## **Research Activity Report** Supported by "Leading Graduate Program in Primatology and Wildlife Science"

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1. Country/location of visit
Kyoto University, Japan
2. Research project
Conserv` Session #12: "Sonic Sea"
3. Date (departing from/returning to Japan)
2017. 11.16
4. Main host researcher and affiliation
none
5. Progress and results of your research/activity

This session was held in November 16<sup>th</sup> at Kyoto University, Seminar House of North Campus of Yoshida Campus. This event screened the movie "Sonic Sea", a multi award documentary that presents a significant extent of evidence on how noise pollution is damaging life in the oceans. Man-made noise in the ocean poses a serious threat to marine life by direct physiological impact on the animals and by the disruption on the communication channels that marine animals use – by making impossible animals hear each other, social networks are impaired. Moreover, for the animals using echo to locate food, feeding capability may also be hampered, decreasing animals` survival. The documentary actually starts by an example - describing the mass stranding of cetaceans (17 individuals) in the Bahamas Islands, caused by the routine military training exercises of US Navy ships, which used sonar. Some of the animals were returned to the sea alive, while others have died. From those of died, exhumation and necropsy showed evidence of hemorrhage near and around the hears, caused by an intense pulse. From this tragic event, the documentary deepens this issue by describing the sources of noise pollution and its damaging consequences for marine life. It divides the problem on industrial and military noise, specifically on three main sources: shipping, seismic and sonar. This first is related to the worldwide transportation of people and goods by ships. The noise of propellers, engines and cavitation, travels long distances masking

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the cetaceans' communication channels. The seismic activity has origin in human made activities, such as oil exploration. Petrochemical companies use seismic airguns, consisting in explosions of extremely intense pulses, which may continue for weeks on end. The negative consequences for marine life is obvious, including not only marine mammals, but also fish populations. Finally, the sonar military activity, targets mostly cetaceans for their physiology and behaviour, and its consequences were observed not only in the Bahamas Islands as described above, but also worldwide, with many examples of whales and dolphins stranding's all over the coastlines of Atlantic, Pacific and Indian Oceans.

But Sonic Sea also leaves a message of hope, presenting several technological opportunities which have the potential to replace the current ship engines and seismic airguns. However, the development and implementation of such new technologies are dependent on companies, and hence on government initiatives as the invited expert for this Conserv Session, Dr. Chandra Kent, has explained. Dr. Chandra also emphasized the role of each individual on this issue, by education and awareness of the public, who may put pression of the governments and companies in order to protect the life in oceans.

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am also thankful to PWS.