

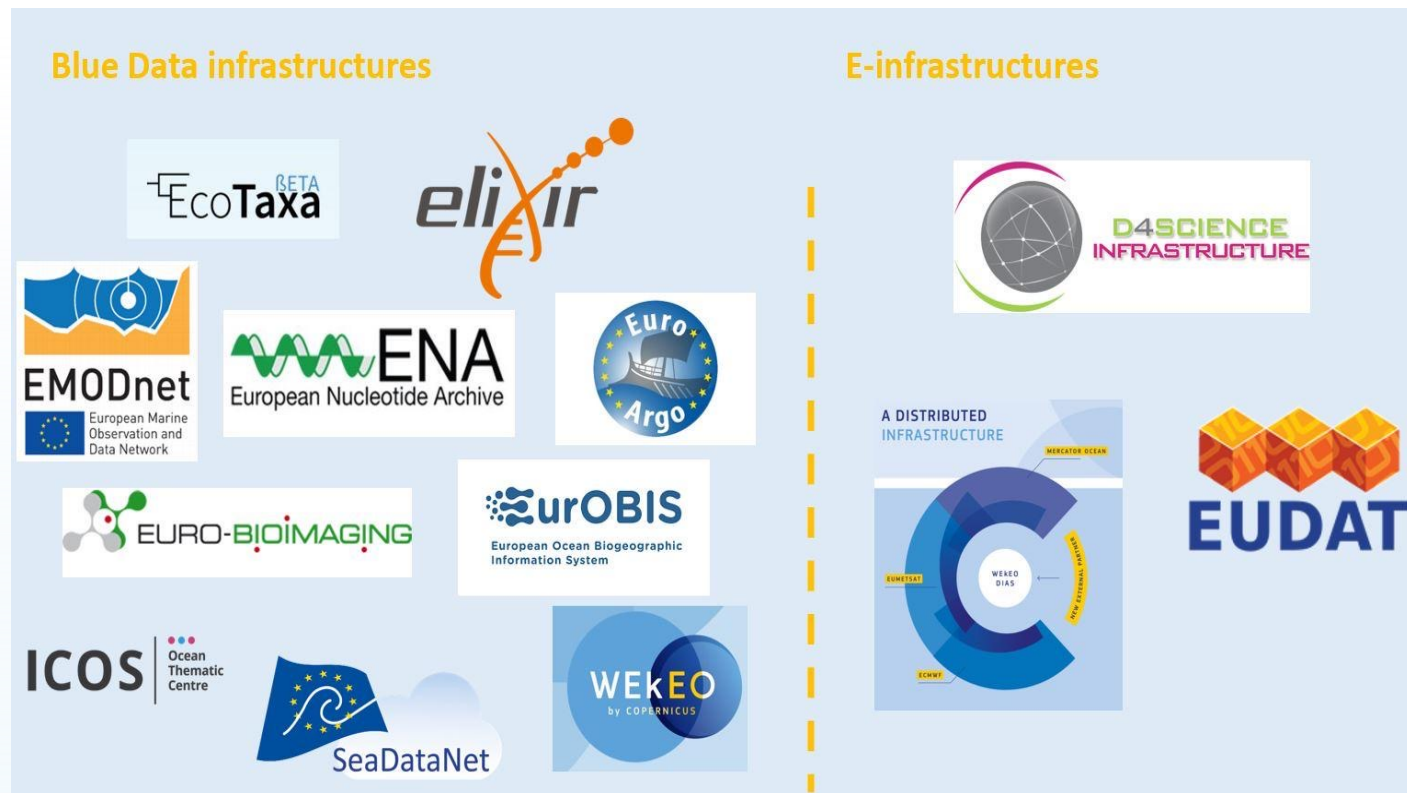
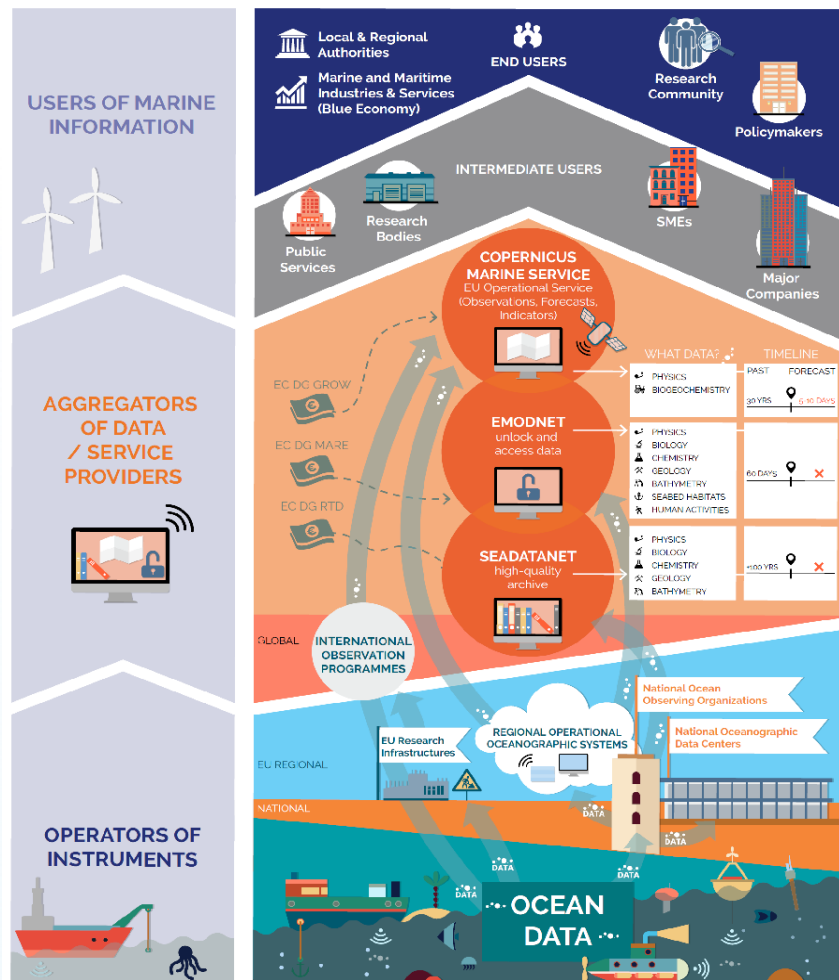
FNS-Cloud EGI Meeting 2022

Blue-Cloud – FNS Cloud Interoperability

What's in a fish (name)

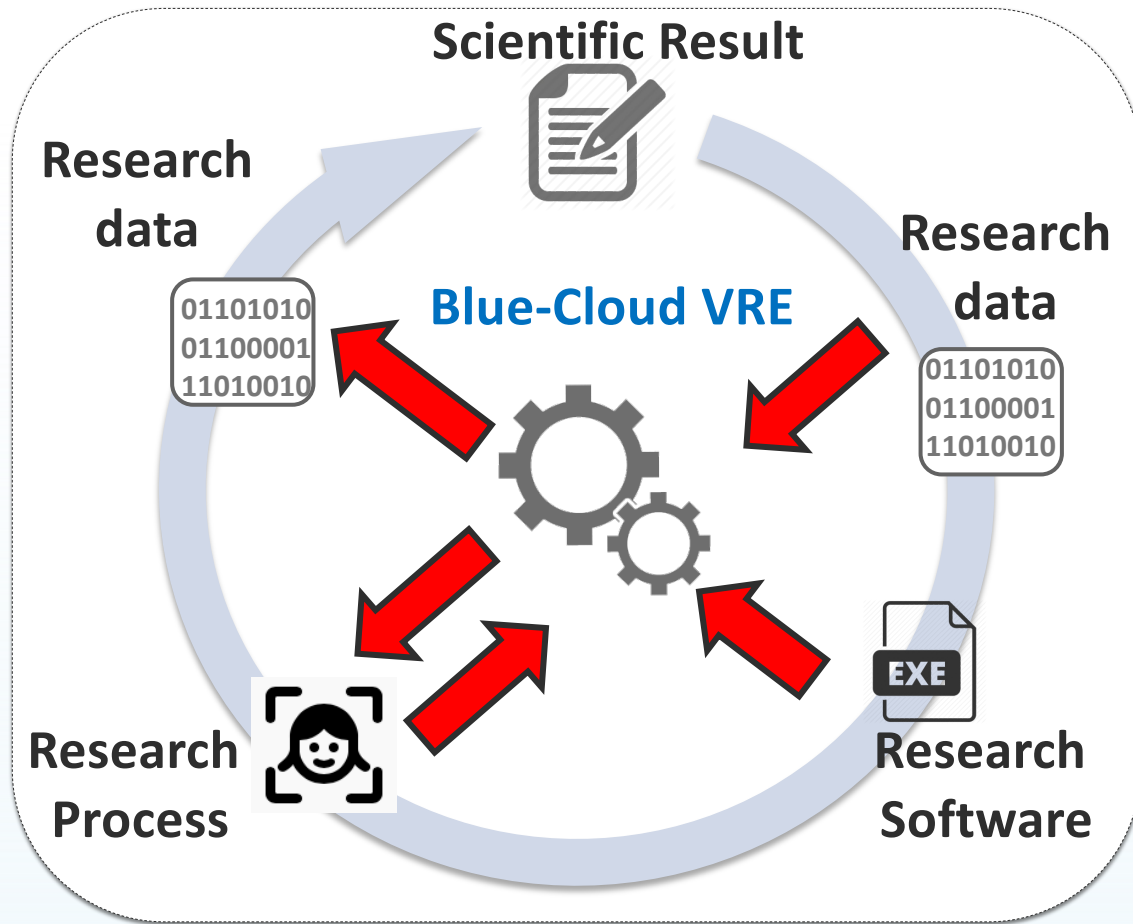
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Blue-Cloud federates data in the FAIRly Blue European Marine Data Landscape



Blue-Cloud VRE concept

A SoS to support and promote Open Science



Enable

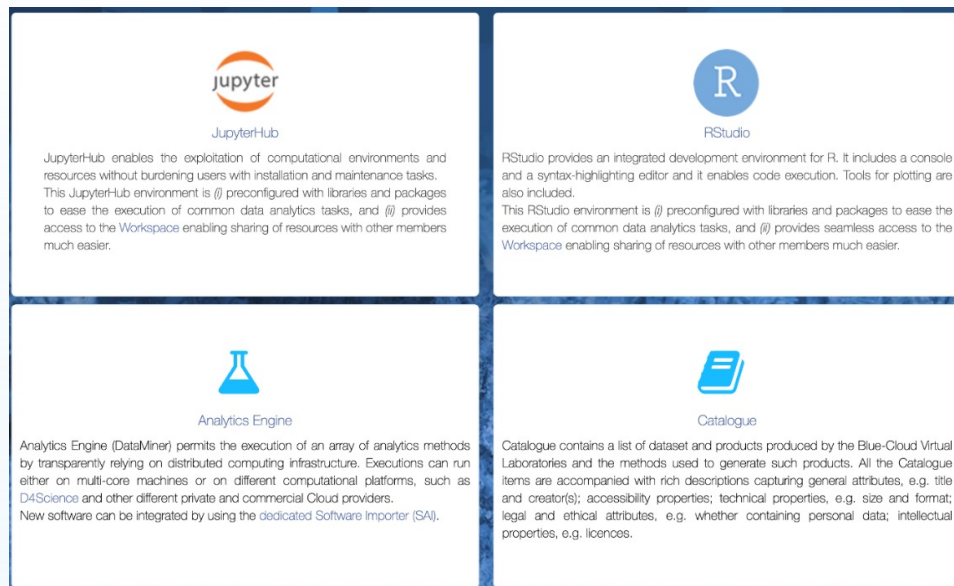
- Repeat, Reproduce, Reuse, Evaluate
- Active collaboration
- Effective sharing
- Provenance and attribution

Adopt

- As-a-service approach
- Standards
- Economy-of-scale to reduce operational costs

VRE's allow to execute analysis and processes on top of blue Cloud

- FAO Fisheries and Aquaculture Division uses VRE's for capacity development, atlases, registries, literature and publications management. FAIRly straightforward IT, complex data harmonization processes
- With FNS-Cloud we tested the interoperability of DATA in a specific sub-domain: Fisheries Food composition data



Development and integration environment for R, Python, and other supported software languages



- it is powered by a cluster of DataMiner servers, each with 16 cores and 32 GB RAM.
- It is powered by a cluster of RStudio servers, each with 16 cores and 32 GB RAM.
- It is powered by JupyterHub with a maximum of 8 cores and 32 GB RAM per notebook. Jupyter-

FNS-Cloud – Blue-Cloud

- 🌊 What's in a fish-name – an interoperability test
 - 🌊 Fish labels – what do they cover?
 - 🌊 Product / process descriptions – the same cook and recipes?
 - 🌊 Methods and references
 - 🌊 Reliability and provenance
- 🌊 Why is it needed
 - 🌊 SDG 2 and 14; we want to understand the contribution of fish to local diets, but there is a large variety of fish and fish products
 - 🌊 SDG 13; climate impact on seafood quality and distribution









From uFish FAO dataset to uFish2 Online

- 🌊 uFish is FAO's – INFOODS food composition table
- 🌊 uFish2 – the collaboration results online; have a look
 - 🌊 Still in validation phase – can reproduce all results, but ...
 - 🌊 A JAVA/Angular application (some 100 developers days)
 - 🌊 Deployed in D4Science as Docker container (a few hrs of work)
 - 🌊 With api's to read from e.g.
 - 🌊 FNS-Cloud Food Explorer (for codes and food labels)
 - 🌊 FAO's Global Record of Stocks and Fisheries UUID's
 - 🌊 FAO's OPENASFA for literature references
 - 🌊 GeoNames, WORMS, etc. for ancillary data

uFish2 – Food composition preparation

Preparation status



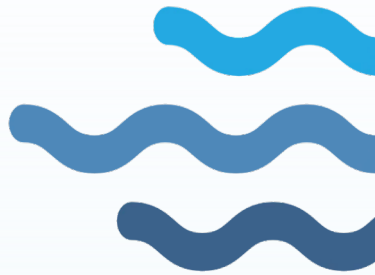
Preparation Name ↑↓	Compositions	Approved	Pending	Rejected
Cuttlefish, common(<i>Sepia officinalis</i>), Whole/unsplit form, including artificial forms W/o external layer/rind/casing (only internal part), Broiling/grilling		69	0	0
Cuttlefish, common(<i>Sepia officinalis</i>), Whole/unsplit form, including artificial forms W/o external layer/rind/casing (only internal part), Boiling		69	0	0
Cuttlefish, common(<i>Sepia officinalis</i>), Whole/unsplit form, including artificial forms W/o external layer/rind/casing (only internal part), Boiling		69	0	0
Cuttlefish, common(<i>Sepia officinalis</i>), Whole/unsplit form, including artificial forms W/o external layer/rind/casing (only internal part), Raw, no heat treatment		70	0	0
Squids(<i>Sepiidae</i> , <i>Sepiolidae</i>), Whole/unsplit form, including artificial forms W/o external layer/rind/casing (only internal part), Broiling/grilling		66	0	0
Squids(<i>Sepiidae</i> , <i>Sepiolidae</i>), Whole/unsplit form, including artificial forms W/o external layer/rind/casing (only internal part), Boiling		66	0	0

X Close



uFish2 – data flow

- 🌀 Steps to add food compositions data (Simplified)
 - 🌀 1. Select your reference from OpenASFA VRE
 - 🌀 2. Select the species or species group (3-alfa code)
 - 🌀 3. Select the part consumed
 - 🌀 4. Select the processing
 - 🌀 5. **Select the preparation (Validate against Foodexplorer)**
 - 🌀 6. Enter the food composition values
 - 🌀 7. Validate and publish a dereferencable FAIR composition



uFish2 – FNS-Cloud interoperability

- 🌀 Consult FNS-domain when adding food compositions
- 🌀 Is there a similar preparation in Foodexplorer??
- 🌀 If yes, get the FoodID => Test result: FAIRly ok

Part Consumed

The food item is considered in its form without bone

W/o bone

W/o caps / crown

W/o cob

W/o core

W/o decayed leaves

W/o easily detachable skin

EGI key relevance

- For future EU and global data platforms that aim to support data from the fishnet to the internet:
 - We tested interoperability at DATA level, but much more is needed => Start with vocabularies like FAO AGROVOC
 - Reliable digital objects are needed to make reliable errors.
 - The ocean is like programming; garbage in – garbage out; Keep the oceans clean!!!!



Save a food preparation - EUROFIR

● Preparation - Food ID - from FNS-Cloud - EuroFIR

- When a preparation is saved, the following API is called up to fetch the Food ID associated with the preparation:

<https://eurofir.org/FoodEXplorer/API/rest?query=GetFoodName¶m={param}>

- In uFish2 prototype to find the match of a FoodID, the parameter used for the search is the English name of the species. Only the first result is taken.

https://eurofir.org/FoodEXplorer/API/rest?query=GetFoodName¶m=Nile_tilapia

Objective 2030 – More context

Product Form

Complete form for creating new product

▼ Citation

Citation

Search performed using citation title.


▼ Species


Species

Search performed using three alpha code, english name and scientific name

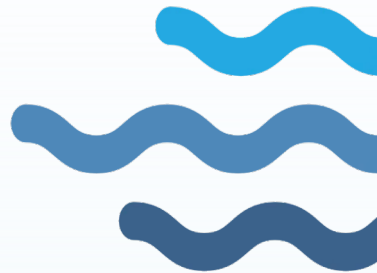
> Product Specifications

> Production Environment

 Save and Add New Product

 Save and Add New Preparation

Reset



Objective 2030 – More context

- Our aim is to add meta-contexts to food-composition data
 - Spatial – Atlantic vs. Mediterranean stocks
 - Seasonal - North Sea herring fat percentages
 - Production methods – Wild vs cultured salmon
 - Fishing areas – “you are what you eat” is very true for fish
- With this better context we can:
 - Find reliable proxies for missing species / food compositions
 - Better understand contribution of fish to local food systems
 - Improve risk analysis (events) and resilience (cc changes)

blue-cloud.d4science.org

