

**Research Activity Report**  
**Supported by “Leading Graduate Program in Primatology and Wildlife Science”**  
 (Please be sure to submit this report after the trip that supported by PWS.)

	2019. June, 4
<b>Affiliation/Position</b>	Primate Research Institute/M1
<b>Name</b>	Mikuho Yokoyama

<b>1. Country/location of visit</b>						
Rausu, Hokkaido, Japan						
<b>2. Research project</b>						
Killer Whale Field Research in Rausu						
<b>3. Date (departing from/returning to Japan)</b>						
2019. May. 23 – 2014. May. 27 (5 days)						
<b>4. Main host researcher and affiliation</b>						
Dr. Yoko Mitani, Associate Professor at Hokkaido University, Dr. Fumio Nakahara, Professor at Tokiwa University, Dr. Chisato Yamamoto, JSPS Research Fellowship for Young Scientists at Primate Research Institute						
<b>5. Progress and results of your research/activity</b> (You can attach extra pages if needed)						
Please insert one or more pictures (to be publicly released). Below each picture, please provide a brief description.						
<p>I participated in the research of killer whales conducted by University Alliance for Hokkaido Orca Research Project (Uni-HORP). The purposes of this tour were to observe wild marine mammals from a research ship and to learn how to conduct research of them from Dr. Mitani and Dr. Nakahara.</p> <p>Schedule:</p> <table style="margin-left: 20px; border: none;"> <tr> <td style="padding-right: 20px;">May 23</td> <td>Inuyama-Rausu</td> </tr> <tr> <td>May 23-27</td> <td>Observation of killer whales at Rausu (5:30-16:00)</td> </tr> <tr> <td>May 28</td> <td>Rausu-Inuyama</td> </tr> </table> <p>I encountered not only more than 10 killer whales every day but also various marine mammals, for example, some Dall’s porpoises, sperm whales, minke whales, a humpback whale, and a seal (only momentary observed from the land). I was amazed at how large they were and how dynamic they swam. They showed us various behaviors, for instance, spy hop, tail beating, breastfeeding, rolling their bodies and so on. Some of them also did synchronized swimming with other individuals. It is said that synchronized swimming usually happens only individuals under intimate relationships. Others rolled their body and touched each other. They seemed to enjoy playing with each other. These behaviors made me believe they construct complex society.</p> <p>Dr. Mitani and her students observed and recorded their behaviors. They looked for whales by using binoculars and as soon as they found whales, they recorded the species and group size. They also checked latitude and longitude of the spot where they found whales, and depth and temperature of sea water of the area. They could find whales in the so long distance that I could never recognize even their silhouette, and exactly identify the species and individuals. I learned it took for a long time to get the skill to observe whales in the sea. Moreover, they took picture of dorsal fins of killer whales because they identify individuals by the shape of dorsal fins and patterns of white patch. It was so difficult to take good pictures of dorsal fins because killer whales swam fast and they showed their body on the water surface for an instant. Researchers also collected seawater to get environmental DNA to identify ecological type of killer whales. Dr. Nakahara recorded voice of whales under the water by using microphone. We could hear various kinds of sounds directly. Though a lot of mysteries are remained about the ecology of killer whales, we can discover new knowledge about them by combining these new research methods.</p> <p>Various members joined this tour, Dr. Mitani, Dr. Nakahara (researchers of wild marine mammals), Mr. Kanda (a trainer of killer whales in Nagoya port aquarium), Dr. Yamamoto (a researcher studying about cognitive ability of dolphins at Kagoshima aquarium), and so on. They taught us various aspects of whales, for example, making fission-fusion society and playing with other individuals. Some features were seemed to be shared by both primates and whales. I got interested in why they had respectively developed the same abilities although they had lived in totally different environment. I think it is very important that many people from different background cooperate each other in</p>	May 23	Inuyama-Rausu	May 23-27	Observation of killer whales at Rausu (5:30-16:00)	May 28	Rausu-Inuyama
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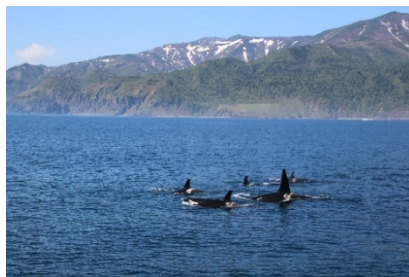
order to comprehensively understand killer whales. This may promote their conservation and environmental enrichment.

I also considered how conserve killer whales, which are also tourist attractions in Rausu. I saw that some sightseeing ships blocked killer whales’ pathway because the ships came too close to them. Their home range is so large that the ships have little affections to their lives. However, if we hope to continue both sightseeing and study for a long time, maybe we should make some stricter rules to protect them. Moreover, one of major industries in Rausu is fishing, so we have to conserve both killer whales and fishery resources. I learned researchers should make good relationships with local people to continue study in the good condition. Also, since Rausu is a part of Shiretoko, a world natural heritage site, there is a lot of rich nature. We could observe some Hokkaido sika (deer) and Ezo red foxes. We also saw some foxes in the town. Some tourists or local people seemed to feed them. This may cause bad impact to their lives. I felt we should reconsider how to live together with wild animals.

Thanks to all members, I really enjoyed this tour. I got interested in how whales recognize the world and construct their society. I thought comparative cognitive science is one of the most effective means to study cognition of whales, chimpanzees, humans, and other animals, so I want to continue to study it harder. I hope to make use of what I learned in my research in the future.



People observing killer whales from a sightseeing ship



Killer whales swimming against mountains in Rausu



Dorsal fins of killer whales  
This is important information of individual identification for researchers.



Collecting seawater for environmental DNA analysis



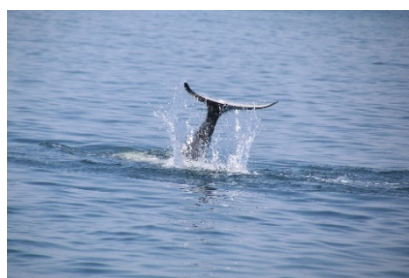
An infant and two adults in both sides



Spy hop



Two individuals did spy hop simultaneously.



Tail beating



Lying on his/her back  
It looked like playing.

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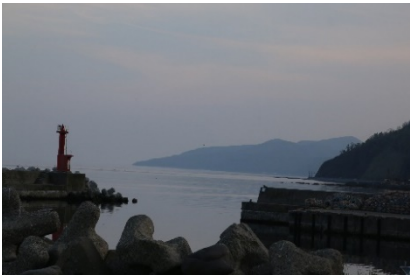
Lying on his/ her side



Shooting water from his/her spout



Mt. Rausu seen from Shiretoko Pass



Aidomari Port and Kunashiri Island behind it  
11 killer whales were killed by floating ice in 2005 there.



Ezo Red fox  
He/ She got in the boat and looking for foods. food.



Rausu harbor seen from Rausu Kunashiri observation tower

## 6. Others

I am sincerely grateful to all members of this tour including Dr. Mitani and Dr. Nakahara. I also thank PWS program.