STRATEGIC PLAN
2018-2023

Photo: Masakazu Ushioda

CONTENTS

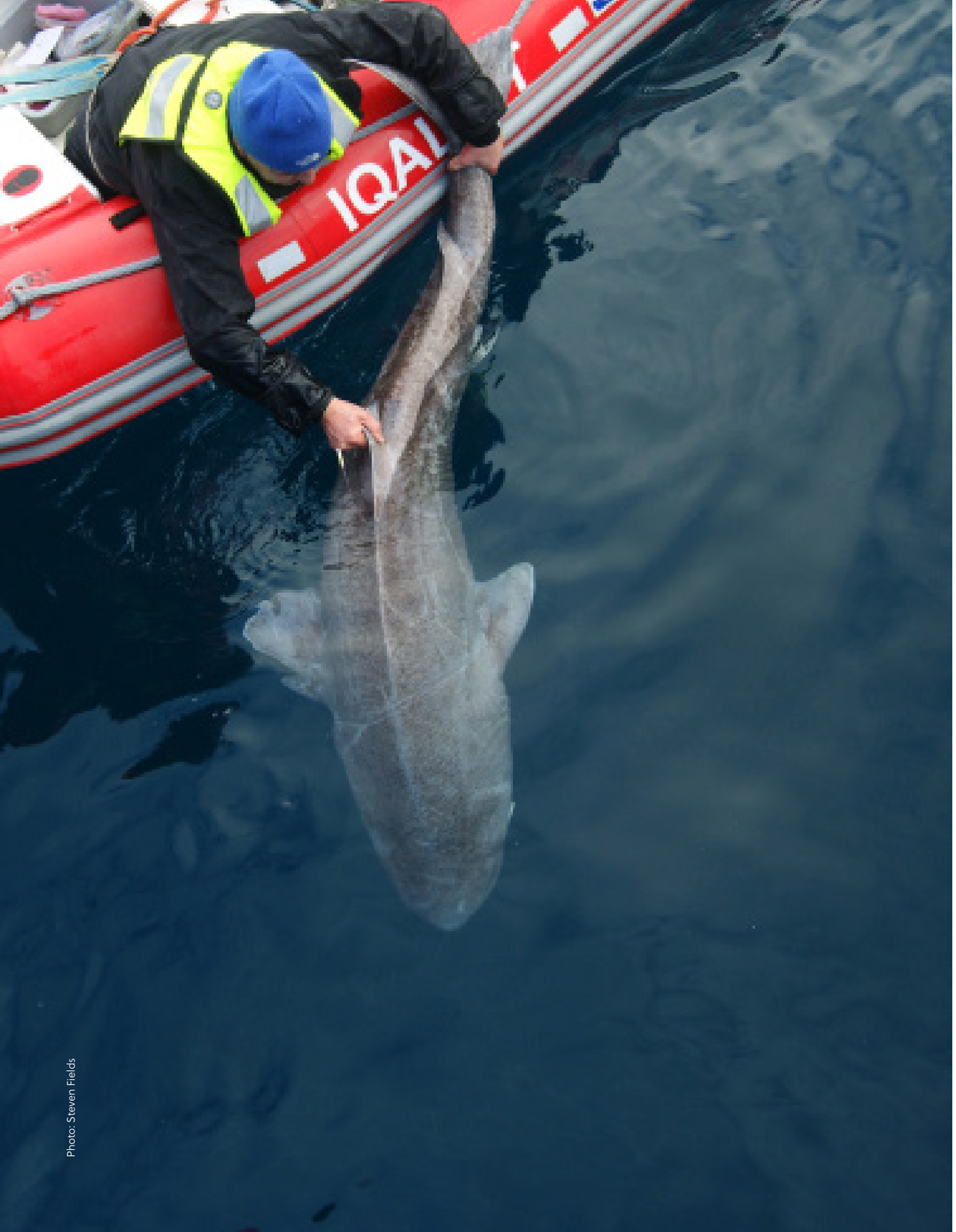


Photo: Steven Fields

FOREWORD

The Ocean Tracking Network (OTN), building Canadian and international partnerships, is the world's aquatic animal tracking network.

Aquatic animals support global food security, contribute billions of dollars in socioeconomic benefits and ecosystem services, and have great public and cultural significance. Indigenous rights-holders and coastal communities are highly dependent on aquatic resources for their livelihoods and well-being. However, the ocean is changing significantly due to unprecedented anthropogenic stressors and natural cycles, and aquatic animals are adapting to changing conditions by altering their movement patterns. One example is the extraordinary 2017 shift in right whale distributions to the Gulf of St. Lawrence creating a conservation crisis for the species and mass economic disruption for fisheries and fishery-dependent communities. Fundamental and applied research documenting aquatic animal movements is a necessity to guide the conservation, development, and sustainable use of these species and maintain ecosystem services. Telemetry systems are a critical tool to provide this knowledge.

From 2008-2018, OTN built an international research infrastructure and scientific research network that uses electronic telemetry, combined with other cutting-edge scientific tools, to document the movements, biology and survival of aquatic animals in relation to changing environmental variables and other stressors. OTN infrastructure deployments occur worldwide in the ocean and its connected inland waters. The network includes over 400 researchers from 20 countries and 133 institutions, and has tracked more than 160 species, including marine mammals, sea turtles, squid, benthic crustaceans, and fishes including sharks, sturgeon, eels, tuna, salmon, and cod.

Results from OTN studies have guided management and conservation decisions from the Arctic to the sub-Antarctic, encompassing polar to tropical ecosystems. OTN has trained over 500 students globally, produced over 350 peer reviewed scientific publications, and has led to the formation of five small and medium enterprises from its activities. Through a combination of print, television, radio, video, and web-based stories, the OTN brand has become recognized, respected, and valued around the world.

Over the next 5 years, OTN will:

1. Work with researchers to conceptualize and design investigations, and tailor the OTN infrastructure, to address pressing fundamental and applied research questions

2. Double the number of species tracked globally within the network, with particular focus on priority commercial, recreational, threatened, and indicator species.

3. Extend acoustic receiver coverage to offshore and deep ocean areas.

4. Double its autonomous vehicle fleet and add new technologies (e.g., ROVs, drifters) to extend the network's reach, improve efficiency, and provide additional monitoring capabilities.

5. Provide leadership in the development of integrated multi-disciplinary research proposals that will benefit from OTN's infrastructure.

6. Initiate programs in collaboration with Indigenous peoples and local communities to address local concerns and observations.

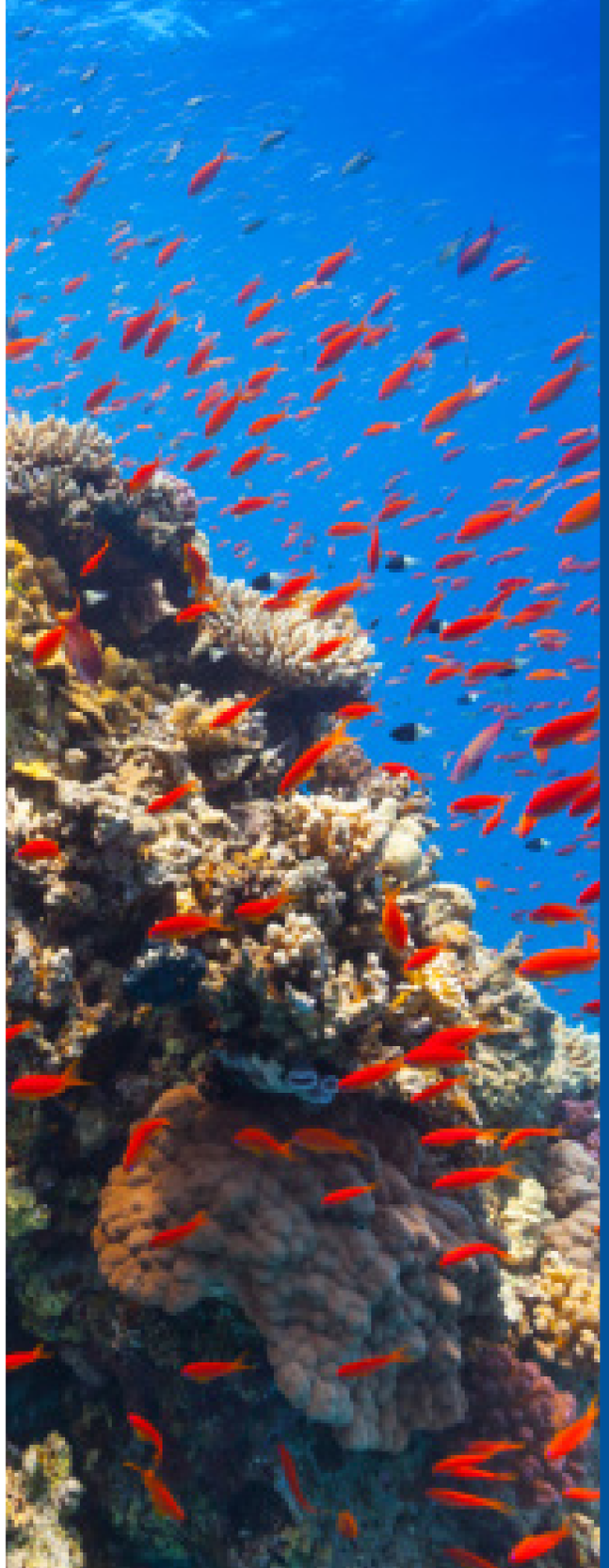
7. Engage with Canada's Ocean Supercluster (oceansupercluster.ca) to work with industry to develop new technologies and provide data that will guide sustainable blue growth.

8. Maintain OTN leadership in electronic telemetry data management, development of new capabilities, quality control, accessibility, and visualization.

9. Extend fully compatible data nodes to Central and South America and Europe, and explore opportunities in Asia and the Middle East; integrate OTN's data analytics and visualization capabilities with those in partner data systems; and link the OTN data system into complementary international systems, including the Marine Biodiversity Observation Network (MBON), the Ocean Biogeographic Information Service (OBIS), the United States' Integrated Ocean Observing System's Animal Telemetry Network, South Africa's Acoustic Tracking Array Platform (ATAP) and the Global Ocean Observing System (GOOS).

10. Diversify OTN communications and augment web-based tools to increase knowledge mobilization and transform stakeholder engagement with the ocean.

OTN is headquartered at Dalhousie University in Halifax, Canada, supported by the OTN professional staff, and governed by a high-level advisory Council. Reporting to Dalhousie University, OTN Council is composed of experts from government, academia, industry, non-governmental organizations and the public, and guides the strategic direction of OTN. Expert Advisory Committees on science and data help to inform Council decisions.



The OTN platform provides unique capabilities to globally document the movements and survival of aquatic animals in the context of their environment. To do this, OTN:

1. Supports the research of a globally distributed network of national and international marine and fresh water experts.

2. Addresses, through research collaborations and partnerships, pressing aquatic conservation issues at local, regional, national, and international scales.

3. Trains the next generation of top specialists in interdisciplinary ocean sciences, animal movement ecology, engineering and technologies, statistical analysis and modelling, and marine policy and conservation.

4. Unites international communities by operating an internationally-certified (Associate Data Unit-International Oceanographic Data and Information Exchange) data system.

5. Maintains, in harsh ocean conditions, a robust and agile infrastructure that can monitor fixed stations for extended periods, conduct strategic mobile observing (e.g., through gliders or large animals carrying ocean and animal monitoring tags), and can also be rapidly redeployed to address new issues and questions.

VISION

Secure movement pathways that sustain healthy wild animal populations, championed by informed rightsholders and stakeholders.

MISSION

To be a global leader in supporting research that enables the understanding and stewardship of aquatic animal populations and sustains human use of aquatic biological resources in the face of a changing ocean environment.

VALUE PROPOSITION

OTN strategically makes capital and data-sharing investments to generate and deliver knowledge for end-users at an affordable price. OTN strategically makes capital and data-sharing investments that build on the scientific expertise and existing infrastructure of partners and provides larger platforms that can generate the knowledge for end users at an affordable price. OTN's international strategy for building a global platform is predicated upon leveraging partner assets and capabilities and coming to formal agreements with the partners on formats for data storage and sharing.

GUIDING PRINCIPLES

Provide international leadership in aquatic telemetry, cutting-edge research, technology development and ocean data management.

OTN supports research and researchers that are addressing important questions of interest and benefit to science and society.

Uphold the highest standards of research integrity and responsible conduct of research.

Set global standards and best practices for aquatic telemetry.

Train highly qualified personnel (HQP) and ocean professionals.

Embrace discovery and applied research.

Foster a welcoming workplace with a stimulating, diverse, and empowering work environment.

Implement data and information systems based on FAIR principles (Findable, Accessible, Inter-operable, Reusable), open-access software, and making data openly accessible in a responsible manner.

Leverage resources and innovative advancements in aquatic telemetry.

Build and maintain strong partnerships, engaging across sectors (government, academia, industry, communities, rightsholders) to implement world-class scientific infrastructure and research programs.

STRATEGIC GOALS AND OBJECTIVES

OTN's strategic goals for 2018-2023 are designed to enable research excellence, generate benefits for Canada, extend OTN's national and international impact, foster open access to data, facilitate development of new technologies, and engage with stakeholders.

1. **Expand and sustain the existing aquatic telemetry network and create new partnerships with existing independent telemetrists (nationally and internationally) that bring new research capacity to the global system.**

a. Partner with the government, industry, NGOs, academia, and communities to open new opportunities for co-deployments to address the most pressing research questions.

b. Improve the cost-effectiveness of the existing system of current deployments, starting with major lines, and redistribute equipment as strategically called for.

c. Conduct theoretical and empirical evaluations of current deployments to improve platform performance.

d. Seek synergies by co-locating OTN staff in ocean innovation hubs.

e. Build on our current successes in Europe to position OTN for participation in Horizon Europe.

f. Add and deploy new technologies and capabilities in service of the network (e.g., ROVs, aerial drones)

2. **Deliver comprehensive, standardized, and reliable data to the research community.**

a. Develop OTN best practices and post them to OceanBestPractices.net for use by the international community.

b. Continue OTN's leadership role in open data management and curation and engage with national and international efforts to organize telemetrists and link them into a global data-sharing system.

c. Integrate the data team with international partners to create a commons for the development of new analytical and visualization tools for telemetry data.

3. **Develop the next generation of talent.**

a. Build on the first generation of OTN HQP now moving into faculty and professional positions both in Canada and internationally to expand the OTN footprint and meet growing research needs.

b. Create opportunities to train new HQP in telemetry science.

c. Foster the international exchange of researchers and students.

d. Recruit new talent for training from Indigenous peoples and other underrepresented groups, to foster equity and diversity

4. **Address the data and observational needs of national agencies, the private sector, the international scientific community, provincial governments, Indigenous peoples, and the public.**

a. Ensure the efficient and safe operation of the existing network, tune it to meet our scientists' needs, and ensure the timely provision of data to the research community.

b. Embrace new technologies and maintain flexibility to adapt to changing needs of the research and stakeholder communities.

c. Assist with the provision of information for environmental impact assessments and to guide sustainable development of the oceans.

5. **Increase the reach and effectiveness of OTN through innovative research partnerships, stakeholder engagement, communications and investment in enterprise excellence.**

a. Mobilize network knowledge and make connections between science/information and policy/management to improve conservation of aquatic resources.

b. Broaden the scope and capabilities of our current communications capacity to maintain a high-quality brand that benefits all network participants.

c. Work with partners to encourage policy changes in Canadian funding agencies that would pair research funding with infrastructure funding.

d. Continue communication and consultation with the national and international scientific communities through our Canadian and international advisory committees.

STRATEGIC GOALS 2018-2023

1. Expand and sustain an agile, responsive aquatic telemetry research network and infrastructure, building off existing ocean platforms and creating innovative partnerships.

2. Deliver comprehensive, standardized, and reliable data to the research community.

3. Develop the next generation of HQP.

4. Address the data and observational needs of national agencies, the private sector, the international scientific community, provincial governments, Indigenous peoples, and the public.

5. Move more results from telemetry studies into use by policy makers.

6. Increase the reach and effectiveness of OTN through partnerships, stakeholder engagement, communications and investment in enterprise excellence.

Key performance metrics have been developed to track progress in these areas.

OTN 2023 WILL BE

1. A higher resolution infrastructure that has expanded to enable research in previously unexplored and inaccessible global areas (e.g., deep sea, areas beyond national jurisdiction).

2. An integral part of international fisheries management, ocean conservation, and marine spatial planning (e.g., marine protected areas, species rebuilding plans) in the face of a changing ocean.

3. An established technological and operational leader in aquatic animal tracking, ocean observation, interdisciplinary research and training, and data management and visualization.

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