

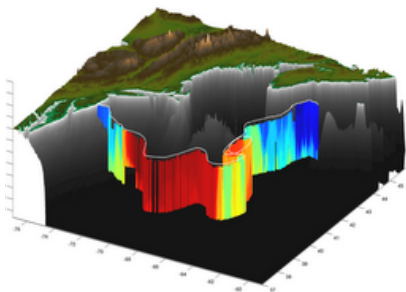
Lessons Learned for Global Marine & Arctic Research Infrastructures

Sara Iverson, OTN Scientific Director



OTN's Premise:

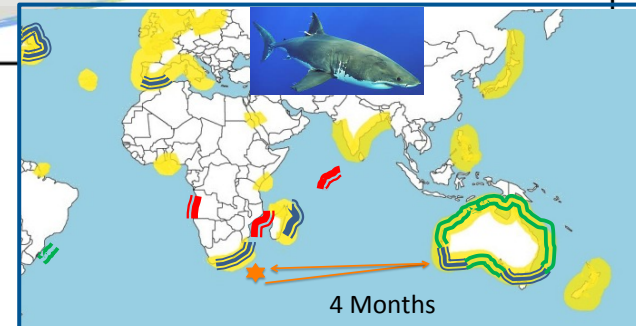
- Complete understanding of the oceans & their sustainable management can only be achieved through integrated understanding of ocean conditions & their effects on the animals that inhabit them (i.e. the socially important resources we have depended on & over-exploited for centuries)
- This can only happen through collaborative & globally-linked research initiatives & infrastructure



- Canadian-led ***global*** research & conservation program: serving the global community
- Implemented across “5” oceans & 7 continents: oceans & inland waters; providing key insight into ocean ecosystem dynamics
- Major data warehousing component; open access standards
- Facilitating partnerships through international cooperation, integration, synergies
- Central aim to advance an international social & legal framework for the oceans

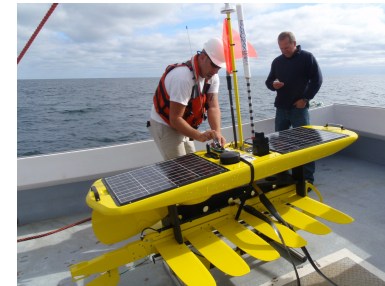
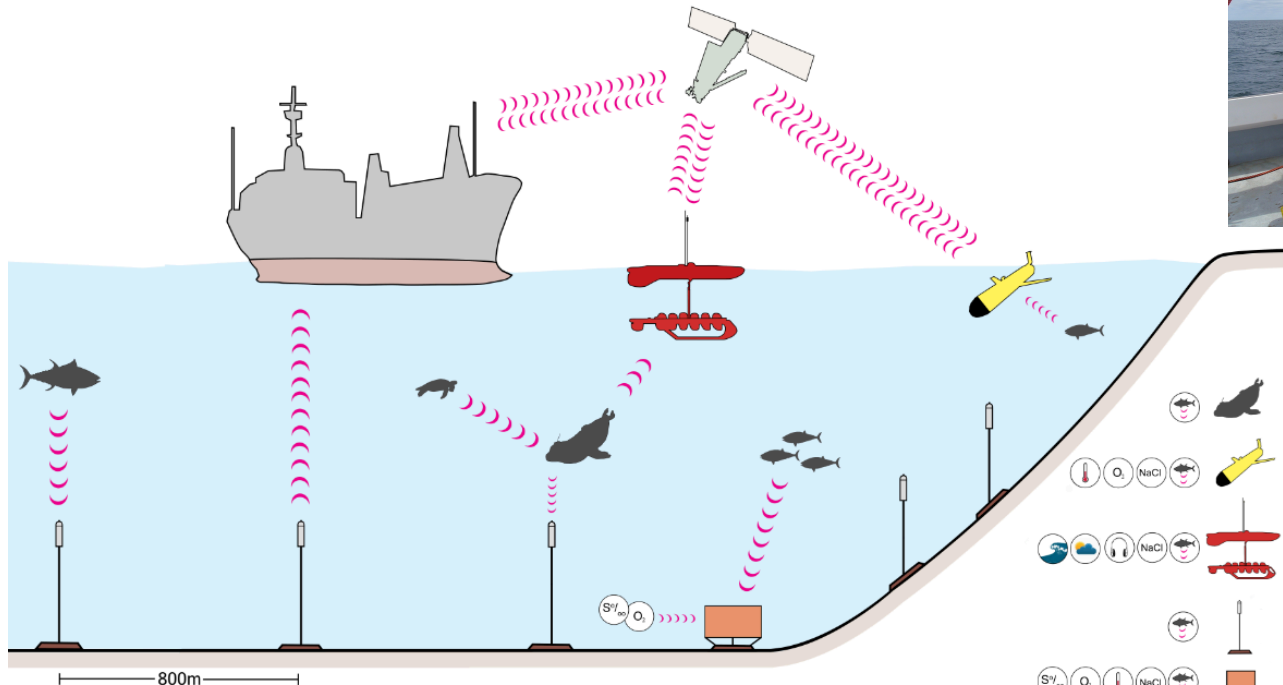
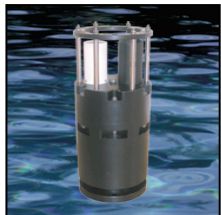


*aquatic animals
- & water masses! - do
not recognize national
boundaries*



“Open Data and Information for a Changing Planet”

- Create global network of receivers (record oceanographic observations, animal detections, movements, interactions)
- Establish global network of users with common database; shared analysis tools
- Develop and integrate technologies that couple animal locations & movements to oceanographic/environmental conditions – scientifically based governance strategies



↑
Roboprobes

Bioprobes
↓



OTN' s *BIOLOGICAL*: tracking & monitoring platform

*real-time satellite
tracks of grey seals
(also collecting oceanographic info)*



Sable
Island

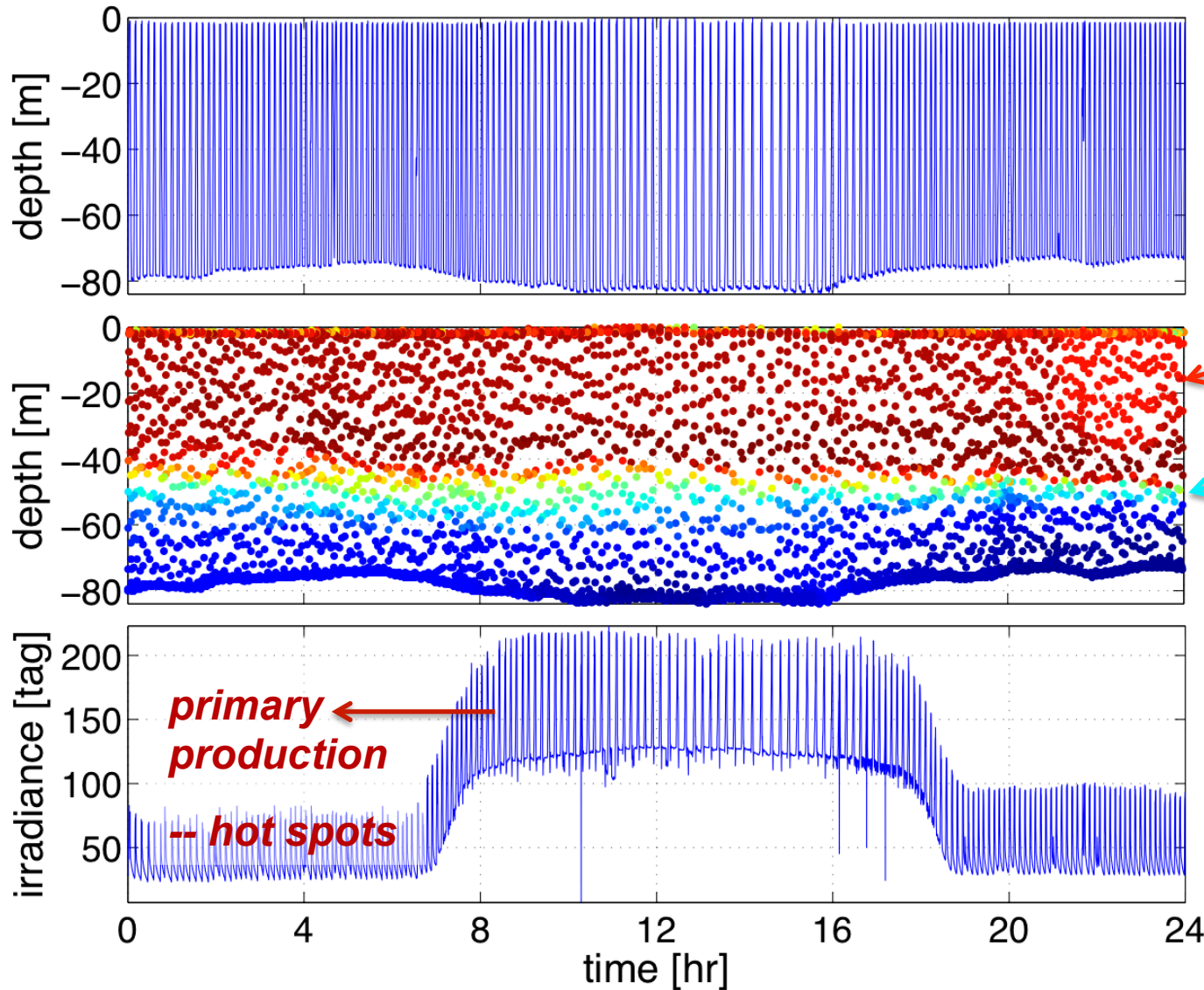


278 km

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2012 Cnes/Spot Image

Google earth

seals as oceanographic samplers – dive data & temperature



~ 180 dives/day

surface
mixed layer

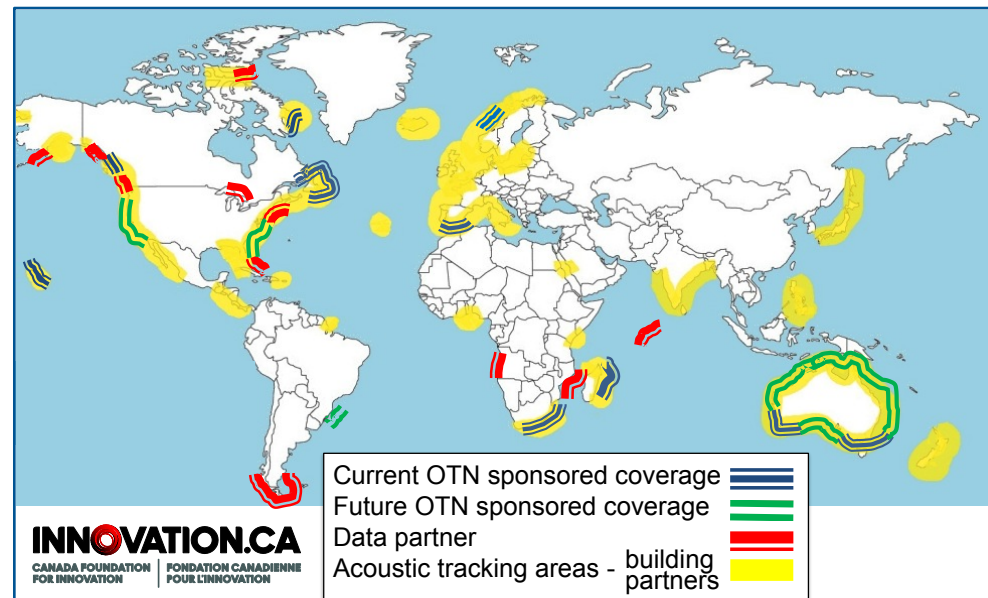
thermocline
40-55 m

10:00am-2:00pm
(every 10 sec)

Infrastructures for Global Challenges

Strategies leading to successes:

- Visionary funding & ability to spend funds internationally
- Strong investment in technology development by industry partners
- Support of comprehensive research networks that use infrastructure
- Building strong sense of collaboration & shared approaches within & among networks & members (*international scientific advisory committee*)
- Cost-sharing approach of partners
- General willingness to share information & data, with some limitations & restrictions

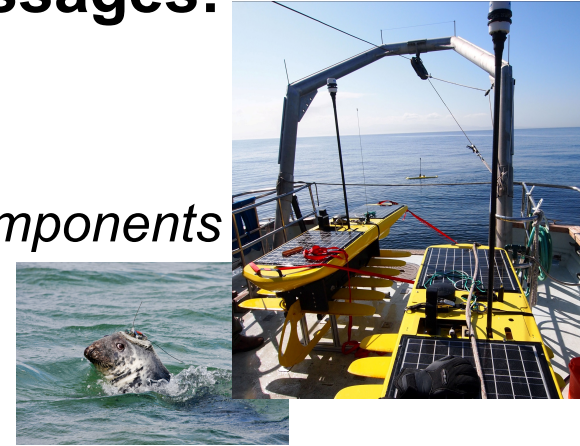


Infrastructures for Global Challenges

Critical Needs – three key take away messages:

- **Must be science-driven, flexible, adaptable –**

- *must gather the information needed globally*
- *must link both **biological** & physical/chemical components of of the ocean*
- *build on existing, be cost-effective, be innovative*



- **Fully explicit national & international commitment to partnerships**

- *must be cost-sharing for core infrastructure, its O&M, & the individual research programs using it*
- *infrastructure must include data sharing & aligning interests of different funders; re-definition of “infrastructure” (O&M)*

- **Vision for long term funding**

- *Infrastructure working to meet global needs must be sustained*
- *support for new technologies & sharing, esp. that reduce costs of monitoring*

