

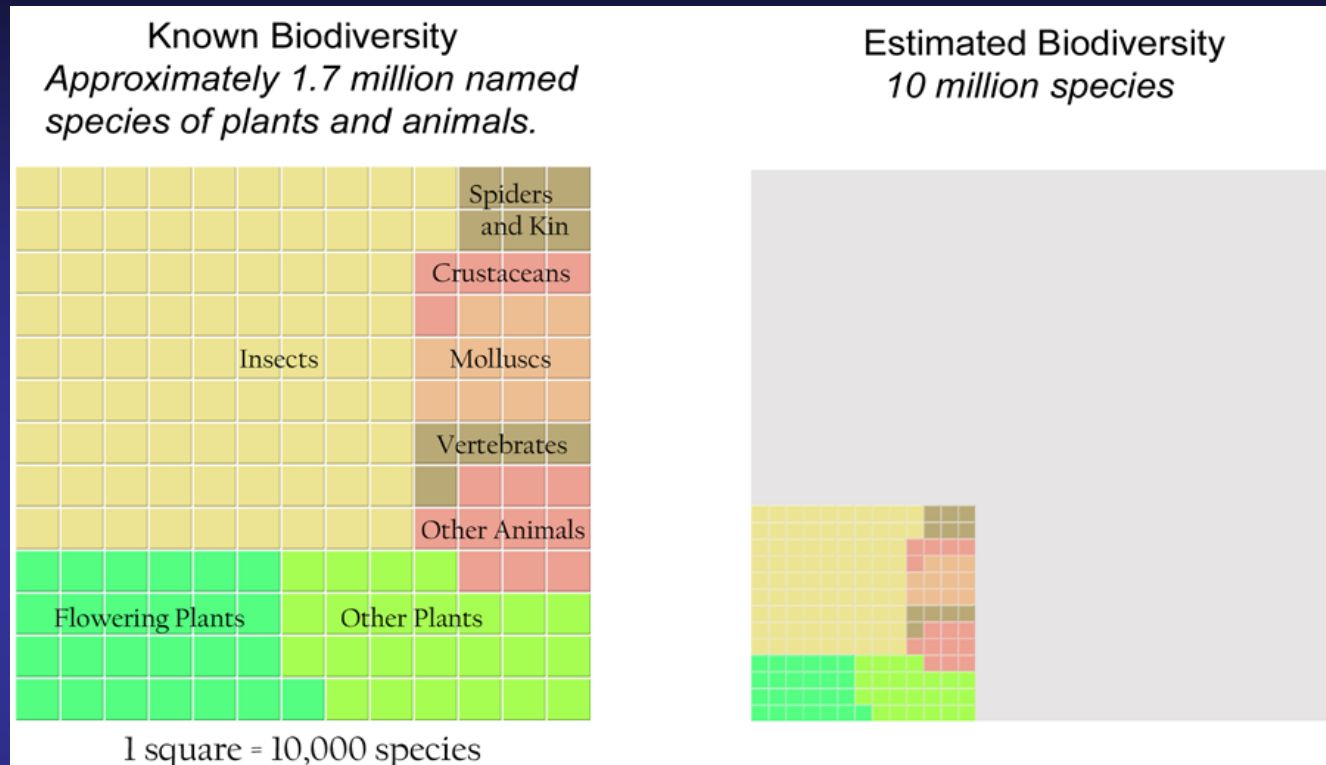
# Taksonomi, Systematikk og miljøovervaking - en framtidsvisjon

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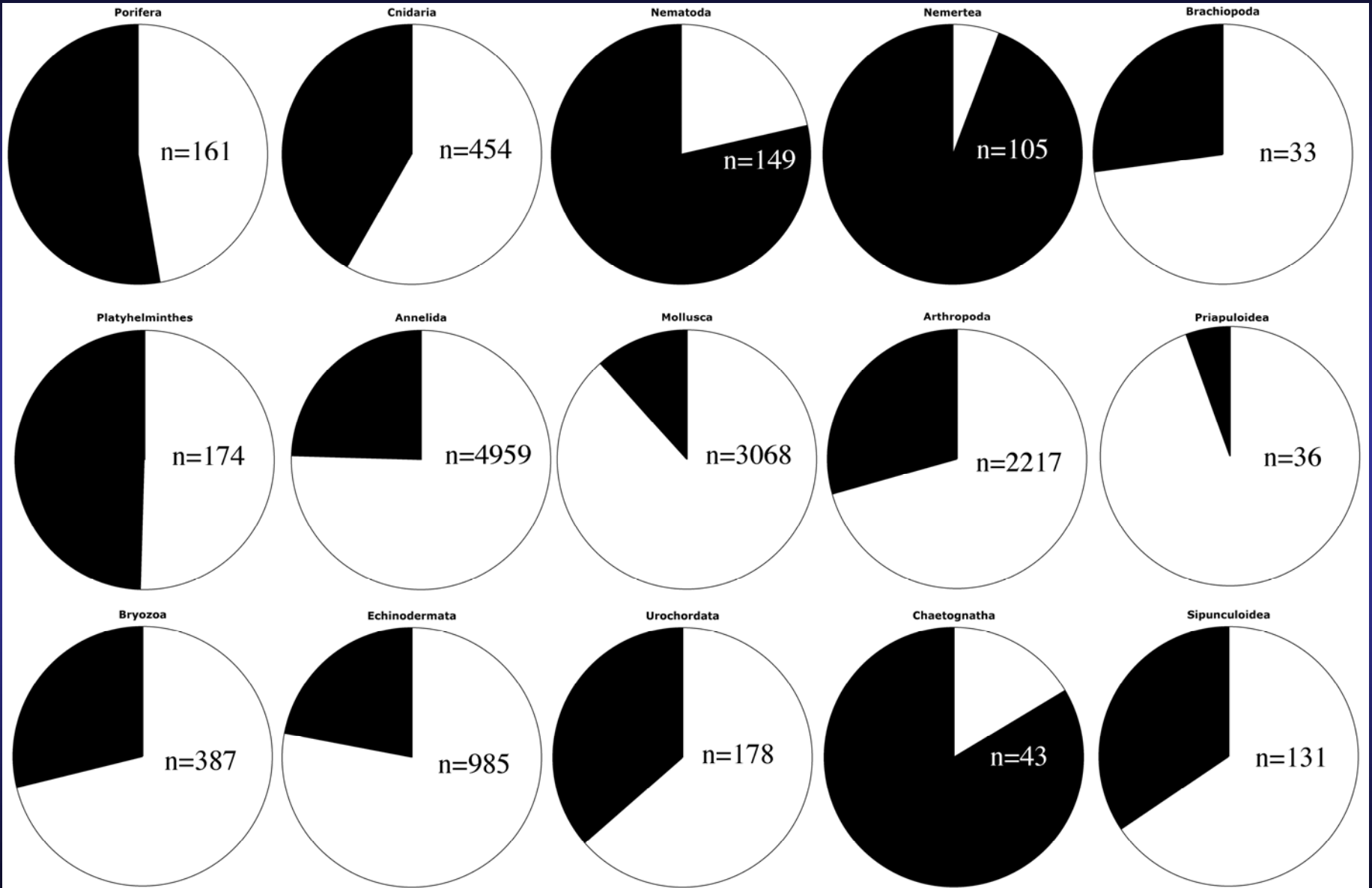
# Globally



## Problem:

With current rate it would take about 600 years only to describe all species - the time to find them not included!

# Many are difficult to identify even if described



- All observations lose reliability over time

- Misidentifications
- Taxonomic revisions
- Actual changes

- Lack of funding for inventories

- Need for a baseline
- New areas of interest



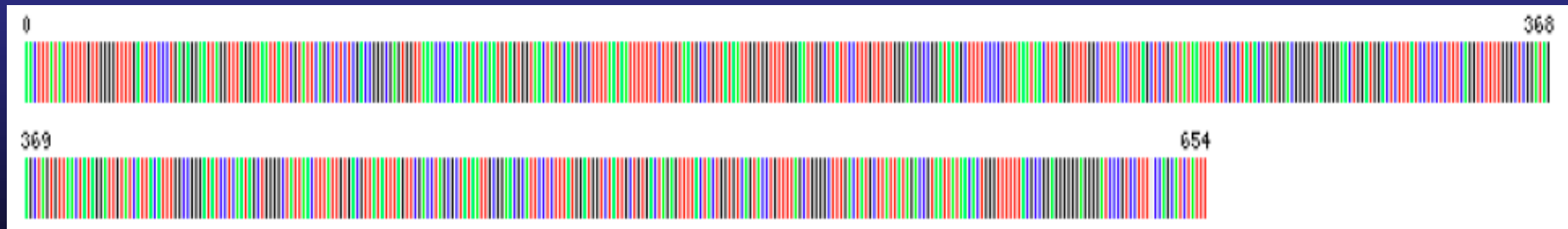
# ONE SOLUTION? BIOLOGICAL BARCODING

A fragment (ca 650 bp) of the COI-gene is used to identify species

Comparisons are made with an international database



This does not exclude traditional taxonomy!



Barcode of *Acesta excavata*, Schander unpublished

# BIOLOGICAL BARCODING

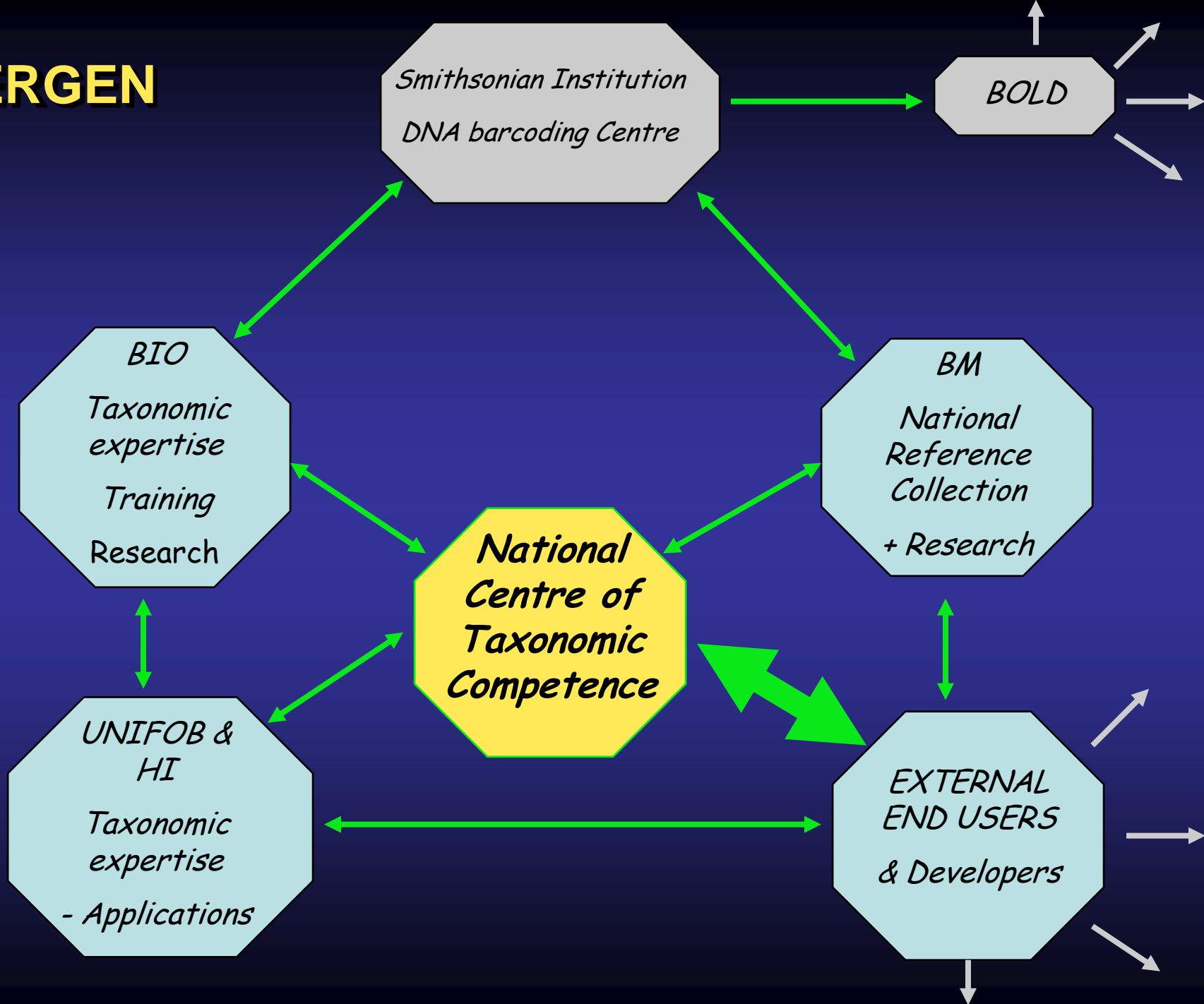
- Efficient & adequate species identification
- Identification of eggs and larval forms
- Identification of introduced species
- Identification of sibling species
- Base for biodiversity estimates
- Base for establishment of genetic ownership
- Identification of poorly known organismal groups
- Base for taxonomic training
- Base for decision making in conservation
- Identification of indicator organisms



- **Natural History Museums are understaffed**
  - **Material is lost**
  - **Collections are not upgraded**
  - **Limited new collecting**
  - **Inventories are not followed up**

**NATURAL HISTORY COLLECTIONS ARE  
THE ONLY RELIABLE RECORDS OF THE  
BIOLOGICAL CHANGES IN ANY GIVEN  
AREA!!**

# BERGEN



# Key Challenges for Environmental Monitoring Programs

Samples:

- High frequency
- High spatial resolution

Analysis by highly trained taxonomists

**Bottleneck!!**

Samples:

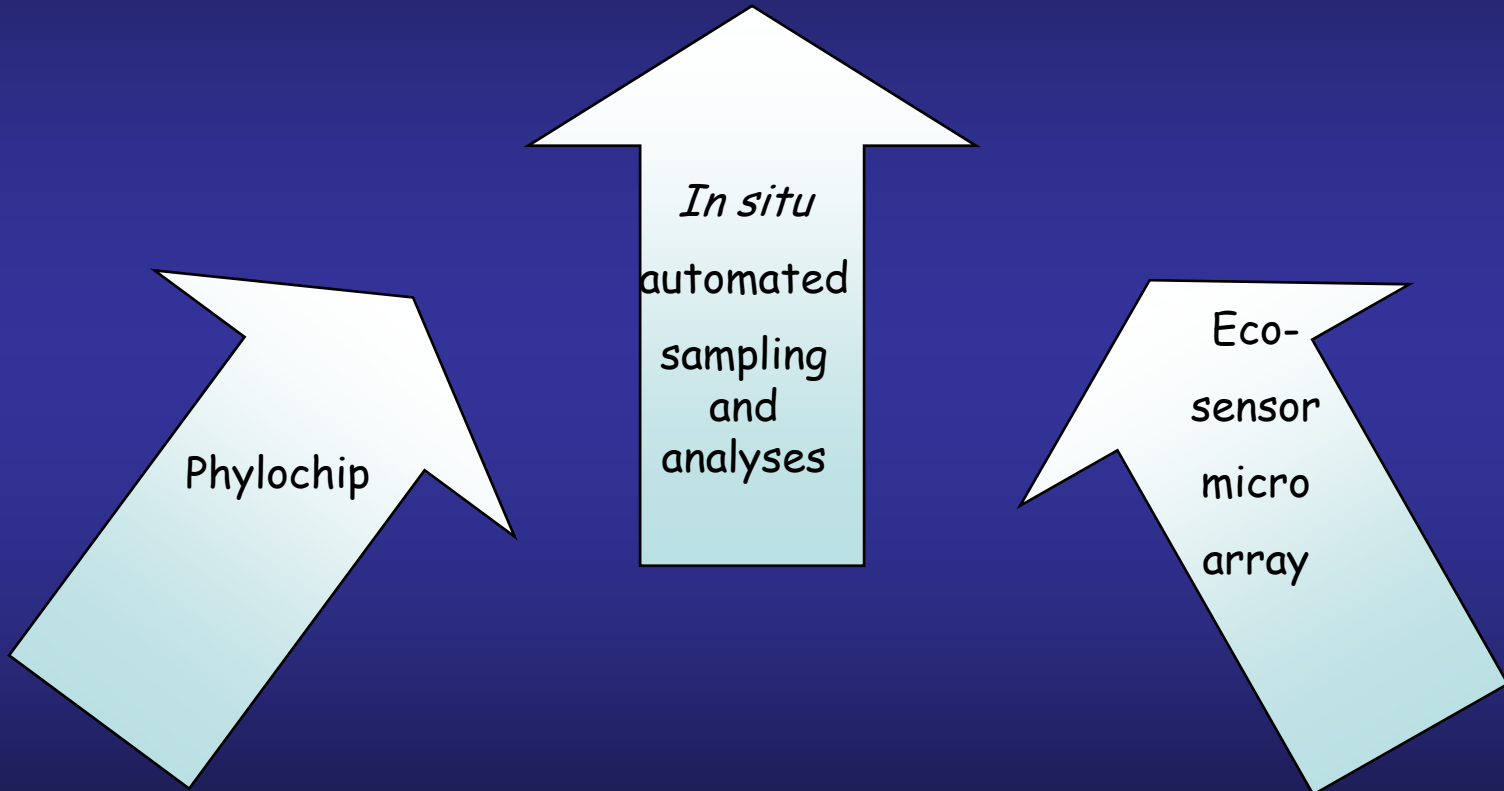
- High frequency
- High spatial resolution

High throughput analysis by Environomics

**No Bottleneck!!**

Time

Automated *in situ* Environmental Monitoring



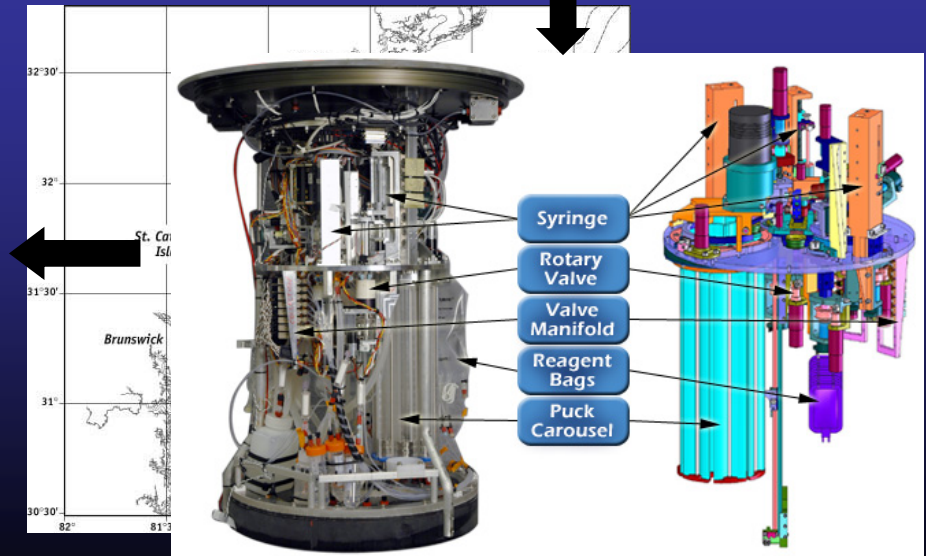
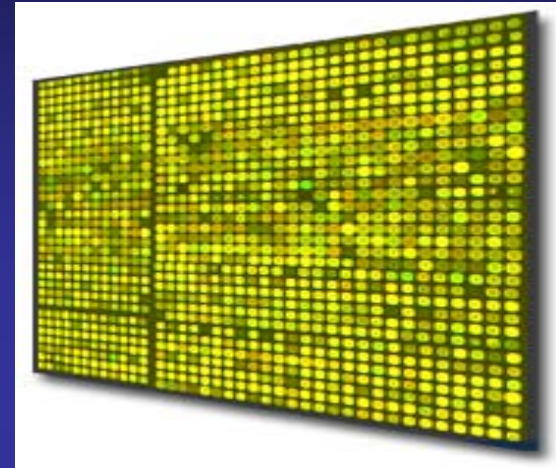
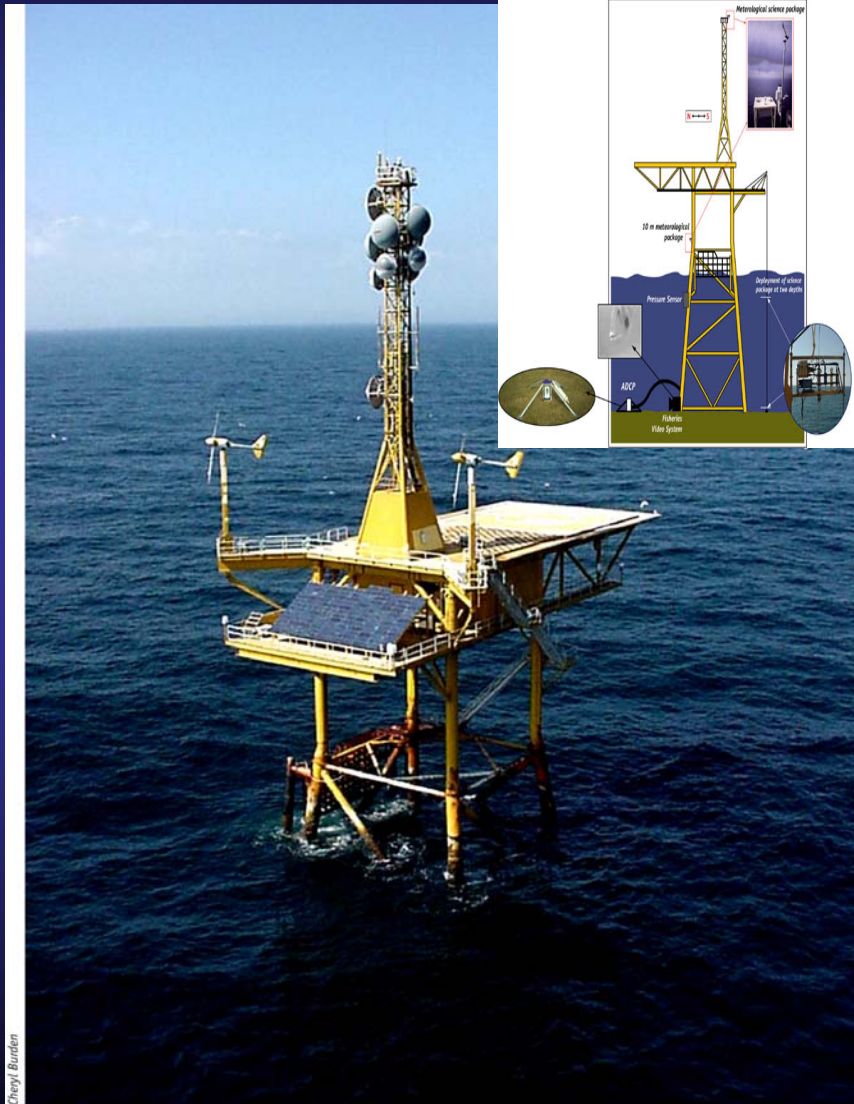
Phylochip

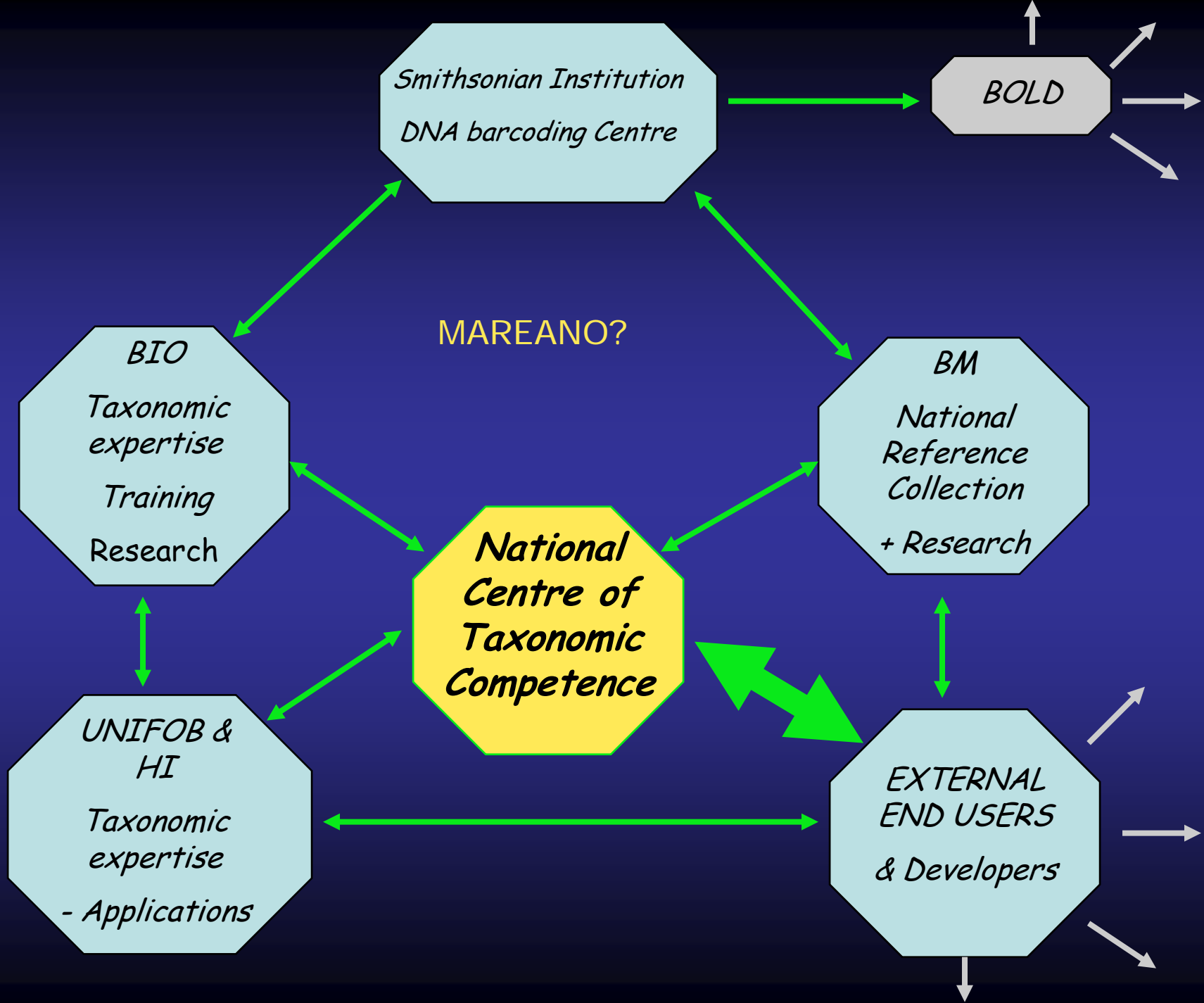
*In situ*  
automated  
sampling  
and  
analyses

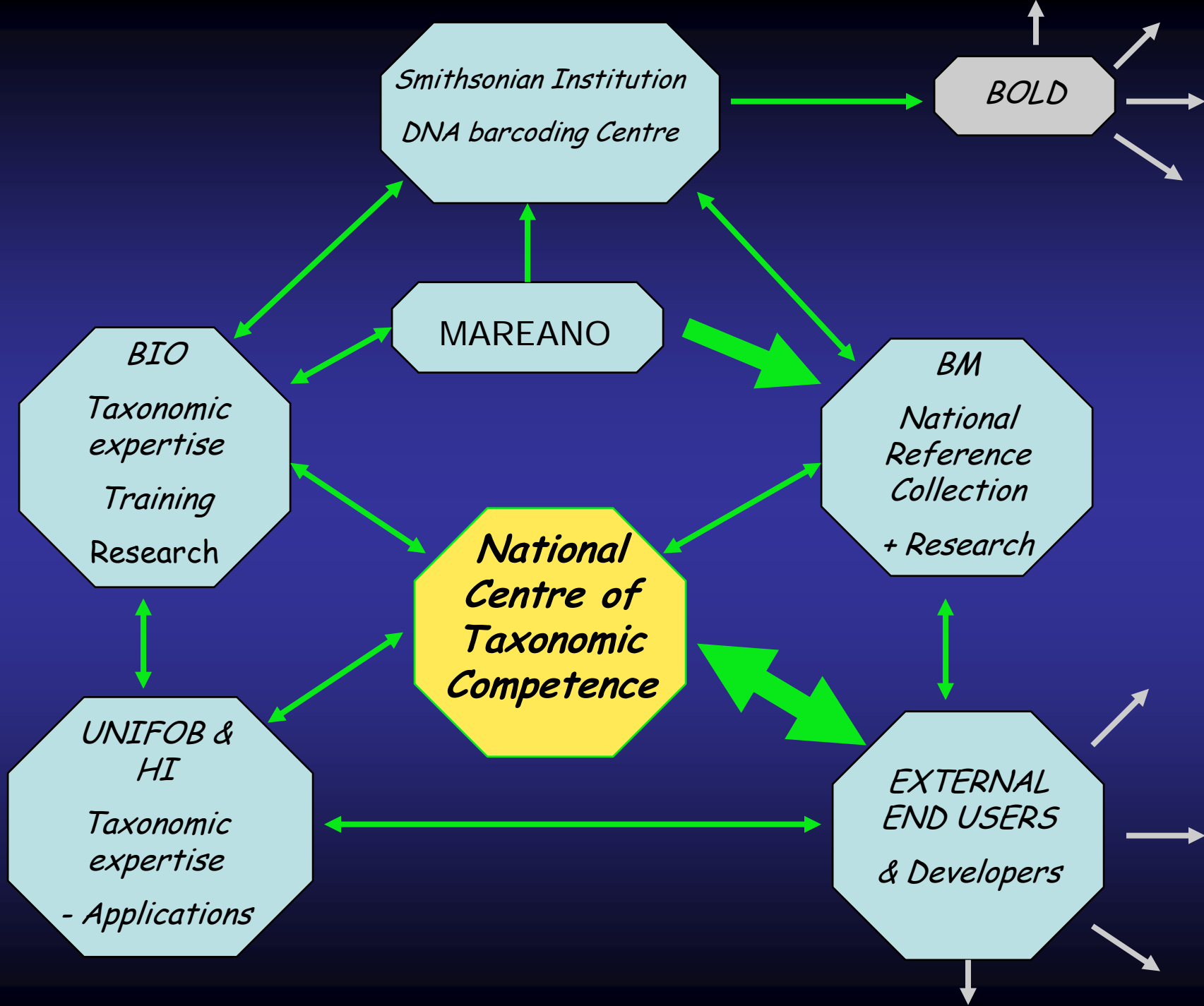
Eco-  
sensor  
micro  
array

# SABSOON

[http://www.skiio.peachnet.edu/research2/sabsoon/sab\\_communications.html](http://www.skiio.peachnet.edu/research2/sabsoon/sab_communications.html)







# MAREANO



- **Cruise planing**
- **Specimens - collection series**
- **Environmental data**

# UIB - NCTC

- **Taxonomic Expertise**
- **National Reference Collection**
- **Barcoding Pipeline**
- **Dissemination of data**

