



WFD Information Management

Icelandic Met Office and Environment Agency of Iceland

Information management





Environment Agency of Iceland & Icelandic Met Office

- Environment Agency of Iceland (EAI) is the the main competent authority for WFD implimentation and RBD management plan reporting
- Icelandic Met Office (IMO) is responsible for operating and maintaining an information system that stores all relevant information on waterbodies required by the WFD
- EAI is responsible for operating and maintaining a system to store measurement data
 - Not only for WFD but also measurement data to fulfill other legal obligations

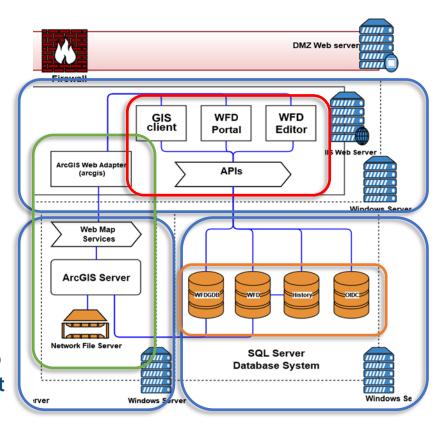
System Architecture - Overview





Icelandic Met Office components

- System design and code acquired from The Norwegian Water Resources and Energy Directorate (NVE) and Norwegian Environment Agency
- All components hosted on VMWare virtual
 Windows server machines
- All databases hosted on SQL Server database system
- All map services hosted on ArcGIS server map server
- Information management via three custom web map applications based on HTML and Javascript







WFD Portal

Tool for public users

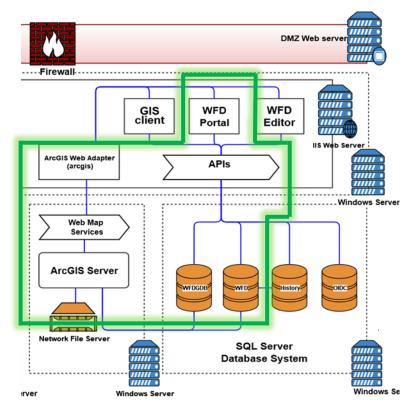
WFD Portal - Application





Intended for public users and other stakeholders

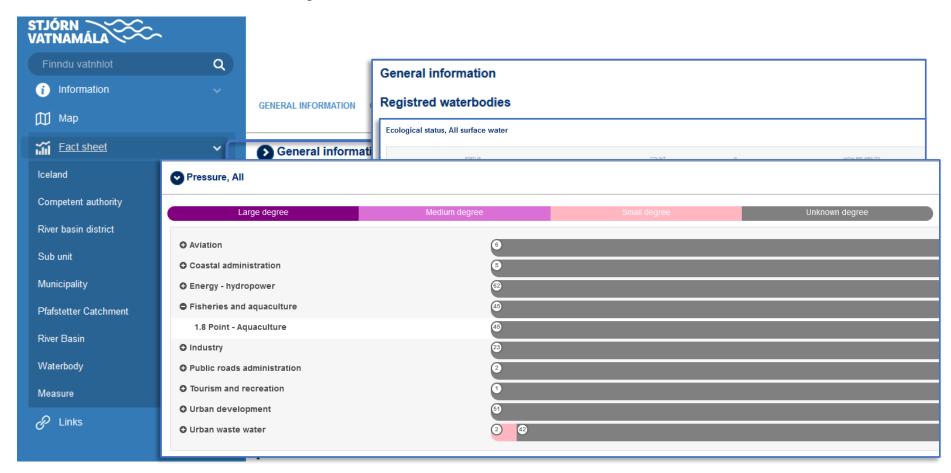
- Three main methods to access and view data
 - Interactive map via point and click on Waterbody
 - Search by name or waterbodyID
 - Factsheet sections with information on:
 - Riverbasin District level
 - Sub-Unit level
 - Municipality level
 - River Basin level
 - Single waterbody
- Link to application https://vatnavefsja.vedur.is



WFD Portal – Example factsheet data











WFD Editor

Tool for Expert data input

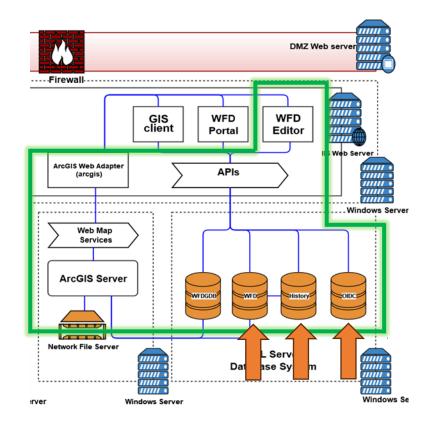
WFD Editor - Application





Intended for expert users

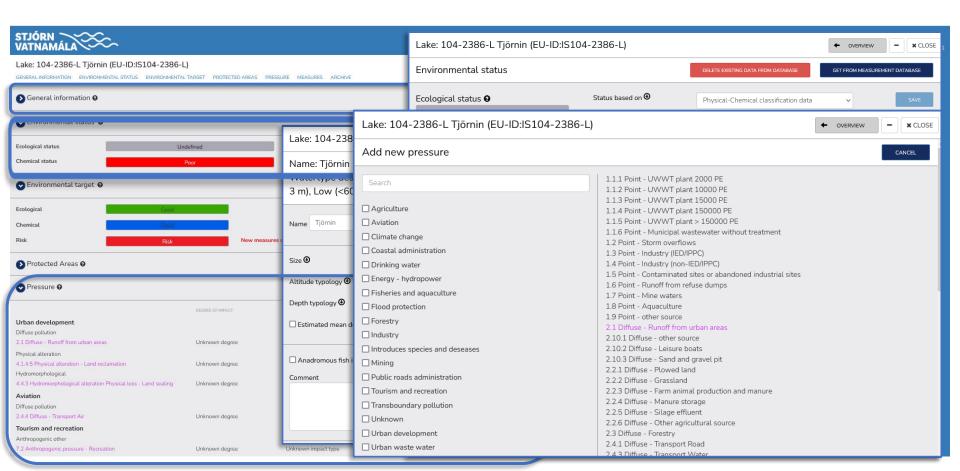
- Requires username/password login. Uses Identity Server technology
- User information and privileges stored in a separate database (OIDC)
 - RBD level view and/or edit access
- All attribute information required for reporting under WFD is stored in one database (WFD)
- All changes logged in a special database (History)
- Import of measurement data for waterbodies from the Environment Agency of Iceland's data reporting system



WFD Editor – Example data inputs







Import of measurement data





Manual import per waterbody or scheduled automatically for all waterbodies

G	Get data from measurement database										
•	Parameter name	Medium	Latin name	Change date from and including	Year to	Calculated value	Measurement unit	Highest value	Average value	Num values 🎉	
	CAS_62-73-7 - Dichlorvos	Freshwater	Water sample	2019-02-18	2020-03-01	0.00005	μg/l	0.00005	0.00005	13	
	CAS_124495-18-7 - Quinoxyfen	Freshwater	Water sample	2019-02-18	2020-03-01	0.00005	μg/L	0.00005	0.00005	13	
	CAS_72-55-9 - p.p¹-DDE	Freshwater	Water sample	2019-02-18	2020-03-01	0.0001	Леч	0.0001	0.0001	13	
V	36643-28-4 Tributy(tin cation	Freshwater	Water sample	2019-02-18	2020-03-01	0.033846	ng/l	0.2	0.033846	13	
V	470-90-6 Chlorfenvinphos	Freshwater	Water sample	2019-02-18	2020-03-01	0.0001	μg/l	0.0001	0.0001	13	
V	193-39-5 Indeno(1,2,3-cd)pyrene	Freshwater	Water sample	2019-02-18	2020-03-01	0.008902	Лец	0.0347	0.008902	13	
	CAS_319-85-7 - Beta-HCH	Freshwater	Water sample	2019-02-18	2020-03-01	0.000025	μg/l	0.000025	0.000025	13	
	CAS_3194-55-6 - 1,2,5,6,9,10-Hexabromocyclododecane	Freshwater	Water sample	2019-02-18	2020-03-01	0.000355	μg/L	0.00115	0.000355	13	
V	205-99-2 Benzo(b)fluoranthene	Freshwater	Water sample	2019-02-18	2020-03-01	0.010357	μg/l	0.033	0.010357	13	
	CAS_886-50-0 - Terbutryn	Freshwater	Water sample	2019-02-18	2020-03-01	0.001047	μg/l	0.00198	0.001047	13	
	CAS_7439-95-4 - Magnesium	Freshwater	Water sample	2019-02-18	2020-03-01	10.455385	mg/l	12.2	10.455385	13	
V	32534-81-9 Pentabromodiphenylether	Freshwater	Water sample	2019-02-18	2020-03-01	0.000052	μg/l	0.00007	0.000052	13	
	CAS_28159-98-0 - Cybutryne	Freshwater	Water sample	2019-02-18	2020-03-01	0.00005	μg/l	0.00005	0.00005	13	
	CAS_7440-47-3 - Chromium and its compounds	Freshwater	Water sample	2019-02-18	2020-03-01	0.201254	Леч	0.409	0.201254	13	
	CAS_789-02-6 - DDT, o.p*	Freshwater	Water sample	2019-02-18	2020-03-01	0.0001	μg/l	0.0001	0.0001	13	
70 / 70 parametere valgt. 33 nye parametere. 37 parametere overskiver registrerte parametere.											





WFD GIS Client

Tool for GIS data management

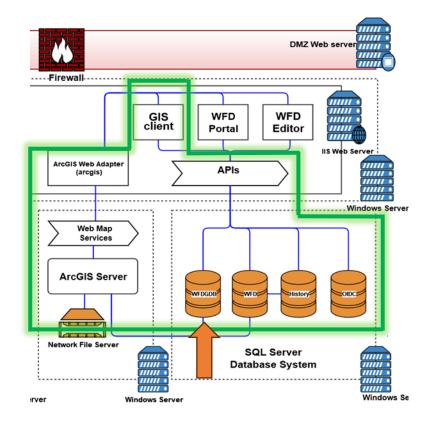
GIS client - Application

ENVIRONMENT AGENCY OF ICELAND



Intended for expert users

- GIS data stored in separate ArcGIS Geodatabase (WFDGDB)
- Allows defining new waterbodies from existing geometries via splitting or merging
 - River waterbodies (lines)
 - Lake waterbodies (polygons)
 - Coastal waterbodies (polygons)
 - Groundwaterbodies (polygons)
- Custom code to handle WaterbodyID changes and write to history database
- Custom code to handle WFD attribute inheritance
 - Typology
 - Environmental and Chemical Status
 - Pressures and measures







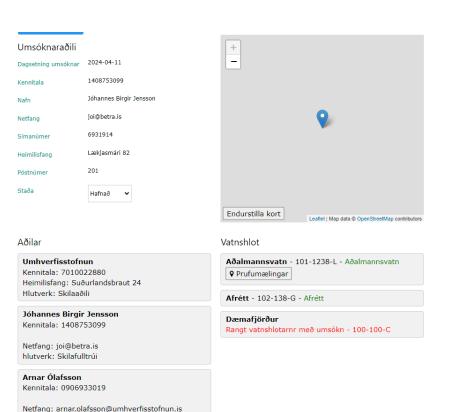
Data reporting system

Gaining access





- Access to the system is given through Digital Iceland
- In the process of applying for access entities need to specify:
 - Information on reporter e.g. organisation/company, ID number and name
 - Waterbody name and ID
 - Location and name of monitoring site

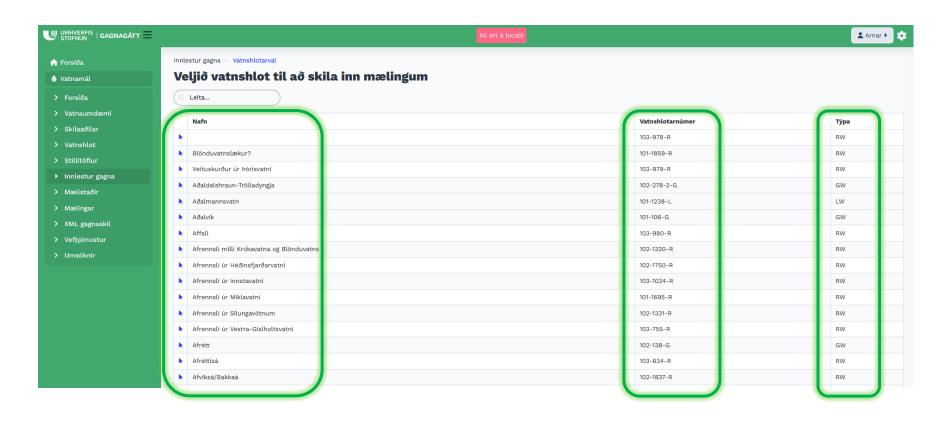


hlutverk: Skilafulltrúi

Data entry



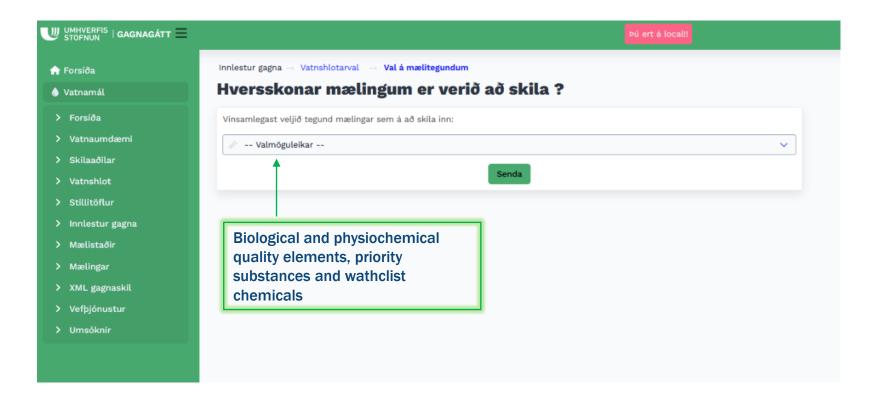




Data entry



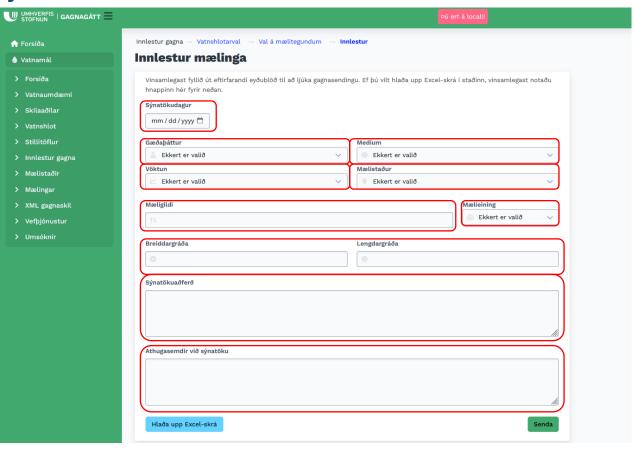




Data entry







Viewing the data



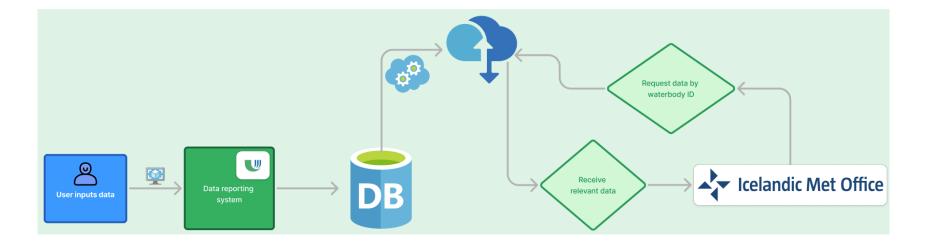


1									
Other pollutants									
118-74-1 Hexachlorobenzene	 Good	1							
Freshwater - Water sample	U Good		2019 2020	~	Environment Agency of Iceland	0,0009	0,0003	µg/l	08.02.2023
12002-48-1 Trichlorobenzenes	U Good	1							
Freshwater - Water sample	U Good		2019 2020	~	Environment Agency of Iceland	0	0	µg/l	08.02.2023
191-24-2 Benzo(g,h,i)perylene	Poor	1							
Freshwater - Water sample	Poor		2019 2020	~	Environment Agency of Iceland	0,0106	0,0021	µg/l	08.02.2023
193-39-5 Indeno(1,2,3-cd)pyrene	U Good	1							
Freshwater - Water sample	U Good		2019 2020	•	Environment Agency of Iceland	0,0006	0,0002	µg/l	08.02.2023
205-99-2 Benzo(b)fluoranthene	U Good	1							
Freshwater - Water sample	⊕ Good		2019 2020	•	Environment Agency of Iceland	0,0054	0,0014	µg/l	08.02.2023

Data submission and access flow











Questions for the group

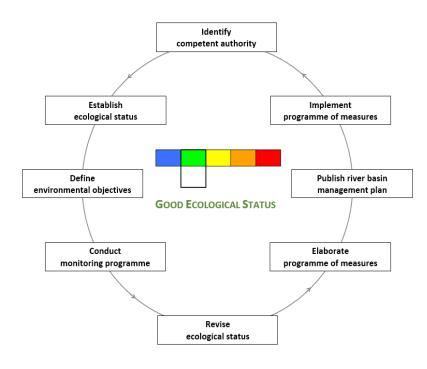
Some topics for discussion





How are others doing things in practice?

- Changing of waterbodies and therefore often waterbodylDs?
 - Is it continous during the 6 year period or only during a specific time period?
 - Legal implications of changing waterbodyIDs whose operating license is for example linked to that waterbody?
- Changing the status of waterbodies?
 - Is it continously changing during the 6 year period when new measurement data is available or only during a specific time period?
- How do member countries incorporate watch list substance measurements?



Rakocevic, Jelena & more, and. (2015). Initial Characterisation of Lakes Prespa, Ohrid and Shkodra/Skadar (Implementing the EU Water Framework Directive in South-Eastern Europe). 10.13140/RG.2.2.36234.98245.





Thank you all!