ESTIMATED CATCHES OF FLOUNDERS BY SPECIES
IN THE BERING SEA - UPDATED THROUGH 1976

by
K. Wakabayashi and R. Bakkala

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INTERNATIONAL NORTH PACIFIC FISHERIES COMMISSION
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Northwest and Alaska Fisheries Center
National Marine Fisheries Service
2725 Montlake Boulevard East
Seattle, Washington 9812

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During the 1976 annual meeting of INPFC, the Bering Sea Subcommittee recommended that United States and Japanese scientists resolve differences in catch statistics for yellowfin sole (Limanda aspera) presented in their documents of that year. These agreed upon catch statistics for yellowfin sole were presented in INPFC Document 1964. Because it was also necessary to examine catch statistics for other flounders in the course of preparing catches of yellowfin sole, statistics for these other flounders were also reported in Document 1964. Species other than yellowfin sole included where rock sole (Lepidopsetta bilineata), flathead sole (Hippoglossoides elassodon, H-robustus) Alaska plaice (Pleuronectes quadrituberculatus), arrowtooth flounder (Atheresthes stomias, A. evermanni), and Greenland turbot (Reinhardtius Hippoglossoides).

Two recommendations regarding the flounder statistics were made in Document 1964:

1. that data presented in the document be used in the future by INPFC as the best estimates of catch statistics for these species, and

2. that these statistics be updated on an annual basis until catches are reported in enough detail to eliminate the need for such estimating procedures.

The current document satisfies this second recommendation by updating the catch statistics through 1976.

* Far Seas Fisheries Research Laboratory, JFA, Shimizu, Japan.

** Northwest and Alaska Fisheries Center, NMFS, Seattle, Washington, U.S.
Procedures for estimating catches of flounders for 1976 and the sources of information are the same as those outlined in Document 1964. INPFC areas mentioned in the tables are defined in Figure 1.

Original reported data for the small flounders (yellowfin sole, rock sole, flathead sole, and Alaska plaice) are given in Tables 1-3 and summaries of estimated catches by year and area in Tables 4-6. Original reported data for the large flounders (arrowtooth flounder and Greenland turbot) are given in Tables 7-8 and summaries of the statistics in Tables 9-10.
LITERATURE CITED

Fadeev, N. S.

Food and Agriculture Organization.

Hokkaido Fisheries Regulation Office and others.

Takahashi, Y.
Table 1.—Catches of small flounders by the Japanese mothership, North Pacific longline-gillnet, and North Pacific trawl fisheries in INPFC areas 1 and 2 and proportions from these catches used to prorate Soviet flounder catches by area and species.

<table>
<thead>
<tr>
<th>Year</th>
<th>INPFC Area 1</th>
<th>Yellowfin sole</th>
<th>Rock sole</th>
<th>Flatehead sole</th>
<th>Alaska sole</th>
<th>Total</th>
<th>Yellowfin sole</th>
<th>Rock sole</th>
<th>Flatehead sole</th>
<th>Alaska sole</th>
<th>Total</th>
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<tr>
<td>1970</td>
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<td>10,769</td>
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<td>66</td>
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<tr>
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<td>11,490</td>
<td>12,433</td>
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<td>2,378</td>
<td>2,402</td>
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<table>
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<tr>
<th>Year</th>
<th>INPFC Area 1</th>
<th>Yellowfin sole</th>
<th>Rock sole</th>
<th>Flatehead sole</th>
<th>Alaska sole</th>
<th>Total</th>
<th>Yellowfin sole</th>
<th>Rock sole</th>
<th>Flatehead sole</th>
<th>Alaska sole</th>
<th>Total</th>
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<td>0.960</td>
<td>0.024</td>
<td>0.009</td>
<td>0.007</td>
<td>0.026</td>
<td></td>
<td>0.088</td>
<td>0.876</td>
<td>0.011</td>
<td>0.729</td>
<td>0.271</td>
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<tr>
<td>1964</td>
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<td>0.021</td>
<td>0.122</td>
<td>0.013</td>
<td>0.468</td>
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<td>0.030</td>
<td>0.491</td>
<td>0.012</td>
<td>0.846</td>
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<tr>
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<td>0.057</td>
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<td>0.533</td>
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<td>0.463</td>
<td>0.000</td>
<td>0.888</td>
<td>0.112</td>
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<tr>
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<td>0.074</td>
<td>0.055</td>
<td>0.038</td>
<td>0.344</td>
<td></td>
<td>0.025</td>
<td>0.628</td>
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<td>0.132</td>
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<td>0.633</td>
<td>0.367</td>
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<td></td>
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<td>0.365</td>
<td>0.008</td>
<td>0.821</td>
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<td>0.166</td>
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<td>0.155</td>
<td></td>
<td>0.333</td>
<td>0.509</td>
<td>0.001</td>
<td>0.822</td>
<td>0.178</td>
</tr>
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<td>1974</td>
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<td>0.207</td>
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<td>0.439</td>
<td>0.355</td>
<td>0.000</td>
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<td>0.039</td>
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<td></td>
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<td>0.000</td>
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<td>0.079</td>
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<td>0.002</td>
<td>0.812</td>
<td>0.188</td>
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</table>

1/ Proportions in columns 10 and 11 were used to prorate Soviet flounder catches by area in 1963-66. Prorated Soviet catches as given in INPFC Documents 1515, 1607, 1664, 1752, and 1869 and data on file at the Northwest and Alaska Fisheries Center, Seattle, were used in later years.
2/ Includes some other flounders.
3/ Figures to six decimal places were used to prorate USSR catches.
Table 2.—Catches of small flounders by the Japanese land-based dragnet fishery in INPFC area 2. This fishery is not permitted to operate in INPFC area 1.

<table>
<thead>
<tr>
<th>Year</th>
<th>Yellowfin sole</th>
<th>Rock sole&lt;sup&gt;1/&lt;/sup&gt;</th>
<th>Flathead sole</th>
<th>Alaska plaice&lt;sup&gt;2/&lt;/sup&gt;</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>1961</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>1963</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1964</td>
<td>0</td>
<td>15</td>
<td>6</td>
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</tr>
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<td>1965</td>
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<td>74</td>
<td>0</td>
<td>74</td>
</tr>
<tr>
<td>1966</td>
<td>71</td>
<td>—</td>
<td>197</td>
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<tr>
<td>1967</td>
<td>74</td>
<td>32</td>
<td>282</td>
<td>—</td>
<td>388</td>
</tr>
<tr>
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<td>82</td>
<td>63</td>
<td>696</td>
<td>—</td>
<td>841</td>
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<td>20</td>
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<td>682</td>
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<td>591</td>
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<td>1973</td>
<td>224</td>
<td>115</td>
<td>415</td>
<td>—</td>
<td>754</td>
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<td>1974</td>
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<td>189</td>
<td>—</td>
<td>256</td>
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<td>213</td>
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<tr>
<td>1976</td>
<td>6</td>
<td>39</td>
<td>188</td>
<td>—</td>
<td>233</td>
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</table>

<sup>1/</sup> Catch of rock sole in 1966 is unknown.

<sup>2/</sup> Catches of Alaska plaice since 1966, if any, are unknown.
Table 3.—USSR catches of small flounders for the eastern Bering Sea as reported by various sources.

<table>
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<th></th>
<th></th>
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<td>INPFC Area 1</td>
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<td></td>
<td>5,000</td>
<td>120,000³</td>
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<tr>
<td>1959</td>
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<td>62,200</td>
<td></td>
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<tr>
<td>1960</td>
<td>96,000</td>
<td></td>
<td>96,000</td>
<td>103,850</td>
</tr>
<tr>
<td>1961</td>
<td>154,200</td>
<td></td>
<td>154,200</td>
<td>106,875</td>
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<tr>
<td>1962</td>
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<td></td>
</tr>
<tr>
<td>1963</td>
<td>92,400</td>
<td></td>
<td>92,400</td>
<td></td>
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<td>1964</td>
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<td>84,600</td>
<td>79,300</td>
<td></td>
</tr>
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<td></td>
</tr>
<tr>
<td>1966</td>
<td>70,600</td>
<td></td>
<td>70,600</td>
<td></td>
</tr>
<tr>
<td>1967</td>
<td>127,800</td>
<td>120,000</td>
<td>120,000</td>
<td>81,314</td>
</tr>
<tr>
<td>1968</td>
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<td>57,092</td>
<td>57,092</td>
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</tr>
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<td>1969</td>
<td>96,100</td>
<td>103,850</td>
<td>103,850</td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>97,800</td>
<td>106,875</td>
<td>106,875</td>
<td>91,575</td>
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<tr>
<td>1971</td>
<td>116,900</td>
<td>124,441</td>
<td>124,441</td>
<td>81,314</td>
</tr>
<tr>
<td>1972</td>
<td>31,400</td>
<td>36,738</td>
<td>36,738</td>
<td>24,058⁴</td>
</tr>
<tr>
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<td>1,200</td>
<td>4,497</td>
<td>4,497</td>
<td>3,016⁵</td>
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<tr>
<td>1974</td>
<td>10,000</td>
<td>9,200</td>
<td>9,200</td>
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<td>8,402</td>
<td>8,402</td>
<td>2,081</td>
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<tr>
<td>1976</td>
<td>5,268</td>
<td>5,133</td>
<td>5,133</td>
<td>1,581</td>
</tr>
</tbody>
</table>

¹ Reported as flatfish. Unknown if arrowtooth flounder and greenland halibut are included.
² Catches for FAO statistical area 67 which covers waters east of 175°W and north of 40°N or 40°30'N.
³ Catch of 120,360 mt as given in INPFC Doc. 1515 was changed to 120,000 mt to agree with original data source.
⁴ Reported as 24,057 mt in Doc. 1664.
⁵ Catches of 3,086 mt for INPFC area 1 and 1,516 mt in area 2 based on allocations by halibut conservation areas in Doc. 1752 were changed to agree with original data sources.
⁶ From INPFC Documents 1515, 1607, 1664, 1752, 1869 and data on file, Northwest and Alaska Fisheries Center, Seattle.
Table 4.--Total estimated catches of four major species of small flounders in the eastern Bering Sea and INPFC areas 1 and 2 in metric tons.

| Year | Japan | USSR | Total | Japan | USSR | Total | Japan | USSR | Total | Japan | USSR | Total | Japan | USSR | Total | Japan | USSR | Total |
|------|-------|------|-------|-------|------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|------|-------|
|      | Yellowfin sole |        |       | Rock sole |        |       | Flathead sole |        |       | Alaska plaque |        | Grand total of 4 species |        |       |
| Area 1 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1963 | 20,299 | 64,653 | 84,952 | 503 | 1,602 | 2,105 | 186 | 592 | 778 | 150 | 478 | 628 | 21,138 | 67,325 | 88,463 |
| 1964 | 44,406 | 56,595 | 101,001 | 1,128 | 1,438 | 2,566 | 6,421 | 8,184 | 14,605 | 696 | 887 | 1,583 | 52,651 | 67,104 | 119,755 |
| 1965 | 24,165 | 25,772 | 49,937 | 1,766 | 1,883 | 3,649 | 1,587 | 1,692 | 3,279 | 474 | 505 | 979 | 27,992 | 29,852 | 57,844 |
| 1966 | 44,326 | 55,642 | 99,968 | 3,961 | 4,972 | 8,933 | 2,927 | 3,674 | 6,601 | 2,047 | 2,570 | 4,617 | 53,261 | 66,858 | 120,119 |
| 1967 | 53,102 | 101,799 | 154,901 | 1,498 | 2,872 | 4,370 | 6,685 | 12,816 | 19,501 | 1,311 | 2,513 | 3,824 | 62,596 | 120,000 | 182,596 |
| 1968 | 37,952 | 43,355 | 81,307 | 2,291 | 2,617 | 4,908 | 8,512 | 9,724 | 18,236 | 1,223 | 1,396 | 2,619 | 49,978 | 57,092 | 107,070 |
| 1969 | 69,915 | 85,685 | 154,600 | 4,043 | 4,555 | 8,998 | 7,666 | 9,398 | 17,064 | 3,113 | 3,815 | 6,928 | 84,737 | 103,850 | 188,587 |
| 1970 | 53,102 | 101,799 | 154,901 | 1,498 | 2,872 | 4,370 | 6,685 | 12,816 | 19,501 | 1,311 | 2,513 | 3,824 | 62,596 | 120,000 | 182,596 |
| 1971 | 37,952 | 43,355 | 81,307 | 2,291 | 2,617 | 4,908 | 8,512 | 9,724 | 18,236 | 1,223 | 1,396 | 2,619 | 49,978 | 57,092 | 107,070 |
| 1972 | 69,915 | 85,685 | 154,600 | 4,043 | 4,555 | 8,998 | 7,666 | 9,398 | 17,064 | 3,113 | 3,815 | 6,928 | 84,737 | 103,850 | 188,587 |
| 1973 | 53,102 | 101,799 | 154,901 | 1,498 | 2,872 | 4,370 | 6,685 | 12,816 | 19,501 | 1,311 | 2,513 | 3,824 | 62,596 | 120,000 | 182,596 |
| 1974 | 37,952 | 43,355 | 81,307 | 2,291 | 2,617 | 4,908 | 8,512 | 9,724 | 18,236 | 1,223 | 1,396 | 2,619 | 49,978 | 57,092 | 107,070 |
| 1975 | 69,915 | 85,685 | 154,600 | 4,043 | 4,555 | 8,998 | 7,666 | 9,398 | 17,064 | 3,113 | 3,815 | 6,928 | 84,737 | 103,850 | 188,587 |
| 1976 | 53,102 | 101,799 | 154,901 | 1,498 | 2,872 | 4,370 | 6,685 | 12,816 | 19,501 | 1,311 | 2,513 | 3,824 | 62,596 | 120,000 | 182,596 |
Table 5.—Total estimated catches of four major species of small flounders in the eastern Bering Sea (INPFC Areas 1 and 2: by nation in metric tons.

<table>
<thead>
<tr>
<th>Year</th>
<th>Yellowfin sole</th>
<th>Rock sole</th>
<th>Flathead sole</th>
<th>Alaska plaice</th>
<th>Grand total of 4 species</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Japan</td>
<td>USSR</td>
<td>Total</td>
<td>Japan</td>
<td>USSR</td>
</tr>
<tr>
<td>1963</td>
<td>20,504</td>
<td>65,306</td>
<td>85,810</td>
<td>1,196</td>
<td>3,806</td>
</tr>
<tr>
<td>1964</td>
<td>48,880</td>
<td>62,297</td>
<td>111,177</td>
<td>1,432</td>
<td>1,806</td>
</tr>
<tr>
<td>1965</td>
<td>26,039</td>
<td>27,771</td>
<td>53,810</td>
<td>1,780</td>
<td>1,898</td>
</tr>
<tr>
<td>1966</td>
<td>45,423</td>
<td>56,930</td>
<td>102,353</td>
<td>4,037</td>
<td>5,067</td>
</tr>
<tr>
<td>1967</td>
<td>60,429</td>
<td>101,799</td>
<td>162,228</td>
<td>1,890</td>
<td>2,872</td>
</tr>
<tr>
<td>1968</td>
<td>40,834</td>
<td>43,355</td>
<td>84,189</td>
<td>2,633</td>
<td>2,617</td>
</tr>
<tr>
<td>1969</td>
<td>81,449</td>
<td>85,685</td>
<td>167,134</td>
<td>4,285</td>
<td>4,955</td>
</tr>
<tr>
<td>1970</td>
<td>59,851</td>
<td>73,228</td>
<td>133,079</td>
<td>9,616</td>
<td>10,507</td>
</tr>
<tr>
<td>1971</td>
<td>82,179</td>
<td>78,220</td>
<td>160,399</td>
<td>20,159</td>
<td>20,260</td>
</tr>
<tr>
<td>1972</td>
<td>34,846</td>
<td>13,010</td>
<td>47,856</td>
<td>43,055</td>
<td>17,769</td>
</tr>
<tr>
<td>1973</td>
<td>31,724</td>
<td>7,824</td>
<td>39,548</td>
<td>22,840</td>
<td>995</td>
</tr>
<tr>
<td>1974</td>
<td>37,947</td>
<td>42,235</td>
<td>79,182</td>
<td>17,311</td>
<td>2,664</td>
</tr>
<tr>
<td>1975</td>
<td>59,715</td>
<td>64,690</td>
<td>124,405</td>
<td>9,682</td>
<td>2,329</td>
</tr>
<tr>
<td>1976</td>
<td>52,668</td>
<td>55,576</td>
<td>108,244</td>
<td>8,612</td>
<td>1,328</td>
</tr>
</tbody>
</table>

1/ Japanese land-based dragnet fishery's catches are not available for Alaska plaice since 1966 and for rock sole in 1966
2/ Includes some other flounders.
<table>
<thead>
<tr>
<th>Year</th>
<th>East of 160° (INPFC area-1-2-3)</th>
<th>West of 160° (INPFC area-3-4)</th>
<th>Aleutians (INPFC area-5)</th>
<th>Total - All areas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yellowfin sole</td>
<td>Rock sole</td>
<td>Flathead sole</td>
<td>Alaska plaice</td>
</tr>
<tr>
<td>1963</td>
<td>85,810</td>
<td>5,002</td>
<td>29,625</td>
<td>975</td>
</tr>
<tr>
<td>1964</td>
<td>122,177</td>
<td>2,238</td>
<td>25,288</td>
<td>1,838</td>
</tr>
<tr>
<td>1965</td>
<td>53,810</td>
<td>3,678</td>
<td>6,713</td>
<td>979</td>
</tr>
<tr>
<td>1968</td>
<td>84,163</td>
<td>5,230</td>
<td>21,575</td>
<td>2,619</td>
</tr>
<tr>
<td>1969</td>
<td>167,131</td>
<td>9,240</td>
<td>18,563</td>
<td>6,942</td>
</tr>
<tr>
<td>1970</td>
<td>123,079</td>
<td>20,123</td>
<td>41,152</td>
<td>3,402</td>
</tr>
<tr>
<td>1971</td>
<td>160,399</td>
<td>40,419</td>
<td>51,024</td>
<td>992</td>
</tr>
<tr>
<td>1972</td>
<td>47,556</td>
<td>60,826</td>
<td>15,690</td>
<td>290</td>
</tr>
<tr>
<td>1973</td>
<td>78,240</td>
<td>23,385</td>
<td>16,124</td>
<td>1,917</td>
</tr>
<tr>
<td>1974</td>
<td>42,223</td>
<td>19,575</td>
<td>14,917</td>
<td>2,388</td>
</tr>
<tr>
<td>1975</td>
<td>64,600</td>
<td>12,011</td>
<td>5,887</td>
<td>2,491</td>
</tr>
<tr>
<td>1976</td>
<td>55,576</td>
<td>9,400</td>
<td>8,133</td>
<td>3,620</td>
</tr>
</tbody>
</table>

1/ USSR catches not available for area west of 160°. Not included are Republic of Korea catches of 2,193 metric tons of flounder from area west of 160° and USSR catches of 1,101, 105, 65, and 376 metric tons of flounder in 1971, 1973, 1975, and 1976 from the Aleutian area. These data not included because it is uncertain whether the catches consisted mainly of large or small flounders.

2/ From Table 5.

3/ Catch of rock sole in 1966 is unknown and catch of Alaska plaice by the land-based dragnet fishery since 1966, if any, are unknown.
<table>
<thead>
<tr>
<th>Year</th>
<th>East of 160°</th>
<th>West of 160°</th>
<th>Allocation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1952</td>
<td>36,243</td>
<td>0</td>
<td>0</td>
<td>36,243</td>
</tr>
<tr>
<td>1953</td>
<td>51,257</td>
<td>0</td>
<td>0</td>
<td>51,257</td>
</tr>
<tr>
<td>1954</td>
<td>55,126</td>
<td>0</td>
<td>0</td>
<td>55,126</td>
</tr>
<tr>
<td>1955</td>
<td>29,143</td>
<td>0</td>
<td>0</td>
<td>29,143</td>
</tr>
<tr>
<td>1956</td>
<td>31,715</td>
<td>0</td>
<td>0</td>
<td>31,715</td>
</tr>
<tr>
<td>1957</td>
<td>7,948</td>
<td>0</td>
<td>0</td>
<td>7,948</td>
</tr>
<tr>
<td>1958</td>
<td>5,053</td>
<td>0</td>
<td>0</td>
<td>5,053</td>
</tr>
<tr>
<td>1959</td>
<td>20,373</td>
<td>0</td>
<td>0</td>
<td>20,373</td>
</tr>
<tr>
<td>1960</td>
<td>14,472</td>
<td>0</td>
<td>0</td>
<td>14,472</td>
</tr>
<tr>
<td>1961</td>
<td>12,106</td>
<td>0</td>
<td>0</td>
<td>12,106</td>
</tr>
<tr>
<td>1962</td>
<td>9,047</td>
<td>0</td>
<td>0</td>
<td>9,047</td>
</tr>
<tr>
<td>1963</td>
<td>6,123</td>
<td>0</td>
<td>0</td>
<td>6,123</td>
</tr>
<tr>
<td>1964</td>
<td>1,001</td>
<td>0</td>
<td>0</td>
<td>1,001</td>
</tr>
<tr>
<td>1965</td>
<td>913</td>
<td>0</td>
<td>0</td>
<td>913</td>
</tr>
<tr>
<td>1966</td>
<td>932</td>
<td>0</td>
<td>0</td>
<td>932</td>
</tr>
<tr>
<td>1967</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>1968</td>
<td>350</td>
<td>0</td>
<td>0</td>
<td>350</td>
</tr>
</tbody>
</table>

1. Catches which consist almost entirely of arrowtooth flounder (A.F.) or Greenland turbot (G.T.) or of the species combined are noted within the table.

2. Catches by N-LO-XPT until 1963 from Takahashi (1972); these catches are assumed to come entirely from east of 180°. Catches since 1964 are from statistics compiled by the North Pacific Fisheries Center from data submitted to INPFC by Japan. LBO catches are from Hokkaido Fisheries Research Office and others (1966-77).

3. Catches of Greenland turbot by the LBD fisheries include both arrowtooth flounder and Greenland turbot up to 1969 and thus the term turbot is used here; these catches were termed arrowtooth flounder in the original Japanese data. Catches by the LBD fishery in this category were included with unidentified flounders after 1970.

4. Catches of Greenland turbot by the LBD fisheries until 1970 were included with unidentified flounders. Catches of Greenland turbot by the N-LO-XPT fisheries were included with turbot or unidentified flounders in all years.

5. Unidentified flounders consist mainly of arrowtooth flounder and Greenland turbot, but also includes small catches of such species as sole, Dover sole, starry flounder, longhead dab, butter sole, and leftcoy flounder. This category also includes Alaska plate catches, if any, by the LBD fisheries since 1964. Catches of unidentified flounders by the N-LO-XPT fisheries up to 1962 are included in Table 1 of Nov. 1964 & in 1964 and in 1965 with Alaska plate. Catches by the LBD fishery in 1965 and 1966 were included with the unidentified fish category.


7. Land-based dragnet fishery.
Table 8.--USSR catches of arrowtooth flounder and Greenland turbot in the eastern Bering Sea and Aleutian region as reported by FAO (1974, 1975, and 1977) and by statistics submitted to the U.S. by the USSR.

<table>
<thead>
<tr>
<th>Year</th>
<th>Arrowtooth Flounder</th>
<th>Greenland Turbot</th>
<th>Arrowtooth Flounder</th>
<th>Greenland Turbot</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FAO</td>
<td>U.S.-U.S.S.R. 2/</td>
<td>E of 180°, Aleutians</td>
<td>E of 180°, Aleutians</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1/</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1965</td>
<td>600</td>
<td>1,200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1966</td>
<td>700</td>
<td>1,500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1967</td>
<td>3,200</td>
<td>6,100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1968</td>
<td>9,100</td>
<td>17,800</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1969</td>
<td>7,800</td>
<td>15,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>10,300</td>
<td>15,800</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td>9,100</td>
<td>13,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1972</td>
<td>6,200</td>
<td>19,800</td>
<td>9,301</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>1973</td>
<td>300</td>
<td>1,000</td>
<td>4,288</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>1974</td>
<td>20,100</td>
<td>11,000</td>
<td>18,650</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1975</td>
<td>21,305</td>
<td>2,230</td>
<td>19,591</td>
<td>143</td>
<td></td>
</tr>
<tr>
<td>1976</td>
<td>17,798</td>
<td>8,077</td>
<td>16,132</td>
<td>112</td>
<td></td>
</tr>
</tbody>
</table>

1/ Catches for FAO statistical area 67; FAO notes that catches are estimates until 1969.
2/ From data submitted to U.S. by the U.S.S.R. through a bilateral agreement. These figures were selected as best estimates of catches. Catches from west of 180° are not available.
Table 9.—All nation catches of turbots (arrowtooth flounder and Greenland turbot combined, including small amounts of unidentified flounders) in the Bering Sea by area and by country.

<table>
<thead>
<tr>
<th>Year</th>
<th>East of 180°</th>
<th>West of 180°3/</th>
<th>Aleutians</th>
<th>Bering Sea total</th>
<th>All nations catch</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>36,843</td>
<td>36,843</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1961</td>
<td>57,348</td>
<td>57,348</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1962</td>
<td>58,226</td>
<td>58,226</td>
<td>84</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1963</td>
<td>31,565</td>
<td>31,565</td>
<td>62</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>1964</td>
<td>33,729</td>
<td>33,729</td>
<td>309</td>
<td>504</td>
<td>504</td>
</tr>
<tr>
<td>1965</td>
<td>7,947</td>
<td>1,800</td>
<td>9,747</td>
<td>30</td>
<td>300</td>
</tr>
<tr>
<td>1966</td>
<td>10,842</td>
<td>2,200</td>
<td>13,042</td>
<td>130</td>
<td>63</td>
</tr>
<tr>
<td>1967</td>
<td>21,230</td>
<td>2,639</td>
<td>23,869</td>
<td>850</td>
<td>394</td>
</tr>
<tr>
<td>1968</td>
<td>19,980</td>
<td>15,252</td>
<td>35,232</td>
<td>2,404</td>
<td>213</td>
</tr>
<tr>
<td>1969</td>
<td>19,231</td>
<td>16,798</td>
<td>36,029</td>
<td>3,797</td>
<td>228</td>
</tr>
<tr>
<td>1970</td>
<td>24,069</td>
<td>8,220</td>
<td>32,289</td>
<td>5,884</td>
<td>559</td>
</tr>
<tr>
<td>1971</td>
<td>41,796</td>
<td>17,460</td>
<td>59,256</td>
<td>7,364</td>
<td>2,331</td>
</tr>
<tr>
<td>1972</td>
<td>53,636</td>
<td>23,998</td>
<td>77,634</td>
<td>19,295</td>
<td>13,930</td>
</tr>
<tr>
<td>1973</td>
<td>48,283</td>
<td>16,214</td>
<td>64,497</td>
<td>12,761</td>
<td>12,009</td>
</tr>
<tr>
<td>1974</td>
<td>61,657</td>
<td>29,470</td>
<td>91,127</td>
<td>11,665</td>
<td>11,944</td>
</tr>
<tr>
<td>1975</td>
<td>53,866</td>
<td>31,785</td>
<td>85,651</td>
<td>18,273</td>
<td>3,611</td>
</tr>
<tr>
<td>1976</td>
<td>53,350</td>
<td>24,999</td>
<td>78,349</td>
<td>11,925</td>
<td>3,325</td>
</tr>
</tbody>
</table>

1/ The unidentified flounders are from Japanese catches. Catches of unidentified flounders by the U.S.S.R. in the Aleutian region in 1971, 1973, and 1975 are excluded (see footnote 2, Table 6).
2/ Compiled from Tables 8 and 9.
3/ Catches by U.S.S.R. are not available.
Table 10.—Total estimated catches of arrowtooth flounder and Greenland turbot in the Bering Sea, including some unidentified flounders, by nation and by area, 1/ 2/ 3/ 4/ 5/ 1970-76.

<table>
<thead>
<tr>
<th>Year</th>
<th>Arrowtooth flounder</th>
<th>Greenland turbot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>East of 180°</td>
<td>West of 180°</td>
</tr>
<tr>
<td>1970</td>
<td>9,354</td>
<td>3,244</td>
</tr>
<tr>
<td>1971</td>
<td>11,603</td>
<td>7,189</td>
</tr>
<tr>
<td>1972</td>
<td>3,823</td>
<td>9,301</td>
</tr>
<tr>
<td>1973</td>
<td>4,929</td>
<td>4,288</td>
</tr>
<tr>
<td>1974</td>
<td>2,823</td>
<td>18,650</td>
</tr>
<tr>
<td>1975</td>
<td>1,241</td>
<td>19,591</td>
</tr>
<tr>
<td>1976</td>
<td>1,694</td>
<td>16,132</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Bering Sea total</th>
<th>All nations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Japan</td>
<td>U.S.S.R.</td>
</tr>
<tr>
<td>1970</td>
<td>14,715</td>
<td>4,976</td>
</tr>
<tr>
<td>1971</td>
<td>30,193</td>
<td>10,271</td>
</tr>
<tr>
<td>1972</td>
<td>49,813</td>
<td>14,697</td>
</tr>
<tr>
<td>1973</td>
<td>43,354</td>
<td>11,926</td>
</tr>
<tr>
<td>1974</td>
<td>58,834</td>
<td>10,820</td>
</tr>
<tr>
<td>1975</td>
<td>52,625</td>
<td>12,194</td>
</tr>
<tr>
<td>1976</td>
<td>51,656</td>
<td>8,867</td>
</tr>
</tbody>
</table>

1/ From Table 7 for Japanese fisheries and Table 8 for U.S.S.R. fisheries. Catches in 1970 and 1971 by U.S.S.R. fishery were assumed to be entirely from east of 180°, and were prorated to species using FAO data in Table 8.
2/ From the columns "M-LG-NPT" under "turbot" for 1970-75, "LBD" under "turbot" for 1970, and "LBD" under "unidentified flounders" for 1971-76.
3/ Catches by U.S.S.R. are not available.
Figure 1.--Location of INPFC statistical areas 1-5 and variation in boundaries of area 4 (broken lines) used by the Japanese land-based dragnet fishery up to 31 August 1967. Catches from east Kamchatka (west of 170° E and south of 55° N until 31 August 1967 and south of 55° N thereafter) were not included in this report.