

«Marine Biodiversity of West Africa»

A project progress report
September 2013

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* Presentation for the 4th Meeting of CCLME Ecosystem Survey Planning and Analysis WG
Dakar, Senegal, 24-27 September 2013



Benthic samples have been retrieved with trawl, sled, grab and dredge from R/V Dr. Fridtjof Nansen since 2005.

The primary aims of the project is to survey and describe *benthic biodiversity* in the West African shelf area and to make species information available with open access media.





The samples are processed and kept in the University Museum of Bergen.

Each sample may contain hundreds of specimens and a great diversity of animal species.





Samples are first sorted to taxonomic main groups, such as Crustacea, Mollusca etc.. Further identification to species is time consuming work and often requires taxonomic specialists in each group.

We cooperate with international partners to maximize the quality of species identifications.





Downloads

WEB page: MIWA.b.uib.no



Access list of sampling stations with [map](#) in Google.

Click the link and select "Map of Latitude" to view map.
Select "Satellite" for satellite image.

Use "Filter" to include / exclude data.

RECENT POSTS

[List of sampling stations](#)

[Opportunities for master studies](#)

[Slipper lobster](#)

[Thank you to all our workshop participants!](#)

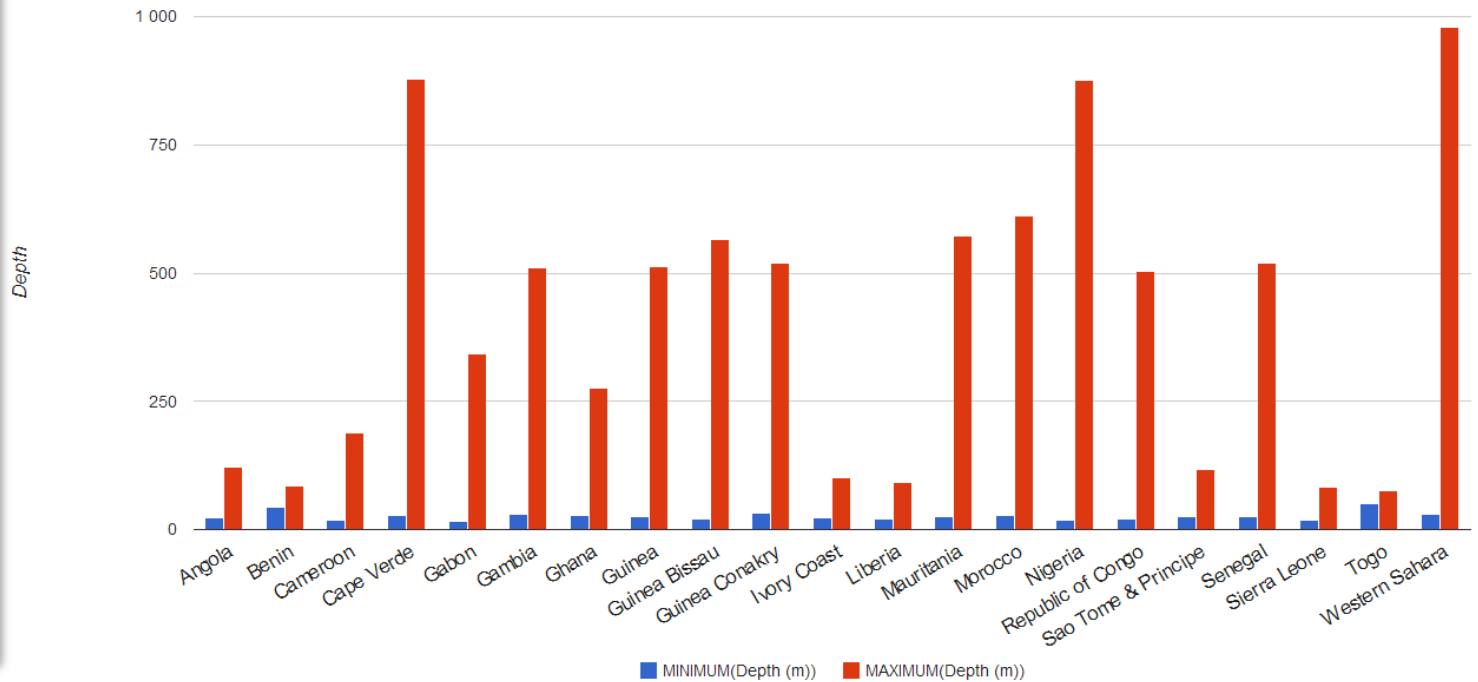
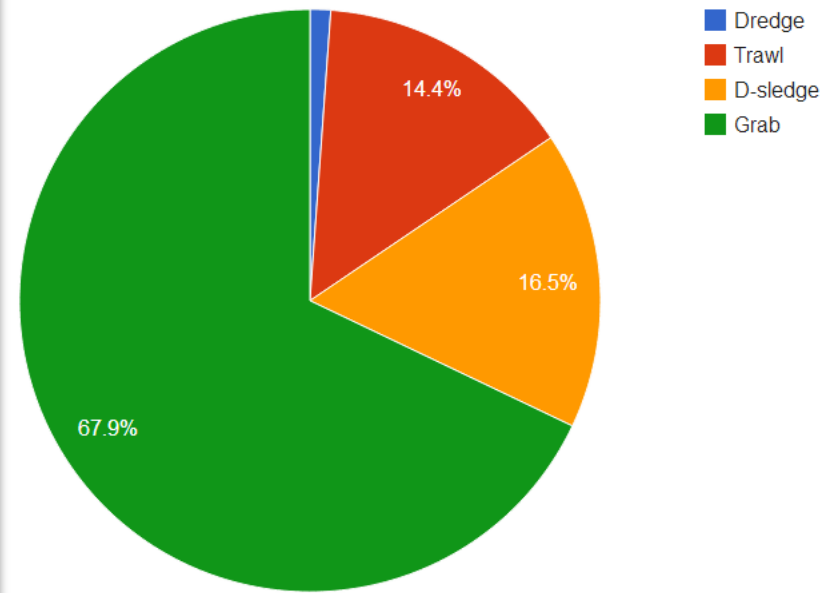
[Workshop summary of Crustacea](#)

RECENT COMMENTS

ARCHIVES

Station information summarized from the Google page

Country	Count
Angola	10
Benin	3
Cameroon	52
Cape Verde	13
Gabon	99
Gambia	6
Ghana	21
Guinea	16
Guinea Bissau	26
Guinea Conakry	9
Ivory Coast	7
Liberia	24
Mauritania	33
Morocco	82
Nigeria	77
Republic of Congo	26
Sao Tome & Principe	39
Senegal	22
Sierra Leone	19
Togo	3
Western Sahara	24



Workshop participants in Bergen 2013



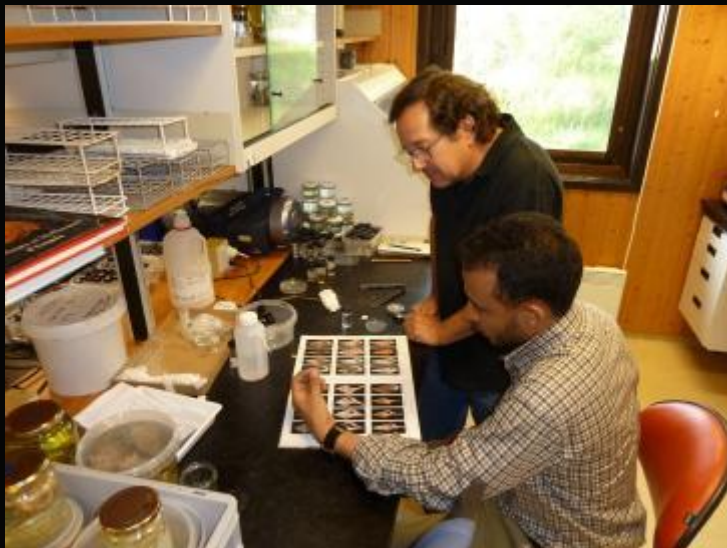
The workshop mollusca team



Kouadio



Lena



Zé Pedro and Sidi



Manuel

Mollusca (so far: Gastropoda only)

- No of Museum lots (ZMBN) registered: 711
- No of species identified: 192 + 32 spp
- No of images: 1763
- 1 plate for DNA barcodes





91951.

Hexaplex rosarium



91961.

Bolma johnstoni



91969.

Sinum concavum



92046.

Pronum cinctum



91980.

Turitella unguina



91979.

Oliva flamulata



92082.

Natica acynonyx



91981.

Persicula persicula



92248.

Diacria trispinosa



91973.

Antilophos grateloupianus

Researchers presently studying MIWA polychaetes



Universitetsmuseet i Bergen

- Jon A. Kongsrud, Bergen, Norway
**Fam. Maldanidae, Opheliidae,
Scalibregmatidae**

- Jon A. Kongsrud & Tom
Alvestad,(UniResearch Bergen)
Fam. Ampharetidae

- Nataliya Budaeva (Marie Curie postdoc ,Bergen)
Fam. Onuphidae

- Kate Mortimer-Jones (National Museum Wales)
Fam. Magelonidae

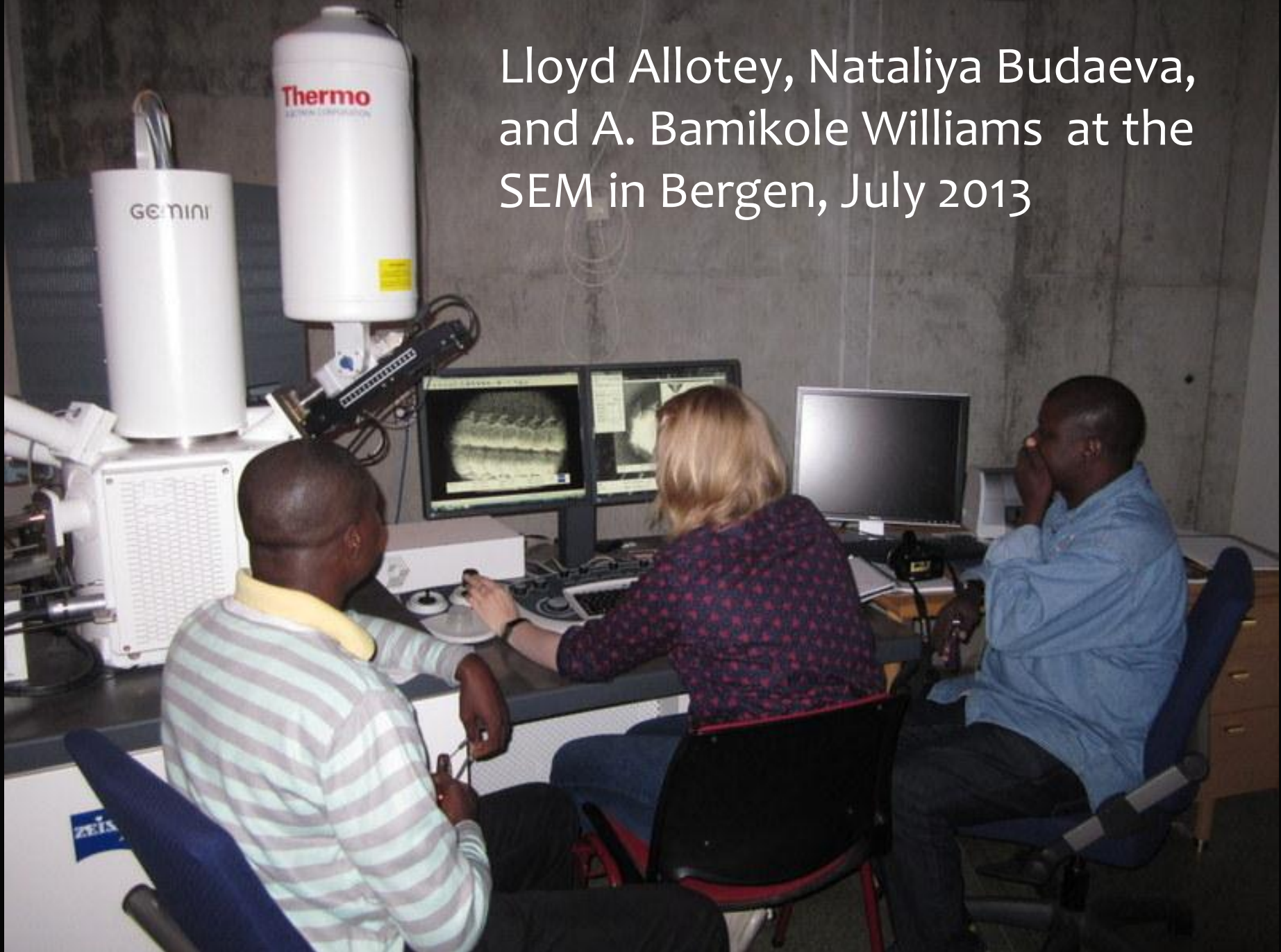
- Danny E. Jacobsen (NHM Denmark)
Gen. Poecilochaetus

- Maria Capa (postdoc, NHM Trondheim, Norway)
Fam. Sphaerodoridae

- Lloyd Allotey (Legon, Ghana)
Various groups

- A. Bamikole Williams (Lagos, Nigeria)
Various groups

Lloyd Allotey, Nataliya Budaeva,
and A. Bamikole Williams at the
SEM in Bergen, July 2013



Polychaeta, Maldanidae, *Sabaco* sp.

The polychaeta material contains many new species and the work shop found several genera that have not been recorded before in the Atlantic.



4 plates have been prepared for barcoding

200 μ m



EHT = 6.00 kV

WD = 21.8 mm

Signal A = SE2

Mag = 78 X

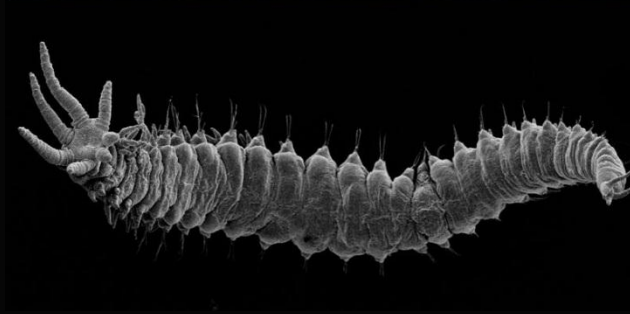
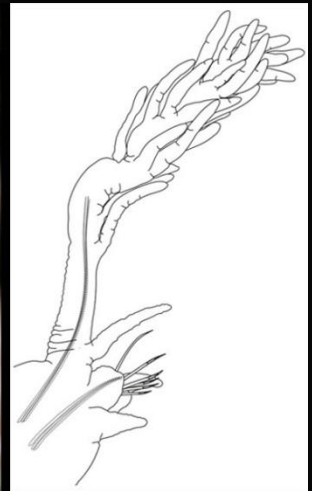
Date :13 Sep 2012

Time :13:53:00

ESE



A new M.Sc. student will start to work with taxonomy of genus *Diopatra* (supervised by Dr. Budaeva)



Crustacea

Workshop focused on crabs, shrimps ,
hermit crabs and stomatopods
from CCLME
4 plates are ready for barcoding
Many samples with poorly known
Peracarida are still unsorted



Echinodermata

Identified by Ø. Alme and K. Minin

Prepared for DNA barcoding:

Ophiura 1 plate

Echinoidea 1 plate



Universitetsmuseet i Bergen

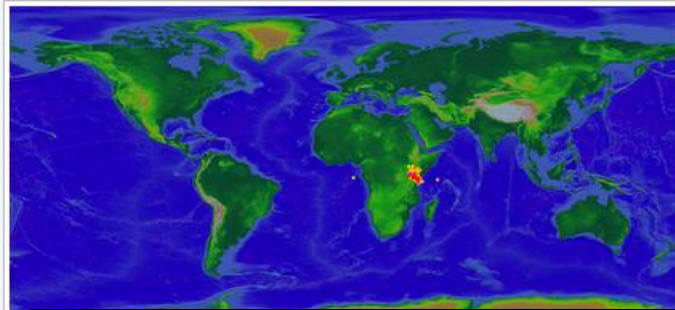


Universitetsmuseet i Bergen

Found **11100** published records,
forming **3380** BINs (clusters),
with specimens from **1** country,
deposited in **85** institutions.

Of these records, **658** have species names, and
represent **257** species.

Specimen distribution:



We will produce open access
identification tools for marine
invertebrate fauna
also utilising the BOLD system:
<http://www.boldsystems.org/>

BOLDSYSTEMS

Databases

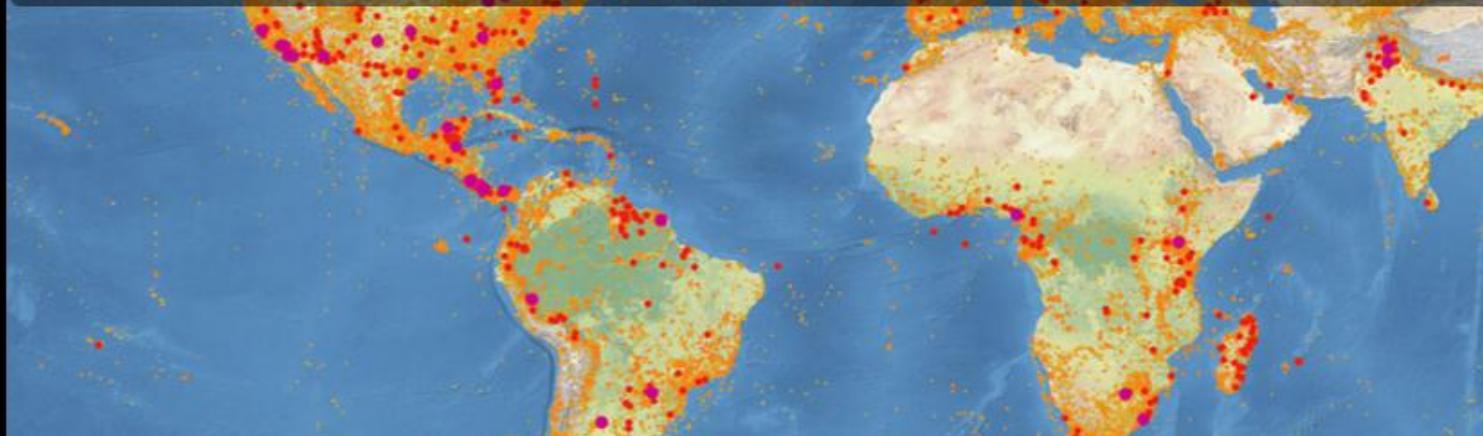
Taxonomy

Identification

Workbench

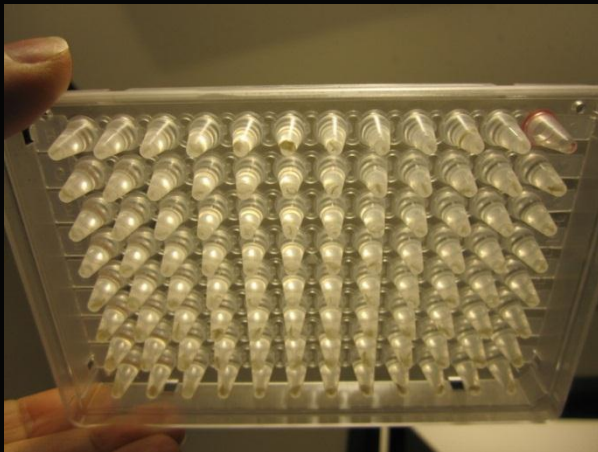
Resources

Advancing species identification and discovery by providing an integrated environment for
the assembly and application of DNA barcodes.

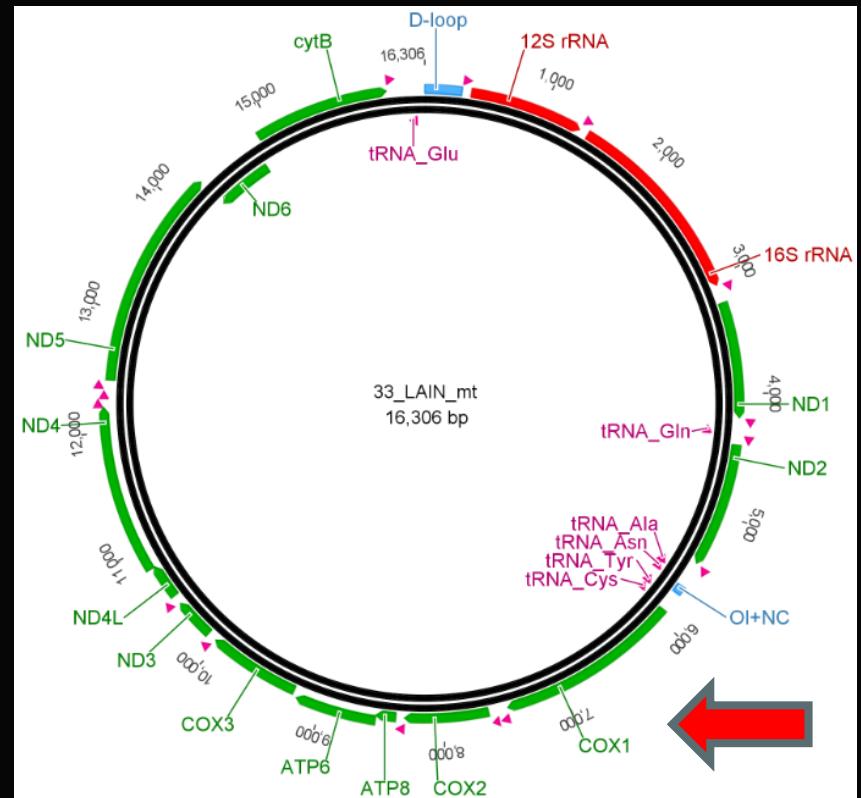
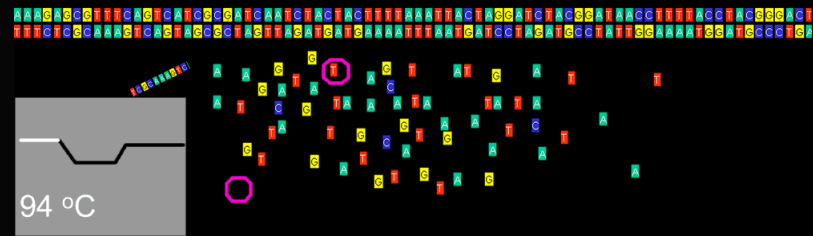


DNA BARCODING

Tissue samples prepared in 95 wells microplates for sequencing in Canada



Target gene segment:
Mitochondrial *cox1*

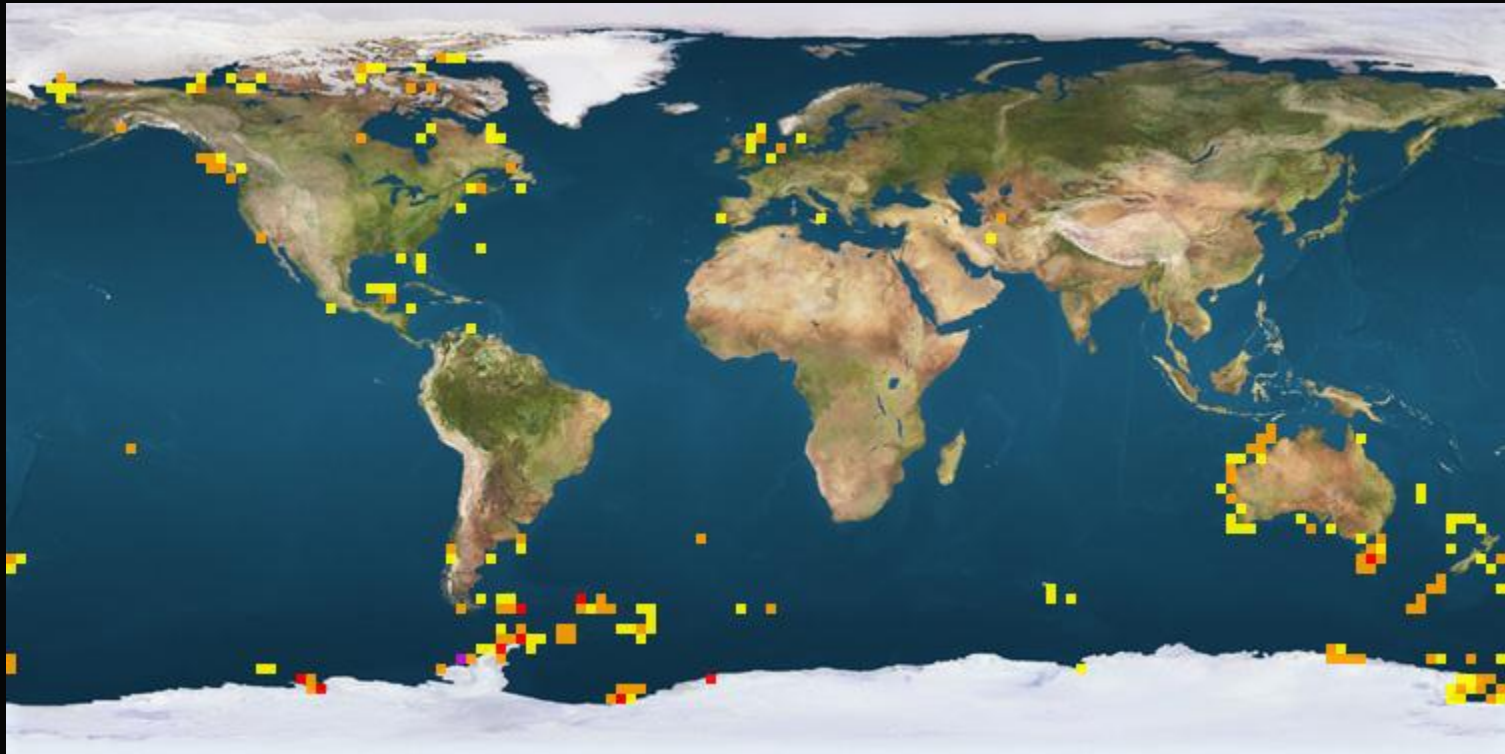


the BOLD system integrates taxonomy and occurrence data with DNA barcodes. <http://www.boldsystems.org/>

	C	D	E	F	G	H	I	J	K	L
1	Collection Info Metadata									
2	Collection Date	Country/Ocean	State/Province	Region	Sector	Contact	Latitude	Longitude	Elevation	Depth
3	09.06.2005	Nigeria					5.444	4.57		481
4	07.06.2005	Nigeria					6.0833	3.9997		281
5	27.06.2005	Sao Tome & Principe					1.506	7.186		81
6	08.05.2008	Gabon					-2.6453	9.5285		53
7	29.06.2012	Morocco					28.0125	-13.274		103
8	10.06.2012	Cape Verde					15.6993	-22.992		196
9	02.06.2012	Mauritania					25.4776	-14.804		41
10	03.07.2012	Morocco					28.7998	-11.004		33
11	03.07.2012	Morocco					28.7998	-11.004		33
12	12.05.2012	Guinea					9.7566	-14.749		34
13	14.05.2012	Guinea					10.1517	-15.928		35
14	10.05.2008	Gabon					-3.4971	10.3177		63
15	21.06.2005	Cameroon					3.8937	9.1498		27
16	24.06.2006	Cameroon					3.0372	9.5635		101
17	20.06.2006	Cameroon					4.0223	8.7798		65
18	29.06.2006	Cameroon					2.9925	9.8203		24
19	29.06.2005	Sao Tome & Principe					0.0377	6.5772		66
20	09.07.2005	Gabon					-2.65	9.5		50
21	10.06.2005	Nigeria					4.9905	4.9588		83
22	09.07.2005	Gabon					-2.65	9.5		50
23	09.07.2005	Gabon					-2.65	9.5		50
24	13.06.2005	Nigeria					5.9333	4.5037		72

Example

This picture shows barcoded ophiurids before we started . Notice no data from Africa



The next slide shows three barcode samples from MIWA 

Google Map - CONTAINER [MIWA]

Example of DNA barcoded specimens from one site

QuickM

Map | Satellite | Hybrid

Specimens :

- [UMBergen_MBOWA_ophiu40](#) - *Amphipholis squamata*
- [UMBergen_MBOWA_ophiu42](#) - *Amphipholis squamata*
- [UMBergen_MBOWA_ophiu46](#) - *Amphiura senegalensis*

link to specimen page

Map data ©2013 TerraMetrics, Map data ©2013 Google - Terms of Use

The specimen page has pictures and map coordinates

Specimen - MIWA_Echinodermata [MIWAE]

Print

Edit Specimen

IDENTIFIERS

Sample ID: UMBergen_MBOWA_ophiu46
Process ID: MIWAE046-13
Institution Storing: University of Bergen, Bergen Museum of Natural History
Field ID:
Museum ID: 91662
Collection Code: ZMBN

TAXONOMY

Identification: *Amphiura senegalensis*
Rank: Species
Identifier: [Oydis Alme](#)
Identification Method:
Identifier Institution:
Identifier Email: oydis.alme@gmail.com
Taxonomy Note:
Rank: [Current Record](#)
(UMBergen_MBOWA_ophiu46)
Phylum: [Echinodermata](#)
Class: [Ophiuroidea](#)
Order: [Ophiurida](#)
Family: [Amphiuridae](#)
Subfamily:
Genus: [Amphiura](#)
Species: [Amphiura senegalensis](#)

SPECIMEN DETAILS

Voucher Status:
Tissue Descriptor:
Sex:
Reproduction:

PHOTOGRAPHS



License: CreativeCommonsbyncsa (2013)
License Holder: Natural History Collections, University of Bergen, University of Bergen, Natural History Collections

Add Tags & Comments

Comments: 0

Associated Tags: No Tags



The MIWA data will become open access maximum 18 months after the samples have been submitted

	Specimens (% complete)	Species (% complete)
COI-5P	0 / 570 (0%)	0 / 159 (0%)

Title: Marine Invertebrates of West Africa
Code: MWA
Description: DNA barcodes for invertebrates collected by R/V "Dr Fridtjof Nansen" in West Africa
Marker(s): COI-5P

Data Summary

BINs: 0
Countries: Atlantic Ocean(570)
Taxonomy Breakdown:

Taxonomy	Count
Polychaeta (class)	285
Malacostraca (class)	190
Ophiuroidea (class)	95

Most Recent Activities:

Show 25 entries Search:

Timestamp	Who	Action
No data available in table		

Showing 0 to 0 of 0 entries

First Previous Next Last

Download Activity Report: Last Week Last Month Last 6 Months

We also wish to contribute knowledge to other web databases such as OBIS and EOL

African marine species are often poorly represented in these databases

Example: *Inachus angolensis*



The screenshot shows the OBIS website search page. At the top left is the OBIS logo (Ocean Biogeographic Information System) and a navigation menu with links for navigation and statistics. The main search area has a text input field containing "Inachus angolensis" and a "Search" button. Below the input field are two buttons: "Common name" (with example "Atlantic salmon") and "Scientific name" (with example "Salmo or Salmo salar"). A map of Africa is shown below the search area. On the right side, there are links for "How to Cite the OBIS Database" and "User Beware: Data Liability Disclaimer".

The screenshot shows the search results page. At the top, it says "Home » Search » Search". Below that is the "Search" heading and a text input field containing "IndexSearch". A "Search" button is present. Below the search button is an "Advanced search" button. The main heading is "Your search yielded no results". Below this heading is a list of species names under the heading "Inachus":

- ... Inachus biceps
- ... Inachus communissimus
- ... Inachus dorhynchus - invalid
- ... Inachus dorsettensis
- ... Inachus grallator
- ... Inachus guentheri
- ... Inachus leptochirus
- ... Inachus nanus
- ... Inachus parvirostris
- ... Inachus phalangium
- ... Inachus thoracicus

A red arrow points to the "invalid" status of *Inachus dorhynchus*.

Our final aims:

Contributions to better and more accessible knowledge of African marine invertebrates to help in understanding natural history, ecosystem functioning, and to aid in monitoring and conservation

Suggestions that may help to improve our efforts are most welcome

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Eva García-Isarch, IEO, Cádiz

Sidi Mouhamed Moctar, IMROP, Nouadhibou

Kouakou Kouadio Norbert, Univ. Nangui, Abijan

Lloyd C. Allotey, DMFS, Legon

Emmanuel Lamptey, DMFS, Legon

Akanbi Bamikole Williams, NIOMR, Lagos

José Pedro Borges, Lisbon

Kirill Minin, Shirshov Inst., Moscow

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