

Expanding OBIS beyond species occurrences by including associated environmental data

Experiences from the OBIS-ENV-DATA project

OBIS-ENV-DATA project consortium



Ocean Biogeographic Information System - OBIS

- 2000: Established as the data repository and information dissemination system for Census of Marine Life (CoML, 2000-2010)

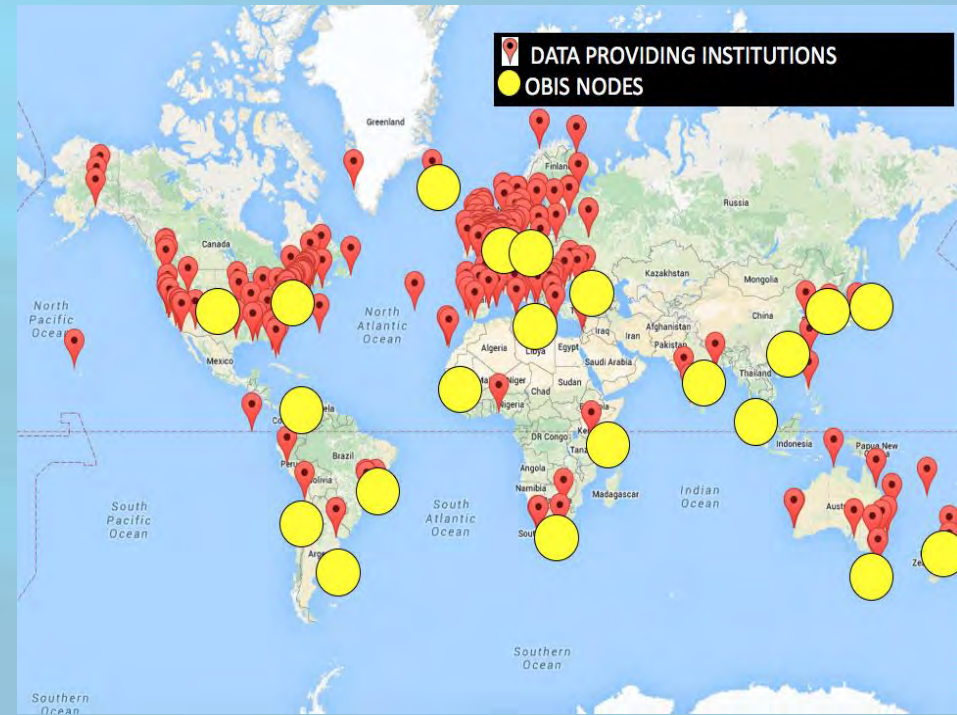
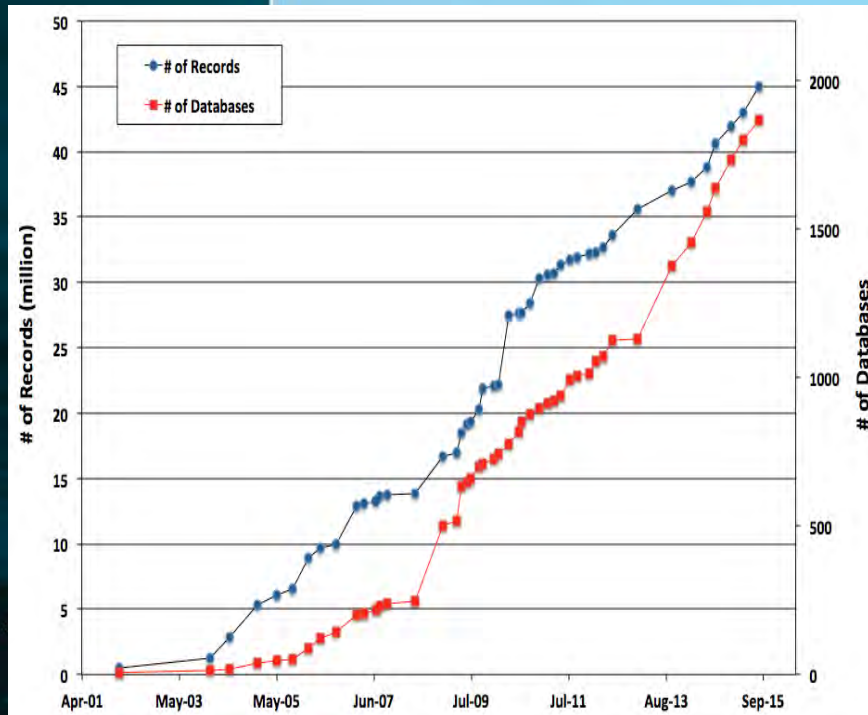
“an online, user-friendly system for absorbing, integrating and accessing data about life in the oceans”



- 2009: OBIS adopted as part of IOC-UNESCO IODE programme

Knowledge of the ocean's biodiversity is of such importance to national and global environmental issues that the responsibility for its continuing success should be assumed by governments.

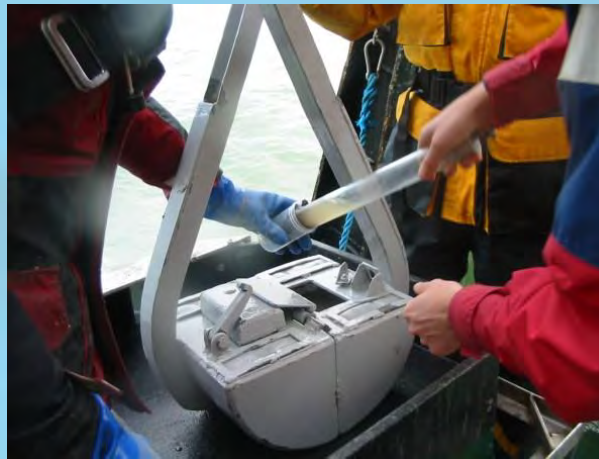
- Continuous growth



But...
biological sampling is often more than just species occurrences...



Meiofauna and associated sediment sampling



Core sample from a Van Veen grab



Water sample from Niskin bottle



OTN tags

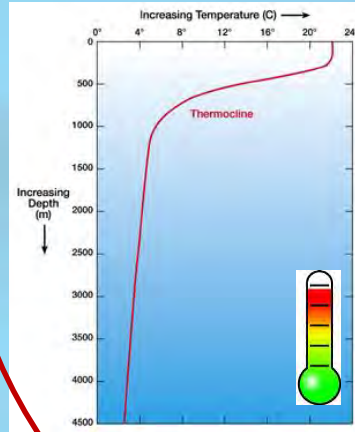


Video plankton recorder



plankton net with CTD

*Biological dataset,
including non-biotic
measurements*



 **OBIS**
OCEAN BIOGEOGRAPHIC
INFORMATION SYSTEM



OBIS-ENV-DATA project

- XXIII session of the IOC Committee for IODE, March 2015
- Recommendation: Establishment of the IODE pilot project expanding OBIS with environmental data (OBIS-ENV-DATA)

combined dataset = biological data + associated non-biotic data

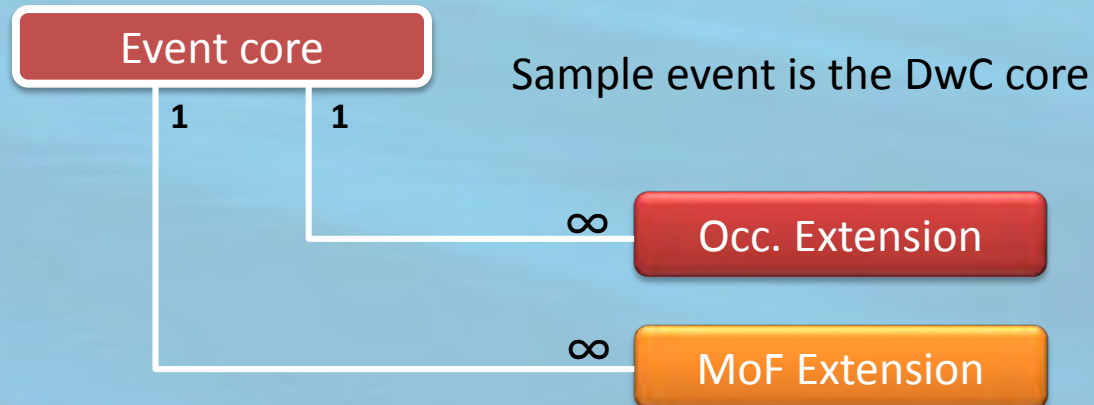
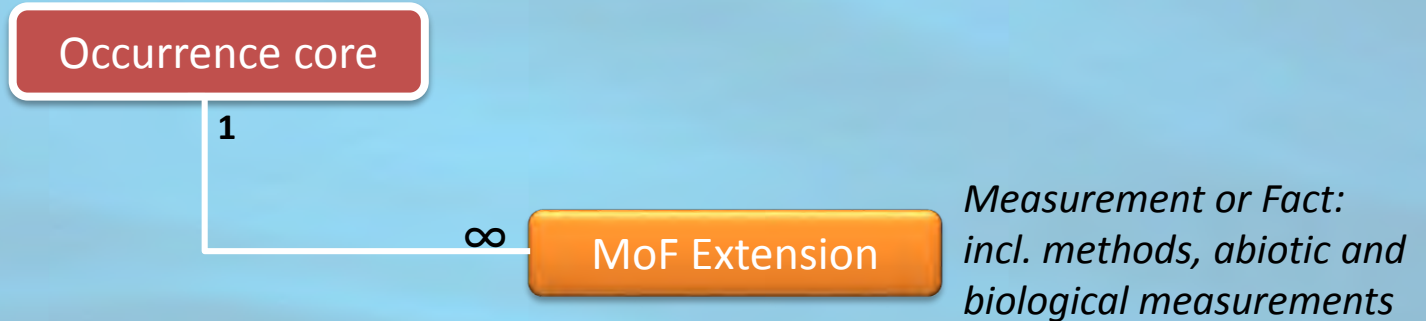


DarwinCore-Archive (DwC-A)

- What OBIS had done so far:



- What DwC offers – star schema:

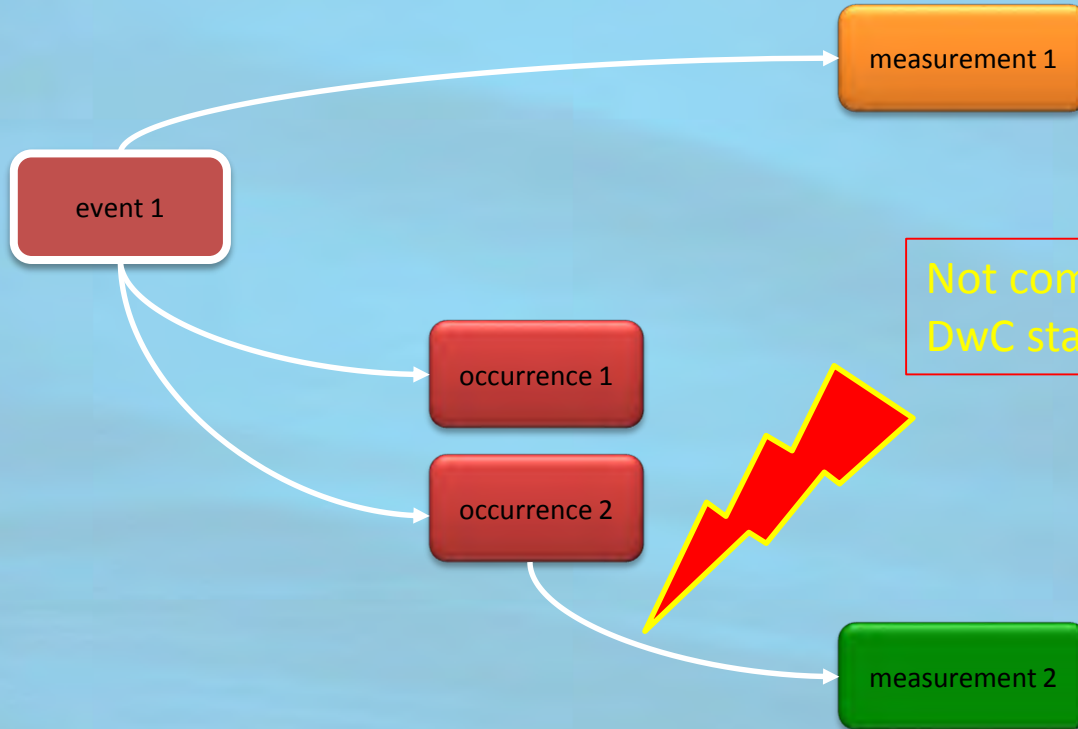


What OBIS-ENV-DATA needs

Event Core

Occurrence Extension

MeasurementOrFacts Extension



Not compatible with DwC star schema

OBIS-ENV-DATA: 1st workshop October 2015

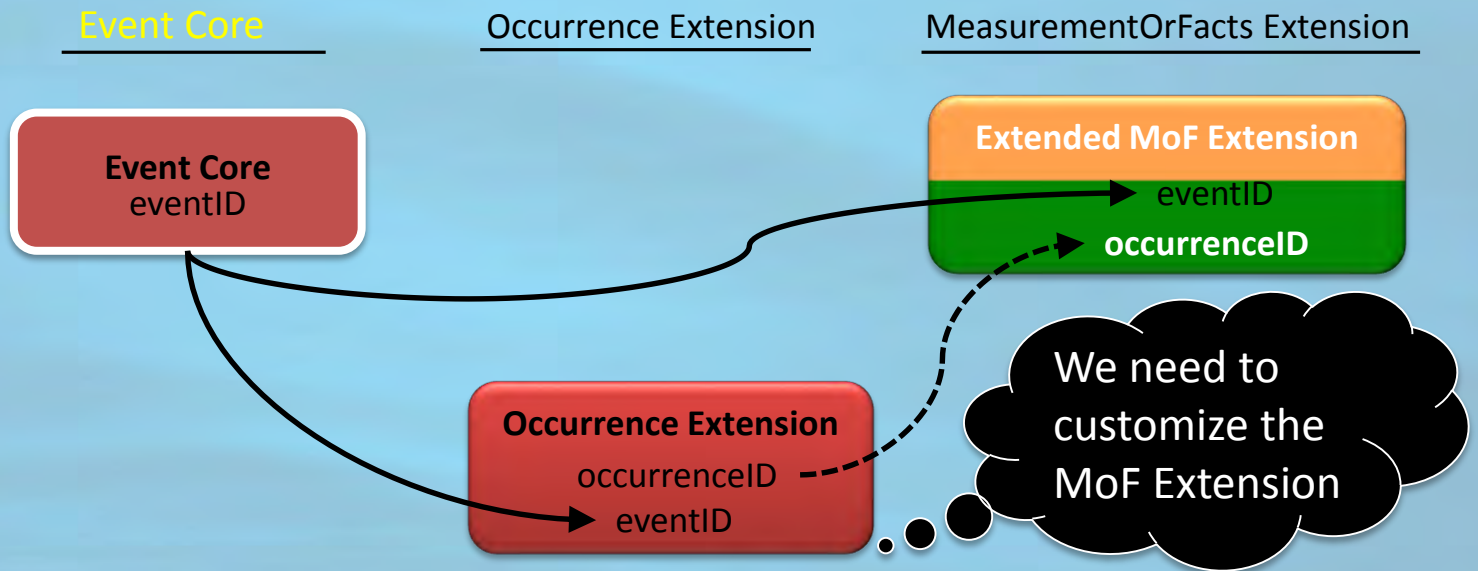


- 23 people
- 11 institutions
- 10 countries
- 14 pilot datasets

- 6 options to format combined dataset into DwC-A

- Option 6: **OBIS-ENV-DATA format**

= Event Core + Occurrence Extension + extended MoF Extension



Goal: data standardisation

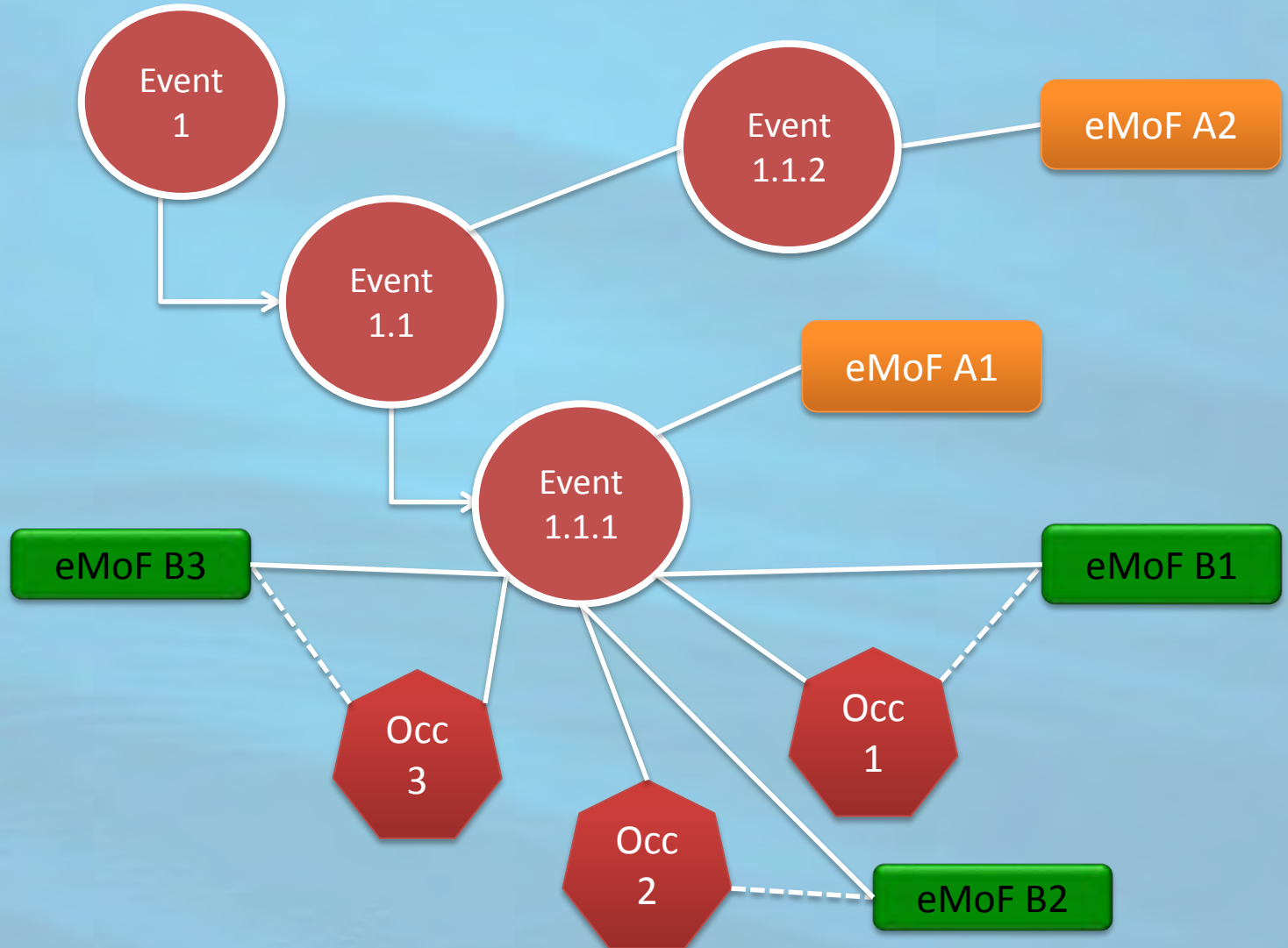
- Persistent identifiers (URIs)
- Controlled vocabulary

=> NERC Vocabulary Server (P01, P06 & L22)

Extended MoF Extension
 = custom MoF Extension
 + OccurrenceID
 + MeasurementTypeID
 + MeasurementValueID
 + MeasurementUnitID

Event Core – allowing event hierarchy

- Record differences in sampling time, location & depth while still grouping these samples to the same station visit



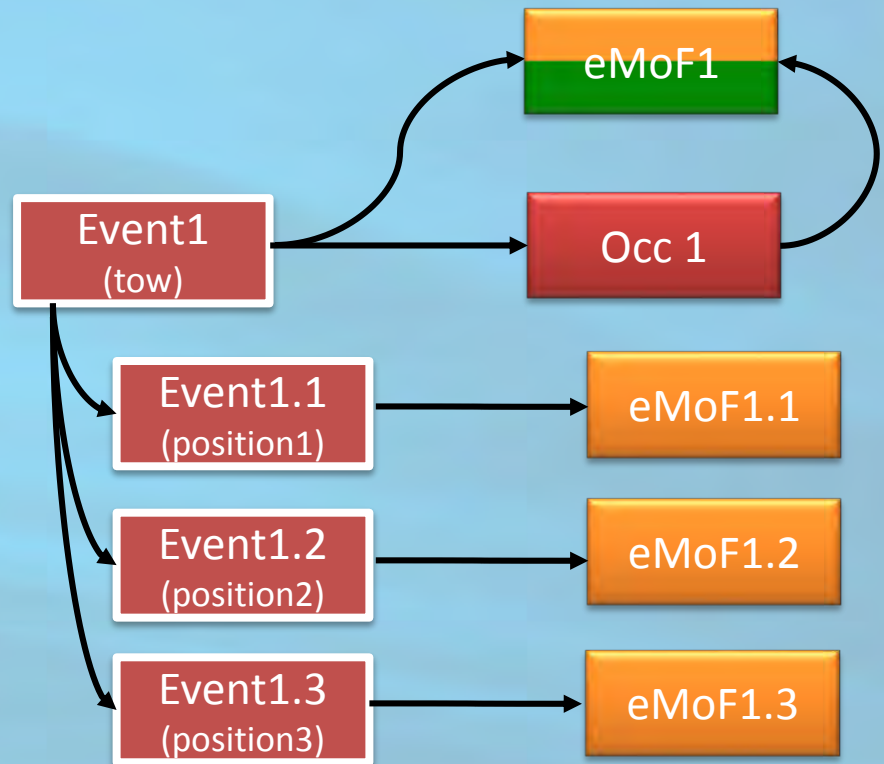
OBIS-ENV-DATA format & sensor-based data

- Applicable to CTD data, tracking & Video Plankton Recorder (VPR)

CTD and plankton net



Bongo nets and CTD unit being deployed from the Henry Bigelow. (Photo by Sammi Ocher, Northeastern University)



If a CTD sensor was placed on a sampling net, the parentEventID to which the sensor readings are linked may represent the deployment of this net, so biological data can be linked directly to this parentEventID.

Future perspectives

- Additional testing planned with:
 - Length frequency data combined with abundance data
 - Stomach analysis data
 - OTU data from genetic analyses
 - Biological responses to ocean acidification
 - Acoustic receiver data (passive & active)
 - ...

- Abiotic data in OBIS?

Yes, but only to keep together biotic & abiotic data that were sampled together:

 - Typically collected by biologists
 - Considered to be an integral part of the biological dataset
 - Loose (a lot of) their value when considered separately
 - Rarely find their way to a specialized environmental data system

=> are at risk of being lost

Want to learn more?

Biodiversity Data Journal : Research Article

 Print

Toward a new data standard for combined marine biological and environmental datasets - expanding OBIS beyond species occurrences

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**“The OBIS-ENV-DATA standard will bring OBIS from the
Biogeographozoic Era to the Neo-eco-data-cene”**

*Philip Goldstein
5th OBIS Steering Group meeting, 2016*

Thank you!

Questions?

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