In the period 1966 through 1974 the catch of river herring (*Alosa pseudoharengus* and *A. aestivalis*) in SA6 increased to a high of 35,302.1 metric tons (77.8 million pounds) in 1969 and then declined. The decline appears to reflect a decline in stock-size probably stemming from excessive harvest. In the first 3 years of this period the total catch averaged 23,087.9 metric tons (50.9 million pounds) annually, of which 2% was taken on the high seas. Average catch in 1972-74 (the last 3 years of record) was 13,471.7 metric tons (29.7 million pounds), 26% of which was taken on the high seas (Table 1). Increase in the high seas catch has been accompanied by a 40% decrease in the inshore catch. Average catch in the inshore fishery in the period 1966-1968 was 22,362.1 metric tons (49.3 million pounds) but averaged only 9,026.5 metric tons (19.9 million pounds) in the period 1972-1974 (Table 1).

Not only has the total catch declined, but also the catch per unit of effort has declined in both Virginia (Table 2) and North Carolina (Table 3). These two states account for most of the inshore catch (Table 1).
Average age of the inshore catch has declined in recent years in both North Carolina (Table 4) and Virginia (Table 5). In earlier years three year classes usually were well represented in the fishery. During 1974 and 1975, the fishery moved strongly toward dependence on a single year class.

In North Carolina during 1972-74, about half the catch was composed of virgin fish, mostly age IV. Another 25 percent of the harvest consisted of fish with one spawn mark, mostly age V. Approximately 15 percent of the catch consisted of age V and age VI fish with two spawn marks. Thus the fishery was composed principally of fishes age IV through VI with up to two spawn marks. Repeat spawners were well-represented in the population, but in decreasing proportions. In 1975, however, virgins comprised over 70 percent of the spawning population and only 6 percent of the fish examined had more than one spawn mark (Figure 1).

The inshore catch consists of mature fish averaging greater than 190 mm FL. We have no data on the size of fish in the offshore catches by other countries. However analysis of more than 11,000 blueback herring taken in offshore samples by North Carolina in 1974-75 revealed that 65% were less than 190 mm FL. Thus immature fish are available to the offshore fishery whereas they are not available to the inshore fishery.
Table 1. Catch of river herring (alewife and blueback) in the inshore fishery and in ICNAF area 6 by various countries. Catch is in thousands of pounds, round weight.

<table>
<thead>
<tr>
<th></th>
<th>INSHORE</th>
<th>OFFSHORE</th>
<th>Total All Countries</th>
<th>Offshore catch as Percent of Total Catch</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Virginia East</td>
<td>U.S.S.R. East</td>
<td>Offshore Countries</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total U.S.A.</td>
<td>Bulgaria Poland</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1966</td>
<td>29,061</td>
<td>2,163</td>
<td>46,689</td>
<td>46,689</td>
</tr>
<tr>
<td></td>
<td>12,522</td>
<td>2,163</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1967</td>
<td>28,166</td>
<td>2,163</td>
<td>51,107</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>18,489</td>
<td>2,163</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1968</td>
<td>32,326</td>
<td>2,163</td>
<td>54,785</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>23,326</td>
<td>2,163</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1969</td>
<td>30,454</td>
<td>24,141</td>
<td>77,827</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>20,765</td>
<td>24,141</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>15,051</td>
<td>24,141</td>
<td>47,593</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>11,523</td>
<td>24,141</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td>10,287</td>
<td>24,141</td>
<td>46,777</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>12,665</td>
<td>24,141</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1972</td>
<td>11,175</td>
<td>12,773</td>
<td>34,350</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>11,197</td>
<td>12,773</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1973</td>
<td>8,942</td>
<td>2,284</td>
<td>22,251</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>7,901</td>
<td>2,284</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1974</td>
<td>13,342</td>
<td>1,643</td>
<td>32,450</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>6,210</td>
<td>1,643</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1975</td>
<td>11,357</td>
<td>1,643</td>
<td>32,450</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>5,952</td>
<td>1,643</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1966-1968</td>
<td>29,851</td>
<td>1,270</td>
<td>50,860</td>
<td>2</td>
</tr>
<tr>
<td>Average</td>
<td>15,513</td>
<td>1,270</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1972-1974</td>
<td>11,153</td>
<td>7,611</td>
<td>29,684</td>
<td>26</td>
</tr>
<tr>
<td>Average</td>
<td>8,436</td>
<td>7,611</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Catch is in thousands of pounds, round weight.
Table 2. Estimates of the landings of river herring in the Potomac and Rappahannock rivers combined, by spawning check history. Units are thousands of fish and c/f is catch/net/season, by spawning class.

<table>
<thead>
<tr>
<th>Year, Total Number, c/f</th>
<th>Yearly c/f</th>
<th>No. of Pound Nets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1965</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CPE</td>
<td>122.5</td>
<td>29.2</td>
</tr>
<tr>
<td>1966</td>
<td>7,915</td>
<td>2,018</td>
</tr>
<tr>
<td>CPE</td>
<td>85.1</td>
<td>56.9</td>
</tr>
<tr>
<td>1967</td>
<td>3,964</td>
<td>2,574</td>
</tr>
<tr>
<td>CPE</td>
<td>122.9</td>
<td>31.2</td>
</tr>
<tr>
<td>1968</td>
<td>3,927</td>
<td>2,759</td>
</tr>
<tr>
<td>CPE</td>
<td>92.0</td>
<td>29.5</td>
</tr>
<tr>
<td>1969</td>
<td>2,243</td>
<td>886</td>
</tr>
<tr>
<td>CPE</td>
<td>61.6</td>
<td>18.9</td>
</tr>
<tr>
<td>1970</td>
<td>1,593</td>
<td>613</td>
</tr>
<tr>
<td>CPE</td>
<td>109.8</td>
<td>28.4</td>
</tr>
<tr>
<td>1971</td>
<td>1,470</td>
<td>506</td>
</tr>
<tr>
<td>CPE</td>
<td>30.3</td>
<td>14.8</td>
</tr>
<tr>
<td>1972</td>
<td>472</td>
<td>502</td>
</tr>
<tr>
<td>CPE</td>
<td>36.6</td>
<td>4.5</td>
</tr>
<tr>
<td>1973</td>
<td>817</td>
<td>444</td>
</tr>
<tr>
<td>CPE</td>
<td>27.6</td>
<td>8.4</td>
</tr>
</tbody>
</table>

1 Catch per net per season, all ages combined.
2 In the last half of April, only nets above mile 10 used.

TABLE 3 --River herring catch-and-effort, Albemarle Sound, North Carolina 1971-75. Data are in pounds (lb) and metric tons (MT).

<table>
<thead>
<tr>
<th>Season</th>
<th>Total catch (lb)</th>
<th>Total catch (MT)</th>
<th>Pound net catch (lb)</th>
<th>Pound net catch (MT)</th>
<th>Percent of total</th>
<th>Pound net effort (lb)</th>
<th>Catch/effort (lb)</th>
<th>Other gear (lb)</th>
<th>Other gear (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>12,711,200</td>
<td>5,745</td>
<td>12,005,975</td>
<td>5,446</td>
<td>95</td>
<td>645</td>
<td>18,614</td>
<td>8.44</td>
<td>705,225</td>
</tr>
<tr>
<td>1972</td>
<td>11,237,033</td>
<td>5,766</td>
<td>11,090,023</td>
<td>4,999</td>
<td>98</td>
<td>727</td>
<td>15,158</td>
<td>6.88</td>
<td>217,010</td>
</tr>
<tr>
<td>1973</td>
<td>7,931,600</td>
<td>5,079</td>
<td>7,613,900</td>
<td>3,454</td>
<td>96</td>
<td>625</td>
<td>12,182</td>
<td>5.53</td>
<td>317,700</td>
</tr>
<tr>
<td>1974</td>
<td>6,277,671</td>
<td>2,817</td>
<td>5,876,357</td>
<td>2,665</td>
<td>95</td>
<td>653</td>
<td>8,985</td>
<td>4.08</td>
<td>401,314</td>
</tr>
<tr>
<td>1975</td>
<td>5,903,957</td>
<td>2,678</td>
<td>5,427,072</td>
<td>2,462</td>
<td>92</td>
<td>675</td>
<td>8,040</td>
<td>3.65</td>
<td>476,885</td>
</tr>
</tbody>
</table>
TABLE 4. - Year class composition (percent of total sample, sexes combined) for blueback herring from pound nets, Albemarle Sound area, NC, 1972-75. Figures in parentheses represent age.

<table>
<thead>
<tr>
<th>Year class</th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>1975</th>
</tr>
</thead>
<tbody>
<tr>
<td>1963</td>
<td>1 (9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1964</td>
<td>1 (8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1965</td>
<td>3 (7)</td>
<td>1 (8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1966</td>
<td>15 (6)</td>
<td>5 (7)</td>
<td>1 (9)</td>
<td></td>
</tr>
<tr>
<td>1967</td>
<td>34 (5)</td>
<td>19 (6)</td>
<td>4 (7)</td>
<td>1 (8)</td>
</tr>
<tr>
<td>1968</td>
<td>32 (4)</td>
<td>40 (5)</td>
<td>18 (6)</td>
<td>5 (7)</td>
</tr>
<tr>
<td>1969</td>
<td>15 (3)</td>
<td>32 (4)</td>
<td>32 (5)</td>
<td>17 (6)</td>
</tr>
<tr>
<td>1970</td>
<td>4 (3)</td>
<td>45 (4)</td>
<td>29 (5)</td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td>1 (3)</td>
<td>43 (4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1972</td>
<td></td>
<td>4 (3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5. Summary of age frequency data for alewife and blueback herring from the Potomac and Rappahannock commercial fishery.

<table>
<thead>
<tr>
<th>Percent at age, seasonal average</th>
<th>Percent age V and older</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alewife-Potomac</td>
<td></td>
</tr>
<tr>
<td>1966</td>
<td>18.6 42.2 17.6 19.6 2.0</td>
</tr>
<tr>
<td>1967</td>
<td>9.3 25.2 30.0 21.5 7.5</td>
</tr>
<tr>
<td>1968</td>
<td>2.2 41.3 31.5 26.1 1.0</td>
</tr>
<tr>
<td>1969</td>
<td>26.6 48.8 11.1 13.3</td>
</tr>
<tr>
<td>1970</td>
<td>7.3 66.0 16.7 4.2 2.1</td>
</tr>
<tr>
<td>1971</td>
<td>2.6 32.4 53.0 10.0 2.0</td>
</tr>
<tr>
<td>1972</td>
<td>12.4 30.2 22.1 24.2 6.8</td>
</tr>
<tr>
<td>1973</td>
<td>2.4 59.4 22.7 8.2 5.3</td>
</tr>
<tr>
<td>1974</td>
<td>-- 86.5 9.0 2.7 1.8</td>
</tr>
<tr>
<td>1975</td>
<td>2.7 80.7 15.1 0.6 0.9</td>
</tr>
<tr>
<td>Average</td>
<td>9.3 51.4 22.9 13.0 3.3</td>
</tr>
<tr>
<td>Alewife-Rappahannock</td>
<td></td>
</tr>
<tr>
<td>1966</td>
<td>25.2 36.1 17.4 15.6 4.3</td>
</tr>
<tr>
<td>1967</td>
<td>14.8 52.0 19.4 6.6 6.1</td>
</tr>
<tr>
<td>1968</td>
<td>8.8 33.2 39.3 12.8 5.2</td>
</tr>
<tr>
<td>1969</td>
<td>10.2 41.6 23.5 18.4 4.0</td>
</tr>
<tr>
<td>1970</td>
<td>4.8 40.5 31.2 13.2 8.5</td>
</tr>
<tr>
<td>1971</td>
<td>2.6 29.5 49.3 15.5 2.4</td>
</tr>
<tr>
<td>1972</td>
<td>4.4 27.3 30.3 25.6 9.0</td>
</tr>
<tr>
<td>1973</td>
<td>0.6 53.8 26.4 12.6 5.2</td>
</tr>
<tr>
<td>1974</td>
<td>0.2 60.9 27.1 8.6 0.5</td>
</tr>
<tr>
<td>1975</td>
<td>1.7 82.6 13.4 1.6 0.6</td>
</tr>
<tr>
<td>Average</td>
<td>7.3 45.8 27.7 13.0 4.6</td>
</tr>
<tr>
<td>Average of both rivers</td>
<td>9.6 47.8 25.0 12.7 4.0</td>
</tr>
</tbody>
</table>
Table 5. (continued).

<table>
<thead>
<tr>
<th></th>
<th>Table 5.</th>
<th>(continued).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent at age, seasonal average</td>
<td>Percent age</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>IV</td>
</tr>
<tr>
<td>Blueback-Potomac</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1966</td>
<td>4.0</td>
<td>34.6</td>
</tr>
<tr>
<td>1967</td>
<td>1.6</td>
<td>45.1</td>
</tr>
<tr>
<td>1968</td>
<td>1.0</td>
<td>29.1</td>
</tr>
<tr>
<td>1969</td>
<td>8.6</td>
<td>50.5</td>
</tr>
<tr>
<td>1970</td>
<td>1.2</td>
<td>66.0</td>
</tr>
<tr>
<td>1971</td>
<td>0.6</td>
<td>43.4</td>
</tr>
<tr>
<td>1972</td>
<td>0.3</td>
<td>40.0</td>
</tr>
<tr>
<td>1973</td>
<td>1.5</td>
<td>38.9</td>
</tr>
<tr>
<td>1974</td>
<td>0.2</td>
<td>60.9</td>
</tr>
<tr>
<td>1975</td>
<td>8.4</td>
<td>12.4</td>
</tr>
<tr>
<td>Average</td>
<td>2.2</td>
<td>52.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Blueback-Rappahannock</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1966</td>
<td>11.8</td>
<td>28.2</td>
<td>36.5</td>
<td>17.6</td>
<td>3.5</td>
<td>2.4</td>
<td>--</td>
<td>60.0</td>
</tr>
<tr>
<td>1967</td>
<td>4.0</td>
<td>29.1</td>
<td>38.0</td>
<td>19.4</td>
<td>7.7</td>
<td>1.6</td>
<td>--</td>
<td>66.7</td>
</tr>
<tr>
<td>1968</td>
<td>5.8</td>
<td>49.4</td>
<td>26.2</td>
<td>10.0</td>
<td>6.9</td>
<td>1.2</td>
<td>0.4</td>
<td>44.7</td>
</tr>
<tr>
<td>1969</td>
<td>6.7</td>
<td>52.5</td>
<td>25.4</td>
<td>9.2</td>
<td>3.5</td>
<td>2.5</td>
<td>0.4</td>
<td>41.0</td>
</tr>
<tr>
<td>1970</td>
<td>2.1</td>
<td>54.5</td>
<td>32.0</td>
<td>8.3</td>
<td>1.7</td>
<td>1.4</td>
<td>--</td>
<td>43.4</td>
</tr>
<tr>
<td>1971</td>
<td>0.5</td>
<td>35.7</td>
<td>53.0</td>
<td>3.0</td>
<td>1.6</td>
<td>0.1</td>
<td>0.1</td>
<td>63.8</td>
</tr>
<tr>
<td>1972</td>
<td>0.3</td>
<td>48.9</td>
<td>30.9</td>
<td>15.4</td>
<td>3.7</td>
<td>0.6</td>
<td>--</td>
<td>50.6</td>
</tr>
<tr>
<td>1973</td>
<td>0.2</td>
<td>43.1</td>
<td>34.9</td>
<td>15.7</td>
<td>4.6</td>
<td>1.3</td>
<td>--</td>
<td>56.5</td>
</tr>
<tr>
<td>1974</td>
<td>0.6</td>
<td>85.4</td>
<td>11.6</td>
<td>2.0</td>
<td>0.2</td>
<td>--</td>
<td>--</td>
<td>13.8</td>
</tr>
<tr>
<td>Average</td>
<td>3.6</td>
<td>45.7</td>
<td>33.1</td>
<td>12.6</td>
<td>4.0</td>
<td>1.4</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>Average of both rivers</td>
<td>2.9</td>
<td>49.2</td>
<td>32.5</td>
<td>13.9</td>
<td>4.0</td>
<td>1.4</td>
<td>0.3</td>
<td></td>
</tr>
</tbody>
</table>

Alewife, both rivers,
average for 1966-68 13.1 38.5 25.9 17.0 4.4 1.2 0.3 48.8
average for 1973-75 1.3 70.7 18.9 5.7 2.4 0.9 0.1 28.0

Blueback, both rivers,
average for 1966-68 4.7 35.9 33.1 18.2 6.4 1.6 0.1 59.4
average for 1973-75 0.6 60.7 25.2 9.9 2.4 1.1 -- 38.6
Figure 1. - Percent frequency of virgins and repeat spawners in commercial landings of blueback herring, 1972-75. Data for each year combined for all sample locations, Albemarle Sound, North Carolina.