

NEWSLETTER
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OCEANS PAST INITIATIVE

HAPPY NEW YEAR FROM OPI

Welcome to 2017! We hope you all had a wonderful holiday season and are enjoying the new year. Here at Oceans Past News, we thank you for supporting OPN and ensuring the success of our initial editions, with special thanks to **John Nicholls** and **Heidi Alleway** for their contributions to our inaugural Research Spotlight and 10 Questions features. We hope 2017 will see our community grow and expand across the globe, and we look forward to continuing to share the excellent research being done by all of you.

Please contact us at any time with questions, comments, suggestions, and content!

Emily S. Klein, Southwest Fisheries Science Center & The Farallon Institute, USA
Cristina Brito, CHAM, FCSH, NOVA University of Lisbon
OPN Editors



OCEANS PAST SPOTLIGHT

Each issue of Oceans Past News will include a feature article to highlight research happening in our community, as either an **Oceans Past Spotlight** or as **10 Questions**, which will pose the same 10 questions to different leaders in our field. If you would like to be considered for either, or to nominate a colleague or mentee, please contact Emily Klein at emily.klein04@gmail.com.

J. Scott McCain: Historical perspectives provide critical insight into fish habitat

The connection between fisheries and habitats is poorly quantified for many fish stocks. It is even more difficult to assess when a stock has already collapsed, and may be impossible with only current information. How, then, do we assess or manage fish habitat in the face of depleted or collapsed fish stocks?



*Field surveys in Brandy Cove, New Brunswick.
Photo by Trevor Nickerson.*

Our research addressed this question using a historical perspective in Atlantic Canada. We compared the abundance of two species of juvenile fish (Atlantic cod, *Gadus morhua*, and pollock, *Pollachius virens*) in coastal habitats between time periods of high and low stock abundance. To do this, we used historical scuba dive surveys in rockweed and seagrass beds in the 1980s-90s, and resampled them today, employing the same methods. We also assessed a beach seine survey that compared fish abundance in the 1960s and 1990s. Overall, we found that before stock collapse, juvenile fish were much more abundant in coastal habitats. This finding indicates that commercially important fish indeed use these coastal habitats, and has further implications for Canadian fish habitat management.

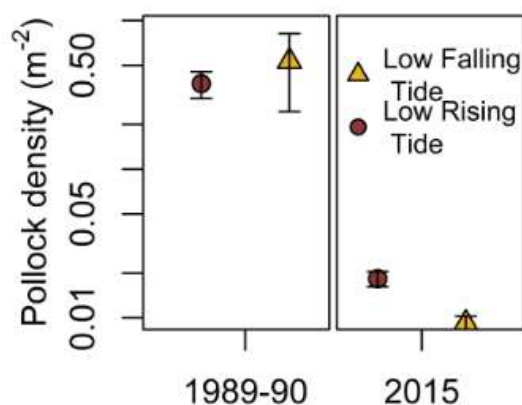


Figure from McCain et al. 2016. In the late 1980s, pollock (*Pollachius virens*) stocks were at much higher abundances than in 2015.

Recent alterations to the Canadian Fisheries Act may have negative consequences for fish habitat management. As of 2012, the Canadian Fisheries Act mandates that fish harvested in commercial, recreational, or aboriginal fisheries be present in a habitat for that habitat to require protection. This is problematic if such harvested fish are currently at low abundances in habitats that were historically important and thus in need of management attention. Using our approach of employing historical data and perspective, we addressed this issue and made recommendations for improving fish habitat management in Canada. As they recover, fish stocks in the future may again utilize coastal habitats as they did in the past, and therefore it is vital to view these coastal ecosystems as both a current *and* potential resource.

By diving into our ecological history, we developed a reference point of juvenile fish abundance and demonstrated the importance of fish habitat through time. However, we only looked at a relatively recent period. Deeper historical comparisons could offer greater insights into goals for fisheries productivity and habitat restoration. Our work reveals the importance of historical baselines of the relationship between species and their habitat *through* time – and that this has strong implications for current management and policy decisions.

*Related publication: McCain JSP, Rangeley RW, Schneider DC, HK Lotze. 2016. **Historical abundance of juvenile commercial fish in coastal habitats: Implications for fish habitat management in Canada**, Marine Policy, 73:235-43.*

RESEARCH NEWS

Isotope analysis to inform understanding of baleen whale ecology:

Dr. Andrew Jackson, an ecologist from the School of Natural Sciences, Trinity College Dublin, is currently working with collaborators from the Natural History Museum London and the National Oceanography Centre in Southampton to study the movement ecology of baleen whales in the NHM collection. They are using fine scale stable isotope analysis of the baleen plates, which, as one moves along the plate, provide historic information about what, and hence where the animal was feeding. The project is focusing on the minke and grey whales in the collection, but also as a special feature includes the blue whale that is to be displayed in Hintze Hall (*right*) and was originally found stranded in County Wexford in 1891. This project is funded by a small research project grant from the British Ecological Society, and involves

Dr. Natalie Cooper, Natural History Museum London and **Dr. Clive Trueman**, National Oceanography Centre, Southampton. Dr. Andrew Jackson recently completed a 3.5-month sabbatical as a Fulbright Marine Institute of Ireland research scholar at the Scripps Institution of Oceanography in La Jolla, CA (USA) with collaborator **Dr. Brice X. Semmens**. He commenced a project to develop new ecological theory and mathematical models to describe the flow of stable isotopes through food-webs. The goal of this would be to infer and derive more meaningful information for improved management of, and insights to, dynamic marine ecosystems.



Whale skeleton as it will be displayed in the NHM collection. <http://bit.ly/2j5HBzA>

Complex yet predictable dynamics in historical Bay of Fundy fisheries:

Nonlinear dynamics are increasingly identified in marine ecosystems, yet such dynamics have primarily been associated with exploited species, suggesting an anthropogenic stressor may explain their existence. However, earlier work compared co-occurring exploited and unexploited species, failing to fully account for differences between species as well as indirect impacts and long history of human use. New research leveraged historical (1870s-1920s) fisheries data in the Bay of Fundy (Canada) to investigate dynamics for the same species before and after significant changes in harvesting. Results demonstrated nonlinear signatures were prevalent prior to heavy industrial exploitation, and were highly deterministic, revealing that such complex behavior existed prior to extensive human influence. This work also compared historical data with contemporary analogs and further showed a reduction in deterministic dynamics post-industrialization, suggesting that fishing can undermine the dynamics of marine populations and render fisheries model output less predictable for management. *Related publication: Klein, E. S. and S. M. Glaser, A. Jordaan, L. Kaufman, A. A. Rosenberg (2016). A complex past: historical and contemporary fisheries demonstrate nonlinear dynamics and a loss of determinism.*



"The Herring Fishery: Fishermen in Quoddy boat hauling herring gill nets". 1887. NOAA: www.photolib.noaa.gov/htmls/figb0124.htm.



16th Ce fish list: Archives Nationales de France.

The NorFish Project - Novel sources for the history of fisheries:

Understanding fisheries through time requires information beyond fishery landings. For example, it is possible to study the history of fisheries through a pinpointed study of the fish price market. However, doing so using data from before the nineteenth century is not an easy task, with challenges including the dispersion of sources, differences in quantities, weights, typologies and origins of foodstuff, as well as disparate type of money. In France, unique sources of this type go back to the Middle-Ages. While challenging for many reasons, these so-called 'food supply documents' provide a broad overview of the price history

for many types of commodities from the 16th century. They were officially recorded between a foodstuff wholesaler (providers) and wealthy clients (aristocrats) or the administration (army) to secure access to the commodities needed wherever they would travel during a period of about 2-3 years. These contracts contain lists of about 200 commodities ranked by price, and are mainly divided between three sectors, meat, poultry and fish, although many other foodstuffs or commodities also figure among the list. These documents include about 40 species of freshwater and sea fish, catalogued by type, size, and weight. **Bernard Allaire** and the **NorFish Project** aim to use these documents to explore the fish market over more than two centuries. More at <https://www.youtube.com/watch?v=OCos4XYdMDE> and www.bernard-allaire.net.

COLLABORATIONS

The Blue Desert: Using novel sources of local knowledge to understand ecosystem change.

The Blue Desert project aims to create a documentary on the evolution of fish populations/benthic communities in the Northern Adriatic Sea (Mediterranean). The documentary will describe marine biodiversity changes from a Scuba Diver perspective, based on collections of old and new video and photographic footage along with interviews of experienced divers. The project will be presented to several diving clubs and organizations in the area (north-east Italy, Slovenia and north Croatia) during



autumn/winter 2016-2017, to engage as many divers as possible and increase awareness of the project. Divers will be invited to search their old video archives (minimum 5-10 years old) for any footage related to the following:

- *Presence of* (1) large schools of fish; (2) individual fish of large size; and (3) species no longer found in the area; (4) new species not documented in the past (e.g. alien species)
- *Changes in* the underwater seascape, focusing on sessile benthic species (e.g. gorgonians, sea-urchins, etc.)

Divers will return to the location where the old videos were recorded during spring/summer 2017, and document conditions today, attempting to recreate, as much as possible, the original video. The Blue Desert project is an initiative of Project Baseline (<http://www.projectbaseline.org/>) in collaboration with Coral Scuba Club (<http://coralsub.it/wordpress/>), Sea Shepherd Italy (<http://www.seashepherd.it/>) and the National Institute of Oceanography and Experimental Geophysics (<http://www.ogs.trieste.it/en>).



Example of children's art from South Africa

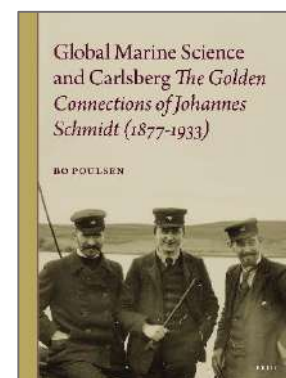
Children's perception of the marine environment: Children's drawings are an innovative and powerful tool which can overcome linguistic barriers and effectively gather information on children's perception by opening a window into their representational world. The aim of the project is to investigate how children perceive the marine environment, detect misconceptions, identify marine species that could serve as flag species for public awareness, and examine the role of culture on children's perception of the marine environment by analyzing their drawings. Thus, students in the 1st and 2nd grade of schools from different countries around the globe are asked to draw what they would like to see

when they go swimming and/or snorkeling. So far, 7 countries have been involved in the study (Greece, Italy, Spain, Ukraine, South Africa, UK and Portugal), with more than 100 students participating in the project. Recent results are significant, displaying strong links between the species depicted and the biodiversity of the country, while drawings of countries considered biodiversity hotspots depict significantly more marine animals.

Interested in this project? The work is ongoing and looking to expand, aiming to reach at least 10 countries. To get involved and for more information, **please contact Ioannis Giovos** (ioannis.giovos@gmail.com) and visit <http://isea.com.gr/en/activities/programs/human-and-marine-ecosystems/176-children-perception-of-marine-environment>.

NEW PUBLICATIONS

Global Marine Science and Carlsberg. *Bo Poulsen, Aalborg University.* By accident, the world-famous brewery Carlsberg became a central force in global marine science during the first three decades of the 20th century. Within a core group of scientists and managers, Johannes Schmidt (1877-1933) was the key figure combining the efforts of the International Council for the Exploration of the Sea (ICES), the Danish state and several private companies. Launching 26 oceangoing expeditions Schmidt made landmark discoveries such as the breeding ground for the Atlantic eel in the Sargasso Sea. The scientific frontier was pushed literally kilometres into the deep sea and across the World's oceans. While the formal North Atlantic Empire of the small state of Denmark was in decline, an informal empire of science was erected instead. <http://bit.ly/29Ht0FJ>.



Acebes JMV, Tull M (2016) **The history and characteristics of the mobulid ray fishery in the Bohol Sea, Philippines.** *PLoS ONE* 11(8): e0161444. doi:10.1371/journal.pone.0161444.

Caswell, B.A., and L.J. Frid (2016). **Marine ecosystem resilience during extreme deoxygenation: The Early Jurassic oceanic anoxic event.** *Oecologia*. 1-16. doi: 10.1007/s00442-016-3747-6.

Gaynor, A., J. Frawley and K. Schwerdtner Máñez (2016). 'Slim female records the same old story': Newspapers, gender, and recreational fishing in Australia, 1957–2000. *Geoforum* 77. 114-123. <http://dx.doi.org/10.1016/j.geoforum.2016.10.018>.

Klein, E. S. and S. M. Glaser, A. Jordaan, L. Kaufman, and A. A. Rosenberg (2016). A complex past: historical and contemporary fisheries demonstrate nonlinear dynamics and a loss of determinism. *MEPS*. <http://bit.ly/2dX1G9E>.

McCain J.S.P., R. W. Rangeley, D. C. Schneider, and H. K. Lotze (2016). Historical abundance of juvenile commercial fish in coastal habitats: Implications for fish habitat management in Canada. *Marine Policy*. 73: 235-243. <http://bit.ly/2jA71Wk>.

Priest, T. (2016). Shrimp and Petroleum: The Social Ecology of Louisiana's Offshore Industries. *Environmental History*. 21(3): 488-515. doi: [10.1093/envhis/emw031](https://doi.org/10.1093/envhis/emw031).

Travis, C., and P. Holm (2016). The Digital Environmental Humanities—What Is It and Why Do We Need It? the NorFish Project and SmartCity Lifeworlds. In: *The Digital Arts and Humanities*, C. Travis and A. von Lünen, eds. Springer International Publishing. pp 187-204. DOI: [10.1007/978-3-319-40953-5_11](https://doi.org/10.1007/978-3-319-40953-5_11).

Vales, D.G., L. Cardona, A. F. Zangrando, F. Borella, F. Saporiti, R.N.P Goodall, L.R. Oliveira, and E.A. Crespo (2016) Holocene changes in the trophic ecology of an apex marine predator in the South Atlantic Ocean. *Oecologia*. DOI: [10.1007/s00442-016-3781-4](https://doi.org/10.1007/s00442-016-3781-4) and online at <http://link.springer.com/article/10.1007%2Fs00442-016-3781-4>.

ANNOUNCEMENTS: EMPLOYMENT OPPORTUNITIES

Postdoctoral position, Trinity College: 3-year position with the NorFish team, duties to include managing a large and growing database on North Atlantic fisheries, circa ~1400-1700. This position requires both historical knowledge and quantitative skills, as it entails organizing, connecting, and exploring data across multiple sources and disciplines. Contact Poul Holm, holmp@tcd.ie, and more info at: <https://www.tcd.ie/history/research/centres/ceh/norfish/>.

ANNOUNCEMENTS: CONFERENCES

CALL FOR PAPERS ENDS 31 JANUARY: Oceans Past VI: Historical perspectives on the elements and dynamics of the marine socio-ecological system. Sesimbra, Portugal, May 2017. <http://www.escolademar.pt/oceans-past-vi/>.

4th Annual Young Natural History Scientists' Meeting. Paris, France. **7-11 February 2017.** This conference is dedicated to young researchers in natural history (non-permanent researchers such as PhD students, postdocs or master students) who are the only ones allowed to present communications, but senior researchers are very welcome to attend the conference. **Admission is free, but do register.** <https://ynhm2017.sciencesconf.org/>

American Society for Environmental History Conference: **Winds of Change: Global Connections across Space, Time, and Nature.** Chicago, Illinois, USA. March 29 - April 2, 2017. <http://aseh.net/>.

III CHAM International Conference: **Oceans and Shores: People, Heritage and Environments.** Lisbon, Portugal, July 2017. http://www.cham.fcsh.unl.pt/ac_actividade.aspx?ActId=456.

The Bountiful Sea: Fish processing and consumption in Mediterranean antiquity. The Ioannou Centre, University of Oxford, 6-8 September 2017. <http://oxrep.classics.ox.ac.uk/pages/thebountifulsea/>

Science delivery for sustainable use of the Baltic Sea living resources. Tallinn, Estonia. 17-19 October 2017. <http://www.bonus-inspire.org/symposium>

Call for **Expressions of Interest to Host the ESEH 2019 Conference:** <http://bit.ly/292kNhU>.

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 our editors, **Emily Klein** (emily.klein04@gmail.com) or **Cristina Brito** (escolademar@gmail.com).

The next Oceans Past News will be mid-April 2017. We warmly welcome submissions through March, 2017.

RESOURCES

Oceans Past Initiative: <http://www.tcd.ie/history/opi/>

Archive:

OPN No.1, July 2016 - <http://docdro.id/VcySADMc>

OPN No.2, November 2016 - <http://docdro.id/DCnPiR4>