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## Crossing epistemological seas: reflections about the multiple routes of the (non-monumental) history of ethology.

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### INTRODUCTION

- In general terms, the Ethology is the biological study of animal behavior. The development of ethology as a scientific discipline has undergone controversial interdisciplinary dialogues and crossings of epistemological borders. Because it is the behavior study, ethology needs observations and descriptions of the different perceptions and actions, points of view and life forms of the animals, involving beyond the biological-evolutionary dimension, the ecological, subjective, social and cultural dimensions of the animal worlds.
- Some species, such as marine mammals, are difficult to observe and follow without a deep knowledge of the marine environment, requiring dialogue and collaboration with local populations ontologically connected to the sea or underwater monitoring technologies – important *actants* in this sociotechnical network for the knowledge production about marine animals.
- Based on Science, Technology and Society Studies (STS) and on the social and cultural studies of sciences, covering emerging paradigms and postcolonial epistemologies, I intend to elucidate the controversies and historical, ontological and epistemological particularities in the development of the marine mammals behavior studies, since they developed from dialogues and dissolutions of borders between local and scientific knowledge. I also intend to raise reflections about the nonlinear dynamics of this sociotechnical network of scientific practices of marine mammal ethology, or rather, of the production of *ontoethologies* (Buchanan, 2008) about the multiplicity of nonhuman actors that inhabit the marine universe, involving the dissolution of ontological and epistemological boundaries, and the agency between different human and non-human actors and *actants*, in order to make explicit the multiple routes and *scape lines* of the History of Ethology.



WHALER



MARINE BIOLOGIST



### FINAL ISSUES AND CONSIDERATIONS

- The dialogue between fishermen, scientists, investors and environmentalists is fundamental to make feasible the studies of behavior of marine mammals, as well as for the animal-ethical awareness of the present hunters. This dialogue allowed the whalers to become protectors, as well as local or ethno-scientific knowledge about the behavior, location and migratory pathways of marine animals to be incorporated into scientific practices, dismantled epistemological barriers.
- Through new relational and non-anthropocentric perspectives, we can deconstruct the idea of the Sea as "Immense Empty," and rethink the seas as boundary, liminal landscapes that cross, translate, and dissolve physical and ontological boundaries, shared by a multiplicity of subjects and actors, human and non-human, in symmetrical relationships and affections.
- History and maritime landscape was built through a network of connections between a multiplicity of agents (fishermen, whalers, traditional communities, sailors, fish, marine mammals, fantastic monsters, hybrids, naturalists, scientists, ethologists, among others). In this way, we can see that human and nonhuman animals have an equivalent importance in the (re)construction of oceanic History. Intersubjective relationships between seafarers, fishermen, naturalists and current ethologists with marine animals played an important role in reconfiguring their perspectives and practices within the marine universe.
- Finally, we can reflect about the importance of exchanges and crossings of physical, epistemological and ontological boundaries, among seamen, ethologists and marine animals, in the production of scientific knowledge, in the animal-human relations, as well as in the construction of a non-anthropocentric and non-eurocentric oceanic history.

### REFERENCES CITED

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### OBJECTIVES

These reflections are part of my doctoral research project titled: "An analysis of the dialogue and dissolution of boundaries between local and scientific knowledge for the development of marine mammal behavior studies", with the following objectives:

- Establish dialogues and conduct interviews with researchers at the Centro de História d'Aquém e d'Além Mar (CHAM), Faculdade de Ciências Sociais e Humanas, Universidade Nova de Lisboa, in order to collect data and obtain information about the types of relationships or networks established between them and the seamen, fishermen or harbor population of the region in the development of scientific research about the marine mammals behavior. How do local and ethno-scientific knowledge contribute to the development and feasibility of marine mammal behavioral studies?
- To investigate how sea voyage literature, logbooks and Portuguese nautical reports (from the 15th to the 19th century) were (and still are) used by scientists in their scientific practices in the marine mammals ethology. How did this information provide subsidies for current research on cetacean behavior?
- To investigate how the intersubjective relations between the different human and nonhuman actors interacting in the maritime landscape contributed to the changing perspectives on the marine world, and to the construction of a non-anthropocentric and non-Eurocentric maritime environmental history.
- Establish connections between the history of whaling and the history of knowledge about marine mammals, in Brazil and Portugal, with a focus on dialogue between whalers, scientists and protectors.



ACTANTS



Cooperative fishing between humans and dolphins.

### DEVELOPMENT

- The border crossings between scientists and seamen, and between local knowledge and scientific information are quite visible in the History of Marine Mammals Ethology since the age of the great navigations and maritime discoveries (15th and 16th century). The first descriptions of behaviors and anatomy of marine beings by Portuguese navigators were stimulated by the discovery of new sea routes, land, raw materials, precious metals and resources not found in Europe. At the end of the 17th century, arise the first modern naturalists in search of an empirical and classificatory science influenced by Reason and Enlightenment ideals. Thus, other perspectives emerged in order to discover new natural worlds by observing the marine nature, but still incorporating the traditions of the past, the myths and the pre-modern maritime imagery. Even though Naturalism had consolidated itself only in the 18th century, as a discipline to the study of the natural world, descriptions and observations of the behavior of marine mammals in anecdotal reports, had already stood out in the course of discoveries and great navigations, when the first naturalists still mixed in the ship's crew with the whalers and sailors.
- Cristina Brito and her team at CHAM currently study the long history of ecological and cultural interactions between humans and marine mammals, from the time they were considered as monsters or fantastic beings, to the slow transition when they were considered only animal species. Brito points out the historical connections between reports of travelers since the time of the great navigations and Portuguese discoveries with the first naturalistic knowledge about the physiology and behavior of marine species.
- According to Brito (2016), some of these reports, such as that of the Italian naturalist Aldrovandi (1522-1605), in the early modern age, mix information about real and biological species with fabulous and monstrous species of Maritime imagery, as having real existence in nature. Such reports belong to a pre-modern age and to a peculiar context of transition and "confused situation", where myth and reality, humans and nature, as well as science and local knowledge were still mixed, which preceded Mechanistic Philosophy and the "constitutional cuts" of the Modern age. Many reports and logbooks of travellers from the 15th to the 19th century present interesting descriptions of marine animal behavior. However, the earliest descriptions did not yet possess a naturalist or scientific bias, although they constituted a tenuous historical and epistemological line up to the first scientific and naturalistic studies of marine animals.
- Before the first naturalist voyages, seafarers, whalers and traditional fishing communities, were the holders of knowledge about marine life (the behavior, location, and migratory pathways of these animals). According to Gannier (2009), these seamen were a "third kind of people", beside the living and the dead, because they were the only ones at that time to know the "sea monsters". This "third kind of people" will become a crucial part of the network of knowledge production about marine mammals.
- It is important to emphasize that some "escape lines" deconstruct this tenuous line of the history of knowledge about marine animals, since among reports of seafarers and whalers, there were almost naturalistic and romantic descriptions of behavior, or even among naturalistic notes, there were descriptions that revealed a deep ecological concern with the incorrect and destructive use of nature, the depletion of natural resources and the future of the next generations, such as the reports of José Bonifácio de Andrada e Silva, in the 18th century. These preoccupations will become relevant after the 19th century, with the recognition that natural resources were exhaustible.
- In the 20th century, with the questioning of the Western dualist philosophical traditions that objectifying and separating the nature of society, arose the need to change the relationship between humans, animals and nature, and to rethink the ontological statutes of living beings in the modern world. Such questioning has changed significantly the perceptions and ethical considerations with the marine ecological community.