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Catches of Humpback Whales in the Southern Ocean, 1947-1973

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ABSTRACT

We review catches of humpback whales (*Megaptera novaeangliae*) in the Southern Ocean during the period following World War II, with an emphasis on Areas IV, V and VI (the principal regions of illegal Soviet whaling on this species). Where possible, we summarize legal and illegal Soviet catches by year, Area and factory fleet, and also include information on takes by other nations. Soviet humpback catches between 1947 and 1973 totaled 48702 and break down as follows: 649 (Area I), 1412 (Area II), 921 (Area III), 8779 (Area IV), 22569 (Area V) and 7195 (Area VI), with 7177 catches not assignable to area.

In all, at least 72542 humpback whales were killed by all operations (Soviet plus other nations) after World War 2 in Areas IV (27201), V (38146) and VI (7195). More than a third of these (25474 whales, of which 25192 came from Areas V and VI) were taken in just two seasons, 1959/60 and 1960/61. The impact of these takes, and of those from Area IV in the late 1950's, is evident in the sometimes dramatic declines in catches at shore stations in Australia, New Zealand and Norfolk Island.

When compared to recent estimates of abundance, the large removals from Areas IV and V indicate that the populations in these regions remain well below pre-exploitation levels despite reported strong growth rates off eastern and western Australia. Populations in many areas of Oceania continue to be small, indicating that the catches from Area VI and eastern Area V had long-term impacts on recovery.

INTRODUCTION

The great whales of the Southern Ocean were extensively exploited by modern whaling methods, with the first catches made in the South Georgia region of IWC Management Area II in 1904 (Tønnesson and Johnsen 1982). Exploitation went through several phases. Populations of humpback and blue (*Balaenoptera musculus*) whales around South Georgia crashed around the time of the Great War, and further exploitation occurred in other regions into the 1930's. There was a hiatus in whaling during World War II, but large-scale catches resumed in Antarctic waters after 1945.

As is now well known, between 1947 and 1973 the Soviet Union conducted large-scale illegal whaling throughout much of the North Pacific, Indian and Southern Oceans (Yablokov 1994, Yablokov *et al.* 1998). This campaign involved the killing of animals of all ages and species, irrespective of quotas, regulations and protected status established at the time by the International Whaling Commission (IWC). Much of the true catch data have now been made available through the efforts of former Soviet biologists working aboard the various factory ships involved; these data involve the number of animals taken, and sometimes additional details such as location of catch and biological characteristics of the whales.

In the Southern Hemisphere alone, almost 100,000 whales were secretly killed and not reported to the IWC (Yablokov *et al.* 1998). Of this total, some 46,000 were humpback whales (*Megaptera novaeangliae*). Although the locations (general or specific) of most of these catches have been revealed, many discrepancies and gaps have remained which have complicated efforts to determine the potential impact of these takes on the stocks concerned. Here, we detail illegal Soviet catches of humpback whales in the Antarctic region from the period 1947 to 1973, and attempt to assign these

catches to each of the six management areas (Areas I-VI) defined by the IWC (see Figure 1).

METHODS

Humpback whale catches from 1947 to 1973 were made by four floating factory fleets which operated at various times during the period: *Slava* (1946-1966), *Sovetskaya Ukraina* (1959 to 1973), *Yuri Dolgorukiy* (1960 to 1973), and *Sovetskaya Rossiya* (1961 to 1973). The total catch during the entire period was 48702 humpbacks; only 2710 of these catches were reported to the IWC.

In this review, our first source for these catch data was *Soviet Antarctic Whaling Data (1947-1972)* (Yablokov 1995, referred to here as “the green volume”). This provides details of reported versus true catch data for each of the four floating factory fleets; in many but not all cases these catches are broken down by Area. However, there are two inconsistencies in this record:

- If Area totals for each whaling season and factory ship are summed from the individual tables, they sometimes do not agree with the summary totals given for each factory ship for the entire period of operation. Sometimes this is because catches which were not assigned to Area are omitted from the summary table’s totals; sometimes it appears to be a simple arithmetical error.
- Some data shown in catch summaries provided by Zemsky *et al.* (1995, 1996) are not included in the green volume, and (less often) the other way around.

The tables below make the assumption that the data given in Zemsky *et al.* are more complete than those in the green volume, and therefore represent a more accurate record; the only exceptions are a few places where Zemsky *et al.* have gaps that the green volume fills (e.g. the 1967/68 season for *S. Ukraina*). Thus, the tables represent a combination of information derived from both sources.

The data derived from the green volume for the *Slava* and *Yuri Dolgorukiy* needed no correction (i.e. the numbers were consistent between Zemsky and the green volume). The *S. Ukraina* green volume data required some minor adjustments. The *S. Rossiya* data in the green volume were the most problematic.

Data for non-Soviet whaling operations were taken from summaries in various published sources.

The 1959/60 and 1960/61 Antarctic seasons

Of the 48702 humpback whales caught by the USSR, more than half were killed in two Antarctic whaling seasons: 1959/60 and 1960/61. The Area breakdowns for the *Slava* and *S. Ukraina* in 1959/60 were based upon original catch records and knowledge of where the fleets were operating (reported in less detail by Mikhalev 2000, SC/56/IA12). Operations occurred between December and March in Area V, with an incursion into Area VI in the second half of March; because the exact number of whales taken in Area VI is not known, March catch totals for both fleets have been divided evenly between V and VI.

The Area breakdowns for the *Slava* and *S. Ukraina* for 1960/61 were taken from Mikhalev (2004) and Zemsky *et al.* (1996), which together provide information on where the two fleets (notably the latter) were operating each month, together with catch totals for each month. In general terms, the fleets were in Area IV in November, Area V in December/January, and Area VI in February/March; but because there were a few days that did not quite fit this pattern, some catches (though not a lot) may have been assigned by us to the wrong Area.

RESULTS

Results for Soviet whaling are reported by factory ship, year and Area in a series of tables below, as follows: *Slava* (Table 1), *Sovetskaya Ukraina* (Table 2), *Yuri Dolgorukiy* (Table 3), *Sovetskaya Rossiya* (Table 4), all fleets combined,

by Area (Table 5), by season and factory fleet (Table 6). Non-Soviet catches of humpback whales in the same period came primarily from Areas IV and V; these are summarized in Tables 7 and 8, respectively.

Table 9 gives total catches for the entire period: 27201 (Area IV), 38146 (Area V) and 7195 (Area VI), with 7177 catches not assignable to area. Including both Soviet and non-Soviet catches, at least 72542 humpback whales were killed in Areas IV, V and VI during the post-war period.

DISCUSSION

The illegal whaling by the USSR following World War II targeted humpback whales more than any other species, and humpbacks constituted about half of the total Soviet catch. Although the true catch figures have been known for some time, assigning these catches to Management Area has in many cases proved difficult. Contradictions in published information, and lack of availability of detailed catch positions, has introduced uncertainty into efforts to assess the impact of these catches on the various stocks concerned. Although more detailed information may become available from previously unsearched archives in the former Soviet Union, the summaries given here are the most accurate accounting available to date, and the reported totals are unlikely to be significantly in error.

The large number of humpbacks killed by the USSR in Areas IV and V from about 1957 to 1961 precipitated major declines in catches at shore stations in Australia and New Zealand, notably those reliant on whales from Area V. Approximately 6000 whales were removed from Area IV in 1957/58 and 1958/59 by the *Slava*, and this was followed by a notable decline in catches at the two western Australian stations of Carnarvon and Albany, which in 1958 took only 700 humpbacks from an assigned quota of 1175 (Table 7). More dramatic was the situation in Area V following the huge Soviet catches in 1959/60 and 1960/61 (a total of 25474 whales, of which about 20630 came from Area V). In 1961, the eastern Australian stations of Tangalooma and Byron Bay failed for the first time to reach their catch quota, and the fishery collapsed the following year (Table 8). The decline was even more apparent to the east at the stations in New Zealand, where the catch dropped from 361 whales in 1960 to 80 (1961) and then 32 (1962). Similarly, in 1962 the station at Norfolk Island caught only 4 whales from a quota of 170.

The total post-war catches by all nations from Areas IV and V (27201 and 38146 humpbacks, respectively) were very large. If one compares these figures to current estimates of abundance (see SC/57/SH Rep 1), it is apparent that the current sizes of these populations remain well below their pre-exploitation levels despite reported strong growth rates in some areas. The situation with Area VI is less clear, but the relatively low abundance observed in many parts of this region (e.g. New Zealand, New Caledonia, the Cook Islands, Fiji, Tonga, American Samoa and French Polynesia; SC/57/SH9) suggest a slow recovery from the large-scale overexploitation by the Soviets.

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Table 1. Number of humpback whales killed by the *Slava*, by area and season, 1946/47 to 1965/66. All catches from 1957/58 and 1958/59 have been assigned to Area IV, although it is likely that up to about 300 of these animals were taken in locations to the west of this region while in transit (Mikhalev, personal recollection). The 1959/60 catches are known to have come largely from Area V, with some others from western Area VI (Mikhalev 2000); therefore, while the exact numbers per Area are not known, the total has been apportioned on this basis. The Area totals for 1960/61 (when *Slava* and *Sovetskaya Ukraina* were operating generally together) are estimated from information about fleet movements given in Mikhalev (2004); while those figures are not entirely accurate because of the grouping of some catches across the boundary of Areas V and VI, they are unlikely to be significantly in error.

Year	Area I	Area II	Area III	Area IV	Area V	Area VI	Unk	Total
1946/47 - 1956/57	-	-	-	-	-	-	3564	3564
1957/58	-	-	-	2235	-	-	-	2235
1958/59				4039	-	-	-	4039
1959/60	-	-	-		4930	495	-	5425
1960/61	-	-	-	19	2415	1612	-	4046
1961/62	6	-	9	259	216	1156	-	1646
1962/63	6	-	16	453	168	103	-	746
1963/64	-	-	-	-	-	-	97	97
1964/65	-	-	-	-	-	-	-	0
1965/66	-	-	13	61	7	-	-	81
Total	12	0	38	7066	7736	3366	3661	21879

Table 2. Number of humpback whales killed by the <i>Sovetskaya Ukraina</i> , by area and season, 1959/60 to 1967/68.								
Year	Area I	Area II	Area III	Area IV	Area V	Area VI	Unk	Total
1959/60	-	-	-	-	6848	672	-	7520
1960/61	-	-	-	42	3941	1590	-	5573
1961/62	-	-	-	-	-	-	1078	1078
1962/63	-	-	-	-	-	-	667	667
1963/64	-	4	11	24	260	-	-	299
1964/65	-	-	-	-	-	-	3	3
1965/66	-	-	-	-	-	-	710	710
1966/67	238	-	-	51	18	180	-	487
1967/68	-	-	-	-	-	-	181	181
1968/69	-	-	-	-	-	-	-	0
1969/70	-	-	-	-	-	-	-	0
1970/71	-	-	-	-	-	-	-	0
1971/72	-	-	-	-	-	-	-	0
1972/73	-	-	-	-	-	-	1	1
Total	238	4	11	117	11067	2442	2640	16519

Table 3. Number of humpback whales killed by the *Yuri Dolgorukiy*, by area and season, 1960/61 to 1972/73.

Year	Area I	Area II	Area III	Area IV	Area V	Area VI	Unk	Total
1960/61	2	5	33	181	2274	415	-	2910
1961/62	191	-	17	108	267	512	-	1095
1962/63	-	2	75	868	-	-	-	945
1963/64	-	-	27	118	-	-	-	145
1964/65	-	-	67	18	-	-	-	85
1965/66	-	774	265	-	-	-	-	1039
1966/67	-	90	266	4	-	-	-	360
1967/68	-	535	84	4	-	-	-	623
1968/69	-	-	-	-	-	-	-	0
1969/70	-	-	-	-	-	-	-	0
1970/71	-	-	-	-	-	-	-	0
1971/72	3	-	-	-	-	-	-	3
1972/73	-	2	-	-	-	-	-	2
Total	196	1408	834	1301	2541	927	0	7207

Table 4. Number of humpback whales killed by the *Sovetskaya Rossiya*, by area and season, 1961/62 to 1972/73. The difference between the data given in the green volume and the total number reported by Zemsky et al. (1996) are assigned to unknown area. The overall total of 3097 agrees with that in Zemsky et al. (1996).

Year	Area I	Area II	Area III	Area IV	Area V	Area VI	Unk	Total
1961/62	203	-	3	9	1069	404	-	1688
1962/63	-	-	-	-	-	-	573	573
1963/64	-	-	34	85	4	-	27	150
1964/65	-	-	-	56	61	-	29	146
1965/66	-	-	-	-	-	-	223	223
1966/67	-	-	-	103	85	-	-	188
1967/68	-	-	1	42	6	56	20	125
1968/69	-	-	-	-	-	-	2	2
1969/70	-	-	-	-	-	-	-	0
1970/71	-	-	-	-	-	-	-	0
1971/72	-	-	-	-	-	-	-	0
1972/73	-	-	-	-	-	-	2	2
Total	203	0	38	295	1225	460	876	3097

Table 5. Combined humpback whale catch totals by area and year for all four Soviet factory fleets, 1946-1973. The 3564 unassigned catches from 1946/47 to 1956/57 seasons were all taken by the *Slava*.

Year	Area I	Area II	Area III	Area IV	Area V	Area VI	Unk	Total
1946/47 - 1956/57	-	-	-	-	-	-	3564	3564
1957/58	-	-	-	2235	-	-	-	2235
1958/59	-	-	-	4039	-	-	-	4039
1959/60	-	-	-	-	11778	1167	-	12945
1960/61	2	5	33	242	8630	3617	-	12529
1961/62	400	-	29	376	1552	2072	1078	5507
1962/63	6	2	91	1321	168	103	1240	2931
1963/64	-	4	72	227	264	-	124	691
1964/65	-	-	67	74	61	-	32	234
1965/66	-	774	278	61	7	-	933	2053
1966/67	238	90	266	158	103	180	-	1035
1967/68	-	535	85	46	6	56	201	929
1968/69	-	-	-	-	-	-	2	2
1969/70	-	-	-	-	-	-	-	0
1970/71	-	-	-	-	-	-	-	0
1971/72	3	-	-	-	-	-	-	3
1972/73	-	2	-	-	-	-	3	5
Total	649	1412	921	8779	22569	7195	7177	48702

Table 6. Southern Hemisphere humpback whale catches for all four Soviet floating factories, 1946-1973. Source: Zemsky *et al.* (1995, 1996), except for 1967/68 *S. Ukraina* data, which come from the green volume.

Season	<i>Slava</i>	<i>S. Ukraina</i>	<i>Yuri D.</i>	<i>S. Rossiya</i>	Total
46/47	1				1
47/48	-				0
48/49	112				112
49/50	511				511
50/51	945				945
51/52	599				599
52/53	311				311
53/54	213				213
54/55	361				361
55/56	236				236
56/57	275				275
57/58	2235				2235
58/59	4039				4039
59/60	5425	7520			12945
60/61	4046	5573	2910		12529
61/62	1646	1078	1095	1688	5507
62/63	746	667	945	573	2931
63/64	97	299	145	150	691
64/65	-	3	85	146	234
65/66	81	710	1039	223	2053
66/67		487	360	188	1035
67/68		181	623	125	929
68/69		-	-	2	2
69/70		-	-	-	0
70/71		-	-	-	0
71/72		-	3	-	3
72/73		1	2	2	5
TOTAL	21879	16519	7207	3097	48702

Table 7. Other (non-Soviet) catches of humpback whales from Area IV, 1949-1962. Point Cloates, Carnarvon and Albany are all on the west coast of Australia. Source: Chittleborough (1965, Table 1).								
Year	Point Cloates		Carnarvon		Albany		Antarctic (pelagic)	Total
	quota	catch	quota	catch	quota	catch		
1949	600	190					0	190
1950	600	348	600	40			779	1167
1951	600	574	650	650			1112	2336
1952	600	536	600	600	50	51	1127	2314
1953	603	603	600	600	100	100	193	1496
1954	600	600	600	600	120	120	258	1578
1955	500	500	500	500	126	126	28	1154
1956	(Transferred to Carnarvon)		1000	1000	120	119	832	1951
1957			1000	1018	120	102	0	1120
1958			1000	885	120	82	0	967
1959			1000	541	175	159	1413	2113
1960			750	440	120	105	66	611
1961			475	475	105	105	4	584
1962			540	503	100	40	56	599
Total			West coast of Australia: 12312					

Table 8. Other (non-Soviet) catches of humpback whales from Area V, 1949-1962. Source: Chittleborough (1965, Table 2). Tangalooma (Queensland) and Byron Bay (New South Wales) are both in eastern Australia.									
Year	Tangalooma		Byron Bay		Norfolk Island		New Zealand	Antarctic (pelagic)	Total
	quota	catch	quota	catch	quota	catch			
1949							141	0	141
1950							79	903	982
1951							111	162	273
1952	600	600					122	146	868
1953	700	700					109	504	1313
1954	600	598	120	120			180	0	898
1955	600	600	120	120			112	1097	1929
1956	600	600	120	120	150	150	143	194	1207
1957	600	600	121	121	120	120	184	0	1025
1958	600	600	120	120	120	120	183	0	1023
1959	660	660	150	150	150	150	318	885	2163
1960	660	660	150	150	170	170	361	931	2272
1961	660	591	150	140	170	170	80	293	1274
1962	600	68	150	105	170	4	32	0	209
Total	Eastern Australia: 8307						2155	5115	15577

Table 9. Known total post-war catches (USSR and other nations) of humpback whales from Areas IV, V and VI. There were an additional 7177 Soviet catches that were not assignable to Area.				
Year/Source	Area IV	Area V	Area VI	Total
USSR 1959/60	-	11778	1167	12945
USSR 1960/61	242	8630	3617	12489
Other USSR, 1949-73	8779	2161	2411	13351
Australia/NZ, 1949-62	18180	15577	-	33757
Total	27201	38146	7195	72542

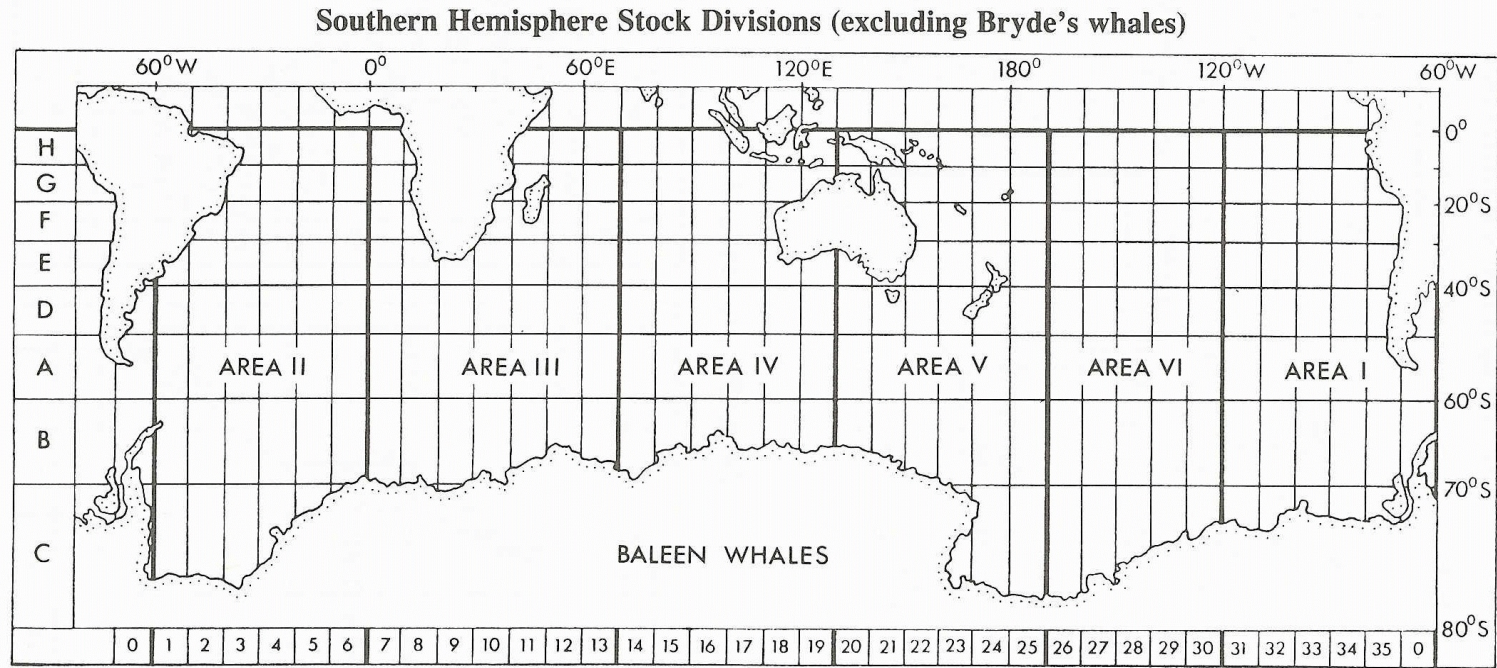


Figure 1. Southern Hemisphere baleen whale management areas. From IWC 1980 (p. 582).