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BRIEF HISTORICAL REVIEW OF WHALING

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Brief historical review of whaling. Y.A. Mikhalev

Abstract. Special characteristics of whaling given beginning from old historical times. Distinguished different periods of this industry. Explained the transfer of whaling into the Antarctic. Given the catch data of main whaling species. The history of creation of International Convention on regulation of whaling and development of unified rules of whaling. Described the characteristics of whaling at current times.

Key words: whales, whaling, Antarctic, International Convention, whaling rules.

Краткий исторический обзор промысла китов. Ю.А. Михалёв.

Реферат. Дана характеристика особенностей промысла китов с давних исторических времен. Выделены качественно различные эпохи. Обоснован переход к промыслу китов в водах Антарктики. Указаны объемы добычи основных промысловых видов китов. Рассмотрена история создания Международной Конвенции по регулированию промысла и разработке единых Правил добычи китов. Описан характер китобойного промысла в настоящее время.

Ключевые слова: киты, промысел, Антарктика, Международная конвенция, правила добычи

1. Used materials

To write this paper I used data base of the International Whaling Commission (IWC) and also data on the world catch published by Dawbin (1957), Tomilin (1957; 1962), Bodrov and Grigor'ev (1963), Zenkovich (1966), Ivashin et al., (1972) and Borodin (1996). Widely was used "Materials of the whaling Antarctic whaling fleets (1947-1972)" (editors: Zemskiy, Tormosov, Mikhalev, Berzin, 1995) and "Soviet whaling data (1949-1979)" (editors: Yablokov and Zemskiy, 2000) published by the Center of Ecological Politics of Russia. These data were corrected by yearly reports from administration and State inspectors of the Soviet whaling fleets, field notebooks and reports from scientific groups on the factory ships and scout vessels.

2. Review of the whaling in the northern hemisphere

Since prehistoric times native people were hunting whales in the shallow waters of Europe, Chukotka, Kamchatka, Japanese Islands and Alaska. The amount of whales killed was minimal and did not influence the decline in the population abundance.

A significant increase in the area and amount of catch happened in the middle ages. The initiative belongs to basks. They were hunting off Spitsbergen and around Newfoundland. The targeted species were bowhead (*Balaena mysticetus*) and possibly grey whales (*Eschrichtius robustus*). Later whalers from different countries began to use Davis Strait, Baffin Bay and all European Russian North that was a part of Kievski Rossi.

It is known that already in 9th century Russian lords were receiving tribute in whaling products (Zenkovich, 1955). Citizens of Novgorod were hunting whales and walrus on the shores of Arctic Ocean. Referring to Novgorod's records Lomonosov mentioned that lord's guards were participation

in this process and often were the leaders of the hunt. Long before Dutch “discovered” Spitsbergen whales there were hunted by Pecheneg monastery. Russian hunters called this archipelago Grumant. Well known was the family of hunters Starostin, from Novgorod, who were hunting on Grumant over 400 years. The last member of Starostin's family died in Sankt-Peterburg in 1875 (Zenkovich, 1955). Foreign whalers visited waters of the Russian North in 16th century (Sidorov, 1867). Novgorod leaders were taking taxes on the whaling until the end of 16th century.

Primitive whaling stopped with Peter the Great in power. With the State money the first Russian company “Kol'skiy whaling” was created (Weberman, 1914). When Ekaterina became the head of Russia she put the end to the State monopoly and individual whaling was allowed as well as selling of whales' products. In 1786 “Onezhskaya whaling company” was organized by lord Vorontsov (ancestor of the famous governor of Odessa). In 1803 “Belomorskaya company” was organized and among investors was the Emperor Alexandr I. Later number of other companies was created: “Gebel's whaling”, “Comrades on whaling in Murman”, “Sheremet'ev whaling”. Although because of unprofitable whaling all these companies went bankrupt and disappeared.

Natives of the Kamchatka and Chukotka were hunting whales for many centuries using it for food, fuel, building materials and etc. Beginning in 1794 there was number of companies created: Russian-American, Shelekhov, Pigot and friends, Russian-Finnish and others (Elfsberg, 1863; Lingholm, 1888; Tikhomirov, 1894). In the beginning of the 19th century the largest Russian company was “Pacific whaling and fishing society”. Although during the Russian-Japanese war the ships of the company were captured by the enemy and company went bankrupt.

In 17th century the Antarctic whaling grounds were actively used by Spanish, English, Dutch, German, Norwegian and Americans. Then English and Dutch took the initiative from basks. At these times more than a thousand vessels were hunting whales (Sidorov, 1867; Zenkovich, 1955). The main target were right and bowhead whales. There is no full record about the catch from that period, but from 1669 through 1787 whalers of different countries (mostly Dutch) killed around 200,000 bowhead whales. That makes about 1,700 animals per year. During some time whale resources of this species were severely reduced, which forced whalers to look for new whaling areas.

In 18th and 19th centuries whaling industry covered Bering Strait, Chukchi Sea, East-Siberian Sea and North Pacific. Whalers began to explore Southern hemisphere. American had an initiative in this regard: in 1876 there were 735 American whaling ships, and British were close behind them. The main target became sperm whales (*Physeter macrocephalus*) and then right whales (*Eubalaena australis*). In the Northern Pacific gray whales were still hunted. During the period from 1800 through 1889 American whaling ships made about 14,000 surveys (Best, 1983). According to Starbuck (1878) calculations during the period from 1804 through 1876 by all countries 225,521 sperm whales were killed, on average 3,000 whales per year. Although Gambell (1983) shows that American whalers hunted higher number (4,600-5,100) sperm whales a year. Taking in account that struck and lost rate was about 10-20% (Brand, 1940) would give about 6,000 sperm whales per year, with the total take for the whole period of 430,000 whales. Every day life and romantics of this business are very realistically described by the American classic Herman Melvill in the book “Moby Dick” (1962).

Besides sperm whales, right whales also being intensively hunted. During the period 1800-1875 only American whalers killed about 200,000 southern right whales, on average 2,600 whales per year. This very intensive and unregulated whaling (mostly by American, British and Dutch whalers) severely depleted the populations of gray, bowhead, right and sperm whales. Only rorqual whales (family: Balaenopteridae) were still untouched.

3. Whaling in the Antarctic and surrounding waters

In 20th century the new period of whaling began – period of intensive whaling of all large whales. The main whaling area is Antarctic and gradually covers all waters of southern hemisphere. Here initiative belongs to Norwegians. Preconditions for it were created at the end of 19th century by Norwegian businessman Svend Foyn. Beginning in 1864 he made many changes modernizing the whaling ship: put the harpoon gun on a bow of a ship, added a grenade to a harpoon, and added a shock-absorption system to the rope connecting to a harpoon. Killed whales were pumped with air by the compressor making whales to float. Whaling with such ships began to cover the Northern Atlantic, where Norwegians got a thousand or more rorquals (and may be some gray whales) and later enter the Antarctic. During earlier years Norwegians conducted a number of surveys to the Antarctic looking for the new whaling areas. The first whale (humpback whale, *Megaptera novaeangliae*) was killed at the end of 1902 in Magellan Strait. In 1904 on the South Georgia Island Argentinean company builds a land-station with Norwegian K. Larsen in charge. Next year Norwegian floating factory ship comes to these waters. British whalers follow the Norwegians. It is the beginning of very intense use of the richest whaling grounds in the World Ocean-Antarctic and surrounding waters.

Invention of the factory ships with a slip (declining area to get whales on board, invented by P. Sorlle) supported the increase of whaling in the area. This innovation was used for the first time in 1923 by the Norwegian company “Globus”. Since that time killed whales are processed on the deck and not by the ship. Because of modernization of whaling ships and discoveries of new whaling grounds amount of catch began to increase steeply, and can not be compared with anything in the past. More and more industrial forces are going to Antarctic to hunt whales. By the season 1923/24 there are 14 fleets of different countries (of 66 whaling ships) working in the area. Some whales are still processed on the land-stations, but it's only 6 of them and their catch is relatively small. By the season 1930/31 the number of floating factory ships are increased up to 41 with 232 catchers. Because of significant decline in right whales the main pressure goes to humpback whales as relatively slow. The most active years for humpback are 1908-1916 and 1934-1938. In some years the catch could be 4,000, 5,000 and even 8,000 whales. Besides humpback whales other large whales are being exploited: blue (*B. musculus*) and fin (*B. physalis*) whales. The highest level of the catch was observed in 1930th, when by all countries during one season were killed from 13,000 to 30,000 blue whales and 5,000-8,000 fin whales. Antarctic became the main area of whaling (Table).

Table

Whale catch in the World Ocean and separate for Antarctic, based on International Whaling Committee data

Whaling season	World catch	Catch in Antarctic	Percent of Antarctic catch of the world catch
1909/10	12301	6099	54%
1923/24	16839	7271	43%
1930/31	43130	40201	93%
1931/32	12988	9572	74%
1932/33	28907	24327	84%
1933/34	32586	26089	80%
1934/35	39311	31808	81%
1935/36	44868	30991	69%
1936/37	51586	34579	67%
1937/38	54,902	46,039	84%
1938/39	45783	38356	84%
1939/40	37705	32900	87%
1940/41	23638	16365	69%

As one can see during this period the catch from Antarctic makes 80% and more from the world catch. Such active whaling filled the market with whale products. This forced Norwegians temporarily leave the whaling industry. Some role to that played the world economy crisis. As the result the whale catches in the Antarctic before the Second World War declined and during the war whaling was very insignificant.

After the War whaling was resumed with a renewed force. Already during the first after-war season 1945/46 14 fleets were working in the Antarctic. Next year the number increased up to seventeen. In 50-60th the number of factory ships reached twenty one. Whaling was conducted by Holland, Panama, Soviet Union, SAR, Japan and other countries.

The number of fleets were half of what it was before the War but modernized and newly build they were more powerful. In the result whaling became even more aggressive. Abundance of all hunted species is rapidly declining. It became clear that there is a need for some cardinal decision to limit the catch and control over the whaling.

4. Effort to regulate the whaling

Reckless whaling required control and introduction of some rules. Some efforts to regulate the whaling are known for a long time. Already at the end of 13th century Islanding whalers established the rules for whaling. The earliest of this rules is dated by 1281 and regulated situation in case one whaler put a harpoon into a whale and the other one found him dead. And here is another example. Development of whaling off the Norway coast at the end of 19th century lead to a conflict between fishermen and whalers. The argument was solved toward fishermen of Norway when by the king order from February 1, 1904 whaling on Firmanken was prohibited for 10 years. In the result 4 of 11 whaling companies were liquidated, 5 others were whaling by Spitsbergen and two others off Farer Islands and Bear Island. Norwegian king's order was the first serious effort to regulate whaling.

Searching for new whaling areas Norwegians conducted a few surveys into the Antarctic (1882-1885) and in the beginning of the 20th century established in the area of South Georgia, Orkney and Falkland Islands. British follow them establishing whaling in these areas. Although, at the time all regulation were just payments for renting of land-stations and use of territorial waters. For killing different species of whales the tax was paid and fee applied for whaling without license. There was a limit to number of whales allow to kill. Although there was no inspection and industry developed so fast that these measures did not give any positive effect. It was not a regulation of whaling but one more source of getting the profit.

Sudden decline in whale abundance begin to worry scientists and public already in the beginning of 20th century. On the conference 1913 on the protection of wild life Swiss scientist Savatsin P. predicted fast decline of whale resources if such intensive whaling will continue and called for regulation and limitation of this business (Brand, 1940). Studies done in 1920th by British and Norwegian scientists supported these conclusions. Despite it continuing modernization of the whaling fleets just increasing its power. The catch is growing. Famous British scientist Harmer (Harmer, 1920) asked totake serious measures to regulate whaling.

Even industry begins to understand necessity of whaling regulations introduction. Association of Norwegian whaling companies asked government in December 1923 to take immediate measures. Although regulations prepared by Norway were not supported by other countries. Special meetings were required to look on the problems from all sides.

First International conference on whaling was in Paris in 1927. Two leading whaling countries: Norway and England, begin to agree about common rules. There were first efforts to limit and regulate whaling by law. In 1929 Norway pass the law that prohibits to kill right whales, mothers with calves and calves. The law possibly was looking at more complete use of whale products. During the next year this law was added with limits of the minimal catch size for blue and fin whales. I

want to remind you that by the season 1930/31 the catch in Antarctic increased up to 40,200 whales and for next year suddenly dropped down to 9,572. The reason was in the excessive amount of whaling products, which also pushed for necessity of whaling regulations.

In 1930 League of Nations collected experts from different countries and held the conference. In 1931 in Geneva 26 countries signed an International Agreement based on the Norwegian laws, to regulate whaling. According to this Agreement hunt of all right whales, females with calves was banned, also license system was introduced. Information about catches must be given to the Bureau of International Whaling Statistics. After this Agreement was ratified by all participants it got into the power only in 1936.

In 1937 in London was the second International meeting where the rules of whaling were defined: minimal catch size limit for blue, fin, humpback and sperm whales. Pelagic whaling was limited by forty degrees south and time period from 8 of December to 7 of March. All whaling countries (except Japan) signed the agreement to introduce inspectors of whaling process.

On the next meeting in 1938 was banned the catch of humpback whales. In 1939 again was proved the necessity of inspectors and expressed suggestion that one of them should be a biologist. During the 1944 meeting for the first time was an agreement to limit amount of killed whales – up to 16,000 “conditional blue whales”. Equivalents were established yet by the agreement between British and Norwegian companies in 1931. It described that the mass of a conditional whale equal 83.9 t., with amount of blubber 110 barrels (18.7 t). One “conditional” whale was equal to one blue whale, or two fin whales, two and half humpbacks, or six sei whales (*B. borealis*) or Brudes whales (*B. edeni*). Later, after season 1971/72 IWC stopped using definition “conditional whale” and was calculation quotas for each species.

Unfortunately, all accepted rules and agreements had little effect. Whale catch continued to increase and in the season 1937/38 reach its maximum – 46,039 whales, with majority of the catch were blue and fin whales. Often during this period the yearly catch would be in the limits of 20,000-40,000. Victory over Germany in the Second World War created a good situation to make an agreement between whaling countries about the rules of whaling. In 1946 in Washington was signed an International Convention on whaling regulation and Created International Whaling Commission (IWC). All participants gave their agreement to earlier described limitations of whaling. Sadly, limitations on humpback whales were partially removed – and they were again allowed to hunt, but no more than 1,250 whales a year. Agreement in 1958 was also progressive; according to it the total quota on whale catch was distributed between the whaling countries. Beside it, the Scientific Committee created so called “Committee of three” to develop methods of abundance estimation. Development of such methods was possible based on already collected data from scientific studies of whale age by the ear plugs (Purves, 1955; Purves, Mountfold, 1959; Ichichara, 1959) and toothed whales by teeth (Nishiwaki et al., 1958; Sergeant, 1959; Berzin, 1961, 1963). In 1974 based on developed methods whale resources were estimated by three categories: initial, balanced and protected. As the base for regulation of whaling the principle “of getting maximum accepted catch”.

Based on developed methods the quota for each species was defined individually and also by sectors. For baleen whales the Antarctic was split into 6 sectors, for sperm whales into 9.

Unfortunately all this measures were taken too late. Whale resources were in steep decline, despite species quotas were reduced every year. After 1976/77 season the ban of fin whales was introduced, and after 1978/79 it was done for sei whales. In 1979 IWC introduced a reserve zone between 20 and 130 degrees east, including coasts of Africa and Asia in the northern hemisphere, thus the whole Indian Ocean became a reserve with advanced waters of the Antarctic. In the same year the decision is made to stop whaling of all species but minke whales (*B. acutorata*) in the open waters of the World Ocean. In 1982 IWC introduced moratorium on the commercial whaling beginning in 1985/86. This moratorium was a temporary measure that supposed to be reviewed not later than 1990.

Taken measures gave a positive effect. Although an international inspection to watch the

fulfillment of the IWC decisions and control over whaling was not created. The opportunity for poaching and data falsification was there.

In the past countries regularly reported the whaling results to the Burro of International Whaling Statistics (BIWS) that was placed in Norway, according to the requirements of article VII of the International Convention on whaling from 1946. Then 1984 the whaling statistics was transferred to the IWC. Beginning in 1980 IWC was collecting, coding and entering catch results of modern whaling in the computer data base. This project included also necessity of correction of the initial data in the data base.

The first one to pay attention to the necessity of catch data correction that was given to the IWC was P. Best (1989). Based on his knowledge of whaling industry during 1957/58 and 1978/79 he pointed on increasing the length of small-sized whales, mistakes at the rounding the fetuses length, not reliable data on food content. He expressed an opinion that industry do not report to the IWC about some whales, misidentify whales, lessen the whale sizes, do not report some fetuses. Best (1989) referred to two occasions when commissioner of USSR at the IWC did not report of the right and humpback whale catches (Best, 1988). His paper was discussed at the Scientific Committee of the IWC (SC/40/O20).

In November 1993 the true data of the Soviet Antarctic whaling were presented by Russian scientists D.D. Tormosov and A.V. Yablokov during the X Biennial Conference of Marine Mammals Society in Galveston. Although, it was in regard to only one of four Soviet whaling fleets that worked in the southern hemisphere – fleet Yuriy Dolgorukiy. For the first time Yablokov presented information about all fleets large-scale violations in 1994 during the Scientific Committee of the IWC (Yablokov, 1994; Yablokov et al., 1998). Four scientist from ex-Soviet Union: V.A. Zemskiy, A.A. Berzin, Y.A. Mikhalev and D.D. Tormosov (1996) in the past were head of labs and participated into scientific groups on the Soviet whaling fleets, made a detailed review of the pelagic catches in the southern hemisphere by all four Soviet fleets. On the Scientific Committee of the IWC in 1988 the information about falsification of sperm whale catch in the North Pacific by the Soviet pelagic fleets and Japanese land stations (Brownell et al., 1998). The catches for females and males were falsified by 9.6 and 1.3 times.

Japanese scientist Kasuya presented the data of poaching and data falsification by Japanese whalers during the meeting on marine mammals in Kamogava (Japan) in January 1998. Workshop on sperm whales as part of SC of the IWC in February 1998 discussed the data presented by Kasuya and agreed that "catch data from Japanese land-stations are unreliable". Later Kasuya presented two new papers of data falsifications by Japanese whaling land-stations (Kasuya, 1999, 2002).

After presentations on large-scale poaching and reports of true catch data on the SC the recommendation was made to extend reserve for whaling from the Indian Ocean onto the whole Southern Hemisphere. In 1988 the moratorium on the commercial whaling was established.

5. Different periods of whaling industry

Described above brief review of whaling history allows superficially separate a few periods significantly different from each other (Mikhalev, 2002). The longest of these historic periods was coastal whaling of native people. It was replaced by the middle-age period with intensifying of whaling. Later, during the intense development of capitalist industry methods begins the period of large-scale whaling in 18-19th centuries. The period from the beginning of 20th century until the Second World War was very different from all previous periods: the main whaling activity moves to the Antarctic and rorquals become the main target. 1972, when International inspection was introduced and whaling was conducted on minke whales, could be seen as a boundary that defines the end of after-war period. Then begins very short period from 1972 through 1987, the period of decline and almost ending of whaling.

There is no reason to discuss in details the earliest historic period of whaling. It was relatively passive, natural and ecological harmless. Beginning from middle-ages the whaling becomes more aggressive. More and more countries joined whaling business. With the time American whalers began to play a leading role. Constant search and discoveries of new areas of whales' concentrations saved populations from complete destruction. At that time the technical abilities of fleets and the needs of whaling products allowed to hunt whales during number of centuries. I want to remind that yearly catch for the main whaling species – right whales on average was around 1,700 animals.

Decline in the whale catches by the end of 19th century was mostly influenced by increasing use of oil products. The prices on whale blubber dropped suddenly. Some role in it had a “golden rush” and development of other industries that together lead to the depletion of whaling industry with people and investments (Brand, 1940).

Whale resources were in serious danger during next period. During the pre-war period of 20th century whalers practically were using all waters of the World Ocean. Whaling had scarily large scales. Whale resources were in steep decline, with whales being on top of food chains it ruined the normal condition of ecosystems (Bushuev and Mikhalev, 2000; Samishev, 2006). Whaling process slowed down during the Second World War.

After the war whaling was resumed with renewed power. Beside traditional whaling countries in the process get involved Argentina, Brazil, Chili, Peru and the Soviet Union.

While the first period of active whaling continued for 10 centuries, the next one about 200-300 year, then pre-war period continued only for less than 3 decades, and after-war – 25 years! The intensity of whaling was negatively correlated to the length of the period. The shortest of all periods had the most negative role in it. It clearly could be divided into two parts: 1950s – restoring and increasing of whaling, and 1960s –the most destructive whaling, with the leading role of the Soviet Union and Japan.

6. Whaling at the current time

After 1988 Moratorium on commercial whaling was introduced the only whaling was left for native people and scientific purposes. Unfortunately, these were not as harmless as thought. If in the North Pacific native people on Kamchatka and Alaska only few tens of whales were needed, but in the North Atlantic Icelanders and Norwegian allow themselves to kill up to 200-500 whales per year. Even worth the things are going in the Antarctic. Here Japanese, as for scientific reasons, increase their catches every year. During first few years after moratorium they killed 300-500 minke whales, not the numbers are increased to almost 1000 whales per year. Japan puts more and more pressure trying to resume commercial whaling based on the current whales' abundance of minke whales in Antarctic. The Scientific Committee is disagreeing using arguments that Japan does not present proved scientific reports on the biological conditions of killed whales. But the main reason for refusing it is that negative experience of whaling in the past lead to loose all trust to this industry at all. Whaling is very had to inspect and control. During the last meeting of the SC 2009, Madeira (Portugal) I presented a paper on continuous falsification of the catches even after introduction of the International Inspection (Mikhalev, 2009).

Whales' elimination brought significant changes into Antarctic ecosystem and the whole World Ocean, and it is not clear how much time will be needed to restore it. According to my calculations the moratorium on commercial whaling should be extended for another 50-70 years, after that whaling could be resumed under very thorough and strict monitoring.

7. Conclusions

After whale abundance declined in the traditional area of whaling: northern Atlantic and North Pacific, whaling center moved in the beginning of 20th century to the Antarctic where whale resources were the largest. The world society was not able to organize control over the industry in this area, as the result by the middle of 20th century whales' resources declined to the minimum limit, destroying the ecosystem balance in the Antarctic. Full ban on commercial whaling was introduced only in 1988. Native people kept the rights to hunt whales for their needs. Sadly, there is an option of hunting whales for scientific purposes without limitation in numbers. Japan conducts this kind of whaling for minke whales and increases its amount every year. The catch amount is comparable with commercial catches. To restore normal functioning of the Antarctic ecosystem full moratorium on whaling is necessary for another 50-70 years. In the given situation all studies on whales' abundance and population structure must be done by non-lethal methods (taking biopsies for DNA, photo-identification and acoustic monitoring).

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