

Our diversity of research

In collating this month's Oceans Past News, it struck me once again the exciting variety of work being done in our community, one that stretches across disciplines and, as we are slowly working to show here, across the globe. From research employing ethnographic and historical perspectives to better understand South American whaling (our Spotlight this month), to the use of historical records on potential cultural changes in cetaceans and their impact on people, to exploring the dynamics of copepods in the past 60 years, the work is inspiring. It's wonderful to see the unique ways our disparate fields are illuminating the marine world, specifically including people, as it has changed and continues to change. I hope other readers experience the same delight.

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Flensing a whale, Tumbes, Talcahuano, Chile; c. 1940

OCEANS PAST SPOTLIGHT*

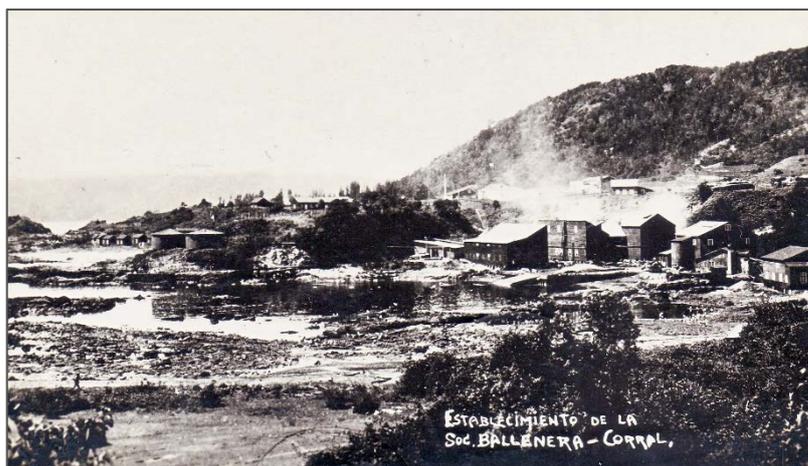
Daniel Quiroz, Marcelo Mayorga, and Gastón Carreño: Ethnographic Narratives and Whaling Operations on South American Shores, 17th-20th Centuries: Patterns, Transformations, and Continuities.

In this project, funded by the Fondo Nacional de Desarrollo Científico y Tecnológico (FONDECYT, the Chilean National Fund for Scientific and Technological Developments), we aim to build a "**historical anthropology**" of whaling in areas along the South American coast where it previously occurred consistently for a long time (Brazil, Chile and Peru) but where today it is "a set of past events" that can no longer be observed directly.

Commercial whaling begins in the Western world only from the tenth or eleventh century, while subsistence whaling is more than 6,000 years old. Historians have distinguished two major categories in commercial whaling, each defined by a particular technological regime: (1) traditional or pre-modern hunting, defined by the use of sail vessels, open boats, harpoons and spears, and (2) modern whaling, with catchers armed with an explosive harpoon gun mounted on their bow and the presence

of factory ships. In traditional whaling, there are two modes, Basque and Yankee, and two others in the modern whaling, Norwegian and Japanese. On the South American continent, commercial whaling has taken place since the beginning of the 17th century (1602), and the presence of these foreign whalers is foundational for explaining the emergence of local whaling traditions in Brazil, Chile and Peru. Whaling here integrated elements of foreign visitors

*Each issue of Oceans Past News includes a feature article, as either an **Oceans Past Spotlight** or as **10 Questions**. If you would like be considered for either, or to nominate a colleague or mentee, please contact Emily Klein at emily.klein04@gmail.com.

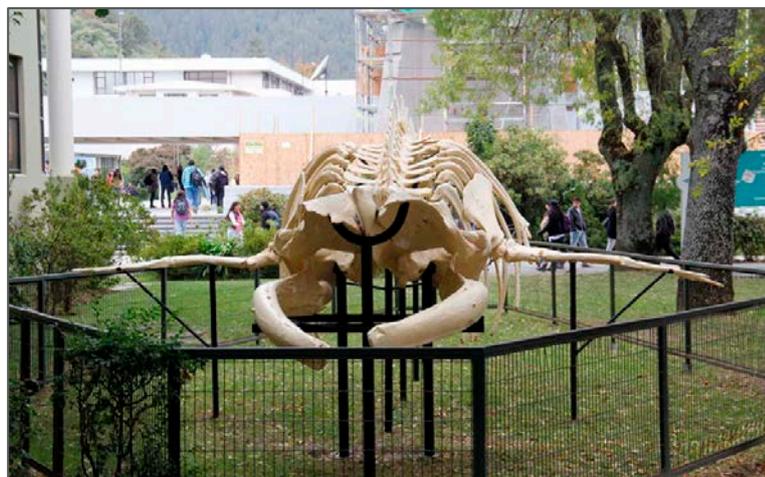


Whaling shore station of San Carlos de Corral, Valdivia, Chile; c. 1930.

with the knowledge and practices of traditional coastal communities, in a complex set of transformations and continuities, and continued in South America until 1985, a period of almost 400 years.

The general objective of the project is to characterize, from a historical and ethnographic perspective, (a) the whaling traditions that arise in Brazil, Chile and Peru due to the influence of foreign operations (Basque, Yankee, Norwegian and Japanese) and (b) the transformations that occurred in the elaborated narratives about whales and their relations with human beings

between the 17th and 20th centuries. In particular, we are interested in characterizing, from an ethnographic and historical perspective, the technological, economic, social and cultural impact of whaling operations on local communities through the study of narratives "constructed" by those who observed and represented their practice. Texts are "reportages" that mix "information about facts, or news, with personal opinions of the writer, who seeks to generate in the reader the taking of a position". For example, the local emergence of an anti-whaling speech is due to the globalization of modern hunting and the use of powerful whaling ships with an explosive harpoon gun, which detracted from "the heroic character" of the traditional whaling craft, transforming a supposedly symmetrical relationship ("the struggle of man with the whale") by a completely asymmetric relation ("the slaughter of the whale"). Our specific objectives also include (1) comparing the whaling traditions of Brazil, Chile and Peru, in order to obtain common patterns in the responses of various local communities to the same foreign whaling traditions; (2) reconstructing the last years of the South American whaling operations, through the memories kept by the people linked to the activity in Brazil, Peru and Chile, and (3) studying the transformation of discourses about whaling that emanate from environmental organizations before and after implementation of the moratorium on commercial hunting. ~ Daniel Quiroz (Subdirección de Investigación, Servicio Nacional del Patrimonio Cultural, Santiago, Chile), Marcelo Mayorga (Universidad de Magallanes, Punta Arenas, Chile), and Gastón Carreño (Subdirección de Investigación, Servicio Nacional del Patrimonio Cultural, Santiago, Chile).



Skeleton of the last whale hunted in Chile, Universidad de Concepción, Chile. 2012.

Selected related publications: Quiroz D (2018). Una máquina maravillosa. Capitalismo, materialidades y la caza de ballenas en el extremo sur de Chile. Revista Chilena de Antropología 37: 143-163. <https://bit.ly/2xGuD4Z>.

Quiroz D, Carreño G (2017). Narrativas etnográficas sobre ballenas y balleneros en las costas de Chile. Antípoda [Universidad de los Andes, Bogotá, Colombia], 28: 31-51. <https://bit.ly/2LhrDVg>.

Quiroz D (2016). Notas sobre el control de la etnografía desde una etnografía descontrolada [a propósito de la caza de ballenas en las costas de Chile]. Revista Chilena de Antropología [Universidad de Chile], 33: 59-70. <https://revistas.uchile.cl/index.php/RCA/article/view/43389>.

Quiroz D (2015). Balleneros en la Niebla: una mirada para-etnográfica de la caza de ballenas en Chile. Chungará [Universidad de Tarapacá, Chile], 47(2): 319-330. <https://scielo.conicyt.cl/pdf/chungara/v47n2/aop2515.pdf>.



Fossil seafloor community deposited under regionally deoxygenated conditions (148-150 mil yrs ago) Wessex Basin Dorset, UK. ©B Caswell

RESEARCH NEWS

An ecological status indicator for all time: Are AMBI and M-AMBI effective indicators of change in deep time?

Increasingly environmental management seeks to limit the impacts of human activities on ecosystems relative to some 'reference' condition, and this is often the presumed pre-impacted state. However, the available data is limited in its ability to describe the 'natural' unimpacted state. We explore how seafloor marine ecosystems in deep time (150 million years ago) are characterised by AZTI's **Marine Biotic Index (AMBI)**, which is widely used to detect the impacts of human

disturbance and to establish management targets. We apply the AMBI index to a fossil fauna for the first time, and examine how it responds to wholly natural perturbations. Our results show that AMBI detected changes in past seafloor communities (well-preserved fossil deposits) that underwent regional deoxygenation in a manner analogous to present-day assemblages experiencing decades of organic pollution. These findings highlight the potential for palaeoecological data to contribute to reconstructions of pre-human marine ecosystems, and hence provide information to policy makers and regulators that have greater temporal context on the nature of 'pristine' marine ecosystems. ~ Bryony Caswell (Hull University, UK). Related publication: Caswell BA, Frid CLJ, and Borja A (2019). An ecological status indicator for all time: Are AMBI and M-AMBI effective indicators of change in deep time? *Marine Pollution Bulletin*, 140, 472-484.

Incorporating fishers' ecological knowledge into ecosystem models to understand the historical impacts of fishing in the Galápagos Archipelago.

In the Galápagos Archipelago, fishing has impacted marine populations species like the grouper (*Mycteroperca olfax*) – locally referred to as **bacalao** – since the 1920s. Traditionally, bacalao was the most important fished species in the Archipelago, but today it is listed as vulnerable by the IUCN due to its limited range and declining fisheries catches. Yet it is difficult to quantify how much the stock has declined and set appropriate management targets due to a lack of fisheries catch records, biomass surveys, and stock assessments. In the absence of this information, we turned to sources not traditionally used in fisheries science today, such as interviews with fishers of varying age where we asked them to recall the amount of fish they caught during their best day's catch and compared that with how long they had been fishing. These surveys indicated that a best day's catch of bacalao had decreased seven-fold within living memory. Additionally, we used biomass estimates from underwater surveys in remote, unfished areas which indicated that bacalao was 22 times more abundant than in fished areas. We incorporated these unfished biomass estimates in ecosystem models to create historical analogues to investigate the ecosystem effects of fishing and El Niño at the Galápagos Marine Reserve. Being able to include historical biomass estimates allowed us to reveal that fishing has had greater impacts on ecosystem structure and function than regular El Niño climate events. ~ Tyler Eddy (Memorial University, Newfoundland, Canada). Related publication: Eddy TD, Friedlander AM, Salinas de León P (2019). Ecosystem effects of fishing and El Niño at the Galápagos Marine Reserve. *PeerJ* 6878. <https://peerj.com/articles/6878/>.



Bacalao being dried at the Galápagos Islands in the 1940s. Source: unknown



"Whalers off Twofold Bay, New South Wales" (1867): Brierly's watercolor depicts a right whale's death flurry and shows the participation of Aboriginals during the chase. Courtesy: Art Gallery of New South Wales.

A whale of a difference: research shows whale culture changed over time – with consequences for reliant human communities.

In this article, I attempt two things: to show it is possible to reconstruct historical changes in cetacean culture, and that these changes had a significant impact on human history. As a case study, I examine shore whaling around the Tasman Sea from 1800 to 1860. Whaling there was particularly richly documented and a reconstruction of catch records shows that **Southern right whales** (*Eubalaena australis*) became increasingly difficult to catch as the industry moved from Tasmania to Southern Australia and finally to Aotearoa, New Zealand.

There is strong evidence that these changes in behavior came about not through the culling of unwary individuals, but through learning that was passed on between and within separate populations - in a word, the whales changed their culture. These cultural changes meant that the human ventures built around catching whales developed very differently in different parts of the Tasman World. In particular, where whale culture made them easy to catch, indigenous peoples played a very small role in whaling. However, where whale cultures shifted to increase elusiveness - something which was especially apparent in Aotearoa, New Zealand - indigenous Maori were the key players in the whaling industry. The history of changing whale culture may thus help explain one of the key historiographical debates in Australasia: Why Maori were able to negotiate such a comparatively prominent place in colonial society, especially compared with Tasmanian aboriginals. ~ Ryan T. Jones (University of Oregon, USA). Related publication: Jones, RT (2019). *A Whale of a Difference: Southern Right Whale Culture and the Tasman World's Living Terrain of Encounter*. *Environment and History* 25(2): 185-218.

Long-term dynamics of a large Arctic copepod in the Baltic Sea. The **Arctic copepod**, *Limnocalanus macrurus*, is a prominent representative of large copepods which perform several essential functions in both freshwater and marine pelagic ecosystems. For example, *Limnocalanus* is the highly preferred prey item for several planktivorous fish. Being a cold stenotherm species, its distribution is primarily confined to deeper water layers. Based on the long-term observations originating from one of the largest spatially confined natural populations of this glacial relict species in the Baltic Sea (Gulf of Riga), we detected profound long-term variability of *Limnocalanus* since the end of the 1950s. The population peaked before the 1980s, but nearly disappeared in the 1990s and recovered in the 2000s. The main environmental parameters explaining this interannual variability of *Limnocalanus* were herring spawning stock biomass in preceding year, winter severity, and bottom water temperature in preceding summer. We also detected a non-stationary relationship between the abundance of *Limnocalanus* and all three key variables with the effect of winter severity and water temperature being non-linear. The study used long-term data to conclude that trophic interactions (i.e. predation) are more important than abiotic conditions to explain the long-term annual-scale abundance dynamics of *Limnocalanus* at the edge of its distribution area in the Baltic Sea. ~ H Ojaveer (University of Tartu, Estonian Marine Institute, Estonia). Related publication: Einberg H, Klais R, Rubene G, Kornilovs G, Putnis I, Ojaveer H (2019). *Multidecadal dynamics of the Arctic copepod *Limnocalanus macrurus* in relation to environmental variability in the Baltic Sea*. *ICES Journal of Marine Science*, doi:10.1093/icesjms/fsz101.



Limnocalanus macrurus. Photo: Maria Põldma



WGHOST members and University of Exeter students meet for fish n' chips in Falmouth, UK. Photo: Munshidha Ibrahim.

RECENT EVENTS

The International Council for the Exploration of the Seas Working Group on the History of Fish and Fisheries (ICES WGHIST) met at the University of Exeter's Penryn campus (UK) from 17 – 20 June, 2019. The meeting kicked off with an open mini-symposium on marine historical ecology and maritime history research across a range of disciplines, and was attended by WGHIST members as well as staff, faculty, and students from the University of Exeter. During rest of the meeting, co-chairs **Ruth Thurstan** (University of Exeter, UK) and **Emily Klein** (Boston University, USA) led WGHIST on forwarding work for the ICES and the broader scientific community, including expanding available digital products and contributions to ICES Ecosystem and Fisheries Overviews, as well as papers for peer review on the importance and use of long-term perspectives and lessons from cross-disciplinary collaboration for early career scientists. Members also enjoyed classic fish n' chips in historic Falmouth, and several attended the International Sea Shanty Festival there the weekend before the meeting. More on WGHIST is available via their website, <https://www.ices.dk/community/groups/Pages/WGHIST.aspx>, and the meeting was shared in real time on Twitter under the hashtag #WGHIST.

RECENT PUBLICATIONS

Barrett JN (2019). **An environmental (pre)history of European fishing: past and future archaeological contributions to sustainable fisheries.** *Journal of Fish Biology* 94(6): 1033-1044. <https://doi.org/10.1111/jfb.13929>.

Campbell C (2019). **Rising with the Tide of History: The Age of Sail as Industrial alibi.** *Canadian History and Environment* 2: 1-37. <https://dx.doi.org/10.25071/10315/36212>.

Carnell PE, Keough MLJ (2019). **Reconstructing historical marine populations reveals major decline of a kelp forest ecosystem in Australia.** *Estuaries and Coasts* 42(3): 765–778.

Caswell BA, Frid CLJ, Borja A (2019). **An ecological status indicator for all time: Are AMBI and M-AMBI effective indicators of change in deep time?** *Marine Pollution Bulletin* 140; 472-484.

Eddy TD, Friedlander AM, Salinas de León P (2019). **Ecosystem effects of fishing and El Niño at the Galápagos Marine Reserve.** *PeerJ* 6878. <https://peerj.com/articles/6878/>.

Einberg H, Klais R, Rubene G, Kornilovs G, Putnis I, Ojaveer H (2019). **Multidecadal dynamics of the Arctic copepod *Limnocalanus macrurus* in relation to environmental variability in the Baltic Sea.** *ICES Journal of Marine Science* [doi:10.1093/icesjms/fsz101](https://doi.org/10.1093/icesjms/fsz101).

Estrella-Martínez J, Schöne BR, Thurstan RH, CapuzzoE, Scourse JD, Butler PG (2019). **Reconstruction of Atlantic herring (*Clupea harengus*) recruitment in the North Sea for the past 455 years based on the $\delta^{13}C$ from annual shell increments of the ocean quahog (*Arctica islandica*).** *Fish and Fisheries* 20(3): 537-551. doi.org/10.1111/faf.12362.

Faulkner P, Harris M, Haji O, Crowther A, Horton MC, Boivin NL (2019). **Towards a historical ecology of intertidal foraging in the mafia archipelago: archaeomalacology and implications for marine resource management.** *Journal of Ethnobiology* 39(2): 182-203. <https://doi.org/10.2993/0278-0771-39.2.182>.

Fossilea T, Ferreira J, da Rocha Bandeira D, Dias-da-Silva S, Colonese AC (2019). **Integrating zooarchaeology in the conservation of coastal-marine ecosystems in Brazil.** *Quaternary Internat'l* doi.org/10.1016/j.quaint.2019.04.022.

Historical reconstructions of marine fisheries catches: challenges and opportunities. *Frontiers in Marine Science*, Research Topic: 16 articles, available at <https://bit.ly/2LPavFZ>.

Jones RT (2019). **A Whale of a Difference: Southern Right Whale Culture and the Tasman World's Living Terrain of Encounter.** *Environment and History* 25(2): 185-218. <https://doi.org/10.3197/096734018X15217309861540>.

Klompakera AA, Kelley PH, Chattopadhyay D, Clements JC, Huntley JW, Kowalewski M (2019). **Predation in the marine fossil record: Studies, data, recognition, environmental factors, and behavior.** *Earth-Science Reviews* 194: 472-520. <https://doi.org/10.1016/j.earscirev.2019.02.020>.

Shaw JLA, Weyrich LS, Hallegraeff G, Cooper A (2019). **Retrospective eDNA assessment of potentially harmful algae in historical ship ballast tank and marine port sediments.** *Molecular Ecology*:2476-85. doi.org/10.1111/mec.15055.

ANNOUNCEMENTS

Planned project on the historical ecology of *Ostrea edulis* in Europe. The **Native Oyster Restoration Alliance (NORA)** is an open pan-European collaboration supporting and raising the profile of Native oyster restoration in Europe. NORA is looking to spearhead a project to document and publish a peer reviewed paper on the historical ecology of the native oyster in Europe. We are actively seeking interested parties to participate in a working group to gather the required information, and design and draft a publication. We are also seeking historical information to include in the assessment from all European nations. For further details, if you are interested in participating, or believe that you may have information of use to this effort, please contact **Dr. Philine zu Ermgassen**, NORA Secretariat on: secretariat@noraeurope.eu.



Call for submissions to a special issue in *Frontiers in Marine Science*: “Marine Ecosystem Restoration – Challenges and New Horizons”. Of particular interest is work that synthesizes lessons both within and across ecosystems, approaches, and disciplines, highlights recent innovations or developments, enhances understanding of success, and promotes the integration of ecological, sociological, and engineering theory in to restoration practices. While the call may appear focused on contemporary system study, the importance of long-term knowledge and cross- and interdisciplinary approaches is well documented, thus readers from across fields and specifically the social sciences and humanities are encouraged to consider submitting. More information at <https://www.frontiersin.org/research-topics/10620/marine-ecosystem-restoration-mer---challenges-and-new-horizons>.

ANNOUNCEMENTS: CONFERENCES

Call for presentations for the **Applied Marine Environmental History in the Indo-Pacific: Problems, Sources and Opportunities**, which will take place at Murdoch University on 16 December 2019. The workshop provides an opportunity to consider the problems, sources, and opportunities for marine environmental history in the Indo-Pacific, broadly defined. Submissions are invited for 20-minute presentations to address key workshop questions, as outlined at <https://docdro.id/9NwqjS3>; please send abstracts to j.christensen@murdoch.edu.au by **1 August 2019**.

The call for papers is also open for the **Oceans Past VII Conference: Historical perspectives on marine ecosystems, fisheries, and future.** OPVII will take place 10 – 13 May, 2020 at VLIZ in Ostend, Belgium. The conference welcomes researchers, practitioners, policy-makers and students of all disciplines under the unifying view of our oceans as networks of social-ecological or coupled human-nature systems. Paper submission deadline is 15 November, 2019. More can be found on the website at <https://oceanspast.org/opviii.php>.

The **3rd World Congress of Environmental History, “Convergences: The Global South and the Global North in the Era of Great Acceleration”**, will take place from 22 – 26 July, 2019, in Florianopolis, Brazil, at the Universidade Federal de Santa Catarina. More information on the webpage, <http://www.3wceh2019.floripa.br/>.

The **20th Meeting of the Fish Remains Working Group (FRWG)** is set for August 26-30, 2019 in Portland Oregon, USA. FRWG is an outstanding way to meet with scholars from around the world in a small supportive atmosphere. The local organizer and host is Virginia Butler (Portland State University, USA), with planning committee: Madonna Moss (Univ of Oregon, U.S.A.), Iain McKechnie (Univ of Victoria, Canada), Elizabeth Reitz (University of Georgia, U.S.A.) and Jen Harland (Univ of the Highlands, Scotland). More at <https://www.2019frwg.com/welcome>.

The **North Atlantic Fisheries History Association (NAFHA): Re-visiting Fisheries History – Re-visiting Iceland** Conference will take place 17-19 October, 2019, University of Iceland, Reykjavik, Iceland.

The **2nd CONCHA Workshop – Sea and Animals: History, Culture, and Marine Conservation** will take place 21-23 October 2019 in Lisbon, Portugal. http://www.cham.fcsh.unl.pt/ext/concha/concha_2workshop.html. A video from the 1st CONCHA Workshop can be viewed at <https://youtu.be/8Amc8cNt9dU>.

Down By The Water, an interdisciplinary symposium on the role of water transport points in past societies, will take place in Helsinki, Norway, 6-8 November 2019. More information at <https://blogs.helsinki.fi/downbythewater/>.



CONTACT

Oceans Past News is a quarterly newsletter that aspires to both unite and inform the worldwide community interested in historical perspectives of marine social-ecological systems by providing insight into the wide-ranging and excellent work being done and the resources available. If you would like to propose work for OPN in the future, please contact **Emily Klein** (emily.klein04@gmail.com).

The next Oceans Past News will be out mid-October 2019. We warmly welcome submissions through September.

RESOURCES

The Oceans Past News Archive is available online: <https://oceanspast.org/newsletter.php>

More on the Oceans Past Initiative: <http://oceanspast.org>

We are also on Facebook: <https://www.facebook.com/groups/122288493384/>