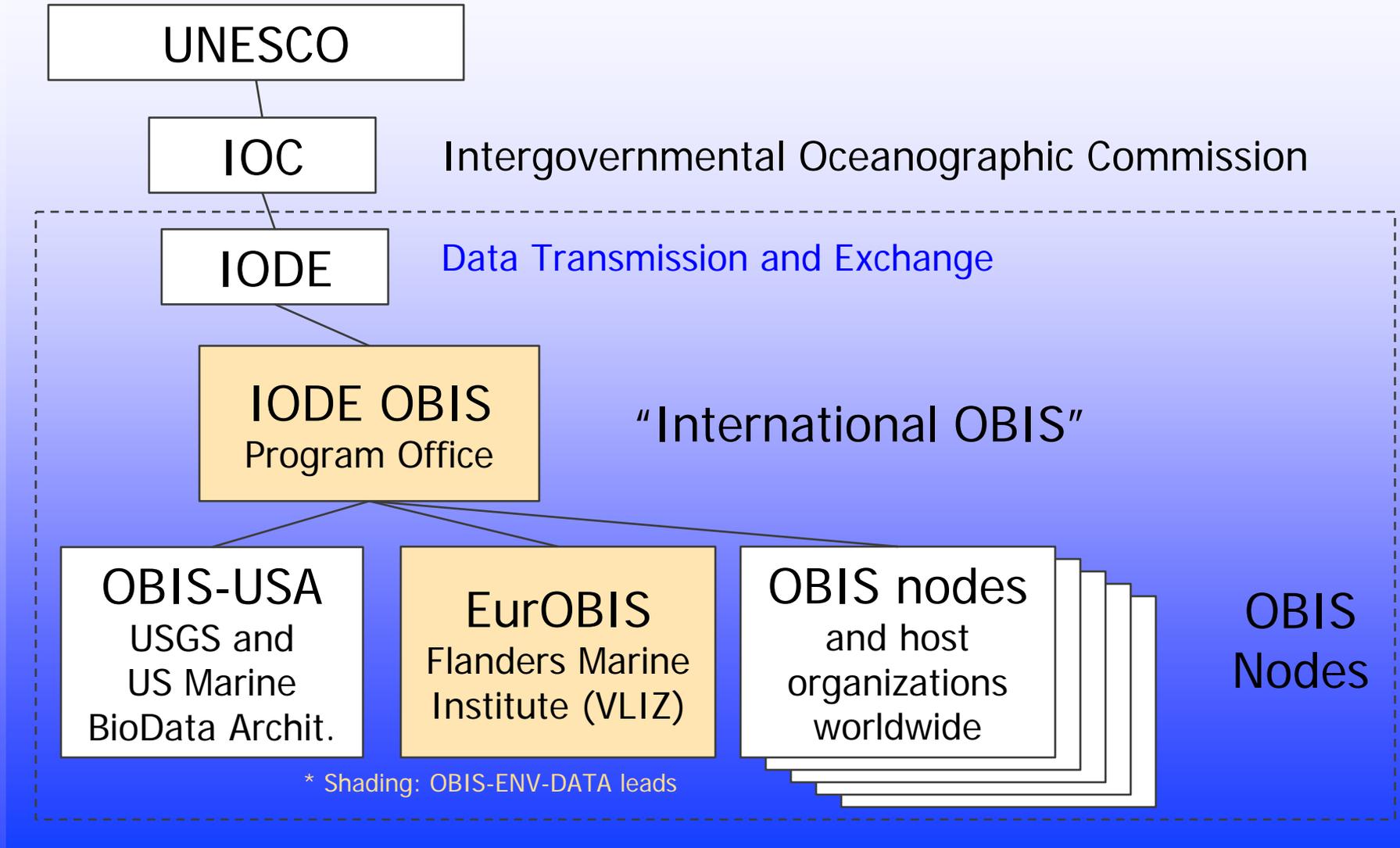


The IODE OBIS-ENV-DATA Project: Integrating Biological and Environmental Data

Philip Goldstein

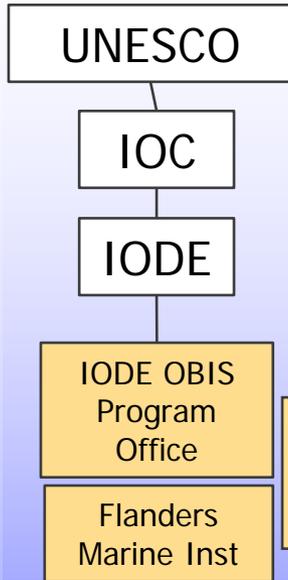
June 3, 2016

IODE OBIS in UNESCO



OCEAN BIOGEOGRAPHIC INFORMATION SYSTEM

IOC Adopts OBIS-ENV-DATA



Submitted
OBIS-ENV-DATA
proposal to IODE

US Participation:

BCO-DMO	OBIS-USA
	OBIS-SEAMAP



The IOC Session adopted 5 recommendations, including:

- “the establishment of the IODE pilot project **expanding OBIS with environmental data** (OBIS-ENV-DATA)” (submitted by the IODE OBIS Program Office and Flanders Marine Institute)

Participation in OBIS-ENV-DATA



14 pilot
datasets

OBIS-ENV-DATA involves:

- 11 institutions
 - from 10 countries
- in North and South America, Europe, Africa and Oceania.

Goals of OBIS-ENV-DATA

1. Do not let biogeographic data and environmental data become disconnected
2. Enhance information about sampling protocol and effort
3. Support animal tracking/telemetry
4. Stay within GBIF standards and exchange mechanisms (Darwin Core and Integrated Publishing Toolkit)

Yet as always ...

- Respond to science requirements

“Combined Data” is Ecosystem Data

one example
of ecosystem
data

Data from coordinated research plans:

- Intentional study areas (stations)
- Coordinated sample/obs events, at intervals, over duration
- Consistent, documented methods
- Biological and environmental data

CTD

Plankton

Bio: Birds,
mammals

(Opportunistic or
On Effort)

Bio:
Fisheries

Habitat desc,
category,
keywords

Phys/Chem
parameters,
Quant/Qual

Bio:
Benthic
Survey

Bio:
Inverts

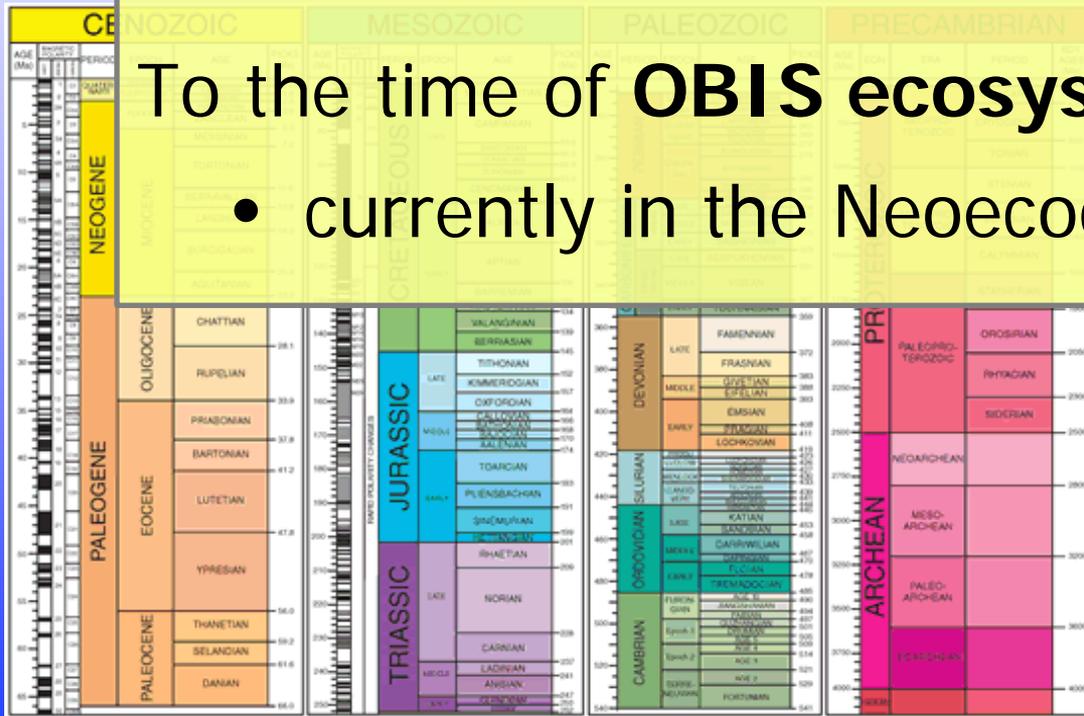
The OBIS Geologic Time Scale

Moving from the era of **OBIS biogeography**

- formerly in the Biogeographozoic Era

To the time of **OBIS ecosystem data**

- currently in the Neoeocodacene



@WrdAppltns

Why now?

Combined data is not new. What is new?

- **New development: Darwin Core Event Core**
- We have been using Darwin Core Occurrence Core
- Event Core moves focus to the sampling event
- **The sampling event pulls data together** for
 - Biological occurrences and details
 - Sampling methods and effort
 - Environmental observations -
quantitative and qualitative

Darwin Core "Event Core" new from GBIF

Research for several years. Available now.



A flipchart scan from the Copenhagen Hackathon, 2013.

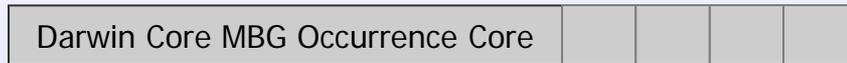
OBIS's 8 Use Cases in the GBIF Hackathon

The benefits of having OBIS use cases in the GBIF development process:

1. Assure that US activity remains aligned with global activity.
2. Participate in next generation innovation.

Database Structure:

Compare Occurrence Core and Event Core

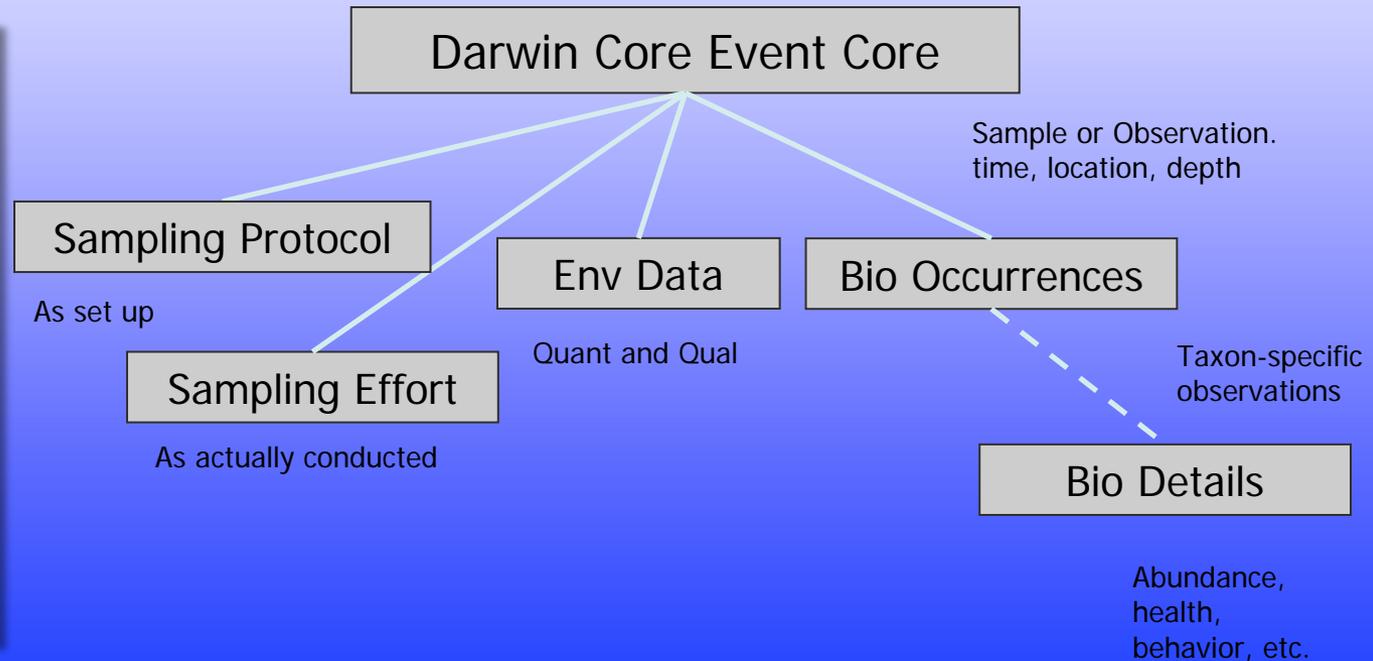


Biological occurrence event, taxon level, some bio details

Sampling details, env data, more bio details squeezed in.

What does this diagram advocate?

- The rich benefits of Event Core?
- Or the clarity and simplicity of Occurrence Core?



Reactions to OBIS-ENV-DATA

Impatience

Skepticism

Comprehension

Enthusiasm

Indifference

Doom-saying

Territory

Inspiration

Science & Engineering

Other global players – for example EU BON – may be leading in enthusiasm and adoption of Event Core. 2016 will tell.

OBIS-ENV-DATA Timeline

2015

- Adoption by IOC Committee on IODE 23rd Session
- Pilot datasets from participants
- First workshop and design (technical)

2016

- First workshop report
- Technical implementation, testing, review, and comment
- Second workshop (scientific)
- Research applications and implementation plan

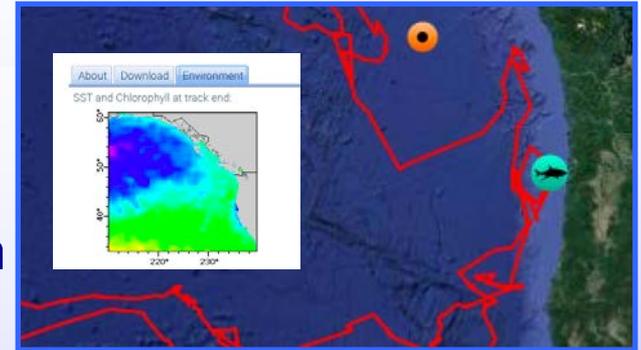
2017 (prospective)

- Report to IOC Committee on IODE 24th Session
- Implementation Plan for IODE OBIS and OBIS Nodes

More ENV-DATA Application Frontiers

Animal Telemetry

- Animal time and location – events
- Accompanying environmental information
- Data processing methods



Ocean Acidification

- Experimental biology as well as in-situ
- Manipulation conditions and response indicators



Organism Behavior / Health / Phenology

- Multiple observations over time
- Animal life story



GOOS Biological EOVs
(Essential Ocean Variables)? and
IOOS Biological Core Variables?

Environmental DNA

OBIS Data, Going Places

Yesterday



(1)

Today



(2)

OBIS-USA
and
US IOOS !!



OBIS-ENV-DATA
?? (3)

ENV-DATA is an elective, not a required course

- Options remain, to stay with (2) or to pioneer (3)
- International OBIS will support both (2) and (3)
- (2) transitions effectively to (3)
- Especially the way OBIS-USA and US IOOS do (2), prepares well for (3)

OBIS's 8 Use Cases

1. Towed Diver Survey
2. Fisheries-related Trawl
3. Passive Acoustic Detection
4. Tracking
5. Sampling Details
6. Subsampling
7. Experimental Biology
8. On-Effort Observer Transect Data