

August 2019 | Number 3

IQOE CO-FOUNDER KNIGHTED

IQOE co-founder Ian Boyd was knighted at the 2019 Queen's Birthday Honors in June 2019 "for services to Science and Economics on Food and the Environment" and for his "visionary leadership in his role as Chief Scientific Advisor at DEFRA", the UK Department for Environment, Food and Rural Affairs. Congratulations, Sir Ian!

ECO MAGAZINE SPECIAL ISSUE ON UNDERWATER SOUND

IQOE sponsored development of a [special issue](#) of *ECO Magazine* focused on ocean sound. This issue is a well-balanced presentation of the issues related to sound in the ocean, with excellent articles on science, technology, management, and the environment. This publication will be helpful for public outreach related to IQOE. The embedded sounds from the ocean from DOSITS (<https://dosits.org/>) should be especially helpful to attract public interest to the issue of sound in the ocean.

IQOE DATA OFFICE

The Alfred Wegener Institute in Bremerhaven, Germany has recently announced that it is seeking one data scientist and one data engineer to develop a data system for ocean acoustics data. These individuals will work with the IQOE Working Group on Data Management and Access and Working Group on Standardization to implement their terms of reference. Advertisements for these positions are available at [Data Scientist](#) and [Data Engineer](#). The deadline for applications is 31 August 2019. Please contact [Olaf Boebel](#) if you have questions.

OCEANOBS'19

IQOE Science Committee members Jennifer Miksis-Olds and

Hanne Sagen teamed with Bruce Howe, Eric Rehm, Peter F. Worcester, and Georgios Haralabus to produce a community white paper for OceanObs'19 entitled "[Observing the Oceans Acoustically](#)". This paper combines information about the use of both passive and active acoustics to study the global ocean. The paper has been published in *Frontiers in Marine Science*.

IQOE and the IQOE WG on Arctic Acoustic Ecosystems have submitted abstracts for posters to be presented at the meeting.

Please let [Ed Urban](#) know if you will be attending OceanObs'19. We are hoping for a good showing of people interested in observations of acoustics and bioacoustics in the ocean, and may plan some acoustics-focused event.

OCEAN SOUND ESSENTIAL OCEAN VARIABLE (EOV)

The Biology and Ecosystems Panel of the Global Ocean Observing System (GOOS) has adopted an [Ocean Sound EOV](#), under the responsibility of IQOE. An IQOE Panel supported by the Partnership for Observation of the Global Ocean (POGO) proposed this EOV and created the specification sheet. IQOE and GOOS are discussing next steps to progress this EOV, including the potential for an implementation meeting in the coming year.

NEWS FROM ENDORSED PROJECTS

JOMOPANS: Joint Monitoring Programme for Ambient Noise North Sea

Contributed by Niels Kinneging: "Jomopans implements a monitoring strategy for continuous sound in the North Sea. The project responds to requirements of the European Marine Strategy Framework Directive, but the resulting data will also be available for the wider community of underwater sound specialists."

The second year of Jomopans is crucial for the project. All activities are now in full swing and Jomopans scientists are enthusiastically working on the results. Most of the 14 measurement stations around the North Sea are now operational and data will be gathered for all seasons in 2019. In addition, the first soundscape maps are being produced through propagation modelling.

In the first half of 2019, the development of the GES Tool resulted in great progress. Michael Carder Ltd. was contracted to build the tool and in a very animated workshop the functionality of the tool was further detailed. After a short delay in 2018, the tool is now on track again.

Apart from the technical developments, the future use of Jomopans results is being discussed with the marine managers of all participating countries. In this way, the results can be adapted to the needs of the marine managers and the system can be made operational shortly after the project's end.

Jomopans participated in the Aquatic Noise conference in The Hague from 7 to 12 July and organized (in co-operation with IQOE) two workshops on monitoring underwater sound on 13 July, also in The Hague.

On 8 October, the Jomopans Midterm event will be held in London. This will be an opportunity to meet the Jomopans team, discuss the progress of Jomopans, the connection with other projects and learn more about sound in the sea. More information can be found shortly in our [newsletter](#) and on the Jomopans website (www.northsearegion.eu/jomopans).

PHYSIC: PORTS, HUMPBACKS, Y SOUNDSCAPES IN COLOMBIA

Contributed by Kerri Seger: "During the month of May, two students at Javeriana University in Bogota continued data analysis to assemble time series of sound sources at the Morro Mico site. These students also submitted an abstract to the Senalmar conference in Barranquilla, Colombia, in October to practice their presentation skills and take ownership over processing cyclical sound comparisons in the dataset. Also during the month of May, Dr. Kerri Seger (PHYSiC PI) processed the Ecological Acoustic Recorder (EAR) sound samples as power spectral density percentiles. A diel cycle in humpback whale singing activity, with nighttime peaks, was easily discernible. Boat passes were only detectable in the 99th percentile, confirming expectations that this environment is relatively pristine compared with many other passive acoustic monitoring sites in more disturbed areas of the world, where boat engine noise occurs in lower percentiles more often. These results have been requested by numerous local councils and university groups writing a manifesto to petition the Colombian government not

to proceed with port construction. These results were also disseminated at the Acoustical Society of America conference in Louisville, Kentucky, with Dr. Chris Verlinden presenting on the behalf of Dr. Seger, who was unable to attend. Journalists and filming agencies from the UK and Colombia have asked for statements about the soundscape of the Gulf of Tribugá during the last few weeks. Planning for the 2019 season began in May 2019."

quietMED2

QUIETMED2: JOINT PROGRAMME FOR GES ASSESSMENT ON DESCRIPTOR 11-NOISE IN THE MEDITERRANEAN MARINE REGION (2019-2021)

The IQOE Science Committee approved endorsement of QUIETMED2 in May 2019. This project will support implementation of the second cycle of the European Union's Marine Strategy Framework Directive (MSFD). QUIETMED2 will assess the extent to which Good Environmental Status (GES) on underwater noise has been achieved in the Mediterranean Region. "The project will help implement this GES standard through

- i) a joint proposal of a candidate for an impulsive noise indicator in the Mediterranean Region;
- ii) a common methodology for Competent Authorities to establish threshold values on impulsive noise in the Mediterranean region;
- iii) a data and information tool to support the implementation of the monitoring programs of impact of impulsive noise based on the current joint impulsive noise register developed under QUIETMED project, which will be demonstrated on
- iv) an operational pilot of the tool; and
- v) several activities to boost regional cooperation efforts of the Barcelona Convention." (from endorsement proposal)"

The QUIETMED2 consortium is made up of 11 entities from 8 EU Member States (Spain, Italy, Malta, Greece, Cyprus, Croatia, Slovenia and Denmark) and is linked to the Barcelona Convention (UNEP/MAP) and to other Conventions as OSPAR and HELCOM. This project will help all EU Member States cooperate in the Mediterranean Marine Region to implement the next 6-year cycle of MSFD requirements. See <http://quietmed2.eu/>.

SANCTSOUND: NOAA NAVY SANCTUARY SOUNDSCAPE MONITORING PROJECT

IQOE approved endorsement of SanctSound in June 2019. From the SanctSound endorsement application: “The U.S. National Oceanic and Atmospheric Administration (NOAA) and the U.S. Navy are engaged in a multi-year effort to monitor underwater sound within the U.S. National Marine Sanctuary System. The agencies are working with numerous scientific partners to study sound within 7 national marine sanctuaries and one marine national monument, in waters off the east coast region of the United States (Stellwagen Bank, Gray’s Reef and Florida Keys National Marine Sanctuaries), the west coast region (Olympic Coast, Monterey Bay and Channel Islands National Marine Sanctuaries) and the Pacific region (Hawaiian Islands Humpback Whale National Marine Sanctuary and Papahānaumokuākea Marine National Monument). The project is designed to provide standardized baseline information as a context to understand both how much sound is introduced within these protected areas by specific sources and potential impacts to the areas’ marine taxa and habitats.”

GET YOU PROJECT ENDORSED

IQOE would like to endorse any research project or observation activities that are relevant to IQOE. Information about the endorsement process and endorsed projects can be found at <http://www.iqoe.org/projects>. The benefits of endorsement include increased international visibility of endorsed projects, which are usually national or regional, and the potential for joint activities with other endorsed projects and with other IQOE-involved scientists

CHANGES IN THE IQOE WEBSITE

- A link was added to the passive acoustic data from the MBARI MARS Cabled Observatory (see <https://iqoe.org/acoustic-data-portal>). The system provides access to hourly spectrograms from the Monterey Bay area collected since August 2015. More information about the system and its purpose can be found at <https://www.mbari.org/technology/solving-challenges/persistent-presence/mars-hydrophone/>.
- Information has been added to the Endorsed Projects page for the two newly endorsed projects, [QUIETMED2](#) and [SanctSound](#).
- The terms of reference and membership of the Working Group on Marine Bioacoustical Standardization were approved by the IQOE Science Committee and this information was added to the IQOE Web site (see

<https://www.iqoe.org/groups/marine-bioacoustical-standardization>).

We still need help from the community to do the following (send update information to Ed Urban at ed.urban@scor-int.org):

- update the database of passive acoustic observatories (<https://iqoe.org/systems>),
- submit IQOE-relevant papers for the IQOE literature database (<https://iqoe.org/library>)
- submit entries for the portal to acoustic data (<https://iqoe.org/acoustic-data-portal>)
- submit entries for the portal to marine animal sounds (<https://iqoe.org/marine-animal-sounds>), and
- submit projects for endorsement.

WG PROGRESS

IQOE established four working groups in 2016 and one in 2019:

- [WG on Acoustic Measurement of Ocean Biodiversity Hotspots](#) (co-chaired by Aran Mooney, USA and Lucia Di Iorio, France): A subset of the group (Lucia Di Iorio, Mark Lammers, Aran Mooney, Miles Parsons, Craig Radford, and Jenni Stanley) met in The Netherlands on 13 June to finalize a review paper and discuss other aspects of the group’s future work. The paper will summarize the advantages and challenges of measuring biodiversity using passive acoustic methods and will provide a framework for future research. This is one of the primary tasks of the working group. The group also discussed membership changes and



Meeting of Acoustic Measurement of Ocean Biodiversity Hotspots WG in The Hague

affirmed its terms of reference. Participants discussed and outlined future projects that the team can work on together, including a multi-site experiment measuring the same parameters in different parts of the world with comparable methods, maybe even with the same equipment. Finally, the group discussed multiple funding options for future projects and working group meetings, and several white papers, which will be the group's goal after the framework manuscript is submitted.

- [WG on Arctic Acoustic Environment](#) (co-chaired by Hanne Sagen, Norway and Philippe Blondel, UK): The group met for the first time in Paris, France on 29-30 January 2019 and identified actions to implement the group's terms of reference. The group was represented at the [UACE2019 Conference](#) by Philippe Blondel and will be represented at [OceanObs'19](#) by Hanne Sagen.
- IQOE and the IQOE-endorsed Jomopans project (see earlier) co-sponsored concurrent workshops on "Guidelines for observation of ocean sound" and on "Monitoring continuous underwater sound – beyond acquisition" on 13 June 2019 in The Hague, Netherlands. These workshops were held on the day after Aquatic Noise 2019 and contributed to the work of the IQOE [WG on Data Management and Access](#) (chaired by Rob McCauley, Australia) and [WG on Standardization](#) (co-chaired by Christ de Jong and Michael Ainslie, Netherlands).

For the workshop on "Guidelines for observation of ocean sound", the organizers collected, analyzed, and summarized



Meeting of IQOE WG on Data Management and Access, and WG on Standardization in The Hague

information about existing guidelines for measuring, processing, reporting, and managing ocean sound data from various national and international projects. The organizers presented results of the collated information at the workshop, including suggestions for standardized guidelines, for discussion with the participants. Organizers will report on the discussions of the workshop in a document that will provide



Meeting of Marine Bioacoustical Standardization WG in The Hague

guidelines where consensus could be achieved and describing the obstacles to reaching further consensus. After review by workshop participants and the IQOE WG on Standardization, the final report will be published on the IQOE website. The purpose of the workshop on "Monitoring continuous underwater sound – beyond acquisition" was to discuss the requirements for data management, sharing and to find solutions for best possible harmonisation. Workshop participants developed the following declaration.

Declaration from the workshop

The participants of the workshop "Monitoring continuous underwater sound: beyond acquisition" state that the sharing of knowledge and data in the field of underwater acoustics is essential to progress in the scientific field as well as on the management of underwater sound. Measured and modelled data, and corresponding metadata, including the processing pathways, should be stored with the highest resolution possible in an easy-to-find repository.

Long-term international co-operation needs to be established and supported in order to realize an operational framework for sharing and disseminating acoustical raw and/or processed data from monitoring programmes.

- [The IQOE WG on Marine Bioacoustical Standardization](#) was approved in June 2019 and held its kick-off meeting at the Park Hotel in The Hague on 13 July

2019. Chaired by Michele Halvorsen (USA) and Michael Ainslie (Netherlands), its present membership comprises Tomonari Akamatsu (Japan), Rebecca Dunlop (Australia), Dorian Houser (USA), Robert McCauley (Australia), Sander von Benda-Beckmann (Netherlands), and Paul Wensveen (Iceland). The purpose of this group is to increase comparability of results from different locations and institutions by promoting standardization in the field of marine bioacoustics. After the terms of reference are in place, the group's first task will be to develop an inventory of existing standards.

NATIONAL/REGIONAL ACTIVITIES

Canada

The MERIDIAN Underwater Acoustic Data Discovery Portal

Contributed by Ines Hessler: "Have you ever thought about how convenient it would be if a platform existed that enables you to find available and well-described underwater acoustic data that you may want to assess for its suitability to support your research, advance the project you are currently working on, or simply get an overview of other acoustic datasets available in your region of interest?"

If you quietly answered yes to the above question, be assured that such platform will be available soon! We at [MERIDIAN](#) (Marine Environmental Research Infrastructure for Data Integration and Application Network), a Canada Foundation for Innovation funded national CyberInfrastructure project, are currently in the process of building a data discovery portal that will provide you with the opportunity to discover available underwater acoustic resources and contribute rich descriptions of your own datasets. The interface of the discovery layer will allow for web-based searching by keywords, geographical extent and other attributes. To contribute descriptions of your individual datasets (aka metadata) we are developing a web-based and user-friendly metadata submission form. For larger collections we offer direct harvesting of information using common information exchange protocols such as CSW (Catalog Service for the Web) and OAI-PMH (Open Archives Initiative Protocol for Metadata Harvesting).

We are currently in the process of testing the discovery portal and its workflows, initially internally but soon with a selected number of community members. We are aiming at completing testing and feedback implementation in the course of the coming few months and will, hopefully, be able to make the discovery service's prototype available later in the year. For further information and inquiries don't hesitate to send an email to meridian@dal.ca."

United Kingdom

The Underwater Sound Forum held a [Bioacoustics Conference](#) on 17–18 April 2019.

USA

- The [U.S. Quiet Ocean Project](#) held a data "standards" workshop on 6–7 August 2018 in Washington, D.C. and has released a report from the workshop on [Recommendations Related to Passive Ocean Acoustic Data Standards](#).
- The U.S. SanctSound project was endorsed by IQOE.
- The U.S. Office of Naval Research issued a Broad Agency Announcement in 2018 to respond to research areas of interest to Task Force Ocean. White papers were due on 31 January 2019. The funded research that will result is likely to stimulate ocean acoustics research and support for graduate students and post-doctoral fellows in the United States in the next several years.
- As a direct result of IQOE discussions, passive acoustic monitoring was added to the [Stones Mooring in the Gulf of Mexico](#), funded by the U.S. Gulf Research Program and Shell. The first results are being analyzed.

IQOE Email List

IQOE maintains an email list containing your first name, surname, and email address. We do not collect or store any additional information or share our email list with other organizations. If you wish to unsubscribe from the IQOE email list at any time, please click the "Unsubscribe" link at the bottom of this page.

Upcoming Meetings

New meetings have been added to the [calendar of IQOE-relevant events](#).

Endorsed projects (7): ADEON, JOMOPANS, JONAS, PHYSIC, QUIETMED2, SanctSound, TANGO

Publications in Aquatic Acoustic Archive: 4,689

IQOE Email List: 211