

Ocean Tracking Network

* Originally given at CoastGIS 2011, Oostende Belgium

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The Ocean Tracking Network (OTN) is a new Global Ocean Observing System (GOOS) pilot project headquartered at Dalhousie University in Halifax, Canada, enabling researchers worldwide to monitor the behavior of individual marine animals, including: where they go, what conditions they experience, and how they interact. OTN is principally committed to making the world's ocean tracking metadata and data freely accessible without charge by the broader scientific community while respecting the intellectual property rights of its providers. Human / machine observation data and associated mooring metadata are managed with open source web content and relational data base systems (Plone, PostgreSQL, PostGIS, GeoServer, R) and accessed using a variety of common protocols (ftp, http, odb, wms, wfs). Web accessible discovery metadata reports are updated routinely.

Global / Regional Coverages

North East Pacific Ocean

Taxonomic Coverage	<i>Oncorhynchus nerka</i>
Countries	Current: CANADA Proposed: USA
Temporal Coverage	StartEndDates: 2009-09-01 to 2010-08-18 - DateLastModified: 2011-03-14
Data Summary	CollectionCodes=3, Missions=12, Stations=2, Receivers=2, Offloads=11, Transmitters=601, HumanObservations=599, MachineObservations=3685, Total=4912
Credits	University of British Columbia, University of Victoria
Descriptive Keywords	Collaboration Type(s): Data, Deployment, Tracker. Activity(s): Acoustic Tag Releases, Mission Reports, Receiver Deployments, Sentinel Tag Deployments, Station Plans. Machine Data Type(s): Acoustic Tag Detections. Acoustic Transmitters(s): MK10, V16. Acoustic Receivers(s): VR4.

North West Atlantic Ocean

Taxonomic Coverage	<i>Acipenser oxyrinchus oxyrinchus</i> , <i>Anguilla rostrata</i> , <i>Gadus morhua</i> , <i>Halichoerus grypus</i> , <i>Morone saxatilis</i> , <i>Salmo salar</i> , <i>Somniosus microcephalus</i> , <i>Squalus acanthias</i> , <i>Thunnus thynnus</i>
Countries	Current: CANADA, USA Proposed: BERMUDA
Temporal Coverage	StartEndDates: 2004-07-23 to 2011-06-27 - DateLastModified: 2011-06-28
Data Summary	CollectionCodes=26, Histories=684, Missions=96, Stations=657, Receivers=939, Offloads=957, Transmitters=2129, HumanObservations=2001, MachineObservations=1334463, Total=1341926
Credits	Acadia University, Atlantic Salmon Federation, Cape Breton University, Dalhousie University, Delaware State University, Canada Dept. of Fisheries and Oceans, Maine Dept. of Marine Resources, Margaree Salmon Association, Nova Scotia Dept. of Fisheries and Aquaculture, Stanford University, University of Laval, United States Geological Survey, United States National Marine Fisheries Service.
Descriptive Keywords	Collaboration Type(s): Data, Deployment, Tracker. Activity(s): Acoustic Tag Releases, Mission Reports, Receiver Deployments, Satellite Tag Releases, Sentinel Tag Deployments, Station Plans. Machine Data Type(s): Acoustic Tag Detections, Satellite Tag Detections. Acoustic Transmitters(s): MK10, R64K, V13, V13P, V16, V16P, V16T, V16TP, V8, V9, V92X. Acoustic Receivers(s): VR2, VR2W, VR3, VR4. Satellite Tags(s): MK10. Other Instruments(s): ADCP, RD, CPOD, SBE 37-SM, STORX, V02.



Arctic Ocean

Taxonomic Coverage	<i>Amblyraja hyperborea</i> , <i>Boreogadus saida</i> , <i>Myoxocephalus quadricornis</i> , <i>Myoxocephalus scorpius</i> , <i>Reinhardtius hippoglossoides</i> , <i>Salvelinus alpinus</i> , <i>Somniosus microcephalus</i>
Countries	Current: CANADA Proposed: DENMARK
Temporal Coverage	StartEndDates: 2008-07-21 to 2010-09-25 - DateLastModified: 2011-05-12
Data Summary	CollectionCodes=3, Missions=1, Stations=174, Receivers=243, Offloads=116, Transmitters=269, HumanObservations=188, MachineObservations=222011, Total=223002
Credits	Acadia University, University of Manitoba, University of Windsor
Descriptive Keywords	Collaboration Type(s): Deployment, Activity(s): Acoustic Tag Releases, Mission Reports, Receiver Deployments, Sentinel Tag Deployments, Station Plans. Machine Data Type(s): Acoustic Tag Detections. Acoustic Transmitters(s): V13TP, V16, V16TP, V5, V6, V7, V9AP, V9TP. Acoustic Receivers(s): RBR TR-1050, VR2, VR2W. Satellite Tags(s): MK10. Other Instruments(s): SBE 37-SM.

West Indian Ocean

Countries	Current: SOUTH AFRICA Proposed: FRANCE
Temporal Coverage	StartEndDates: 2011-04-12 to 2011-04-12 - DateLastModified: 2011-04-21
Data Summary	CollectionCodes=1, Histories=40, Stations=40, Total=80
Credits	South African Institute for Aquatic Biodiversity.
Descriptive Keywords	Collaboration Type(s): Deployment, Activity(s): Station Plans.

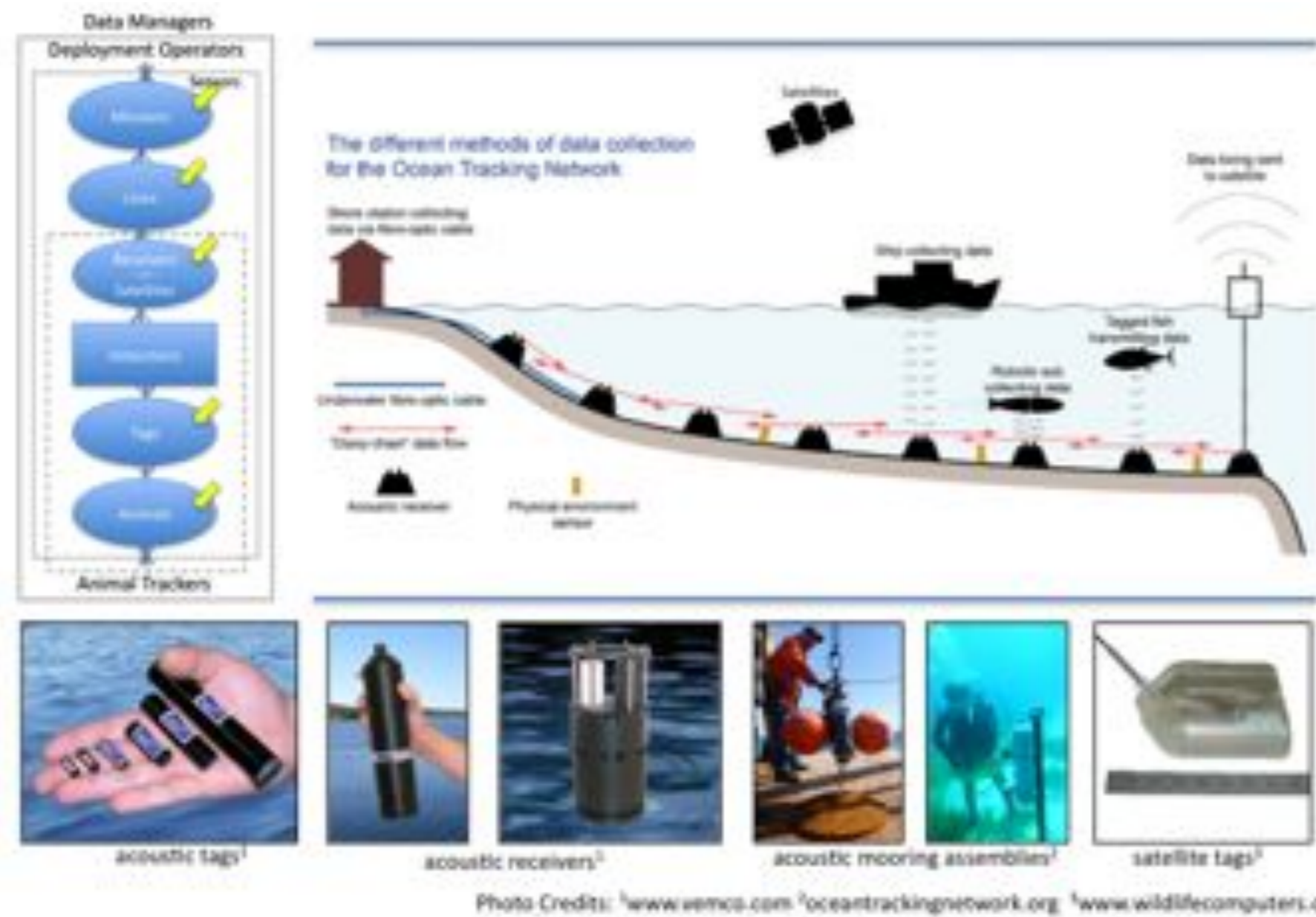
East Indian Ocean

Taxonomic Coverage	<i>Carcharodon carcharias</i> , <i>Pagrus auratus</i> , <i>Pomatomus saltatrix</i> , <i>Thunnus maccoyii</i>
Countries	Current: AUSTRALIA
Temporal Coverage	StartEndDates: 2009-01-23 to 2011-02-28 - DateLastModified: 2011-06-24
Data Summary	CollectionCodes=6, Missions=32, Stations=53, Receivers=183, Offloads=120, Transmitters=173, HumanObservations=173, MachineObservations=5042, Total=5776
Credits	Western Australia Dept of Fisheries, Commonwealth Scientific and Industrial Research Organisation
Descriptive Keywords	Collaboration Type(s): Deployment, Tracker. Activity(s): Acoustic Tag Releases, Mission Reports, Receiver Deployments, Station Plans. Machine Data Type(s): Acoustic Tag Detections. Acoustic Transmitters(s): MK10, V16, V9. Acoustic Receivers(s): VR2W.

Following on experiences of the Census of Marine Life (CoML) Pacific Ocean Shelf Tracking (POST) and Tagging of Pelagic Predators (TOPP) projects, OTN has divided the world ocean into 15 distinct regions. OTN's first instruments were deployed into the NW Atlantic Ocean, near Halifax in 2008 and the East Indian Ocean, near Perth in 2009. OTN's database currently contains data and metadata for 64 separate collections from 25 institutions in 11 different countries. OTN is currently funded to run until 2017.

[Source for: metadata - OTN's PostgreSQL database; map - OTN's PostgreSQL database, Quatum GIS, NASA BlueMarble]

Technical Overview



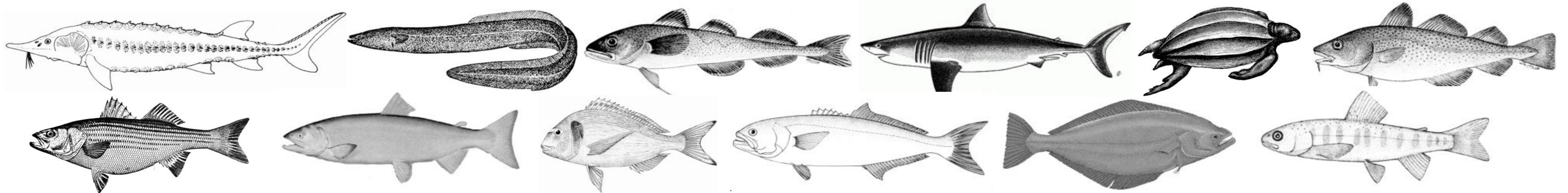
OTN supports both satellite and acoustic telemetry tag data. Oceanographic variables are measured by sensors on tagged animals and other oceanographic instruments and then transmitted to satellites in space, lines of receivers on the ocean floor or to robotic submarines (gliders). Receivers and associated instruments are periodically recovered and or offloaded via acoustic modems to research vessels and then loaded to a central database.

Functional Overview



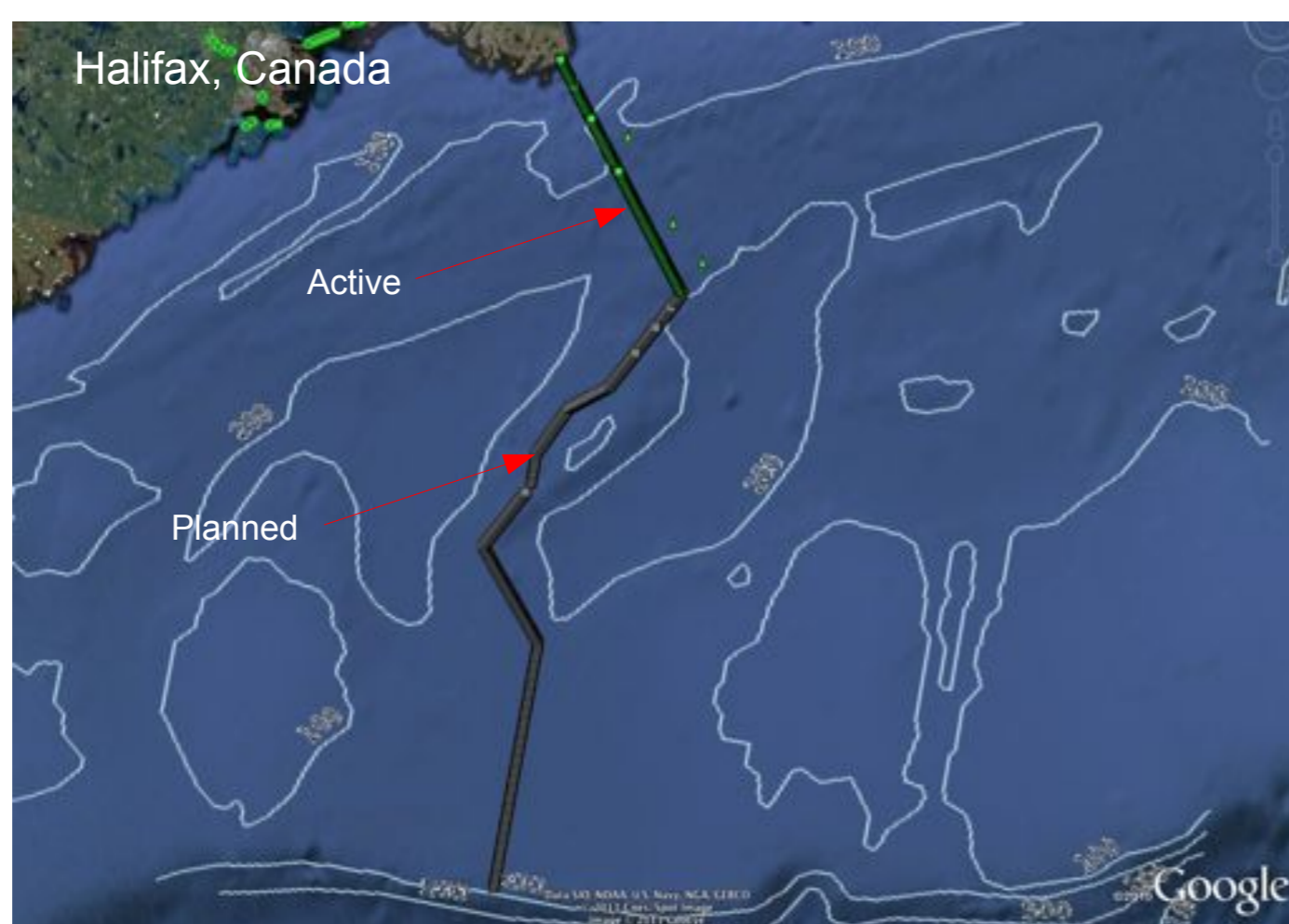
OTN provides guidance to its tracking, deployment and data collaborators in the form of project agreements, data formats, checklists and workflows. OTN infrastructure in the NW Atlantic for example is growing rapidly through the the building of partnerships among national agencies interested in restoring the Atlantic salmon and cod fisheries. Similar developments are also occurring in other OTN ocean regions.

Taxonomic Overview



OTN so far contains data on 21 marine species, including: *Acipenser oxyrinchus oxyrinchus* / Atlantic sturgeon *, *Amblyraja hyperborea* / Arctic skate, *Anguilla rostrata* / American eel **, *Boreogadus saida* / Arctic cod *, *Carcharodon carcharias* / white shark *, *Dermochelys coriacea* / leatherback turtle **, *Gadus morhua* / Atlantic cod *, *Halichoerus grypus* / grey seal, *Morone saxatilis* / striped bass **, *Myoxocephalus quadricornis* / fourhorn sculpin , *Myoxocephalus scorpius* / shorthorn sculpin, *Oncorhynchus nerka* / Sockeye salmon *, *Pagrus auratus* / pink snapper *, *Pomatomus saltatrix* / tailor *, *Reinhardtius hippoglossoides* / Greenland halibut *, *Salmo salar* / Atlantic salmon*, *Salvelinus alpinus* / Arctic char, *Somniosus microcephalus* / Greenland shark, *Squalus acanthias* / spiny dogfish, *Thunnus maccoyii* / southern bluefin tuna, *Thunnus thynnus* / Atlantic bluefin tuna. [Source for: names - www.marinespecies.org; images - *www.fao.org, **etc.esf.edu]

Examples Of Local Coverage



[Sources for: maps - Google Earth; points - kil-otn-1.ucis.dal.ca/geoserver/wms; bathymetry - www.fao.org]