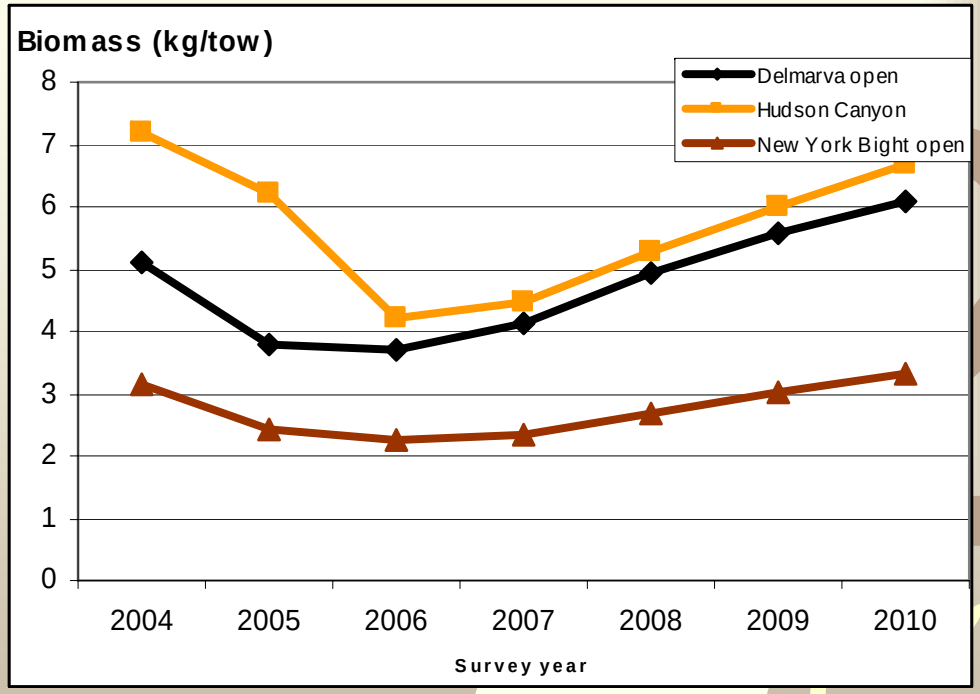
Projected change in biomass by management area

- Growth rate for the HCA expected to be within range that it should remain open (unless new recruitment event occurs)
- Population growth rate for the HCA is expected to be similar to surrounding areas (growth rate would be high if only small scallops remain due to growth overfishing)
- Growth rate for the ETA expected to decline below the level it should re-open to rotation fishing by 2007



Projected Hudson Canyon Area Biomass trend

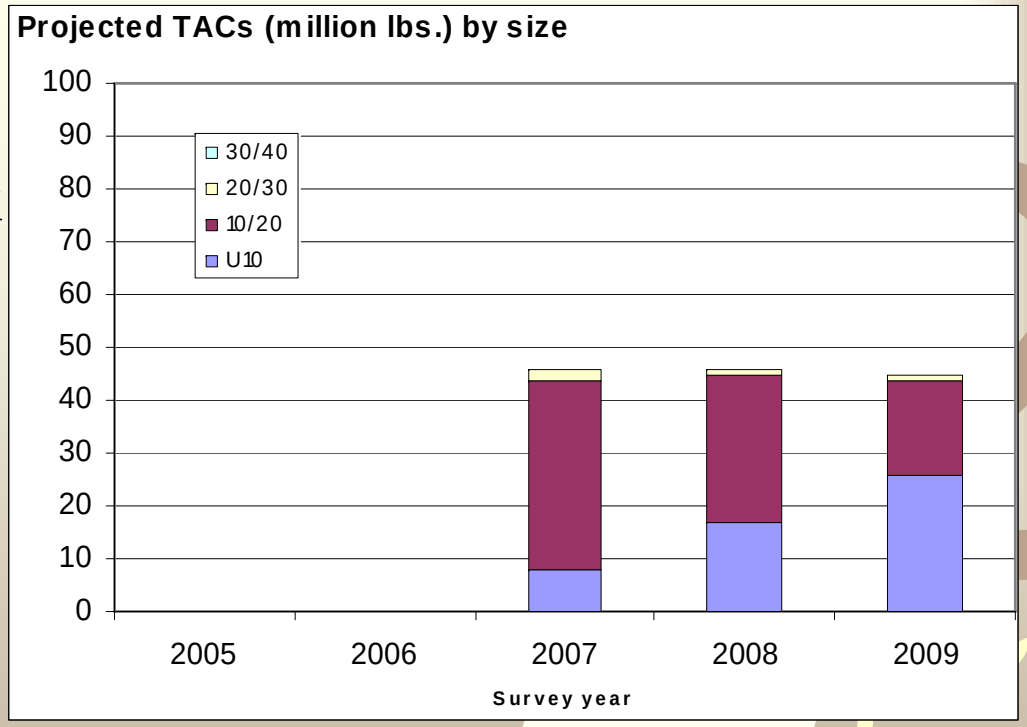
- Biomass in 2005 projected to be around 6 kg/tow
- Consistent with the 15% decline in biomass observed by SMAST between 2004 and 2005 (both surveys saw a greater than expected decline from 2003 to 2004)
- Biomass index expected to be higher than surrounding open fishing areas



Potential yield
Elephant Trunk Area

0011

- Even with reduced mortality targets (0.25 in 2007, 0.28 in 2008, and 0.34 in 2009), projected yield from Elephant Trunk Area rotation expected to be high
- Catch primarily of 10/20 count scallops when re-opened
- Continued scallop growth leads to higher landings of more valuable U10 scallops in 2008 and 2009

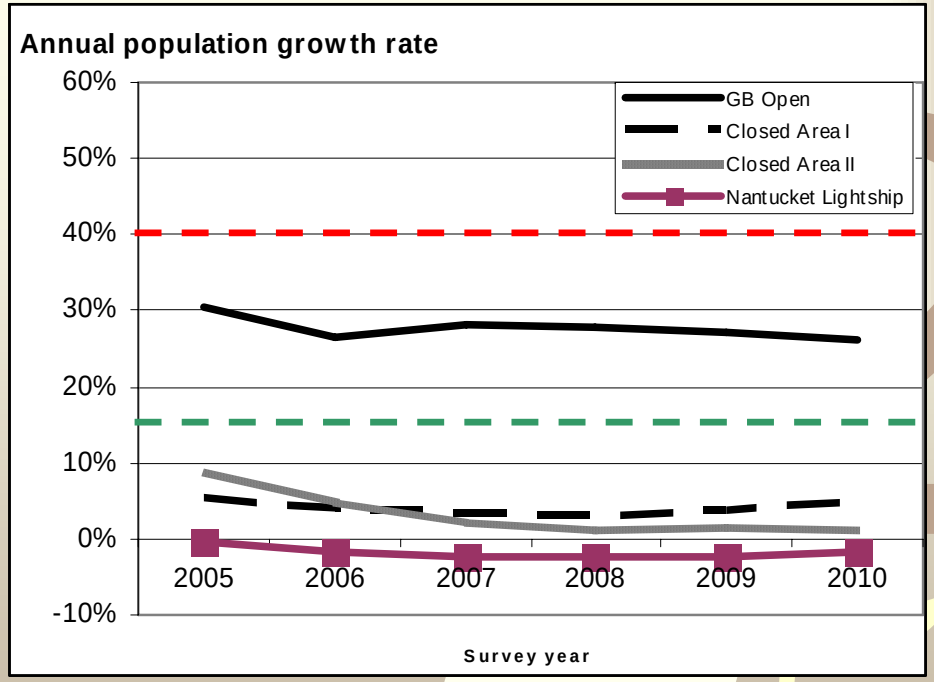


Uncertainties
Elephant Trunk Area

- Considerable uncertainty about growth between 2004 and 2007
- Considerable uncertainty about actual stock numbers in 2004
- Potential for some movement of scallops out of the area boundaries
- Concern about illegal catches during the closure

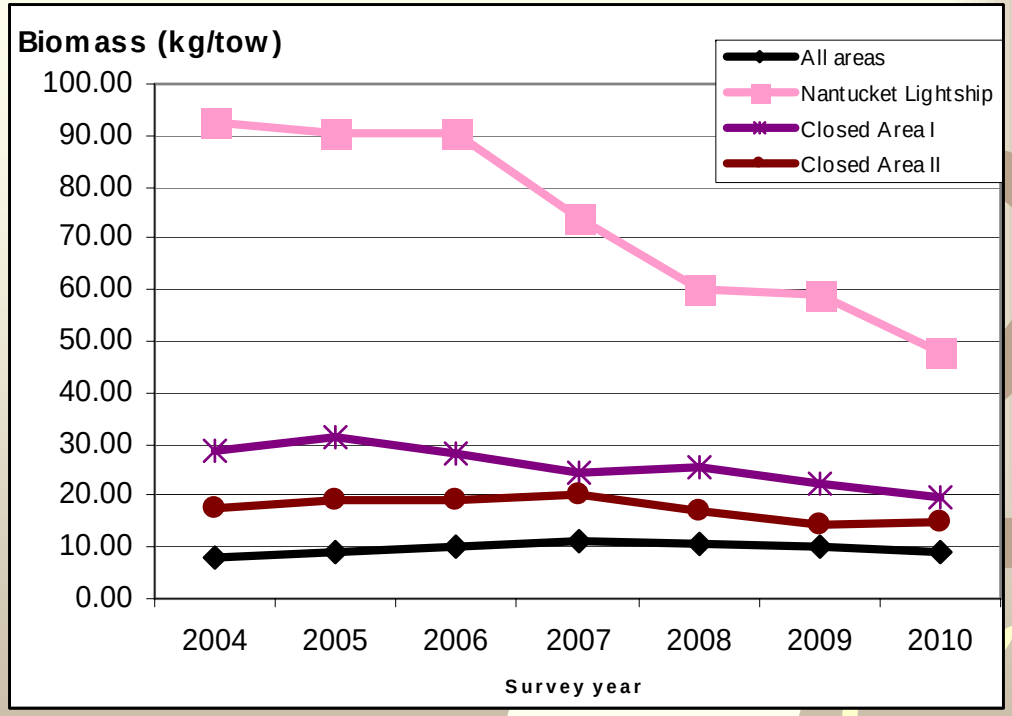
Projected change in biomass by management area

- Population growth in the access areas is low, but some growth potential remains



Projected Access Area Biomass trend

- Closed Area I and Closed Area II biomass projected to remain high and stable with current rotation schedule
- Small scallops observed by the 2004 survey in Closed Area II are likely to change the forecast
- Current rotation schedule is expected to reduce NLSA biomass

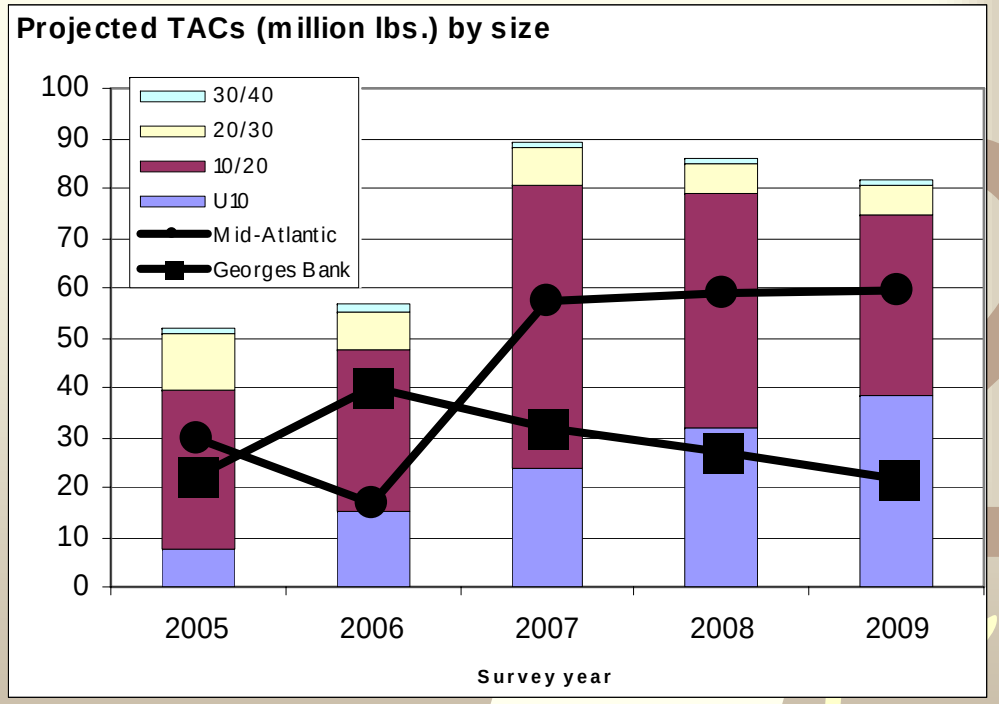


Potential yield
Total

0011

- Projections indicate that yield would remain above 50 million pounds, and more catch would come from the Georges Bank region than in recent years

- Large jump in 2007 when the ETA re-opens; depending on the target mortality, scallop growth, and integrity of the area while closed

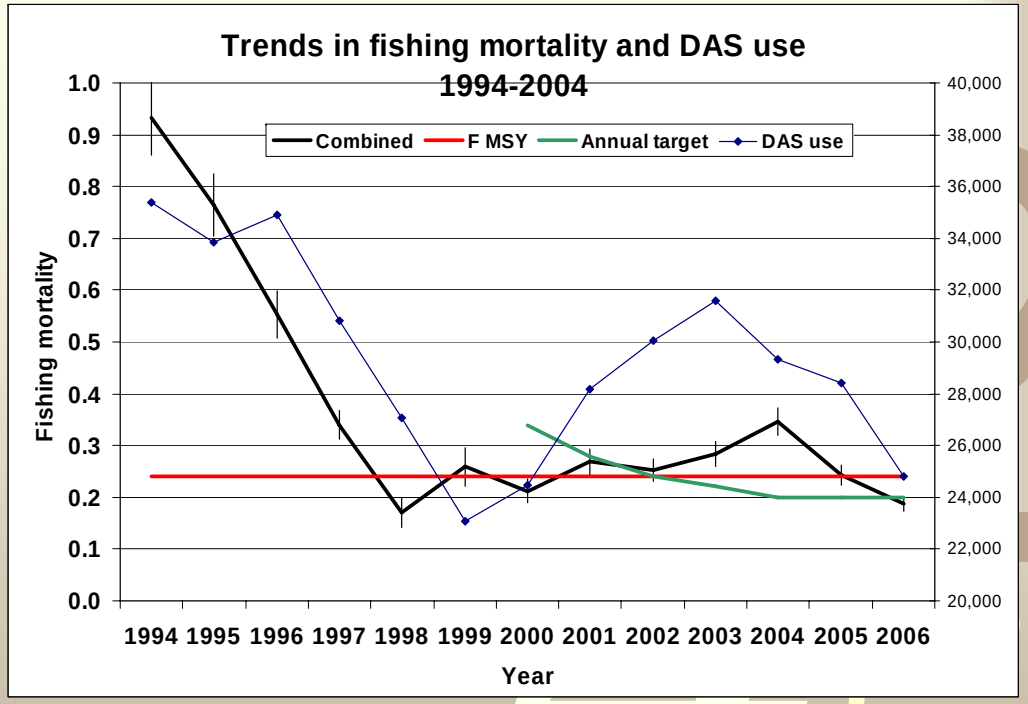


Conclusion

- Overfishing occurred in 2004, but Amendment 10 was not yet fully implemented
- Amendment 10 and Framework 16 measures are expected to reduce mortality to near the threshold level in 2005.
- Mortality can be contained with modest adjustment of DAS and a lid on the growth of open access (general category) fishing.
- Higher sustainable yield is forecast with a potential for modest increase in total DAS use, when the benefits of the ETA closure are realized in 2007.

DAS effectiveness

- Mortality declined from reductions in DAS use, among other factors
- Although DAS use increased recently, fishing mortality did not increase to mid-1990s levels
  - Crew limits
  - Closed areas
  - Gear regulations
  - Prohibited landings of shell stock



Recommendations

- Evidence of strong 2003 year class in Closed Area II (observed in 2004) that could benefit from changing the area access order
- Changing the order of GB access could smooth out yield changes, before the ETA opens to fishing
- PDT suggests consideration of opening all three GB access areas in 2006, followed by a one-year closure each year of Closed Area II, Closed Area I, and the Nantucket Lightship Area (slight adjustment of the Framework 16 rotation policy)
- A more graduated approach to time averaged mortality policy for the ETA area could stabilize yield and ease transition. Setting the ETA mortality target for 2007 at 0.16 to 0.20, instead of 0.32, would prevent a sudden spike in landings and apply a risk-adverse approach that is consistent with the level of uncertainty in the ETA forecasts.

Revised Rotation Order
Suggested mortality targets

	NLSA	CA1	CA2	ETA
2006	0.2	0.2	0.2	Closed
2007	0.2	0.2	Closed	0.16-0.20
2008	0.2	Closed	0.2	> 0.2 ?
2009	Closed	0.2	0.2	> 0.2 ?

Conclusion

- Update assessment answers only one set of related questions about the status and future outlook of the scallop resource
- SAFE Report will include updated analyses of bycatch, area swept and effort distribution, turtle interactions, economic and social effects, and safety
- SAFE Report scheduled for delivery in Sept, but results will be presented as they are completed, during the development of Framework 18