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Update report on the white whale (*Delphinapterus leucas*) live-captures in the Okhotsk Sea, Russia

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Abstract

Live-captures of white whales take place in Sakhalinsky Bay, the Okhotsk Sea. Young individuals are being removed from a summer aggregation with estimated abundance of 3954 whales. Potential Biological Removal for this aggregation is calculated as $PBR_{0.65,0.04}=42$. In 2013, 18 belugas were allocated for scientific-research and 245 – for educational and cultural-display purposes. Three capture teams operated in the area often limited to approximately 15 sq km. Eighty-one beluga were captured and transported to holding facilities; 34 were believed to have died during the capture operations; 7 died during temporary holding at the capture camps; three captured belugas were considered at risk of dying and were released. Four of nine recovered carcasses bore signs of net entanglement. We believe, the competition among capture teams and an attempt to catch a large number of whales during a short capture season have resulted in such high mortalities. No regulations on separate management of different demographic white whale units have been implemented. The removals from beluga aggregation in Sakhalinsky Bay remain unsustainable.

INTRODUCTION

The near-shore occurrence of white whales (*Delphinapterus leucas*) summering in the Sakhalin-Amur and Shantar regions of the Sea of Okhotsk in eastern Russia make them susceptible to anthropogenic threats such as hunting and live extractions for the international aquarium trade. Multidisciplinary study conducted since 2007 has shown that summering aggregations of white whales, or belugas, form one Western-Okhotsk population, which is subdivided into several demographic units. The largest summer aggregation (uncorrected abundance is 1977, $cv=2.4\%$; corrected abundance is 3954) is found in Sakhalinsky Bay. The Potential Biological Removal for this demographic unit has been assessed as $PBR_{Fr=0.65,Rmax=0.04}=42$ (Shpak and Glazov, SC/65a/SM23). The Ministry of Agriculture of the Russian Federation determine Total Allowable Takes (TAT) of water biological resources, which are calculated for the fishing subzones, and not based upon biological populations of the targeted resources. The summering grounds of the Western-Okhotsk beluga population lie within the North-Okhotsk fishing subzone (Fig. 1), and all live-captures under the North-Okhotsk TAT are conducted in the southern part of Sakhalinsky Bay (marked with the star on Fig. 1). Every year that live captures are conducted, the whales are removed from one demographic unit of the Western-Okhotsk population.



Figure 1. Fishing subzones in the Okhotsk Sea: 05.1 – North-Okhotsk, 05.2 – Western-Kamchatka, 05.3 – Eastern-Sakhalin. Capture area in Sakhalinsky Bay is marked with star (see Fig. 2 for details).

In 2013, the Ministry of Agriculture issued the following TATs for belugas to be taken that year in the Okhotsk Sea: (a) North-Okhotsk subzone - 360, (b) Western-Kamchatka - 50, (c) Eastern-Sakhalin subzone – zero. (Fig. 1). Within the North-Okhotsk subzone TAT, 90 belugas were allocated for aboriginal harvest, which has never been utilized, 18 – for scientific-research and 245 – for educational and cultural-display purposes (Shpak and Glazov, SC/65a/SM23). When this data were presented to International Whaling Commission Small Cetacean Sub-Committee at its meeting in June 2013, the IWC Scientific Committee made the following recommendations: 1) within the North-Okhotsk subzone, different demographic units of belugas should be managed separately at a level consistent with available scientific data, 2) the TAT for the Western Kamchatka subzone, which is inhabited by a separate beluga population, is recommended to be set a zero until further scientific studies are able to provide information sufficient for determining a sustainable take for that population. (Report of the IWC Scientific Committee..., 2013, page 63).

LIVE-CAPTURE OPERATIONS IN 2013

During the 2013 summering season, beluga captures were conducted by three local sub-contractors (capture teams), based at Chkalova and Baydukova Islands in the southern part of Sakhalinsky Bay (Fig. 2) The capture teams conducted their operations from late June to early October.



Figure 2. The map of beluga capture operations area in the southern part of Sakhalinsky Bay in 2013 (note the scale in bottom-right corner). Numbers indicate camp locations of the three capture teams.

The research group comprising 1 observer and 1 observer/veterinarian assistant, worked in the area from late July to late September. Monitoring the capture operations included land-based visual observations of belugas, occasional boat-work onboard one of the capture boats of team 1 or 2, and interviews of local fishermen/residents/inspectors. In September, when 2 more researchers with the boat joined the group, a regular monitoring from the research boat was also conducted. Four to six km long surveys along the sea-coasts of both islands were undertaken after each storm in search for beached/stranded marine mammals.

The weather conditions during the capture period were characterized by a late ice retreat with ice-floes floating in Sakhalinsky Bay until late July and a higher than usual outflow from the Amur River due to catastrophic floods in September. The flooding caused changes in water levels within the estuarine zones, surface temperatures, turbidity and

salinity of coastal waters in the region, which also is believed to have affected the annual salmon run and, consequently, beluga concentrations in the region.

Low numbers of whales were observed in July, however the frequency of sightings increased by mid- August. Whales were regularly seen in the area from mid-August until the end of the field work in September. Large groups of belugas totaling 120 whales were first observed in Sakhalinsky Bay on September 1, and on September 12 a stock of over 400 belugas (direct count) was encountered in the area.

No whales were observed adjacent to Chkalova Island, and all captures occurred along the north-eastern coast of Baydukova Island (Fig. 2), within an area approximately 6 to 8 km long and within 2 km offshore.

The late arrival of belugas to the region and their concentration along a relatively short stretch of the coastline motivated competition among the capture teams to capture whales.

The research group was permitted to observe two of the three capture teams at work, with the third team objecting to observers. The two teams that allowed observers used equipment and capture techniques described earlier (Shpak et al., 2011). Notwithstanding objections by the third team, the research group was able to observe part of their capture operations. The third team also used several small motorboats to “herd/drive” belugas toward their nets, but they did not

use *baydas* (large wide-deck wooden motor-boats) for carrying the net, encircling the whales and transporting captured belugas to holding pens. This team used two large metal water-jet boats and an inflatable boat under tow, on which a captured beluga would be transported to the holding pens. Their net was approximately 700 m long and they often worked further offshore than the other two teams. That team set their net far from the coast, entangling belugas in the deeper water instead of herding encircled whales to the shallows.

As a result of capture operations, in 2013, the three teams captured and transported a total of 81 belugas to permanent holding facilities. Thirty-four mortalities are believed to have occurred during capture operations, comprising five that were directly observed by the research team, six mortalities not observed but advised by the fishermen during the research team's presence at the site, and *approximately* 15 mortalities were advised by fishermen to occur before the research team arrived at the site. An additional eight mortalities are believed to have occurred based on observations during capture operations: on eight separate occasions, when all three teams operated in close proximity to each other, a researcher observed a boat towing something relatively large out to deeper water, which were believed to be whales that had died. Of the captured whales transported to the temporary holding pens, seven died in the pens and three were released due to the fishermen considering they were at risk of dying. Out of the latter three, one beluga had been released before the research team arrived, apparently due to maladjustment to captivity in the holding pens, one was released several days after capture due to its very small size/age (206cm), and one beluga escaped during transfer into a holding pen and is included here because it escaped with the tail-rope attached, posing a risk to its survival in the wild

We believe, the number of mortalities presented above is conservative. Some (we believe, all) captured whales, which did not adjust to captivity and were later released unreported, were 'replaced' by additional captures. All whales that were captured alive, or died during the capture operations or were released after being held in the holding pens, should be considered as a 'take' under the TAT for that year. To our knowledge, no mortalities or "replacements" have been formally reported to the inspectors.



Figure 3. A dead juvenile beluga found on the eastern coast of Baydukova Island, adjacent to where capture operations were taking place.

team is unaware of the means of further transportation to other destinations. Due to the bad weather conditions in Sakhalinsky Bay and flooding of the Amur River, the transportation to Khabarovsk took over 10 days. There is no reliable information on the number of captured and transported belugas that survived the transport to the permanent holding facilities and the adaptation period.

DISCUSSION

Earlier, based on our observations in 2007-2010, we reported low beluga mortalities during our observing live-captures in Sakhalinsky Bay (Shpak et al., 2011; Reeves et al., 2011). In 2013, we spent over 2 months observing the captures in Sakhalinsky Bay, while in previous years we usually limited our stay to approximately two weeks, had different research priorities and did not use 'independent' fleet to survey the area. It is possible that there were no mortalities during our presence in 2007-2010, except the one in 2007; however, we cannot exclude that the capture team operating in the area

Surveys made on the north-eastern coasts of both Chkalova and Baydukova Islands resulted in nine dead belugas being found. Four of these whales bore signs of net entanglement and are believed to have died during the capture operations. One of these whales was a young/juvenile beluga, found with a rope and remains of a sand-filled sack tied around its tailstock (Fig. 3). It is assumed that one of the capture teams may have attempted to conceal this mortality by sinking the carcass. However, the sack became torn and most of the sand spilled out, resulting in the carcass being washed ashore.

Governmental oversight and management of the beluga captures and temporary holding on Chkalova and Baydukova islands was mostly limited to supervision of formal reporting by way of documentation procedures.

Transportation of belugas from Sakhalinsky Bay was conducted by sea to Vladivostok and by river barges up the Amur River to Khabarovsk. The research

may have used the safest approach to captures at times when the researchers were onboard and concealed the facts of deaths in cases when no scientists were present. Apart from the difference in fieldwork effort in 2007-2010 and 2013, the overall situation with beluga captures has changed recently. Unusually high mortalities observed in 2013 may have occurred due to a combination of the two factors: competition of several capture teams over a small area and a very high number of the capture-permits obtained by the numerous contracting companies. Existing experience of live-captures (as well as common sense) suggests that 263 individuals of selected age and sex cannot be captured in one season in the area of approximately 15 sq km without implementing unsafe aggressive techniques. Observed in 2013 'beluga capture rush' has started, among other reasons, through the absence of the regulations, which would distribute capture-permits in accordance with scientific data on population structure of managing resources thus ensuring sustainable levels of takes.

LIVE-CAPTURES IN 2014

The TAT for the capture of belugas during the 2014 summering season in the North-Okhotsk subzone was decreased from 360 to 150, and to zero for the Western-Kamchatka and Eastern-Sakhalin subzone. No request for a subsistence harvest quota has been received from the Sakhalin aboriginal communities; therefore, the entire North-Okhotsk TAT may be distributed among the scientific foundations and commercial organizations using belugas for scientific, cultural and display purposes. No rules on sustainable separate management of different beluga whale demographic units within the North-Okhotsk subzone have been created and implemented since 2013. Most, if not all, capture operations will be conducted in the same area as in past years, along Baydukova Island in Sakhalinsky Bay.

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