

OCEANS PAST NEWS No.1

JULY 2016



[WELCOME!]

These are exciting times to be researchers of Oceans Past. We are enjoying scientific breakthroughs that are truly expanding our understanding of changes in the sea – and are increasingly becoming important to marine management. We employ new methodologies and new approaches that are shifting and deepening our understanding of what once was a big unknowable. It is all happening at breakneck speed and in a myriad of contexts. This newsletter is designed to help us all keep abreast of information, opportunities, and connections to be made. I hope the newsletter will be a simple and efficient tool. It will only be as good as we all make it so I encourage you to share information. Let's build on our community's willingness to share.

*Poul Holm
Chair, Oceans Past Initiative*



[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 12 Questions, which will pose the same 12 questions to different leaders in our field. If you would like be considered for either, or to nominate a colleague or mentee, please contact Emily Klein at emily.klein04@gmail.com.

John Nicholls: Fish, Whales, and Datasets - OPI continues to house a wealth of data

Based at the University of Hull in England, the Oceans Past Initiative (OPI) data repositories house a wealth of information about marine ecosystems through time. Intended to engage across the community, these repositories are maintained in accordance with international data management standards, and the integrity of these datasets was verified through peer review, published documents (books, journals, etc.), and via academic and public engagement. All OPI datasets are also underpinned with specific metadata to inform users on the information they are accessing. These metadata take the form of concise documentation that describes the research, processes, methodologies and compilation of the original data and the means by which the dataset was produced.

| Some Concepts Explained | |
|---------------------------------|---|
| What is a repository? | A centrally located computer server, with redundant backups and security measures in place, that can store and manage data. (e.g. HYDRA Repository - https://hydra.hull.ac.uk/resources/hull:HMAPDisplaySet) |
| What is a database? | Data held in an archive, typically in a computer in digital form, in a structured and formatted way that can be accessed in diverse ways. |
| What is a dataset? | Compiled information set that has been specifically formatted into a structured unit so that it can be used as a distinct entity, typically by a computer. |
| What is metadata? | Metadata is data about data. It explains, describes, and provides relevant information about a dataset or a database (e.g. how and by whom the data was collected). |
| What is aggregated data? | Collection of data extracted from a series of data sources, such as databases and datasets and compiled into an accessible and exchangeable format |

OPI is also working with the Intergovernmental Oceanographic Commission of UNESCO, **International Oceanographic Data and Information Exchange** (IODE) and **Ocean Biogeographic Information System** (OBIS), to provide aggregated datasets to the Big Data community. To date, we provide 22 complete datasets that span the world's oceans and seas, from Australia to Peru, from the Galapagos to the Arctic, and from the Antarctic to the South China Sea.



New datasets are being produced and developed in accordance with our strict guidelines, including a unique **British Southern Whale Fishery** database. In yet another development, in conjunction with OBIS and the Charles Darwin Institute, we are developing new datasets of **Sea Cucumber** fisheries in the Galapagos to assist with UNESCO's awareness drive around endangered species. Links to the current datasets in various formats can be found at: <http://www.hull.ac.uk/hmap/index.htm>.



Galapagos fishermen.

Your contributions are welcomed! If you are working on a data collection project or have access to data sources, you can contribute to the worldwide database network. More information and how to produce standardized datasets can be found on our Data Pages: <http://www.hull.ac.uk/hmap/Submission/Submission.html>. If you are interested in sharing your data with the larger community or simply if you want to know more, please feel free to contact John Nicholls, OPI Data Manager at j.nicholls@hull.ac.uk. Further information on IODE data management and standards are available at http://www.iode.org/index.php?option=com_content&view=article&id=3&Itemid=33.

[RESEARCH NEWS]

Collaboration to understand swordfish in the Mediterranean

Swordfish is an iconic fish species in the world's oceans and easily recognized. It is also highly valued and has supported commercial fisheries in the Mediterranean Sea for millennia. Researchers are now investigating whether another potential and unutilized source of long-term swordfish data is available. They analysed bycatch records in coastally-deployed bluefin tuna traps in Italy during the late 1800s and 1900s to investigate whether swordfish have been captured in this fishing gear. Capture by these gear as bycatch could reveal new insights to swordfish biology (e.g., distribution, migratory behaviour, abundance), and how it has responded as fishing intensity and methods have changed over time. The results could be used to improve the ICCAT management strategy of this important fishing resource in the Mediterranean Sea. *The work was started with a COST Short-term Scientific Mission to Sicily in March 2016. Further info: Brian MacKenzie (brm@aqua.dtu.dk) and Teresa Romeo (teresa.romeo@isprambiente.it).*

112 years of change in North Sea skates and sharks

Using historical data, researchers found there has been a fundamental shift in the skate and shark assemblages in the North Sea from larger, more valuable and more vulnerable species historically to those smaller, more resilient and less economically valuable. In addition to identifying these shifts, these scientists were the first to show how trends resulted from the *combined* impacts of fishing, climate change, and habitat loss. Given that these pressures similarly affect shelf seas worldwide, findings have implications for sharks and skates globally. The research also further identified key nursery and feeding areas for sharks and rays in the North Sea, including species classified as "High Risk" by the IUCN Red List.

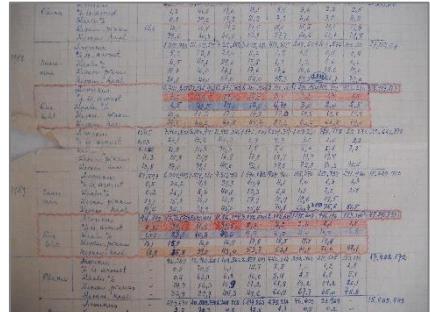
Related publications: Sguotti C, Lynam CP, García-Carreras B, Ellis JR, Engelhard GH (2016) *Distribution of skates and sharks in the North Sea: 112 years of change.* Global Change Biology 22: 2729-2743 (doi:10.1111/gcb.13316), and Sguotti C (2014) From 1902 to 2013: one hundred and twelve years changes in the abundance and distribution of 8 species of elasmobranchs in the southern North Sea. *MSc Thesis, Univ. Padua, Italy, 105 pp.*



Detail from an illuminated manuscript ('The Macclesfield Psalter') produced ~AD 1330 in eastern England, showing a large Common Skate *Dipturus batis* (Fitzwilliam Museum, Cambridge) – a species then common, but now considered locally extinct.

Research aims to understand loss of fall herring in the Gulf of Riga

Autumn spawning herring were very abundant in the Baltic Sea a century ago, and contributed to approximately 90% of herring catches. However, autumn spawners almost disappeared from the Baltic Sea during the 20th century. For example, they declined in the Gulf of Riga during and after the late 1970s, after a notable peak in the late 1950s and early 1960s. **Henn Ojaveer** (*University of Tartu*) and **Brian MacKenzie** (*Technical University of Denmark*) have reconstructed catch statistics for the autumn spawning herring in the Gulf of Riga since the 1920s and retrieved other historical fishery data (including catch by age for the 1950s-1970s) to assess whether the fishery was a main driver in the decline of the Gulf of Riga stock. *This study is part of the two EU BONUS projects INSPIRE (<http://www.bonus-inspire.org/>) and BIO-C3 (<https://www.bio-c3.eu/>).* For more: Henn Ojaveer (henn.ojaveer@ut.ee) and Brian MacKenzie (brm@aqua.dtu.dk).



Has eutrophication promoted forage fish production in the Baltic Sea?

A study in the Baltic Sea using historical evidence to help researchers understand how fish populations react to changes in nutrient concentrations. The study utilizes long time series of fish monitoring data combined with modelled nutrient concentrations to explore how a multi-fold increase in nutrient loads from the 1950s to 1980s enhanced sprat and herring productivity in the Baltic. Results suggest the increased nutrients enhanced the absolute level of fish biomass in some years via increased body weight of the fish, but that additional and independent trends in especially sprat biomass also occurred, largely driven by climate and top-down control (predation, fishing). Collectively, this research illuminated impacts of nutrient loading alongside those of other prevailing ecosystem and climate conditions, and illustrates the value of long datasets for attempting to attribute changes in production and biomass to human impacts. *Related publication: Eero M, et al. (2016). Has eutrophication promoted forage fish production in the Baltic Sea? Ambio, doi:10.1007/s13280-016-0788-3.*

Maritime History Down Under

The **IMEHA International Congress on Maritime History** took place 27 June to 1 July at Murdoch University in Perth, Western Australia, the first time the Congress has been held in the Southern Hemisphere. With the theme of "Old Worlds, New Worlds? Emerging themes in maritime history", presentations included a secret Spanish plot to rid the



Pacific region of the British in 1796, bubonic plague in Fremantle in 1900, and how modern China was shaped by the maritime world. The Congress was attended by 144 delegates from all over the world, and key events included a visit to a private art gallery with extensive Dutch maritime works and a tour of the Naval Base south of Perth.

COLLABORATIONS

ICES Working Group on the History of Fish and Fisheries (WGHIST): Operating under the International Council for the Exploration of the Seas (ICES), WGHIST brings together fisheries scientists, historians, and marine biologists for common work on social-ecological change through time. The group is currently focused on the tangible benefits of marine historical ecology to current policy and management, with special reference to human dimensions and integrated ecosystem assessments and developing open-access data sources and tools. While ICES does have a North Atlantic focus, WGHIST engages scientists and historians from the Mediterranean, Russia, South Africa, and Australia. The next WGHIST meeting will be at the ICES Secretariat in Copenhagen, 6-9 September. For more information or to engage with WGHIST, please contact the co-chairs, Emily Klein (emily.klein04@gmail.com) or Ruth Thurstan (r.thurstan@deakin.edu.au).



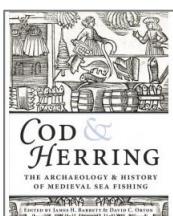
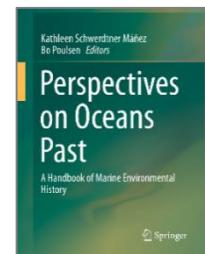
<http://www.ices.dk/community/groups/Pages/WGHIST.aspx>

The Oceans Past Platform (OPP): The Oceans Past Platform Action of the European Cooperation in the field of Scientific and Technical Research (EU COST OPP; 2014-2018) aims to measure and understand the significance and value to European societies of living marine resource extraction and production to help shape the future of coasts and oceans. OPP aims to lower the barriers between human, social and natural sciences, multiply the learning capacity of research environments, and enable knowledge transfer and co-production among researchers and other societal actors, specifically by integrating historical findings of scale and intensity of resource use into management and policy frameworks. Specifically, OPP asks when, how and with what socio-economic, political, cultural and ecological implications humans have impacted marine life, primarily in European seas in the last two millennia. More info can be obtained from <https://www.tcd.ie/history/opp/>.



[NEW PUBLICATIONS]

Perspectives on Oceans Past: A Handbook of Marine Environmental History. Schwerdtner Máñez K. & Poulsen B. (eds), published by Springer Science+Business Media. Major theories and methods are introduced by leading scholars of the field, and as well as discussions of its contribution to the management, conservation and restoration of marine and coastal ecosystems, and the cultural heritages of coastal communities in different parts of the world. doi: 10.1007/978-94-017-7496-3. For more: <http://www.springer.com/gp/book/9789401774956>.



Cod and Herring: The Archaeology and History of Medieval Sea Fishing. Barrett J. H. & Orton D. C. (eds) published by Oxbow Books. This interdisciplinary book combines history, archaeology and zooarchaeology to discover the chronology, causes and consequences of the cod and herring fisheries. For more <http://www.oxbowbooks.com/oxbow/cod-and-herring.html>.

The ICES Journal of Marine Science special issue, “**Oceans Past V: Multidisciplinary perspectives on the history of human interactions with life in the ocean**” *ICES J. Mar. Sci.* (May/June 2016) 73 (5). Introduction by A. MacDiarmid et al. doi:10.1093/icesjms/fsw059.

Bonanomi, S., et al. (2016). **Historical DNA documents long-distance natal homing in marine fish.** *Mol Ecol*, 25: 2727–2734. doi:10.1111/mec.13580.

Dunne, J. A., et al. (2016). **The roles and impacts of human hunter-gatherers in North Pacific marine food webs.** *Scientific Reports*, 6, 21179. doi:10.1038/srep21179.

Jackson, J., et al. (2016). **An integrated approach to historical population assessment of the great whales: case of the New Zealand southern right whale.** *Royal Society Open Science* 3, 150669. doi:10.1098/rsos.150669.

MacDiarmid, A.B., et al. (2016). **Taking Stock – the changes to New Zealand marine ecosystems since first human settlement: synthesis of major findings, and policy and management implications.** New Zealand Aquatic Environment and Biodiversity Report No. 170. 48p. <https://www.mpi.govt.nz/news-and-resources/publications/>.

MacDiarmid, A., McKenzie, A., & Abraham, E. (2016). **Top-down effects on rocky reef ecosystems in north-eastern New Zealand: a historic and qualitative modelling approach.** New Zealand Aquatic Environment and Biodiversity Report No. 171. 20p. <https://www.mpi.govt.nz/news-and-resources/publications/>.

Muñoz Sobrino, C., et al. (2016). **Reconstruction of the environmental history of a coastal insular system using shallow marine records: the last three millennia of the Cíes Islands.** *Boreas*. doi:10.1111/bor.12178.

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Pommer C. D., Olesen M., & Hansen J. L. S. (2016). **Impact and distribution of bottom trawl fishing on mud-bottom communities in the Kattegat.** *Mar Ecol Prog Ser* 548:47-60. doi:10.3354/meps11649.

Poulsen, B. (2016). **Imitation in European herring fisheries, c. 1550-1860.** *Scandinavian Journal of History*, 41(2). doi:10.1080/03468755.2016.1155853.

Tushingham S., et al. (2016). **Late Holocene Coastal Intensification, Mass Harvest Fishing, and the Historical Ecology of Marine Estuaries: The View from the Manila Site (CA-HUM-321)** *California Archaeology*, 8(1).

[ANNOUNCEMENTS]

Historical ecology of semi-enclosed basins: past, present and future of seas at risk, Chioggia, Italy, 3-4 October 2016, hosted by University of Padua and ISPRA, in collaboration with OPP COST Action. No registration fees, but a maximum number of 60 persons accepted. Closing date for registration: 31st August 2016. <http://bit.ly/29OHGYT>.

12th Conference of the AGER Association and the XXXVII International Meeting of Archaeology and History of Antibes conference: **The exploitation of maritime resources in antiquity: productive activities and organisation of associated territories**. Antibes & Mougins, France, 11-14 October 2016. <http://bit.ly/29SDaq6>.

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/>.

Oceans Past VI Conference: **Historical perspectives on the elements and dynamics of the marine socio-ecological system**. Sesimbra, Portugal, May 2017. <http://bit.ly/29i95Q5>.

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

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

The next Oceans Past News will be mid-October 2016 and will focus on research from Oceania and Asia. We strongly encourage submissions from these areas prior to 30 September 2016.

RESOURCES

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