

APPENDIX A4: Supporting information. Information in this appendix was presented and discussed during the SARC review meeting but not presented in the original assessment document. In most cases, the information was not presented in the original document because it was requested by the reviewers or prepared during discussions. This information was not discussed to the Working Group that prepared the assessment.

Figure 1 (APPENDIX A4) . Silver hake discards and landings (hail weights) for all trips (all gear and primary species groups) with observers during 2001-2004.

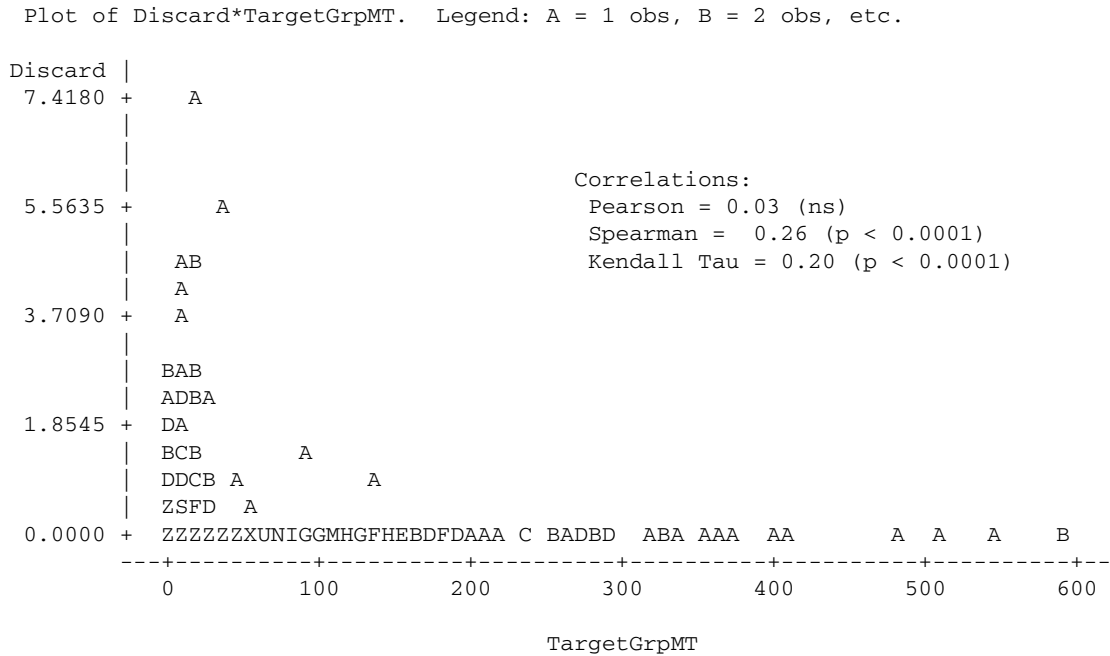


Figure 2 (APPENDIX A4). Same as previous figure except that trips with zero discards are omitted and both axes are log scale.

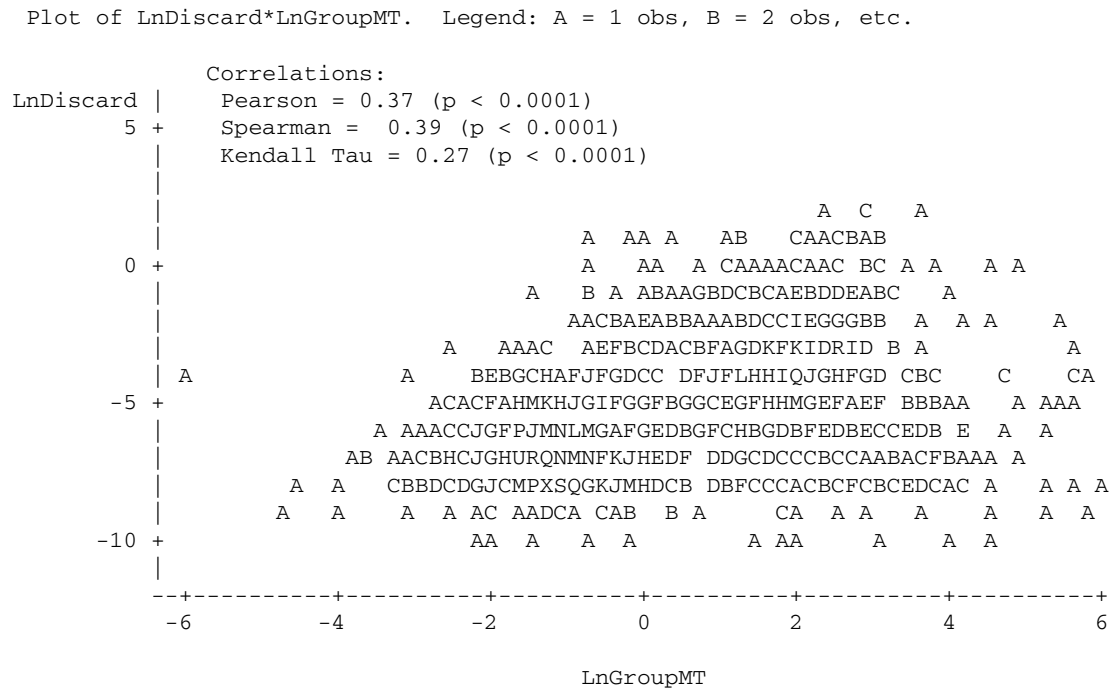


Figure 3 (APPENDIX A4). *Top*: Silver hake discards and landings (hail weights) for the Trawls gear group and all primary species groups based on trips with observers during 2001-2004. *Bottom*: Same as top but records with zero discard are omitted and both axes are log scale.

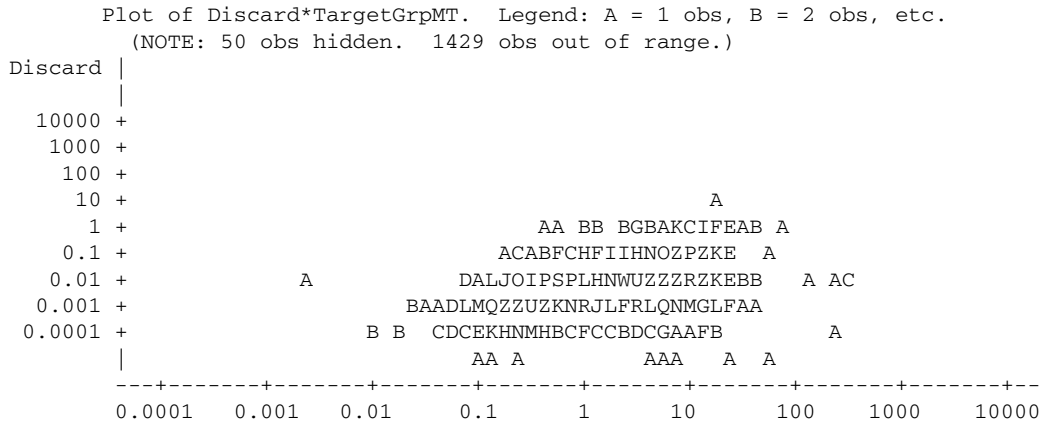
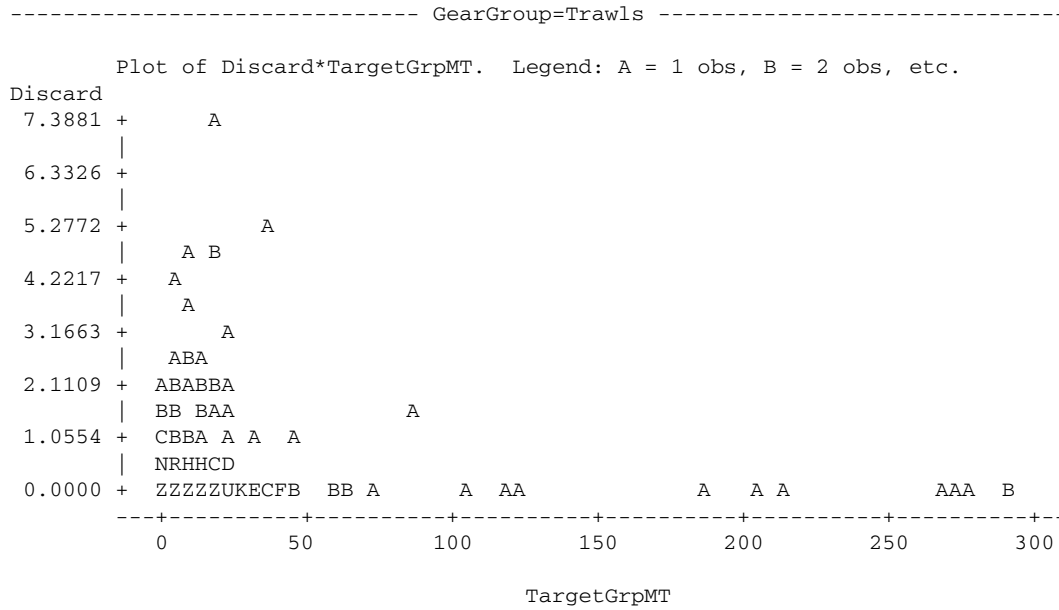


Figure 4 (APPENDIX A4). *Top*: Silver hake discards and landings (hail weights) for the Squid and Butterfish primary species group and all gear groups based on trips with observers during 2001-2004. *Bottom*: Same as top but records with zero discard are omitted and both axes are log scale.

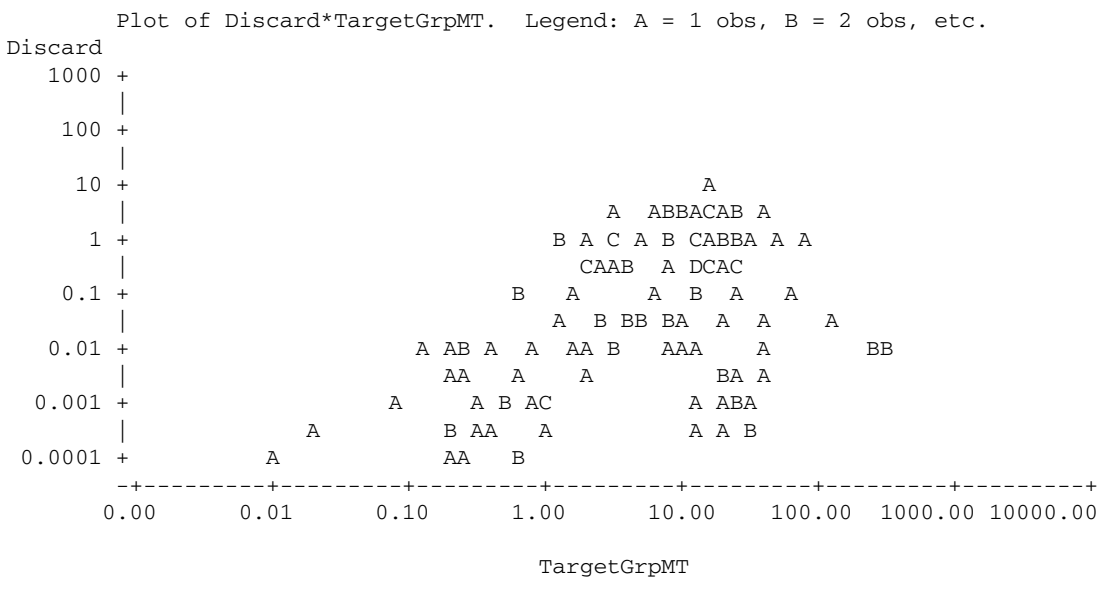
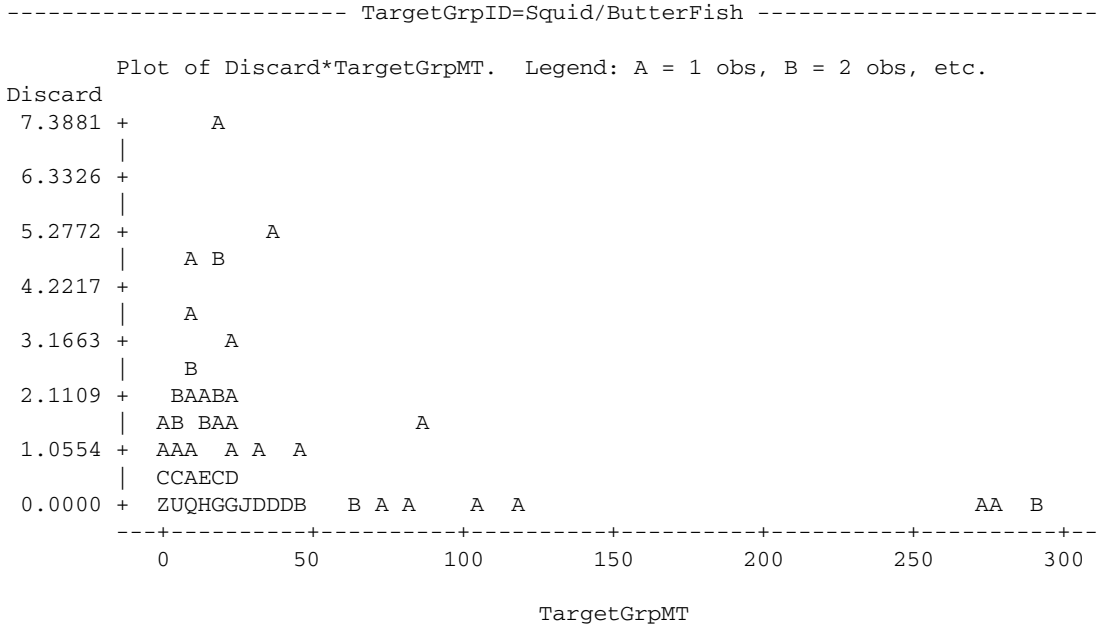


Figure 5 (APPENDIX A4). *Top*: Silver hake discards and landings (hail weights) for the Hakes and Ocean Pout primary species group and Trawls gear group based on trips with observers during 2001-2004. *Bottom*: Same as top but records with zero discard are omitted and both axes are log scale.

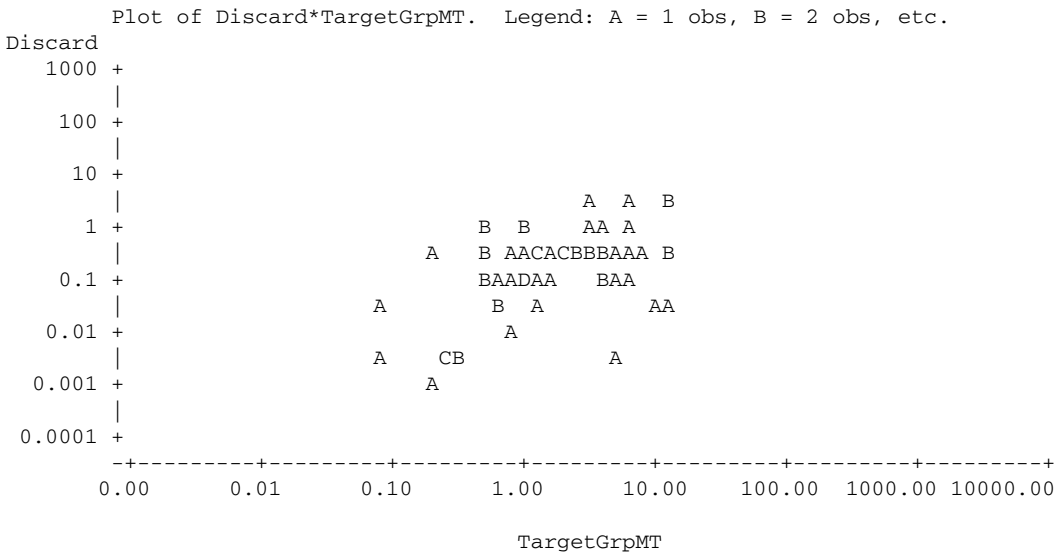
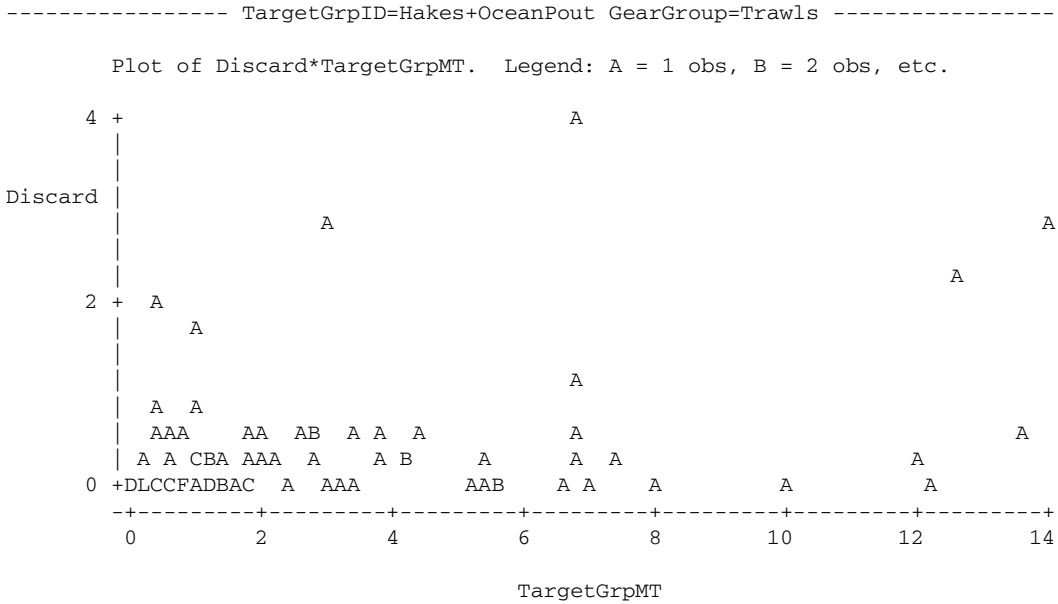


Figure 6 (APPENDIX A4). *Top*: Silver hake discards and landings (hail weights) for the Squid and Butterfish primary species group and Trawl gear group based on trips with observers during 2001-2004. *Bottom*: Same as top but records with zero discard are omitted and both axes are log scale.

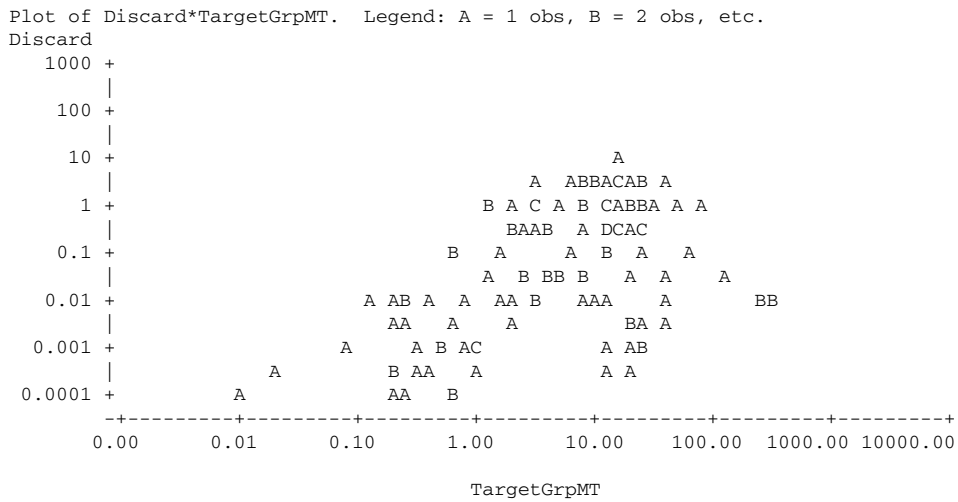
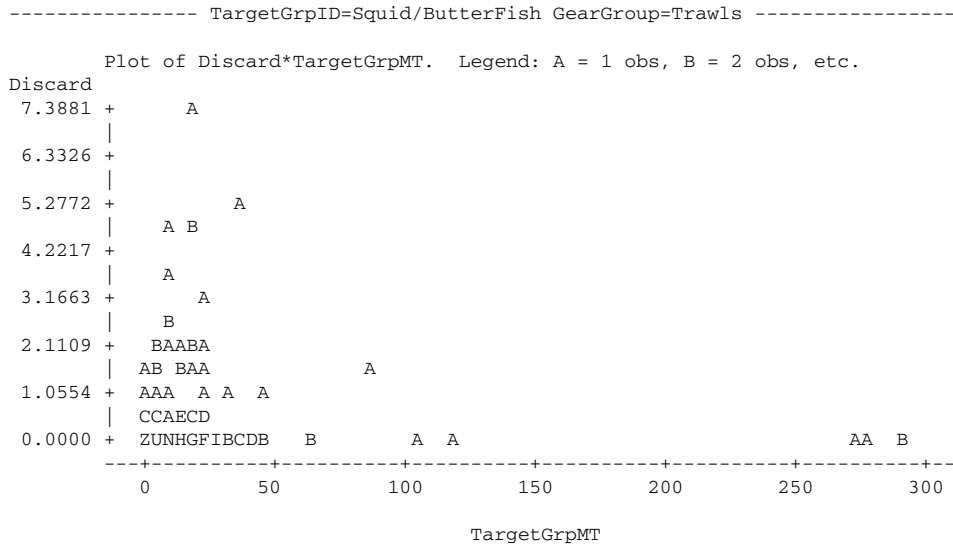
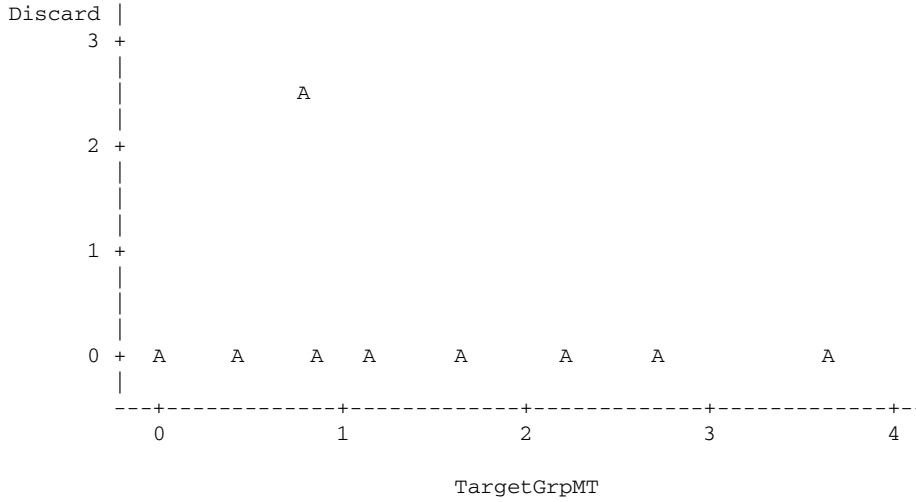


Figure 7 (APPENDIX A4). *Top*: Silver hake discards and landings (hail weights) for the Hakes and Ocean Pout primary species group and Other/unknown gear group based on trips with observers during 2001-2004. *Bottom*: Same as top but records with zero discard are omitted and both axes are log scale.

----- TargetGrpID=Hakes+OceanPout GearGroup=Other/unknown gear -----

Plot of Discard*TargetGrpMT. Legend: A = 1 obs, B = 2 obs, etc.



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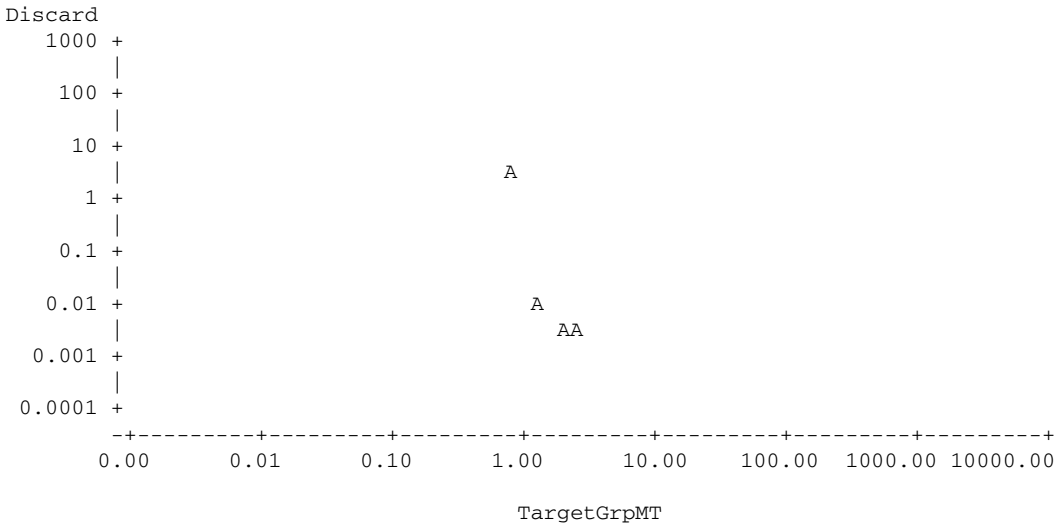
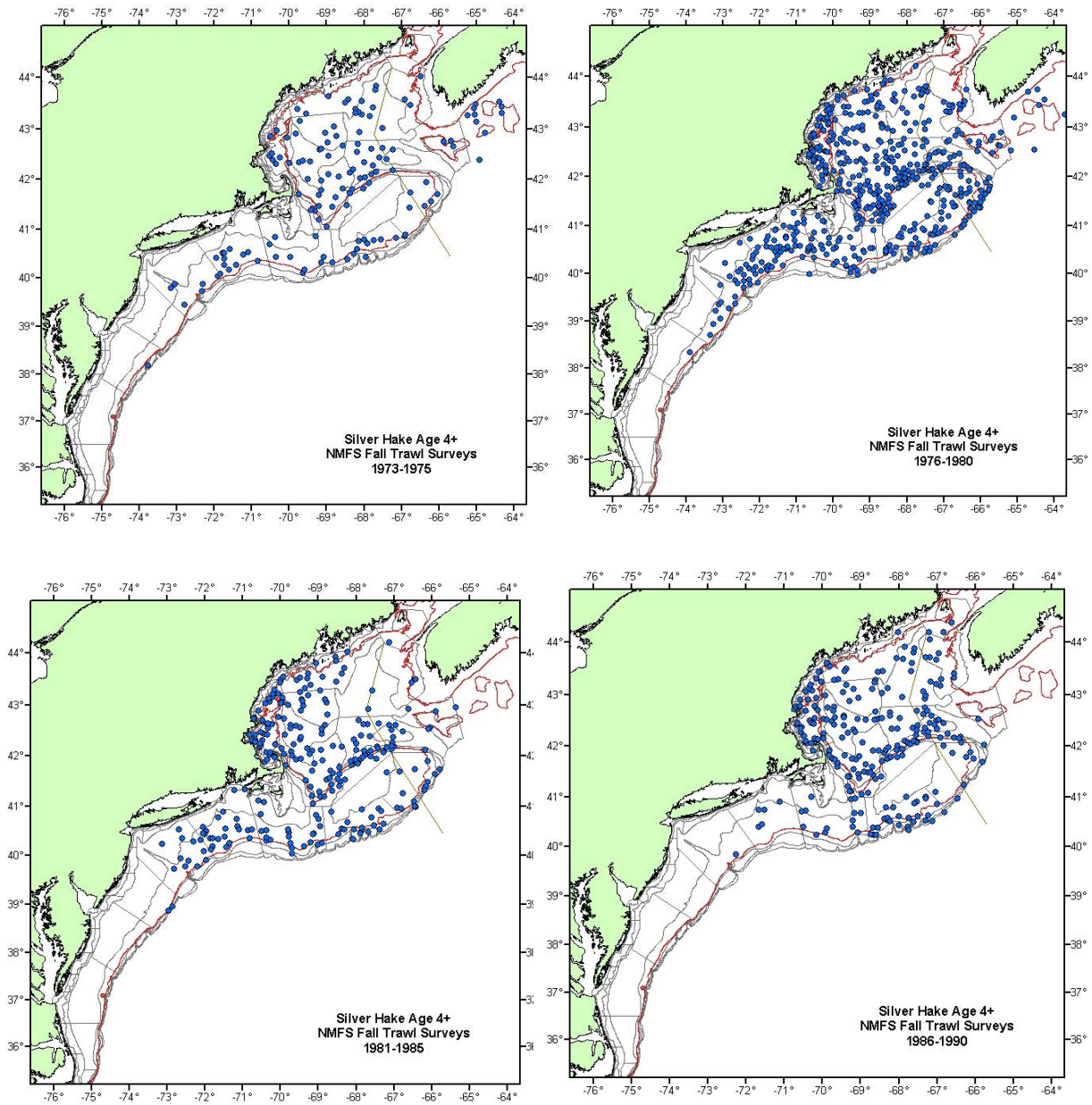
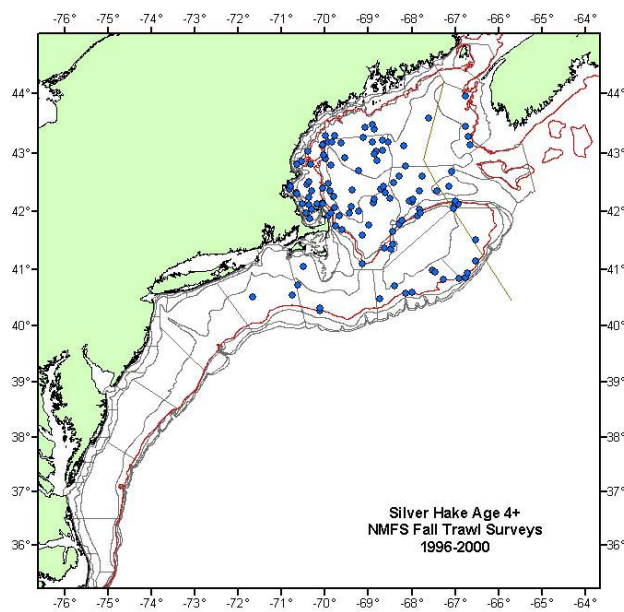
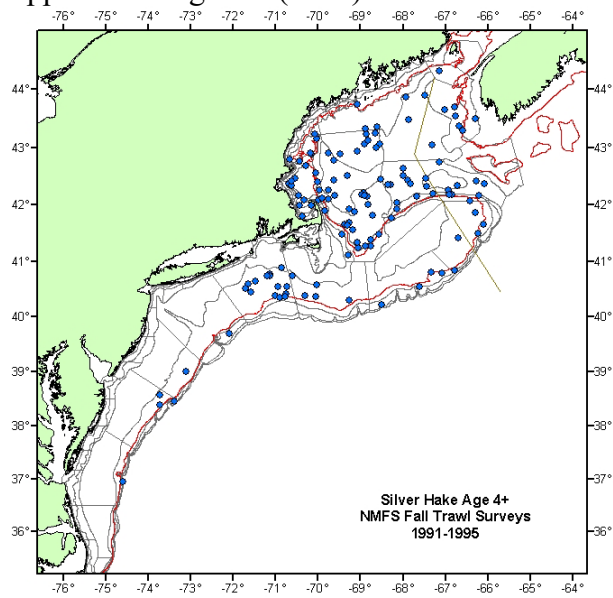
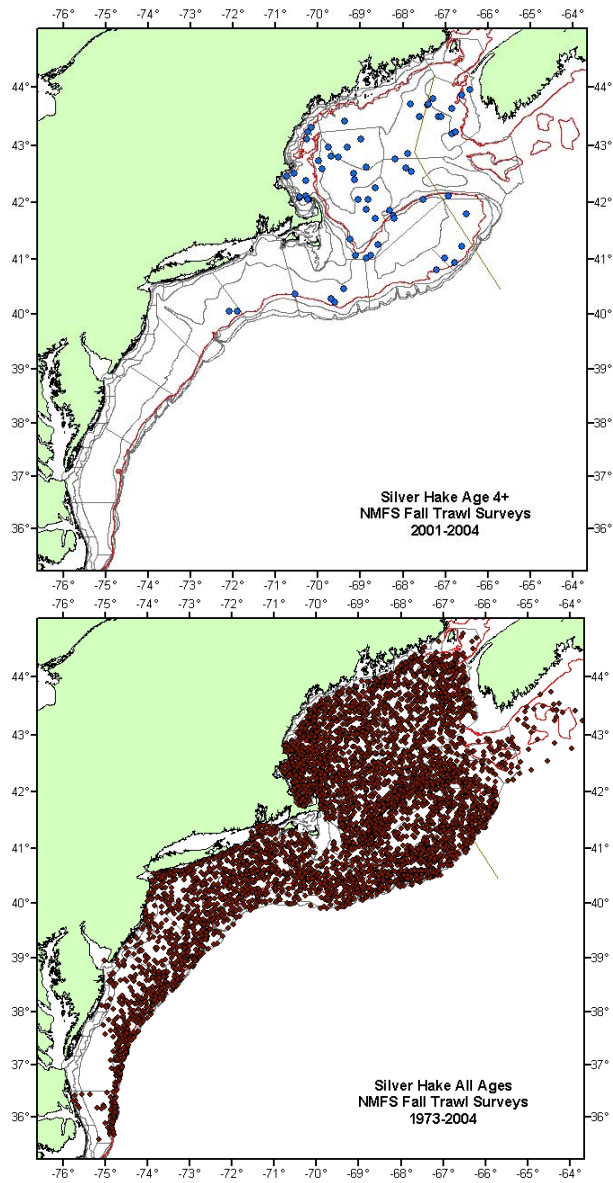


Figure 8 (APPENDIX A4). Location of tows with silver hake ages 4+ for NEFSC fall bottom trawl surveys during 1979-2004. The plots show the successive reduction in abundance of silver hake ages 4+ in the southern area over time. The last panel shows the location of all tows with silver hake of all ages during all years and, in comparison to other panels, shows the tendency for relatively young (ages 1-3) silver hake to use southern and nearshore habitats.



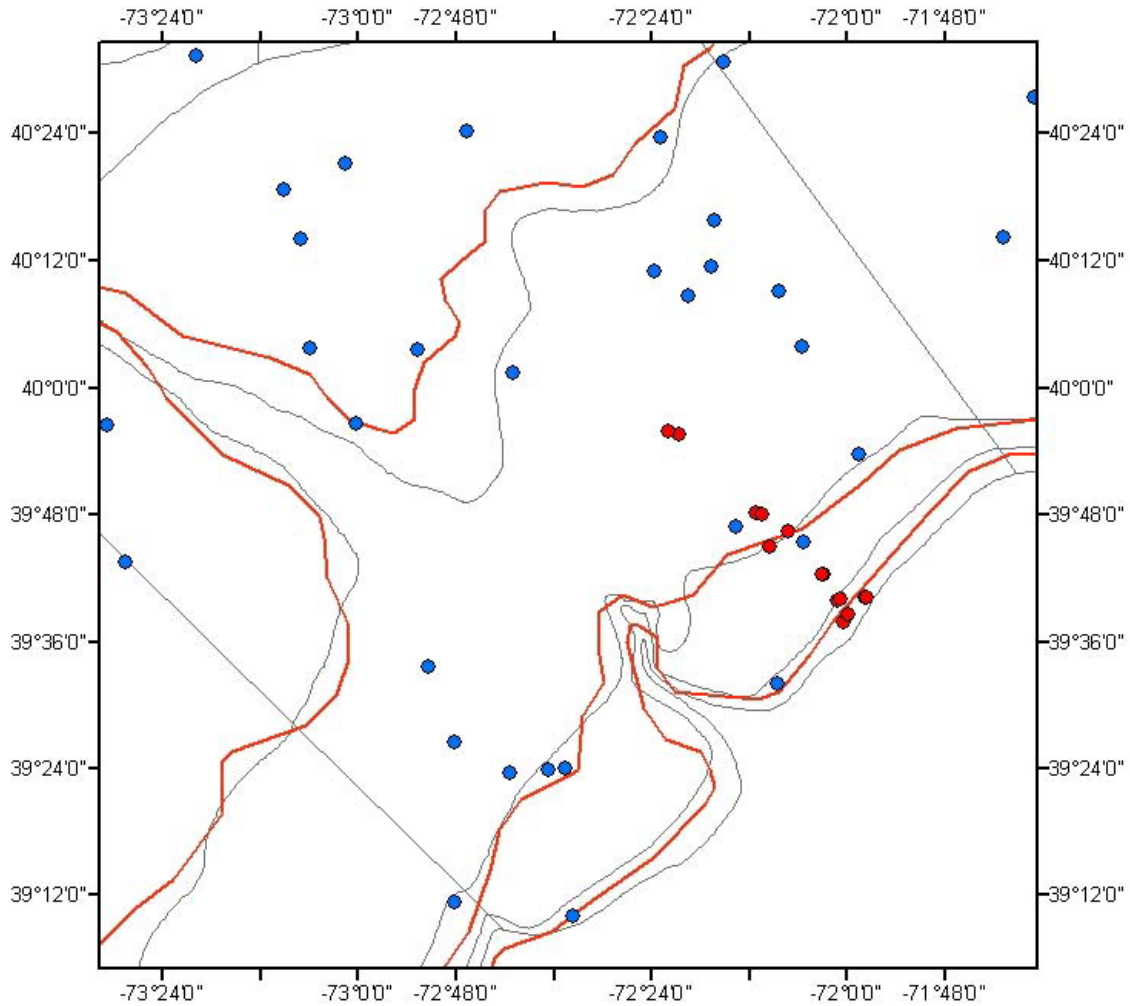
Appendix 5 Figure 8 (cont.)





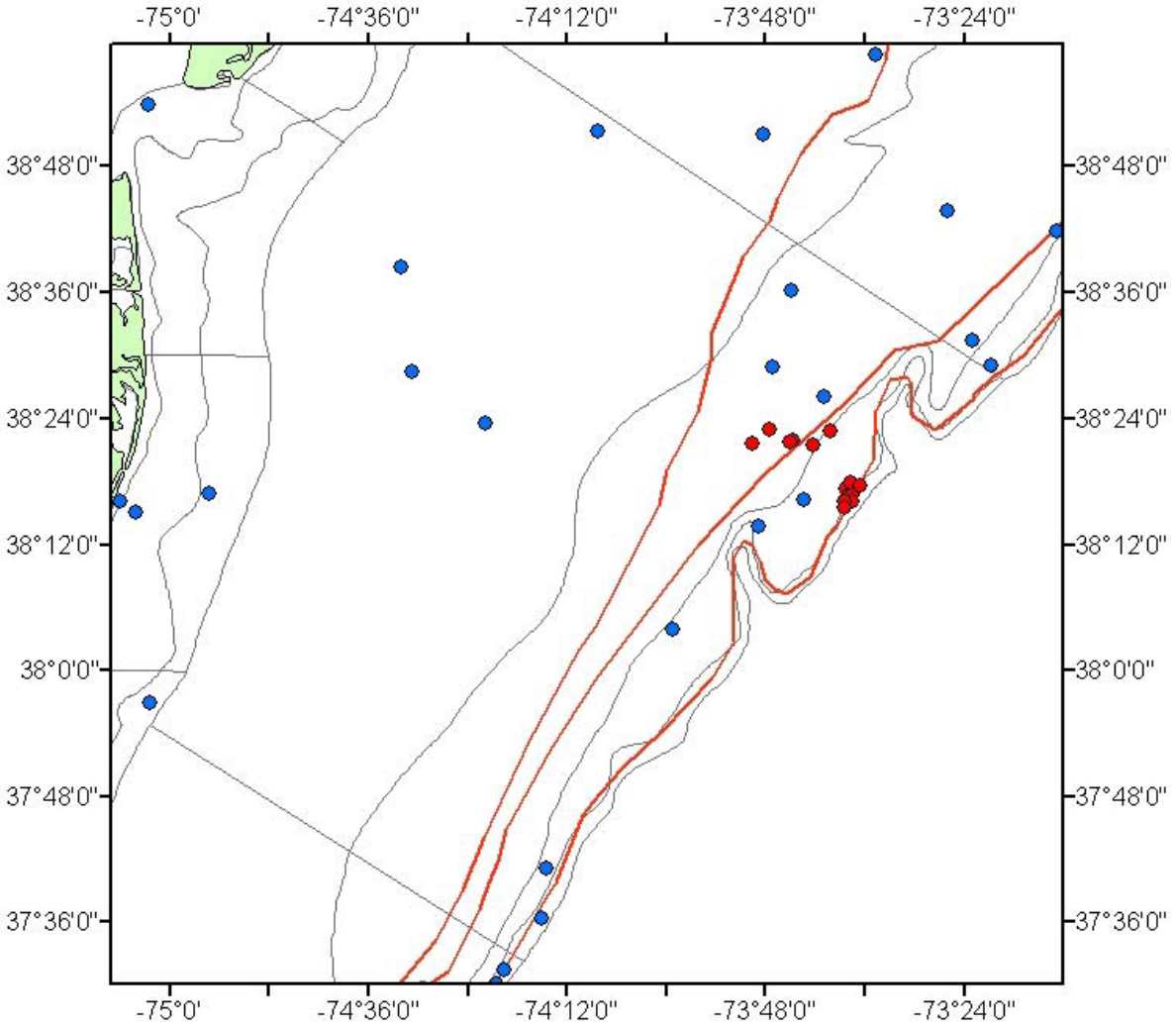
Appendix 5 Figure 8 (cont.)

Figure 9 (APPENDIX A4). Location of random NEFSC spring bottom trawl survey tows (blue dots) and fixed Supplemental (Transect) bottom trawl survey tows (red dots) in the Hudson Canyon area during 2004-2005 that were used to estimate relative fishing power. Red lines show the 50, 100 and 200 m depth contours. Dark lines show NEFSC bottom trawl survey strata.



**Silver Hake in Hudson Canyon
NMFS Spring Trawl Surveys
and Supplemental Survey**

Figure 10 (APPENDIX A4). Location of random NEFSC spring bottom trawl survey tows (blue dots) and fixed Supplemental (Transect) bottom trawl survey tows (red dots) in the Baltimore Canyon area during 2004-2005 that were used to estimate relative fishing power. Red lines show the 50, 100 and 200 m depth contours. Dark lines show NEFSC bottom trawl survey strata.



**Silver Hake in Baltimore Canyon
NMFS Spring Trawl Surveys
and Supplemental Survey**

Figure 11 (APPENDIX A4). Text slides with information about Supplemental survey transects and stations that were requested by reviewers.

Map points

- Stations at 40, 50, 60, 80, 100 and 150 fathoms
 - Fixed locations only (same each year)
- Transects not on edge of canyons where fish may “pile up”
- Only two transects
 - Don’t know how representative

Randomizer’s

- Multispecies survey (like NEFSC)
 - None given higher importance
- Seasonal variation in migration patterns
- Tides
- Migratory patterns not pronounced in March
 - Winter hiatus?
- Away from canyons where fish can mix and don’t pile up

Transects

- Survey meant to answer questions about the timing of fish migrations (time at which fish cross the transect)
 - Away from canyons where fish might pile up
- Same transects for multiple target species at various times of year
- On steep grounds to minimize distance over transect
- Maximize trawable ground
 - Minimize gear damage
 - Same as NEFSC
- Proximity to other transects
 - Reduce steaming time
- Away from the “bend” north of Hudson canyon
- Away from really poor fishing grounds (i.e. not trawable)
- Selected by a panel of different backgrounds

Bottom line

- Not a side-by-side gear experiment
- Only two transects
- Transects on towable ground where catch can be expected
- Not designed (on purpose or inadvertently) to maximize catch of silver hake

Figure 12 (APPENDIX A4). Minimum swept-area biomass (mt) for silver hake and offshore hake in the northern and southern stock areas based on NEFSC fall survey data and the special survey strata set.

