Figure 1. Total reported landings of skates in NAFO subareas 5 and 6.

Figure 2. Estimates of discards hind-cast using three different methods.
Figure 3. Total discards of skates in NAFO subareas 5 and 6. The closed circles represent the new estimates which include all sources. The circles from 1964-1988 are hind-cast using the first three years. The open circles are the SARC44 estimates which did not impute missing information and/or

Figure 4. Estimates of discards comparing hind-cast estimates (first three years) for the entire time series.
Figure 5. Length composition of the kept skate measured by the Observer Program by gear type.
Figure 6. Pooling scheme used to derive length compositions for the landed component of the skate catch
Figure 7. Skate length composition from commercial landings data, 1995-2007.
<table>
<thead>
<tr>
<th>Winter Trawl Wings</th>
<th>Gulf of Maine</th>
<th>Georges Bank/Southern New England</th>
<th>Mid-Atlantic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient data</td>
<td><img src="image1" alt="Graph" /></td>
<td><img src="image2" alt="Graph" /></td>
<td>Insufficient data</td>
</tr>
<tr>
<td>Winter Trawl Whole</td>
<td><img src="image3" alt="Graph" /></td>
<td><img src="image4" alt="Graph" /></td>
<td><img src="image5" alt="Graph" /></td>
</tr>
<tr>
<td>Winter Gillnet</td>
<td><img src="image6" alt="Graph" /></td>
<td><img src="image7" alt="Graph" /></td>
<td><img src="image8" alt="Graph" /></td>
</tr>
</tbody>
</table>

Figure 8. Selectivity of observed winter skate landings by region, gear, and product type, 2004-2007, estimated with the SELECT model (Millar 1992).
<table>
<thead>
<tr>
<th>Little Trawl Wings</th>
<th>Gulf of Maine</th>
<th>Georges Bank/Southern New England</th>
<th>Mid-Atlantic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little Trawl Whole</td>
<td>Insufficient data</td>
<td>Insufficient data</td>
<td>Insufficient data</td>
</tr>
<tr>
<td>Little Gillnet</td>
<td>Insufficient data</td>
<td>Insufficient data</td>
<td>Insufficient data</td>
</tr>
</tbody>
</table>

Figure 9. Selectivity of observed little skate landings by region, gear, and product type, 2004-2007, estimated with the SELECT model (Millar 1992).
<table>
<thead>
<tr>
<th>Clearnose, Little, Rosette, &amp; Winter Trawl Wings</th>
<th>Gulf of Maine</th>
<th>Georges Bank/Southern New England</th>
<th>Mid-Atlantic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient data</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clearnose, Little, Rosette, &amp; Winter Trawl Whole</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clearnose, Little, Rosette, &amp; Winter Gillnet</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 10. Selectivity of observed aggregate skate landings by region, gear, and product type, 2004-2007, estimated with the SELECT model (Millar 1992). Survey size frequency is for clearnose, little, rosette, and winter skates.
Clearnose, Little, Rosette, & Winter Trawl Wings

Skate Complex; Figures
Figure 11. Selectivity of observed aggregate skate landings by gear and product type, 2004-2007, estimated with the SELECT model (Millar 1992). Survey size frequency is for clearnose, little, rosette, and winter skates.
Figure 12. Comparison of landings for winter and little skate using two different methods.
Figure 13. Comparison of landings for barndoor and thorny skate using two different methods.
Figure 14. Comparison of landings for smooth, clearnose, and rosette skate using two different methods.
Figure 15. Pooling scheme used to derive the length composition of the discarded component of the skate catch.
Figure 16. Skate length composition from commercial discard data, 1995-2007.
Figure 17. Species composition of skates from the spring survey. The top panel is all skates, the middle panel shows the composition of large species (>100 cm maximum length) while the bottom panel shows the composition of the small species (maximum length < 100cm).
Figure 18. Landings and survey indices of skates from the Gulf of Maine (top panel) and Georges Bank (bottom panel).
Figure 19. Landings and survey indices of skates from Southern New England (top panel) and the Mid-Atlantic (bottom panel).
Figure 20. Abundance and biomass of winter skate from the NESFC spring (circles) and autumn (squares) bottom trawl surveys from 1967-2008 in the Gulf of Maine to Mid-Atlantic offshore region.
Figure 21. Abundance and biomass of winter skate from the NESFC scallop dredge surveys from 1985-2008. The circles represent the original stratified mean, the squares represent the mean combining strata for bootstrapping, and the triangles represent the bootstrapped mean.
Figure 22. Abundance and biomass of winter skate from the Massachusetts spring and autumn finfish bottom trawl survey in state waters (strata 11-36).
Figure 23. Abundance and biomass of winter skate from the CTDEP spring and autumn finfish bottom trawl survey in Connecticut state waters, 1984-2008.
Figure 24. Abundance and biomass of little skate from the NESFC spring (circles) and autumn (squares) bottom trawl surveys from 1975-2008 in the Gulf of Maine to Mid-Atlantic offshore and inshore regions.
Figure 25. Abundance and biomass of little skate from the NESFC scallop dredge surveys from 1985-2008. The circles represent the original stratified mean, the squares represent the mean combining strata for bootstrapping, and the triangles represent the bootstrapped mean.
Little Skate - Massachusetts Trawl Survey

![Graph showing abundance and biomass of little skate from the Massachusetts spring and autumn finfish bottom trawl survey in state waters (Strata 11-36).](Image)

Figure 26. Abundance and biomass of little skate from the Massachusetts spring and autumn finfish bottom trawl survey in state waters (Strata 11-36).
Little Skate - CTDEP Finfish Survey

Figure 27. Abundance and biomass of little skate from the CTDEP spring and autumn finfish bottom trawl survey in Connecticut state waters, 1984-2008.
Figure 28. Abundance and biomass of barndoor skate from the NESFC spring (circles) and autumn (squares) bottom trawl surveys from 1963-2008 in the Gulf of Maine-Southern New England offshore region.
Figure 29. Abundance and biomass of barndoor skate from the NESFC scallop dredge surveys from 1992-2008. The circles represent the original stratified mean, the squares represent the mean combining strata for bootstrapping, and the triangles represent the bootstrapped mean.
Figure 30. Abundance and biomass of thorny skate from the NESFC spring (circles) and autumn (squares) bottom trawl surveys from 1963-2008 in the Gulf of Maine to Southern New England offshore region.
Figure 31. Abundance and biomass of thorny skate from the NESFC scallop dredge surveys from 1985-2008. The circles represent the original stratified mean, the squares represent the mean combining strata for bootstrapping, and the triangles represent the bootstrapped mean.
Thorny Skate - Massachusetts Trawl Survey

**Abundance**

![Graph showing abundance trends over years]

**Biomass**

![Graph showing biomass trends over years]

Figure 32. Abundance and biomass of thorny skate from the Massachusetts spring and autumn finfish bottom trawl survey in state waters (Strata 25-36).
Figure 33. Abundance and biomass of smooth skate from the NESFC spring (circles) and autumn (squares) bottom trawl surveys from 1963-2008 in the Gulf of Maine to Southern New England offshore region.
Figure 34. Abundance and biomass of smooth skate from the NESFC scallop dredge surveys from 1985-2008. The circles represent the original stratified mean, the squares represent the mean combining strata for bootstrapping, and the triangles represent the bootstrapped mean.
Figure 35. Abundance and biomass of clearnose skate from the NESFC spring (circles) and autumn (squares) bottom trawl surveys from 1975-2008 in the Mid-Atlantic offshore and inshore regions.
Figure 36. Abundance and biomass of clearnose skate from the CTDEP spring and autumn finfish bottom trawl survey in Connecticut state waters 1984-2008.
Figure 37. Abundance and biomass of rosette skate from the NESFC spring (circles) and autumn (squares) bottom trawl surveys from 1967-2008 in the Mid-Atlantic offshore region.
Figure 38. NEFSC survey spawning stock biomass indices (kg/tow).
Figure 39. NEFSC survey biomass indices (kg/tow). Thin lines with symbols are annual indices, thick lines are 3-year moving averages, and the thin horizontal line are the biomass target and threshold.