POSEIDON, INSPIRE updated citizen science project

Andrej Abramić, Alejandro García Mendoza, Ricardo Haroun Tabraue and José Juan Castro Hernández
Programa POSEIDON

http://www.programaposeidon.eu

• Citizen Science project that deals with marine biodiversity;
• Project financed by Fundación Biodiversidad, 2014-2015;
• Marine species are reported (photo, local name & location) by citizens and validated by experts (marine biologists - experts in sharks, invertebrates, fish....)
• Goal obtain marine biodiversity data within the citizen collaboration, increasing awareness on biodiversity issues
User interface
Current results

- Project finalized but **still running** (2014-2015), still we are obtaining new records, but intensity is decreasing (**need new push**)
- **Campaigns** to get to the **target citizens groups** (scuba divers, whale watchers...)
- Number of “**samples**” > 8000, 7263 validated (3119 photos)
- Number of **registered users** > 400
- **We believe that use of Programa Poseidon can go much further**
Why include **INSPIRE data management** into Programa Poseidon?

- **NOT LEGAL/PROJECT REQUIREMENT**
- EcoAqua Institute of ULPGC - important **producer of the scientific marine/maritime data in the Macaronesia region**.
- The institute applies sharing data policy and in 2016 the goal is to apply **INSPIRE data management**.
- Motivation to be a **part of distributed Spanish SDI & European SDI is to increase visibility** of EcoAqua work and shared information.
- **SDI/INSPIRE data management** we see primely as a **tool**
- **NO RESEARCH ON DATA SCIENCE**
- To properly understand **INSPIRE data management** methods,

To apply in our future international developments - searching for efficiency in development

[www.plasmar.eu](http://www.plasmar.eu)
Open source/free of charge software
– no budget for tools

• Using *exclusively open source/free* of charge software
• Data management that can be applied *without elevated additional costs*
• to *understand and adopt* process:
  – metadata development & management
  – data harmonization
  – Development of the internet services - discovery, view and download
Data harmonization

- Original data base in MySQL, managed and shared also as .shp files
- Transformation done with Humboldt Alignment Editor (HALE)
- We used web tools offered through the INSPIRE web site/data specification corner
  - Technical guidelines DS documents /Interactive Data Specification
  - Mapping tables, HTML view of the UML models, application schemas (XSD) ...
Transformation

- Simple transformation - renaming, assign new properties, without geometry calculation (geometry point or square)

Poseidon (source) - INSPIRE conformant transformation

Simple relationship from source data set to INSPIRE conformant – "one to one"
Architecture applied

• What architecture to apply: **One – off** or transformation **On fly**
• **One-off** transformation + external web based services WMS/WFS
• Even POSEIDON is not static data set (as bathymetry or geology data, weekly or even daily update) no need for **One-the-fly** transformation
• **Monthly update** of INSPIRE data set – HALE provides support for One-off
• One –off **better performance** than On fly, **wider choice of software** components
• Duplicate, triplicate (our use case) copies of data base – **storage and management**
Developing view/download network services

- We use **GeoServer** with INSPIRE extension that provide support for extended capabilities **WMS & WFS** (WCS)
- First idea to serve **plane INSPIRE compliant data model** as a *.shp* (WFS) – Following conceptual data model - quite simple solution – HALE is providing flat data model
- Not possible as *.shp*, (*.dbf) not support more than 10 characters attribute name
- We needed to include the PostGIS data base as a **conversion data base**
  - Possible to serve plane gml file with all required attributes
  - Possible to serve complex structure gml file
Developing discovery services

- Development of the metadata – with metadata editor – in xml need to embed manually reference system code, using the INSPIRE metadata editor
  - European Open Source Metadata Editor (EUOSME)
- Development of the catalogue CSW with GeoNetwork
- DISCOVERY – Finally connected to INSPIRE metadata catalog through national SDI (IDEE España)
Conclusions Data Harmonization

INSPIRE interoperability - Data Harmonization

• **Available tools** (no cost) and support more than satisfying, HALE, Data specification (corner) on INSPIRE web, Interactive data specs, INSPIRE cluster, Technical Guidelines

• Understanding *what need to be done and how is time consuming*

• **Expert knowledge needed** (+awareness what is actually available)

• **Planning INSPIRE data models** is a good solution for developing data flows within international project

• We can not expect from our partners to provide INSPIRE compliant data set without providing our **extensive support** (providing courses and training)
Conclusions Network services

• Available number of tools (no cost)
• Easy to serve WMS, view network services
• Complicate to serve INSPIRE compliant WFS - include PostGIS database (use it only for the bridge to serve INSPIRE gml) – decrease robustness of the system
• Easy to serve WFS for INSPIRE liked data – Flat data models (without complex features). Easy to transform into INSPIRE compliant file
• Download services – provide efficient data flows – updated data – must - extremely useful in the projects
• Discovery services – metadata management – should be part of the project dissemination process
Thank you for your attention

....and patience

alejandro.garcia@ulpgc.es