WSBS MSU - NEW COLLECTION CENTER IN THE NORTHWEST OF RUSSIA

N.Y. Neretin¹,
A.E. Zhadan¹,
G.D. Kolbasova¹,
A.V. Kotenev³,
T.V. Neretina¹,
A.B. Tzetlin¹

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N.A. Pertsov White Sea Biological Station of M.V. Lomonosov Moscow State University
White Sea Branch of Zoological Museum of Moscow University

In 2011 WSBS started participating in The International *Barcode of Life* Project (iBOL)

- CO1 sequencing
- Storing ethanol fixated animals or tissue fragment
- Storing DNA
- Photo, animal general view
- Paper Catalogue > MSExcel Catalogue > Online in iBOL

- Storing at a -80°C !!!
Barcoding of life

1. Specimen
2. Collection Data
3. Photographs
4. Other Data
5. Tissue Sample
6. Extract DNA
7. PCR Amplify DNA Barcode
8. Sequence DNA Barcode
9. Web-Accessible Specimen Data and DNA Barcode
White Sea Branch of ZMMU: “Barcoding collection” now
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• 4800 catalogue numbers. The most of them are represented as:

1) Animal or fragment of tissue (in depends on size), -80 °C, 2ml tube
2) DNA, -80 °C, 2ml tube
3) Photo (general form)
4) Row in paper register and in excel file, storing in private Dropbox paper

More than 500 species of Arctic invertebrates are presented
1) Some animals are big, refrigerator is small. How to keep big animals?

2) If there are many animals one species from same location.

   - There is not enough space for everyone!
   - There is not enough catalog# for everyone!
   - No entry for formaline-fixed specimens

3) Excel database service become harder as the table grows
White Sea Branch of ZMMU: new collection model: 2016-2018

1. Division into two informal parts (1) “barcoding collection” and (2) “resource collection”
2. Using special collection management software
3. Storing in systematic order
4. Organization of new low temperature storage, not -80°C, but -20°C
White Sea Branch of ZMMU:

software:

Collections, using Specify Software

- completely free, open source, but since 2018 paid support
White Sea Branch of ZMMU: software:

• Remote MySQL server and client program on personal computers
• Data creating and editing using client program

• Instrument to excel import
• Instrument to automatic creating labels and reports
• Taxonomic, Storage and Geography “trees”
• Synonymy
• History of multiple identifications
• Users with different privileges
• Export to Global Resources
• Attachments (photos, pdf)
White Sea Branch of ZMMU: attachment server
White Sea Branch of ZMMU: labels and reports:

White Sea branch of ZMMU MSU

**Spio limicola**

5 specimen(s)

Polychaeta, Spionidae
White Sea, Kandalaksha Gulf
66.5307132° N, 33.2712593° E, depth 62.1m
PZ-IV D-03(1), Grab Sampler
EtOH96°, 18.09.2017
Coll.: Kokorin A.I., Makarov A., Gendlin N.V.
Id. Tzetlin, Alexander
2017-PZ-4-021 EtOH96°

White Sea, Kandalaksha Gulf
PZ-II 4-3(3), 66° 31.384′ N, 33° 16.363′ E
Dev Grab Sampler, 0.1 m², depth 39.7 m.
06/09/2016, flx. EtOH96°
Coll. Kokorin A.I., Lavrov A., Chava V.
Id. Shumatova N.
Zoological Museum of Moscow State University, White Sea Branch
N.A. Pertzov White Sea Biological Station
Biological Faculty of M.V. Lomonosov Moscow State University

Primorskiy village, Republic Karelia, Russia
119234, Russia, Moscow, Leninskie gory, 1-12, Biological Faculty, White Sea Biological
zoocollection@wsbs-msu.ru

DEED OF GIFT

Date Accessioned: 25.08.2018

I. By these presents, I (We), Anna Zhadan, hereby irrevocably and unconditionally give, transfer and assign to the White Sea Branch of Zoological Museum of Moscow State University all right, title and interests (including all copyright, trademark and related interests), in, to and associated with the object(s) described below. I (We) affirm that I (we) own said object(s) and that to the best of my (our) knowledge I (we) have such right, title and interests to give and that said object(s) were collected or acquired in accordance with applicable laws.

<table>
<thead>
<tr>
<th>Catalog#</th>
<th>Taxonomy, Type Status</th>
<th>Preparation - #spec</th>
<th>Country; Locality; Collectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS00000010959 Perinereis sp.</td>
<td>FA4%→EtOH70° - 1</td>
<td>null; Pacific Ocean, South China Sea, Nha Trang Bay, Hon Tre Island, Dam Bay; DB3 (12° 11' 813&quot; N; 109° 17' 408&quot; E); depth (min-max, m): 1.4;</td>
<td>Udalov</td>
</tr>
</tbody>
</table>
White Sea Branch of ZMMU:
catalogisation:

- Remote catalogisation
- Simultaneous catalogisation by several people
- Cataloger ≠ curator
Specify Software: difficulties now

- Not so easy in configure as most of everyday programs – “user-administrator” required
- IT-specialist really required to install attachment-server or web-client (Sp7)
- Problems with Cyrillic (not in fields! But in interface or reports)
- Sp6 demanding to the quality of communication (not Sp7)
- Paid
White Sea Branch of ZMMU: storages

1.1. refrigerator -80
1.2. refrigerator -20 – for Ethanol collection
1.3. room +20 – for traditional formaldehyde collection
1.4. cupboard for micropreparates
1.5. safe for type material
White Sea Branch of ZMMU: storage -20
White Sea Branch of ZMMU: storage standards

1. Each storage has voluntary name
2. Each storage has unic automatically filled number
3. Each storage has printed label
4. Each tube or jar associated with storage in database
White Sea Branch of ZMMU: using plastic
White Sea Branch of ZMMU: using plastic
White Sea Branch of ZMMU: Results of restructuration

Increase in collection growth
09/2016 → 09/2018
Catalog Numbers 4000 → 11000
Quantity of specimens 4000 → 40000

Need to be digitized ~3000
White Sea Branch of ZMMU: use of the collection (2017-2018):

- White Sea Metabarcoding project (RCF 18-05-60158)
- Arctic Biodiversity Project (RCF 15-29-02447)
- Phylogenetic problems - joining forces of zoologists and molecular biologists
  - WSBS staffs and students
  - Staffs of other organisations: Inv.Zool.Depart., Hydrobiology Department; A.N. Severtsov Institute of Ecology and Evolution RAS; IO RAS; Museum of the Institute of the Sea Biology of FEB RAS; NTNU University Museum (Norway)...

- Students education
- Loans for reidentification by taxonomists:

More than 20 current projects
About 20 finished and published projects over the past 5 years
White Sea Branch of ZMMU:
Export to online resources:

1. The International Barcode of Life Project (>2000)
2. Depository of living systems "Noah's Ark" (>7000)
3. Global Biodiversity Information Facility (GBIF) (>7000)

In plans:

4. Global Genome Biodiversity Network (GGNT) (0)
White Sea Branch of ZMMU: iBOL:

Project - WSBP White Sea Biodiversity Project

Specimens

2154
Specimens

GPS: 897 / 2154

Country: 2154 / 2154

Images: 502 / 2154

Barcode Compliant: 486 / 2154
White Sea Branch of ZMMU: Automatically export (each monday) to online resources:

1. Depository of living systems "Noah's Ark"

https://animal.depo.msu.ru/module/collectionpublic?openparams=[ open-id=112770707]
White Sea Branch of Zoological Museum of M.V. Lomonosov Moscow State University is based on the N.A. Pertsov White Sea Biological Station of M.V. Lomonosov Moscow State University (Primorskiy settlement, Republic Karelia, Russia). This is a collection of invertebrates, primarily from the White Sea and other seas of the Russian Arctic. The collection contains more than 11,000 collection items and over 40,000 invertebrate specimens, including type specimens. The collection includes: formalin and a...
Global Genome Biodiversity Network (GGNT)

News

09 October 2018-The Biodiversity Research and Teaching Collections, Texas A&M makes genetic collections discoverable
14 September 2018-National Biodiversity Information Consortium joins GGBN
24 August 2018-Natural History Museum of Los Angeles County joins GGBN
23 August 2018-Southern China DNA Barcoding Center, Kunming Institute of Zoology, Chinese Academy of Sciences joins GGBN
2017-2018

Staff:
G.D. Kolbasova (-80, animals)
T.V. Neretina (DNA)
A.E. Zhadan (Polychaeta)
N.Y. Neretin
A.B Tzetlin
M.V. Kalyakin

IT:
A.V. Kotenev (server in Moscow and software development strategy)
D.N. Vershinin (server in WSBS)
Specify Software support team (T. Miller, G. Garett)
IT-specialists of Living systems depository “Noah’s Ark” (O. Platko, A. Klyukvin)

Volunteers-specialists (2017-2018):
E.Nikitenko, V.Frolova, D.Yurikova, A.Babitskaya

Public works (2017): students of Biological Faculty and Faculty of Bioengineering and Bioinformatics

Internship (2017): students of Invertebrate Zoology Department
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