

**Final report to:**



**Rufford Small Grant 2006**

**Conservation of killer whales (*Orcinus orca*) at the Russian Far East:  
estimation of possible impact of capturing and promoting public  
awareness**

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**MOSCOW STATE UNIVERSITY**  
named after M.V.Lomonosov

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## Acknowledgments

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**Conservation Issue:** Main objective of our project is to preserve orcas of Kamchatka and adjacent waters and stop their capturing for oceanariums. Through our previous project funded by the first Rufford Small Grant we showed that the number of orcas at the South-eastern Kamchatka is much less than it was estimated before. We informed State Ecological Expert Commission about our results. But instead of cancelling quotas as we claimed, government only reduced them from 10 to 6 orcas and issued quotas in other regions of Kamchatka and adjacent areas. These populations are unexplored and their numbers and status are unknown. Unfortunately, using of precautionary principle is not common in Russia; therefore to stop capturing we must provide a clear evidence of its negative implication on orca populations.

Population estimates for orcas before detailed research have always been much larger than actual numbers, and the impact of capturing depends on number and size of pods and populations. In the well-studied eastern North Pacific there are a total of about 1200 orcas, but they are divided into seven populations (numbering from 12 to 325 individuals), which never mix with each other. Thus in some cases capturing even of few individuals can cause the significant decline or total disappearance of population.

Moreover, orcas have low birth rates and live in stable social pods, and capturing of each member can have seriously negative implications on the pod reproduction and survival. Orcas are listed in IUCN as “Lower risk: conservation dependent” and in Appendix II of CITES. The impact of capturing depends on number and size of pods and populations. Far Eastern orcas are comparatively unexploited and it is not known how many populations and pods exist in this area and what are their numbers and status. Unlike Western Europe and USA, the public opinion in Russia is not strongly against orca capturing because people lack enough knowledge about the whales.

That's why to save orcas of Kamchatka and adjacent waters we need to study their pod and population structure and inform specialists and the public about it. We should continue our activities in order to convince many old-school Russian scientists and the public of great negative influence of capturing on orca population. We had a good

feedback from the public after publishing the articles in newspapers and on the web, but we should extend our efforts to inform larger groups of the public.

### **Objectives:**

- to obtain photographs and describe the dialects of killer whales from different regions of Kamchatka and adjacent waters;
- to compare these photographs and dialects in order to define status and community structure of killer whales from these regions;
- to estimate the impact of capturing on killer whales from Kamchatka and adjacent waters;
- to inform the public about the real impact of capturing on Kamchatkan killer whales;
- to turn the public opinion against the capturing of killer whales.

### **Challenge:**

Our challenge is:

- to obtain the information about status and community structure of killer whales from Kamchatka and adjacent waters;
- to estimate the real impact of capturing on killer whales from Kamchatka and adjacent waters;
- to turn the public opinion against the capturing of killer whales.

### **Results:**

#### ***Field work***

Our study took place in the following regions: Northern-Kuril Islands (Paramushir); Kommandor Islands (Beringa Island, Poludennaya Bay); Western Kamchatka (Oktyabrskii); Eastern Koryakia (Karaginsky Gulf).

We used several methods to obtain photographs and sound recordings of killer whales. First, we went to the sea in the inflatable boat with outboard motor and searched for killer whale groups to make photos and sound recordings. After killer whales were encountered the boat approached different groups of killer whales, followed each group in a distance of 20-25 m, for about 10 – 20 min to take picture of each whale in the encounter. The photographs of the left side of individual whales were taken to show the details of dorsal fin and saddle patch, which allowed to distinguish individual whales using the technique of photo identification. The data recorded during the work with a

group included the date, time, duration of the work with group, location of the group, number of animals in the group, group composition and type of activity for the group. To describe the group composition during the data collection we distinguished males, juveniles, females with calves and animals which were impossible to ascribe to either category (other animals).

Second, we used stationary hydrophone installed at the seabed to record sounds without approaching the group in the boat. This was especially important during the bad weather and at night, when boat-based actions were impossible.

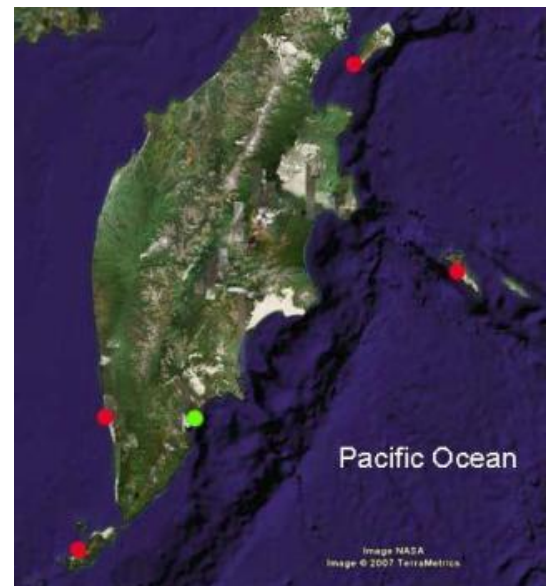
Third, we used photos which were made opportunistically by other scientists.

We obtained the total of about 4500 photos and 10 hours of sound recordings.

During our field season we had many contacts with local people and tourists from Russia and other countries. We talked with them about the problem of orca capturing and other environmental problems. Although Kamchatka is relatively unexploited, there are already many problems (such as poaching), and local people worry about them.

### ***Northern-Kuril Islands***

In the area of Northern Kuril Islands we have obtained 1297 photos and individually identified a total of 56 killer whales: 21 males, 8 females, 3 juveniles, 7 calves and 17 “other” animals. We found no matches between the killer whales identified in the Northern Kurils and the killer whales identified in other areas. However, the sounds in one of our recordings were very similar to the dialect of K19 clan which sometimes occurs in Avacha Gulf area, South-eastern Kamchatka. Unfortunately, we couldn't obtain the good ID photos of the group which produced these sounds because of bad weather conditions, so we couldn't verify the results of acoustic analysis with photo identification. However, from the long-term research of killer whale acoustics in the Northern Pacific it is known that killer whale groups have stable dialects which don't change during tens of years, so we can suppose that the recorded group belongs to K19 clan. Consequently, some exchange between killer whales from the South-eastern Kamchatka and Northern Kuril Islands does exist.



Map of the study areas (marked in red). South-eastern Kamchatka area where previous project took place is marked in green.

Behavioural observations suggest that killer whales from the Northern Kuril Islands are very similar to the Southeast Kamchatka killer whales. Group size, behavioural budget and foraging behaviour was similar to the Southeast Kamchatka resident (fish-eating) killer whales. We didn't meet mammal-eating killer whales in the Northern Kuril Islands, although local people told us that killer whales hunting marine mammals were observed in the area.

### ***Kommandor Islands***

On the Beringa Island (the largest one of the Kommandor Islands) we worked in collaboration with Komandorsky State Nature Biosphere Reserve. The reserve staff helped us to manage the logistics in Nikolskoye village and the transfer from Nikolskoye to the study site (Poludennaya Bay). In return, we made several talks about orcas and other marine mammals and their problems in Russia, and shared photos and videos to increase the interest of local people to these problems. Komandorsky Reserve has the largest marine protected area in Russia (30 miles from the shore, and total of 3,463,300 hectares), and it is the last unexploited area in the Far Eastern waters, which are exhausted by Russian and Japanese poaching. In Komandorsky Reserve we have found the highest frequency of orca occurrence: the groups came to the study area almost every day, and sometimes twice a day. The biology and behaviour of these whales were very similar to the South-eastern Kamchatka resident orcas. Besides, we met one group of mammal-eating killer whales which represent the separate population from the resident fish-eating animals. Killer whale hunting on fur seals is regularly observed off the rookery on the South-eastern part of Medny Island.

In the Kommandor Islands we have obtained 241 photos. Using stationary hydrophone, we obtained a total of 5 hours of sound recordings. We found matches between Kommandor Islands area and South-eastern Kamchatka both by the photographs and sound recordings. These matches included the whales from Avacha and K20 clans. In total, we have identified 9 pods which we met previously in South-eastern Kamchatka: AV379 ("Integral"), AV315+AV337 ("Moloko-Figurny"), K9, KB, AV2+AV285, K36, AV137 ("Chizh"), AV-259 ("Commandor"), AV-96a ("Tigrenok"). We also found some new animals which were not previously met in other areas.

### ***Eastern Koryakia***

In the area of Eastern Koryakia (Karaginsky Gulf) we have obtained a total of 1602 photos. We found matches between Eastern Koryakia area and South-eastern Kamchatka both by the photographs and sound recordings. These matches included the whales from Avacha clan. We also found new animals which were not previously met in other areas. In total, we have identified 4 pods which we met previously in South-eastern Kamchatka: AV300, AV56 (“Businka”), AV50 (“Pirate”), AV28 (“Brodyaga”). Killer whales from the Eastern Koryakia were very similar to the South-eastern Kamchatka resident orcas by their biology and behaviour. Also, twice we met groups which looked like similar to mammal-eating killer whales.

### ***Western Kamchatka***

In the Western Kamchatka area our research was not as successful as in other regions. We found that in our study site (Oktyabrsky village) killer whales rarely come to the shore, which is presumably caused by the shallow waters near the shore. Resident killer whales rarely come to the waters with depth less than 50 m, and at the most of Western Kamchatka shoreline 50-m isobath lies at 20-40 km from the shore. Few areas with deep shoaling waters are difficult to reach because of weakly developed transport at Kamchatka. Consequently, we failed to obtain photographs and sound recordings by ourselves, and established contacts with local people and with scientists who conduct the ship-based surveys in the Western Kamchatka area. By their photos, 3 animals were identified. We found no matches between the killer whales identified in the Western Kamchatka area and the killer whales identified in other areas.

*Table 1. Matches between different study areas: S – matches by sound recordings, ph – matches by photographs.*

	South-eastern Kamchatka	Northern-Kuril Islands	Kommandor Islands	Eastern Koryakia	Western Kamchatka
Northern-Kuril Islands	S		-	-	-
Kommandor Islands	s, ph	-		-	-
Eastern Koryakia	s, ph	-	-		-
Western Kamchatka	-	-	-		

## ***Discussion***

Killer whales live in small communities numbering not more than several hundreds of animals and can travel great distances up to thousands of kilometres. Consequently, one small killer whale community can have a large home range, but traditional methods of abundance estimates (e.g. line transect sampling) usually don't consider this fact. However, it is very important for the understanding of killer whale distribution and numbers in the area. Our results show that killer whales from South-eastern Kamchatka also occur in other regions. Through our previous research using photo identification and acoustic analysis we showed that resident killer whales of South-eastern Kamchatka are divided into three acoustic clans: Avacha clan, K20 clan and K19 clan. Avacha clan is the most common and numerous, numbering about 300 animals. K20 clan includes about 40 whales, and K19 clan – about 50 whales. Thus, in total resident killer whales of the South-eastern Kamchatka include about 400 whales. The present research shows that this number can be extrapolated from the South-eastern Kamchatka to a wider area. Killer whales from Avacha clan and K20 clan occur also in the Kommandor Islands and in the Eastern Koryakia. Killer whales from K19 clan occur also in the Northern Kuril Islands. Consequently, any captures in these regions can threaten the same community which has already suffered from the captures in 2003. Our data are yet insufficient to estimate the total numbers of killer whales in the study regions, but the preliminary results show that their biology and behaviour is very similar to those of the South-eastern Kamchatka killer whales, so we can suppose that they also live in small communities numbering few hundreds of animals. Our results are contrary to the traditional estimates of “many thousands” of orcas in the area

## ***Communicatory and popularization activities***

As a result of growing public concern about capturing of marine mammals for oceanariums, at the end of 2006 Deputy Head of the Russian Federal Service for the Oversight of Natural Resources Oleg Mitvol have banned the export of live-captured cetaceans abroad. Consequently, Utrish Dolphinarium, which was the main capturing agency in Russia, have temporarily quit the capturing attempts. However, this problem is now actively discussed, and some people demand to permit the export. In May 2007 Russian Marine Mammal Consul discussed the problem of live captures of marine mammals, and some old-school Russian scientists have protested against the ban. We



should continue our communicatory and popularization activities to contribute to the continuation of the ban.

#### *Conference participation*

Fourth International Conference on Bio-Acoustics, Loughborough, Great Britain, April 10-12, 2007. On the Fourth International Conference on Bio-Acoustics we gave a talk about foraging strategies and echolocation of Kamchatka killer whales.

21st Conference of the European Cetacean Society, San Sebastián, Spain, April 22nd – 25th, 2007. On the 21st Conference of the European Cetacean Society we presented the poster about the acoustic communication of Kamchatka killer whales.

Conference “Animal behaviour”, Moscow, Russia, October 29 - November 1, 2007. On this Conference we gave a talk about the acoustics and behaviour of Kamchatka killer whales.

#### *Presentations and posters*

On October 27, 2007 we made presentation about our results at the seminar of Shirshov Oceanology Institute. Scientists working on other marine mammals (beluga whales, fur seals, sea otters) attended this seminar and showed high interest and concern to the problem of conservation of orcas and other marine mammals in Russia.

On November 22 we made presentation for the scientists and students at the Department of Vertebrate Zoology, Faculty of Biology of Moscow State University.

It is especially important to conduct popularization and ecological education in children, because they are usually more sensitive and compassionate than adults. Since November 2007 we give regular (once a week) lectures and show videos to the children in Zoological Museum (Moscow). On November 8th we gave a talk and showed our film about killer whales and their capturing in the school for talented children “Intellectual”.

Children always show empathy to killer whales and even cry watching the video of capturing. We hope that these children will never visit the dolphinarium for fun and in future will be concerned in problems of marine mammals in Russia.

#### *Providing recommendations for the state and international institutions*

The results of our work were presented at the 59th Annual Meeting of the International Whaling Commission (IWC) which took place in Anchorage, Alaska from 28 to 31 May 2007 (IWC Report SC/59/SM4). We hope that the Russian State Ecological Expert Commission will consider our report while approving the future quotas.

### *Other communicatory and popularization activities*

We established contacts with local people in the study areas. We told them about the problems of marine mammal conservation and other environmental problems of Kamchatka. It was surprising that many local people understand the importance of these problems, and possible risk to the nature from which they highly depend.

Unfortunately, people in Russia are used to be passive, and they do nothing to solve these problems. We hope that our conservational project will become the “precedent” and encourage other Russian people to take an action.

### **Publications**

#### *Popular publications*

*Filatova O.A.* Kosatki [Killer whales]. “Khimya I zhizn” [“Chemistry and life”] V. 4, 2007, p. 6. (in Russian)

#### *Scientific publications*

*A. Burdin, E. Hoyt, H. Sato and O. Filatova.* 2006. The Killer Whales of Eastern Kamchatka. Alaska SeaLife Center. ISBN: 0-9785436-2-9. 157 pp.

*Burdin, A.M., Hoyt, E., Filatova, O.A., Ivkovich T.V., Tarasyan, K.K., Sato, H,* 2007. Status of Killer Whales (*Orcinus orca*) in Eastern Kamchatka (Russian Far East) Based on Photo-Identification and Acoustic Studies. Preliminary Results. IWC Report SC/59/SM4. 11 pp.

*Filatova O.A., Lazareva E.M., Fedutin I.D., Nagailik M.M., Burdin A.M., Hoyt E.* 2007. Echolocation of free-ranging Kamchatkan killer whales in different contexts. Proceedings of the Institute of Acoustics, Fourth International Conference on Bio-Acoustics. Pp. 37-41.

### **Web-site**

We continue to put on our web-site <http://www.russianorca.org/indexeng.htm> information about killer whales in the wild and their problems, as well as about other marine mammals and their problems, e.g. whaling. We have a good feedback on our forum, and we hope that our activity will contribute to the rise of concern of Russian web-users towards marine mammals.

## Financial report

We spent less money for the travel expenses *Petropavlovsk-Kamchatsky – Nikol'skoye (Kommandor Islands) – Petropavlovsk-Kamchatsky* because we returned on the cruise ship of the “Heritage Expeditions” for free. We used this money and the money from “Contingency” line to cover the increased expenses for the fuel.

<b>№</b>	<b>Budget lines and spends</b>	<b>Requested, £</b>	<b>Expend, £</b>
1	Salary	0	0
2	Equipment	0	0
3	Consumables and stationery	115	115
	- <i>Digital tapes for sound recording</i>	75	75
	- <i>Batteries</i>	40	40
4	Travel expenses	4339	3931
5	Field expenses	375	783
	- <i>Camp supplies (gas, food)</i>	150	150
	- <i>Fuel and motor oil</i>	225	733
6	Contingency	100	
	<b>Total budget</b>	<b>4929</b>	<b>4929</b>

**Application: photographs by T. Ivkovich, O. Filatova, I. Fedutin**

Killer whales and whale-watchers



In Nikolskoye village



The crew of the Komandorsky Reserve help us to repair the cabin



Preparation of stationary hydrophone



Waiting for the whales: Olga Filatova



Waiting for the whales: Ivan Fedutin



In the helicopter flying to Severo-Kurilsk



Moving to the study site



Our field camp



Work in the camp





Work in the sea



Our cabin at the study site



Two orcas from Businka pod



AV-300 with a collapsed dorsal fin



Western Kamchatka coast



“Whale bone museum” in the village



Presentation for the scientists and students at the Department of Vertebrate Zoology,  
Faculty of Biology of Moscow State University

