

INSPIRE for users: the new Geoportal

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The European Commission's
science and knowledge service
Joint Research Centre

Workshop outline

- Survey – Section 1: Background and expectations
- Theory – Section 1: Introduction to INSPIRE
- Practice – Section 1: INSPIRE Geoportal
- Practice – Section 2: Accessing INSPIRE data with QGIS
- Survey – Section 2: Geoportal quiz
- Survey – Section 3: INSPIRE Geoportal for your use case
- Theory – Section 2: Usability issues & future improvements
- Survey – Section 4: Feedback and suggestions

Survey – Section 1: Background and expectations

https://ec.europa.eu/eusurvey/runner/FOSS4G-IT_workshop



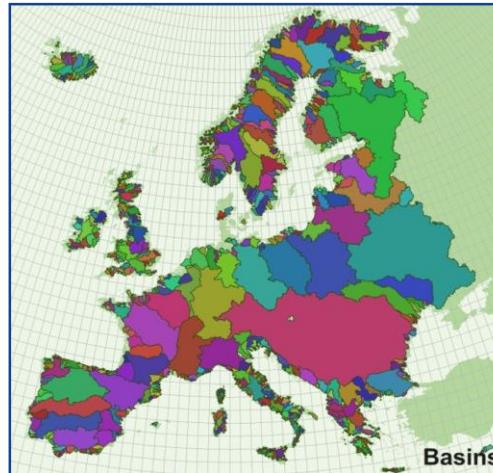
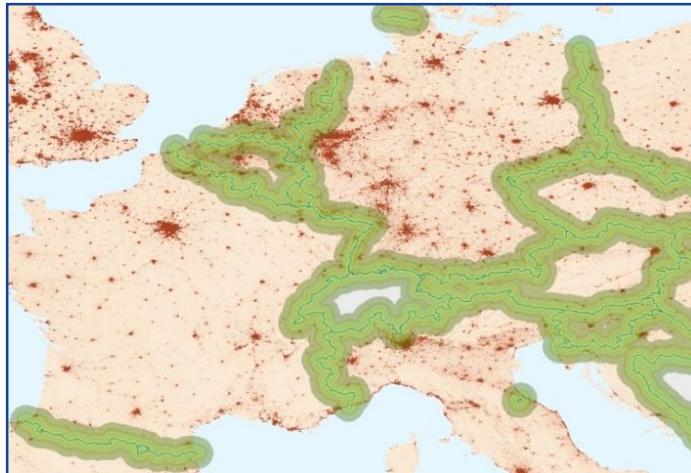
Theory – Section 1: Introduction to INSPIRE

Spatial Data Infrastructures (SDIs)

- Many **definitions** are available:
 - A spatial data infrastructure (SDI) is a data infrastructure implementing a framework of **geographic data, metadata, users** and **tools** that are interactively connected in order to use spatial data in an efficient and flexible way (*Wikipedia*)
 - An SDI is a coordinated series of agreements on **technology standards**, institutional arrangements, and **policies** that enable the discovery and use of **geospatial information** by users and for purposes other than those it was created for (*Kuhn, 2005*)
 - National Spatial Data Infrastructure (NSDI) means the **technology, policies, standards**, and **human resources** necessary to acquire, process, store, distribute, and improve utilization of **geospatial data** (*Executive Order 12906, 1994*)

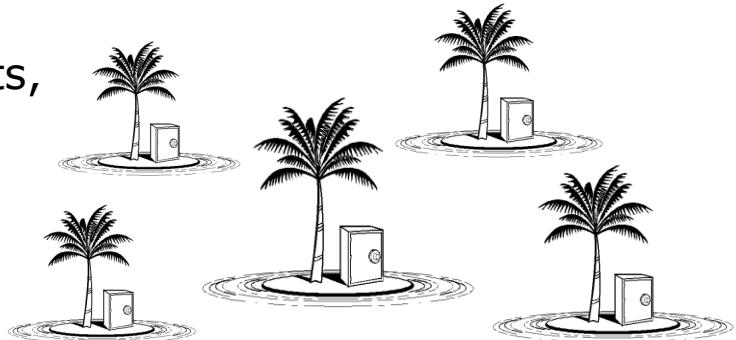
A European SDI: why?

- A significant part of all information used by public authorities and exchanged with the public is **geo-referenced** or **geo-referenceable**.
- Geospatial phenomena often have a **supranational dimension**:
 - 20% of the EU citizens (115 million) live within 50 km from a border
 - disasters and environmental phenomena do not stop at national borders!
 - 70% of EU fresh water bodies are part of a trans-boundary river basin



A European Spatial Data Infrastructure: why?

- Public consultation in the early 2000s identified a number of obstacles preventing the widespread use of geospatial data needed for environmental policy at the EU level:
 - missing or incomplete data and/or data documentation
 - incompatibility between the systems to find, access and use data
 - incompatibility of data format, reference system, scale, etc.
 - non re-usability/integration of existing data
 - cultural, institutional and legal barriers toward data sharing
- Europe had islands of data of different formats, standards, licenses, quality, etc.



INSPIRE Directive



DIRECTIVE 2007/2/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 14 March 2007

establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)

- Aims to create a **European SDI** for the purposes of EU environmental policies:
 - environmental spatial data **sharing**, facilitation of **public access** to spatial data, and assisting in cross-boundary **policy-making**
 - based on the SDIs established and operated by the EU Member States
 - does not require collection of new data
 - came into force on **May 15, 2007**, and will be implemented in various stages, with full implementation required by **2021**.

INSPIRE Directive – Spatial focus

- INSPIRE addresses 34 spatial data themes for environmental applications:

ANNEX: 1

	Addresses
	Cadastral parcels
	Geographical grid systems
	Hydrography
	Transport networks

ANNEX: 2

	Elevation
	Land cover

ANNEX: 3

	Agricultural and aquaculture facilities
	Atmospheric conditions
	Buildings
	Environmental monitoring facilities
	Protected sites
	Human health and safety
	Meteorological geographical features
	Geographical names
	Coordinate reference systems
	Cadastral parcels
	Addresses
	Bio-geographical regions
	Energy resources
	Habitats and biotopes
	Area management / restriction / regulation zones & reporting units
	Population distribution and demography
	Production and industrial facilities
	Soil
	Geographical grid systems
	Land use
	Mineral resources
	Oceanographic geographical features
	Orthoimagery
	Natural risk zones
	Statistical units
	Species distribution
	Utility and governmental services

INSPIRE Directive



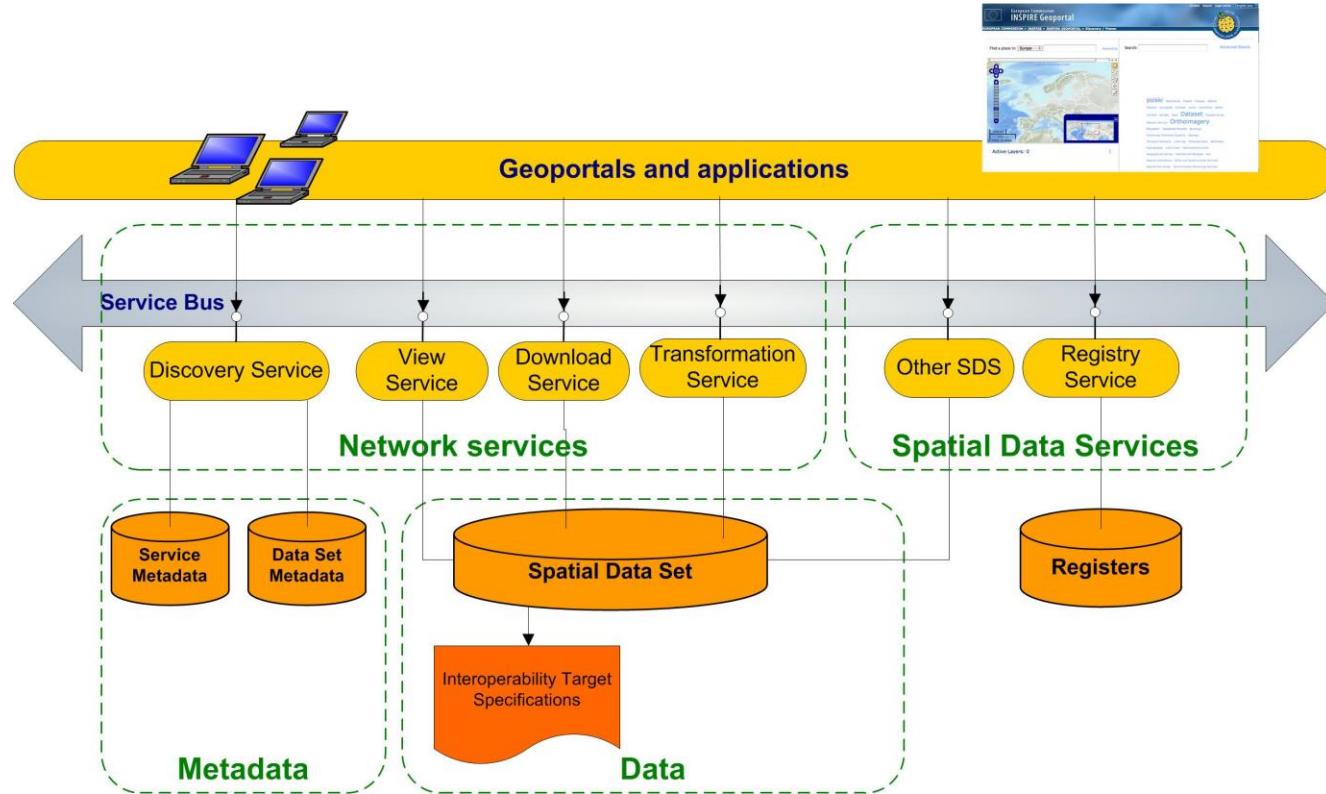
INSPIRE Directive – Requirements

- **Implementing Rules** (legally binding):
 - Metadata
 - Data Specifications
 - Network Services (Discovery, View & Download)
 - Data and Service Sharing
 - Spatial Data Services
 - Monitoring and Reporting
- **Technical Guidelines** (non legally binding):
 - specify how legal obligations can be implemented to maximize interoperability
 - make reference to existing geospatial **open standards** (ISO, OGC)

<https://inspire.ec.europa.eu/inspire-implementing-rules/51763>

11 <https://inspire.ec.europa.eu/inspire-technical-guidance/57753>

INSPIRE Directive – Architecture

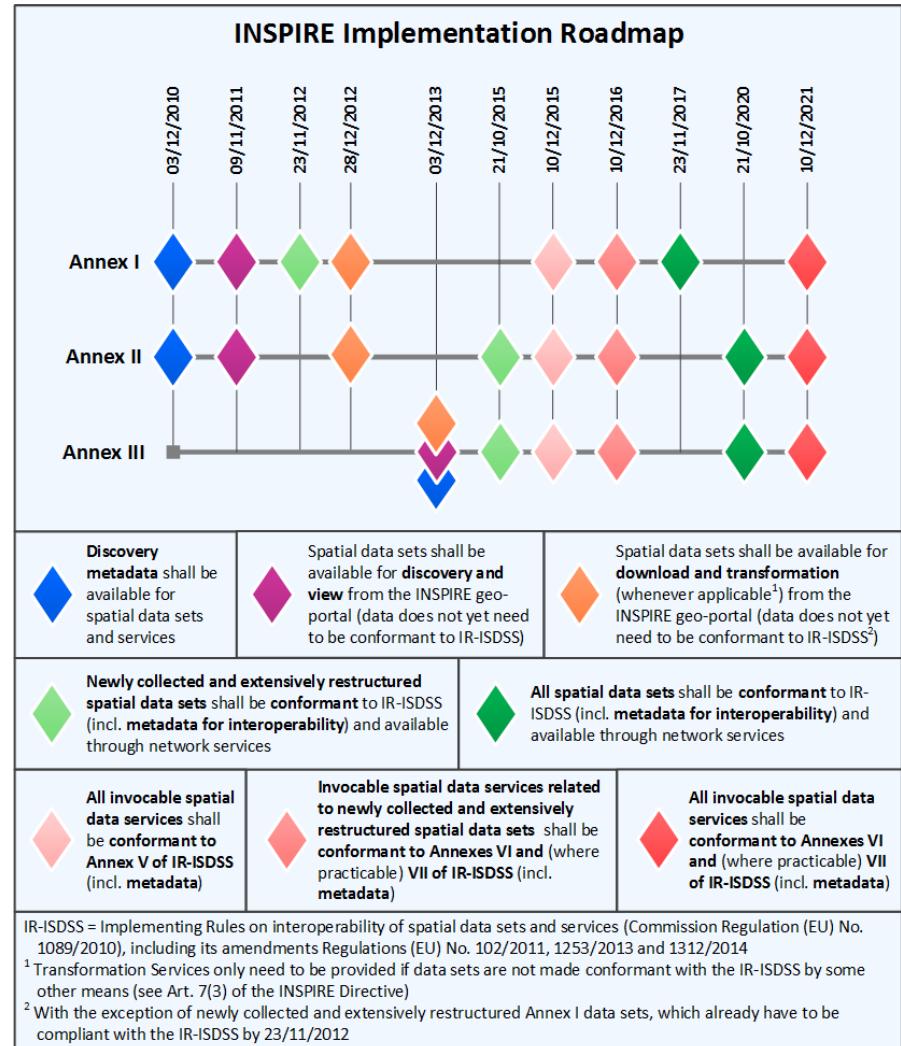


INSPIRE Directive – Governance

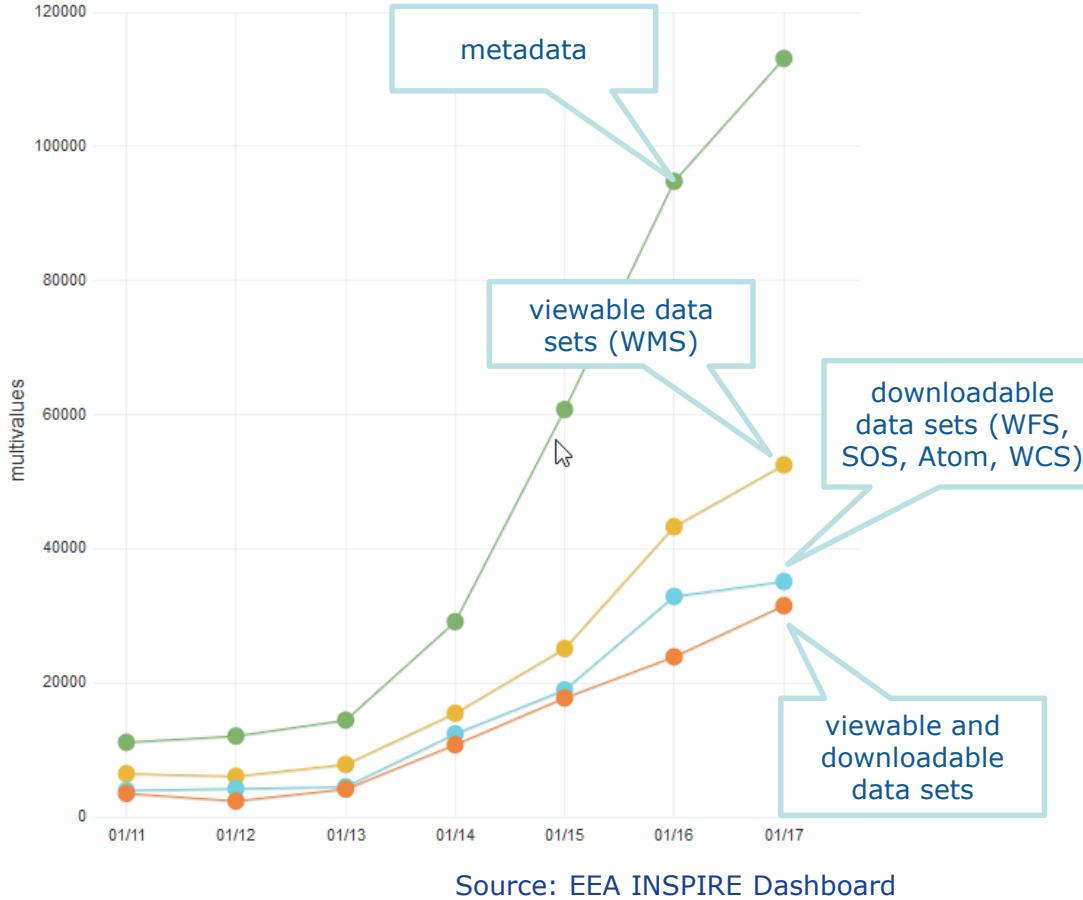
- INSPIRE Coordination Team (CT):
 - Directorate General Environment (DG ENV), Joint Research Centre (JRC) & European Environmental Agency (EEA)
- INSPIRE Committee (IC):
 - Member States representatives
- Member States National Contact Points (NCPs)
- INSPIRE Maintenance and Implementation Group (MIG):
 - representatives of the NCPs
 - MIG-P (Political) & MIG-T (Technical)
 - Maintenance and Implementation Work Programme (**MIWP**)
- INSPIRE stakeholders

INSPIRE Directive – Roadmap

- Implementation in subsequent **stages**:
 - depending on the **Annex**
 - depending on the **resource type**
 - metadata
 - services (Discovery / View / Download)
 - data sets (as-is / compliant)



INSPIRE Directive – Implementation



INSPIRE Directive – Where are we in 2019?

1



draft

2



implement

3

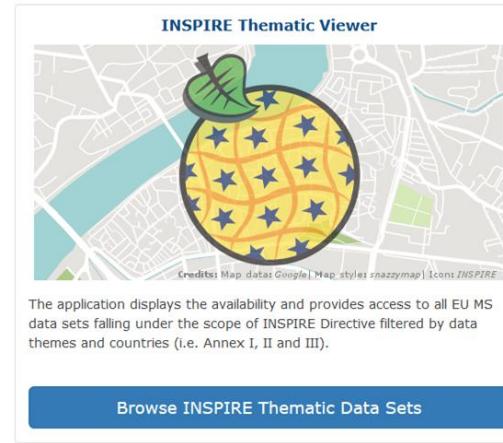


use

Practice – Section 1: INSPIRE Geoportal

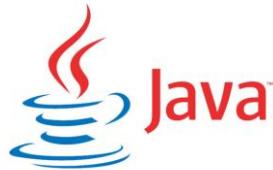
INSPIRE Geoportal (MIWP Action 2019.2)

- MIWP Action 2019.2 *Improving availability of data*
- Allows to **search**, **view** & **download** data sets harvested from the national geoportals of Member States, using **2 viewers**:
 - Priority Data Sets Viewer
 - INSPIRE Thematic Viewer



INSPIRE Geoportal – Technical architecture

- Backend



- Frontend



INSPIRE Thematic Viewer

- Displays the availability and provides access to all EU MS data sets falling under the scope of INSPIRE Directive, filtered by:
 - spatial data **themes** (Annex I, II and III)
 - **countries** (EU and EFTA)

INSPIRE Thematic Viewer



Credits: Map: data Google | Map styles: snazzymap | Icons: INSPIRE

The application displays the availability and provides access to all EU MS data sets falling under the scope of INSPIRE Directive filtered by data themes and countries (i.e. Annex I, II and III).

[Browse INSPIRE Thematic Data Sets](#)

INSPIRE Thematic Viewer

- [!\[\]\(b01edc297f25865a2c3fdd8cef87e3c9_img.jpg\) INSPIRE Thematic Viewer ▾](#)
 - Home
 - Countries overview
 - INSPIRE Data Themes
- Browse INSPIRE Data Sets:**
 - Country overview**

Availability of INSPIRE data sets grouped by individual EU & EFTA countries
 - INSPIRE Data Themes**

Availability of INSPIRE data sets grouped by INSPIRE data themes

INSPIRE Thematic Viewer – Country overview

- Displays the availability and provides access to all EU MS data sets falling under the scope of INSPIRE Directive, filtered by:
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INSPIRE Thematic Viewer

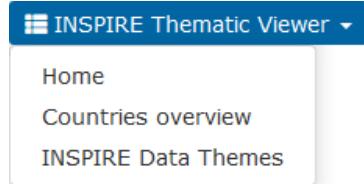


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[Browse INSPIRE Thematic Data Sets](#)

INSPIRE Thematic Viewer



Browse INSPIRE Data Sets:

Country overview



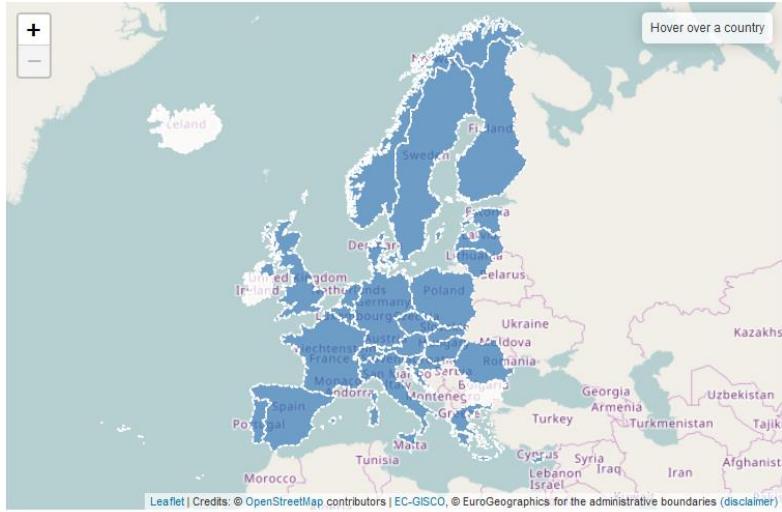
Availability of INSPIRE data sets grouped by individual EU & EFTA countries

INSPIRE Data Themes



Availability of INSPIRE data sets grouped by INSPIRE data themes

INSPIRE Geoportal – Country overview



Show:

Downloadable Viewable

INSPIRE Geoportal Data Set Statistics

156699
Metadata records

26623
Viewable Data Sets

switch map visualization only to
downloadable or viewable data sets

aggregated statistics on the
number of metadata records and
viewable datasets for all the EU &
EFTA Countries

Select a COUNTRY

Austria	547 400 414
Belgium	543 170 405
Bulgaria	29 0 0
Croatia	121 3 4
Cyprus	42 28 6
Czech Republic	147 14 93
Denmark	189 20 21
Estonia	73 15 23
Finland	602 51 52
France	39055 1099 13173
Germany	32101 9248 10643
Greece	41 34 34
Hungary	110 0 1
Iceland	142 7 0
Ireland	54 4 0
Italy	20130 0 388
Latvia	140 3 4
Liechtenstein	57 9 11
Lithuania	48 1 5
Luxembourg	224 211 169
Malta	158 128 151
Netherlands	210 113 131
Norway	223 12 11
Poland	32077 53 16
Portugal	738 131 236
Romania	119 20 14
Slovakia	7180 4 12
Slovenia	95 8 8
Spain	219 141 143
Sweden	285 28 136
Switzerland	213 1 3
United Kingdom	20787 64 316

INSPIRE Geoportal – Country overview



Show:

Downloadable Viewable

INSPIRE Geoportal Data Set Statistics

156699
Metadata records

12020
Downloadable Data Sets

switch map visualization only to
downloadable or viewable data sets

aggregated statistics on the
number of metadata records and
downloadable datasets for all the
EU & EFTA Countries

Select a COUNTRY

Austria	547	400	414
Belgium	543	170	405
Bulgaria	29	0	0
Croatia	121	3	4
Cyprus	42	28	6
Czech Republic	147	14	93
Denmark	189	20	21
Estonia	73	15	23
Finland	602	51	52
France	39055	1099	13173
Germany	32101	9248	10643
Greece	41	34	34
Hungary	110	0	1
Iceland	142	7	0
Ireland	54	4	0
Italy	20130	0	388
Latvia	140	3	4
Liechtenstein	57	9	11
Lithuania	48	1	5
Luxembourg	224	211	169
Malta	158	128	151
Netherlands	210	113	131
Norway	223	12	11
Poland	32077	53	16
Portugal	738	131	236
Romania	119	20	14
Slovakia	7180	4	12
Slovenia	95	8	8
Spain	219	141	143
Sweden	285	28	136
Switzerland	213	1	3
United Kingdom	20787	64	316

INSPIRE Geoportal – Country overview



Show:

Downloadable Viewable

INSPIRE Geoportal Data Set Statistics

156699
Metadata records

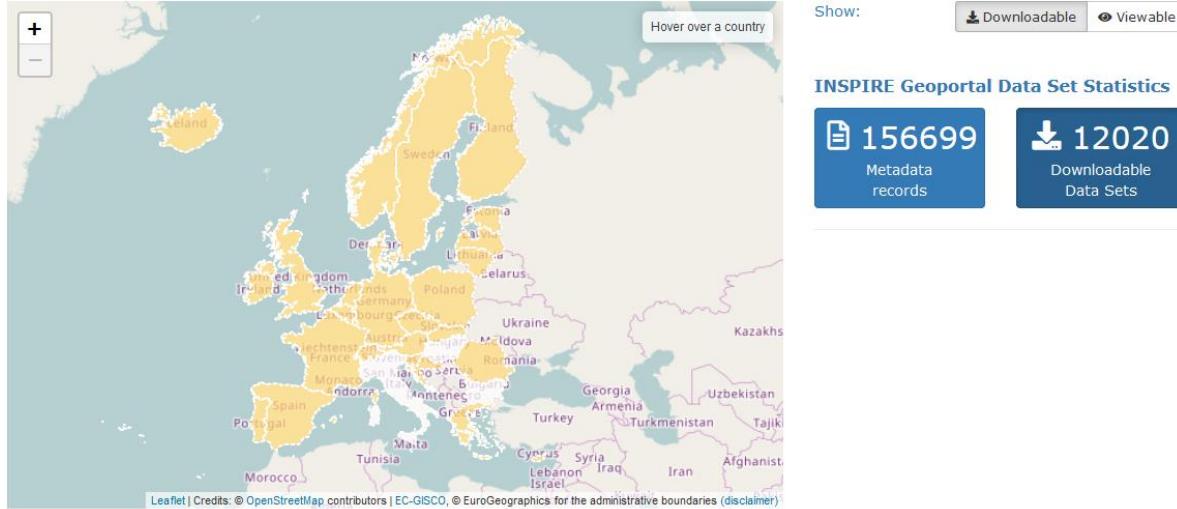
12020
Downloadable Data Sets

Select a COUNTRY

Austria	547 400 414	Finland	602 51 52	Latvia	140 3 4	Portugal	738 131 236
Belgium	543 170 405	France	39055 1099 13173	Liechtenstein	57 9 11	Romania	119 20 14
Bulgaria	29 0 0	Germany	32101 9248 10643	Lithuania	48 1 5	Slovakia	7180 4 12
Croatia	121 3 4	Greece	41 34 34	Luxembourg	224 211 169	Slovenia	95 8 8
Cyprus	42 28 6	Hungary	110 0 1	Malta	158 128 151	Spain	219 141 143
Czech Republic	147 14 93	Iceland	142 7 0	Netherlands	210 113 131	Sweden	285 28 136
Denmark	189 20 21	Ireland	54 4 0	Norway	223 12 11	Switzerland	213 1 3
Estonia	73 15 23	Italy	20130 0 388	Poland	32077 53 16	United Kingdom	20787 64 316

statistics on the number of metadata records, downloadable and viewable data sets by country

INSPIRE Geoportal – Country overview (Italy)



Select a COUNTRY

Austria	547	400	414
Belgium	543	170	405
Bulgaria	29	0	0
Croatia	121	3	4
Cyprus	42	28	6
Czech Republic	147	14	93
Denmark	189	20	21
Estonia	73	15	23
Finland	602	51	52
France	39055	1099	13173
Germany	32101	9248	10643
Greece	41	34	34
Hungary	110	0	1
Iceland	142	7	0
Ireland	54	4	0
Italy	20130	0	388
Latvia	140	3	4
Liechtenstein	57	9	11
Lithuania	48	1	5
Luxembourg	224	211	169
Malta	158	128	151
Netherlands	210	113	131
Norway	223	12	11
Poland	32077	53	16
Portugal	738	131	236
Romania	119	20	14
Slovakia	7180	4	12
Slovenia	95	8	8
Spain	219	141	143
Sweden	285	28	136
Switzerland	213	1	3
United Kingdom	20787	64	316

statistics on the number of metadata records, downloadable and viewable data sets for Italy

INSPIRE Thematic Viewer – Data themes

- Displays the availability and provides access to all EU MS data sets falling under the scope of INSPIRE Directive, filtered by:
 - spatial data **themes** (Annex I, II and III)
 - countries (EU and EFTA)

INSPIRE Thematic Viewer



Credits: Map: data Google | Map styles: snazzymap | Icons: INSPIRE

The application displays the availability and provides access to all EU MS data sets falling under the scope of INSPIRE Directive filtered by data themes and countries (i.e. Annex I, II and III).

[Browse INSPIRE Thematic Data Sets](#)

Browse INSPIRE Data Sets:

Country overview



Availability of INSPIRE data sets grouped by individual EU & EFTA countries

INSPIRE Data Themes



Availability of INSPIRE data sets grouped by INSPIRE data themes

INSPIRE Thematic Viewer – Data themes

Display Grid List

switch from the grid
to the list view

Annex I

 **Addresses**
Def.: Location of properties based on address identifiers...

i 528 | d 32 | o 48

 **Administrative units**
Def.: Units of administration, dividing areas where Member...

i 1656 | d 77 | o 273

 **Cadastral parcels**
Def.: Areas defined by cadastral registers or equivalent.

i 8873 | d 47 | o 69

 **Geographical grid systems**
Def.: Harmonised multi...

i 154 | d 6 | o 23

 **Geographical names**
Def.: Names of areas, regions, localities, cities, suburbs...

i 1596 | d 50 | o 57

 **Hydrography**
Def.: Hydrographic elements, including marine areas and al...

i 2425 | d 182 | o 264

 **Protected sites**
Def.: Area designated or managed within a framework...

i 2472 | d 292 | o 466

 **Coordinate reference systems**
Def.: Systems for uniquely...

i 132 | d 2 | o 6

 **Transport networks**
Def.: Road, rail, air and water transport networks and rel...

i 3185 | d 123 | o 444

aggregated statistics for each theme on
the number of metadata records,
downloadable and viewable datasets for
the EU & EFTA Countries

Annex II

 **Elevation**
Def.: Digital elevation models for land, ice and ocean sur...

i 4463 | d 131 | o 252

 **Geology**
Def.: Geology characterised according to composition...

i 2314 | d 132 | o 467

 **Land cover**
Def.: Physical and biological cover of the earth's surface...

i 1917 | d 143 | o 210

 **Orthoimagery**
Def.: Geo-referenced image data of the Earth's surface, fr...

i 1997 | d 102 | o 161

INSPIRE Thematic Viewer – Data themes

 Data Sets - Protected sites of Europe i

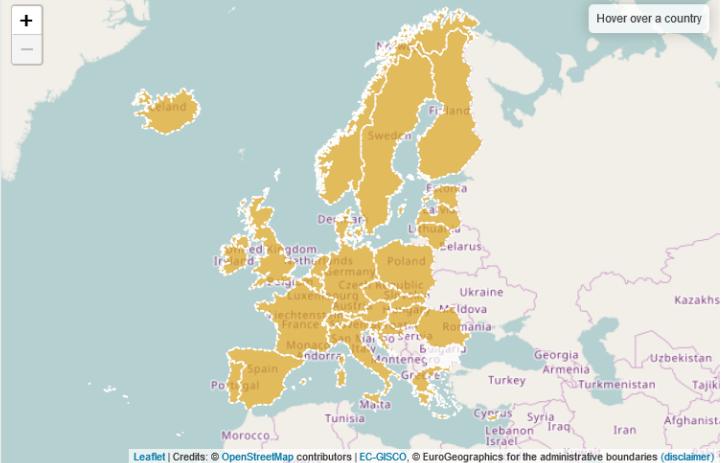
Hover over a country

Show: Downloadable Viewable

INSPIRE Geoportal Data Set Statistics

 2472 Metadata records	 292 Downloadable Data Sets
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Leaflet | Credits: © OpenStreetMap contributors | EC-GISCO, © EuroGeographics for the administrative boundaries (Disclaimer)



switch map visualization only to
downloadable or viewable data sets

aggregated statistics on the number
of metadata records and
downloadable datasets for the EU &
EFTA Countries, for the selected
theme

Select a COUNTRY					
 Austria	 62	 41	 33	 Finland	 72
 Belgium	 17	 14	 16	 France	 774
 Bulgaria	 0	 0	 0	 Germany	 419
 Croatia	 6	 0	 0	 Greece	 5
 Cyprus	 3	 0	 2	 Hungary	 7
 Czech Republic	 8	 6	 7	 Iceland	 2
 Denmark	 5	 5	 5	 Ireland	 9
 Estonia	 3	 1	 2	 Italy	 382
 Latvia	 5	 0	 3	 Portugal	 121
 Liechtenstein	 21	 1	 1	 Romania	 3
 Lithuania	 7	 0	 1	 Slovakia	 5
 Luxembourg	 8	 8	 8	 Slovenia	 9
 Malta	 4	 4	 4	 Spain	 9
 Netherlands	 16	 9	 16	 Sweden	 17
 Norway	 9	 0	 1	 Switzerland	 17
 Poland	 15	 2	 1	 United Kingdom	 432

statistics on the number of metadata
records, downloadable and viewable
data sets by country, for the selected
theme

INSPIRE Thematic Viewer – Data themes



Protected sites Data sets in Ireland

filter datasets according to whether they are downloadable,
viewable, or have a national coverage

IRL 9 | 4 | 0

Countries	Filters:	Downloadable	Viewable	Show data with national coverage
Themes				
Title	Properties			
NPWS - Natural Heritage Areas (Metadata)				
NPWS - Special Protection Areas (Metadata)				
NPWS - Special Areas of Conservation (Metadata)				
DAHG - National Monuments (Metadata)				
Local authorities - Tree Preservation Orders (national INSPIRE data set)				
Local authorities - Record of Protected Structures (national INSPIRE data set)				
DAHG - UNESCO World Heritage Sites				
DAHG - Shipwreck Inventory of Ireland				
Geological Survey of Ireland - Geological Heritage				
Title	Properties			
Show 10 entries	Showing 1 to 9 of 9 entries	Previous	1	Next

INSPIRE Priority Data Sets Viewer

- Explores the data sets identified as priority data sets for environmental reporting, filtered by:
 - environmental domain
 - environmental legislation
 - country

Priority Data Sets Viewer



Credits: Map data: Google, Map style: snazzymap, Icon: nick_reach

The application displays the availability and provides access to the selected priority data sets used for environmental reporting. It allows filtering by environmental domain, environmental legislation and country.

Browse Priority Data Sets

Priority Data Sets Viewer

- Home**
- Country overview**
- Environmental Domains**
- E-Reporting Legislation**

Browse Priority Data Sets:

- Country overview**

Priority Data Sets grouped by individual EU & EFTA countries
- Environmental Domains**

Priority Data Sets grouped by 6 environmental domains
- Environmental Legislation**

Priority Data Sets grouped by relevant environmental reporting legislation

Priority Data Sets Viewer – Country overview

- Explores the data sets identified as priority data sets for environmental reporting, filtered by:
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Priority Data Sets grouped by 6 environmental domains
- Environmental Legislation**
Priority Data Sets grouped by relevant environmental reporting legislation

Priority Data Sets Viewer – Country overview

Priority Data Sets - EU & EFTA Country overview



switch map visualization only to
downloadable or viewable data sets

aggregated statistics on the number
of metadata records and
downloadable datasets for the EU &
EFTA Countries

Select a COUNTRY					
Austria	74 64 65	Finland	19 0 11	Latvia	0 0 0
Belgium	105 35 63	France	0 0 0	Liechtenstein	0 0 0
Bulgaria	0 0 0	Germany	65 37 25	Lithuania	0 0 0
Croatia	6 0 1	Greece	0 0 0	Luxembourg	65 55 48
Cyprus	5 5 5	Hungary	0 0 0	Malta	54 50 54
Czech Republic	39 4 10	Iceland	0 0 0	Netherlands	47 16 30
Denmark	37 5 5	Ireland	9 0 0	Norway	7 0 1
Estonia	21 1 1	Italy	1 0 0	Poland	0 0 0

statistics on the number of metadata
records, downloadable and viewable
data sets by country

Priority Data Sets Viewer – Env. domain

- Explores the data sets identified as priority data sets for environmental reporting, filtered by:
 - environmental domain
 - environmental legislation
 - country

Priority Data Sets Viewer



Credits: Map: data:Google; Map_style: snazzymap; Icon: nick_reach

The application displays the availability and provides access to the selected priority data sets used for environmental reporting. It allows filtering by environmental domain, environmental legislation and country.

Browse Priority Data Sets

Priority Data Sets Viewer

- [Home](#)
- [Country overview](#)
- [Environmental Domains](#)
- [E-Reporting Legislation](#)

Browse Priority Data Sets:

- Country overview**

Priority Data Sets grouped by individual EU & EFTA countries
- Environmental Domains**

Priority Data Sets grouped by 6 environmental domains
- Environmental Legislation**

Priority Data Sets grouped by relevant environmental reporting legislation

Priority Data Sets Viewer – Env. domain

Environmental Domains

Explore Member States' priority data sets grouped by the following Environmental Domains.



Air & Noise

Covers ambient air quality and cleaner air for Europe, industrial emissions...



[242](#) | [120](#) | [142](#)



Industry

Covers industrial emissions and industrial accidents...



[63](#) | [27](#) | [35](#)



Waste

Covers the landfill of waste, waste from extractive industries, soil...



[69](#) | [23](#) | [35](#)



Nature & Biodiversity

Covers conservation of natural habitats and wild fauna and flora, wild birds...



[223](#) | [84](#) | [118](#)



Water

Covers the Water Framework Directives, Urban waste water, bathing water...



[454](#) | [165](#) | [255](#)



Marine

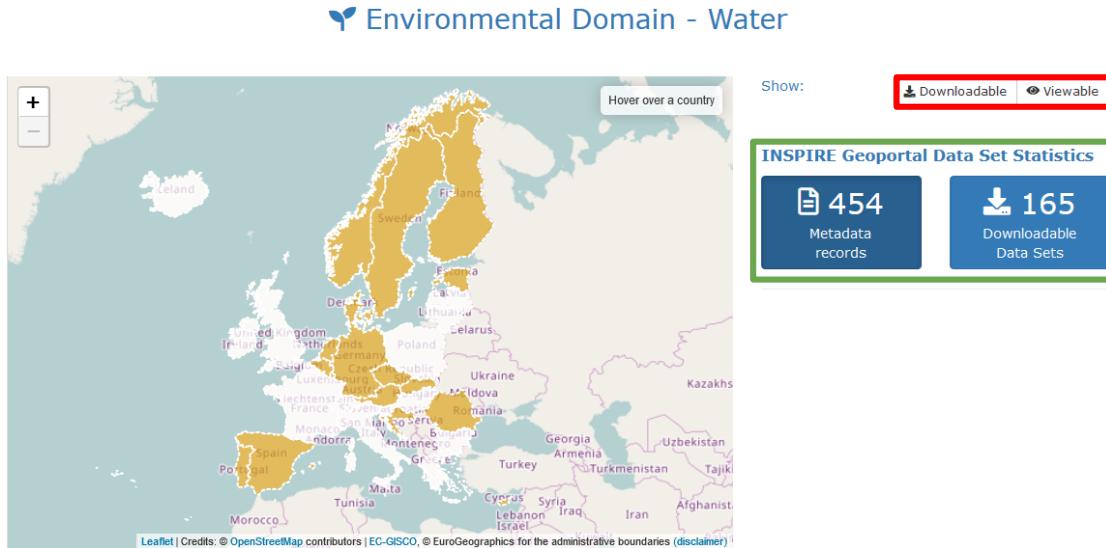
Covers the Marine Strategy Framework Directive, marine environmental policy...



[52](#) | [26](#) | [34](#)

aggregated statistics for each environmental domain on the number of metadata records, downloadable and viewable datasets for the EU & EFTA Countries

Priority Data Sets Viewer – Env. domain



switch map visualization only to downloadable or viewable data sets

aggregated statistics on the number of metadata records and downloadable datasets for the EU & EFTA Countries, for the selected environmental domain

Select a COUNTRY

Austria	42 37 38	Finland	10 5 5	Latvia	0 0 0	Portugal	130 1 57
Belgium	60 16 30	France	0 0 0	Liechtenstein	0 0 0	Romania	8 0 0
Bulgaria	0 0 0	Germany	15 8 10	Lithuania	0 0 0	Slovakia	4 2 3
Croatia	1 0 0	Greece	0 0 0	Luxembourg	33 26 24	Slovenia	0 0 0
Cyprus	5 5 5	Hungary	0 0 0	* Malta	23 22 23	Spain	51 40 44
Czech Republic	28 0 1	Iceland	0 0 0	Netherlands	14 8 11	Sweden	5 0 4
Denmark	10 0 0	Ireland	0 0 0	Norway	5 0 0	Switzerland	0 0 0
Estonia	10 0 0	Italy	0 0 0	Poland	0 0 0	United Kingdom	0 0 0

statistics on the number of metadata records, downloadable and viewable data sets by country, for the selected environmental domain

Priority Data Sets Viewer – Env. domain

switch to another country or environmental domain

Water Data sets in Finland
filter datasets according to whether they are downloadable, viewable, or have a national coverage

+ 10 | Download 0 | 5

Filters:		<input type="checkbox"/> Downloadable	<input type="checkbox"/> Viewable	<input type="checkbox"/> Show data with national coverage	
Title		Properties			
	Uimavesidirektiivin mukaiset uimavedet				
	Vesipuitedirektiivin mukaiset vesimuodostumat				
	Tulvariskialueet				
	Tulvavaaravyöhykkeet				
	Vesienhoitoalueet				
	Havaitut tulva-alueet				
	INSPIRE-tietotuote: Vesipuitedirektiivin mukaiset vesimuodostumat				
	INSPIRE-tietotuote: Vesienhoitoalueet				
	Vesienhoitoalueiden seurantapaikat, pintavesi				
	Vesienhoitoalueiden seurantapaikat, pohjavesi				
Title		Properties			
Show	10	entries	Showing 1 to 10 of 10 entries		
			Previous	1	Next

access each specific data set

Priority Data Sets Viewer – Env. legislation

- Explores the data sets identified as priority data sets for environmental reporting, filtered by:
 - environmental domain
 - environmental legislation
 - country

Priority Data Sets Viewer



Credits: Map: data:Google; Map_style:snazzymap; Icon: nick_reach

The application displays the availability and provides access to the selected priority data sets used for environmental reporting. It allows filtering by environmental domain, environmental legislation and country.

[Browse Priority Data Sets](#)

Priority Data Sets Viewer

- [Home](#)
- [Country overview](#)
- [Environmental Domains](#)
- [E-Reporting Legislation](#)

Browse Priority Data Sets:

- Country overview**

Priority Data Sets grouped by individual EU & EFTA countries
- Environmental Domains**

Priority Data Sets grouped by 6 environmental domains
- Environmental Legislation**

Priority Data Sets grouped by relevant environmental reporting legislation

Priority Data Sets Viewer – Env. legislation

Environmental Reporting Legislation
Explore Member States' priority data sets grouped by related e-Reporting legislation.

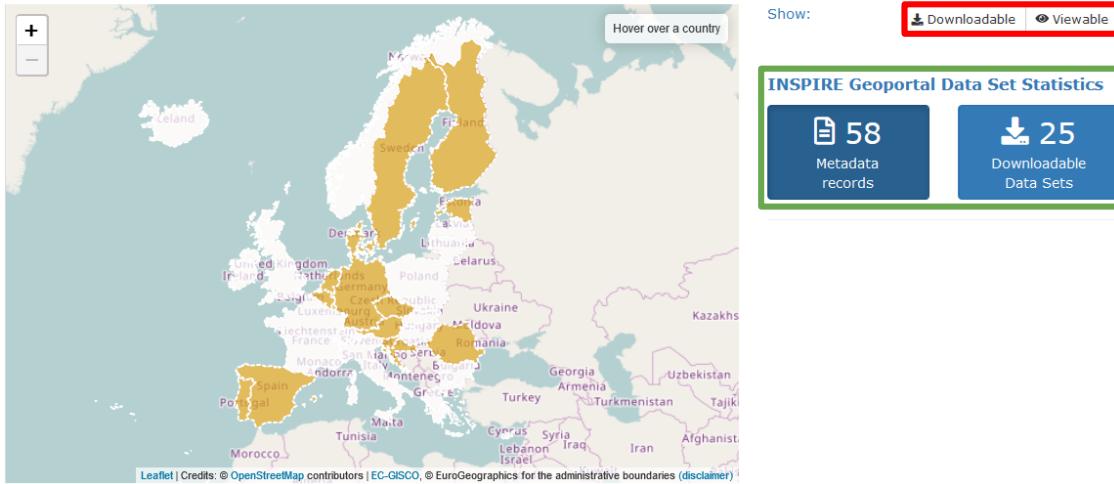
Display Grid List

Directive 1999/31/EC 1 Landfill of Waste Directive 0 0 0	Directive 2000/60/EC 1 Water Framework Directive 214 86 125	Directive 2002/49/EC 1 Noise Directive 58 31 35	Directive 2006/21/EC 1 Extractive Waste Directive 1 0 0
Directive 2006/7/EC 1 Bathing Water Directive 14 7 10	Directive 2007/60/EC 1 Floods Directive 74 19 35	Directive 2008/50/EC 1 Air Quality Directive 57 17 26	Directive 2008/56/EC Marine Strategy Framework Directive 1 6 8
Directive 2009/147/EC 1 Birds Directive 58 25 29	Directive 2010/75/EU 1 Industrial Emissions Directive 11 4 4	Directive 2012/18/EU 1 SEVESO III Directive 7 2 6	Directive 86/278/EEC 1 Sewage Sludge Directive 1 0 0
Directive 91/271/EEC Urban Waste Water Treatment Directive 1 12 23	Directive 91/676/EEC 1 Nitrates Directive 23 9 10	Directive 92/43/EEC 1 Habitats Directive 87 37 46	Recommendation 2014/70/EU Recommendation on hydraulic fracturing 3 1 1
Regulation (EC) 166/2006 European Pollutant Release and Transfer Register 1 7 7	Regulation (EU) 1143/2014 Invasive Alien Species Directive 1 1 1	Regulation (EU) 2017/852 Mercury Regulation 1 0 0	EEA Annual Work Programme Nationally designated areas - CDDA 64 10 25
National legislation National biogeographical regions 1 4 5			

aggregated statistics for each environmental legislation on the number of metadata records, downloadable and viewable datasets for the EU & EFTA Countries

Priority Data Sets Viewer – Env. legislation

Legislation - Directive 2009/147/EC



switch map visualization only to
downloadable or viewable data sets

aggregated statistics on the number
of metadata records and
downloadable datasets for the EU &
EFTA Countries, for the selected
environmental legislation

Select a COUNTRY

Austria	6 5 5	Finland	4 0 3	Latvia	0 0 0	Portugal	16 0 2
Belgium	2 2 2	France	0 0 0	Liechtenstein	0 0 0	Romania	2 1 1
Bulgaria	0 0 0	Germany	2 2 0	Lithuania	0 0 0	Slovakia	0 0 0
Croatia	2 0 0	Greece	0 0 0	Luxembourg	3 3 3	Slovenia	1 1 0
Cyprus	0 0 0	Hungary	0 0 0	Malta	3 3 3	Spain	3 2 2
Czech Republic	3 2 3	Iceland	0 0 0	Netherlands	3 2 3	Sweden	1 0 0
Denmark	4 2 2	Ireland	0 0 0	Norway	0 0 0	Switzerland	0 0 0
Estonia	3 0 0	Italy	0 0 0	Poland	0 0 0	United Kingdom	0 0 0

statistics on the number of metadata
records, downloadable and viewable
data sets by country, for the selected
environmental legislation

INSPIRE Geoportal – Data access

- Data set and service availability:

Data sets in Malta

* 158 | 128 | 151

Filters: Downloadable Viewable

Show data with national coverage 

Title	Properties
* Photovoltaic panels installed in the domestic sector per 1000 residents	  
* 11kV Overhead Line	  
* Article 12 Birds Range	  
* Article 12 Birds Distribution	  
* Unemployment rate (15 to 74 years) by District	  
* Article 17 Habitats Range	  
* Article 17 Species Range	  
* Article 17 Species Distribution	  
* Article 17 Habitats Distribution	  
* Malta European geostatistical 1km grid	  
Title	Properties

Show entries Showing 1 to 10 of 158 entries

Previous [1](#) [2](#) [3](#) [4](#) [5](#) ... [16](#) Next

INSPIRE Geoportal – Data access

- Data set and service availability:

Data sets in Malta

* 158 | 128 | 151

Filters: Downloadable Viewable

Show data with national coverage 

Title	Properties
* Photovoltaic panels installed in the domestic sector per 1000 residents	  
* 11kV Overhead Line	  
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* Article 12 Birds Distribution	  
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* Article 17 Habitats Range	  
* Article 17 Species Range	  
* Article 17 Species Distribution	  
* Article 17 Habitats Distribution	  
* Malta European geostatistical 1km grid	  
Title	Properties

Show entries Showing 1 to 10 of 158 entries

Previous [1](#) [2](#) [3](#) [4](#) [5](#) ... [16](#) Next

INSPIRE Geoportal – Data access

- Metadata access:

* Article 17 Habitats Range

Download Options ▾

View Options ▾

Data set Metadata ▾

Resource Title
Article 17 Habitats Range

Resource Abstract
Article 17 of the Habitats Directive requires Member States to report every six years about the progress made with the implementation of the Habitats Directive. As the main focus of the directive is on maintaining and/or restoring a favourable conservation status for habitat types & species of community interest, monitoring & reporting under the directive is focusing on that. Monitoring of conservation status is not restricted to Natura 2000 sites and data need to be collected both in and outside the Natura 2000 network to achieve a full appreciation of conservation status. Some data on sensitive species is restricted from public access, as the disclosure of such might adversely affect the conservation of the species in question; this is in line with the provisions of Article 4 2(h) of Directive 2003/4/EC.

Lineage
Habitats Directive - Article 17 Report - Malta - 2013 submitted on 11 Dec 2013;
Habitats Directive - Article 17 Report - Malta - 2007 submitted on 07 Mar 2008.

Unique Resource Identifier

Reporting Tags
Directive 92/43/EEC - Biogeographical regions (Habitats Directive)
Directive 92/43/EEC - Habitat maps using INSPIRE geographical grid system (Habitats Directive)

Conditions Applying To Access And Use
No conditions apply

Limitations On Public Access
Some data on sensitive species is restricted from public access, as the disclosure of such might adversely affect the conservation of the species in question; this is in line with the provisions of Article 4 2(h) of Directive 2003/4/EC.

Geographic Bounding Box



INSPIRE Geoportal – Data access

- View Service:

* Article 17 Habitats Range

Download Options ▾

[View Options ▾](#)

Search..

Simple Viewer	Layer title	Layer name	CRS	Desktop Tool ⓘ	Service metadata
Preview Data Set ⚠	Habitat Range	HB.HabitatRange	EPSG:4258	Google Earth	🔗
Preview Data Set ⚠	Habitat Range	HB.Habitat.Range	EPSG:4258	Google Earth	🔗

Data set Metadata ▾

INSPIRE Geoportal – Data access

- View Service:
 - service metadata

* Article 17 Habitats Range

Download Options ▾

[View Options ▾](#)

Search..

Simple Viewer	Layer title	Layer name	CRS	Desktop Tool ⓘ	Service metadata
Preview Data Set ⚠	Habitat Range	HB.HabitatRange	EPSG:4258	Google Earth	
Preview Data Set ⚠	Habitat Range	HB.Habitat.Range	EPSG:4258	Google Earth	

Data set Metadata ▾

INSPIRE Geoportal – Data access

- View Service:
 - service metadata

*   MSDI Harmonised Datasets WMS Close

Resource Title	Conditions Applying To Access And Use
MSDI Harmonised Datasets WMS	NONE
Resource Abstract	Limitations On Public Access
MSDI Harmonised INSPIRE WMS View service	None
Resource Locator	
	https://msdi.data.gov.mt/deegree/services /wms?request=GetCapabilities&service=WMS& version=1.3.0
Responsible Party	
	Organisation name Malta Information Technology Agency E-mail inspire.mita@gov.mt
Metadata Point Of Contact	
	Organisation name MITA E-mail inspire.mita@gov.mt
Metadata Language	Metadata Date

INSPIRE Geoportal – Data access

- View Service:
 - visualization in Google Earth

* Article 17 Habitats Range

Download Options ▾

[View Options ▾](#)

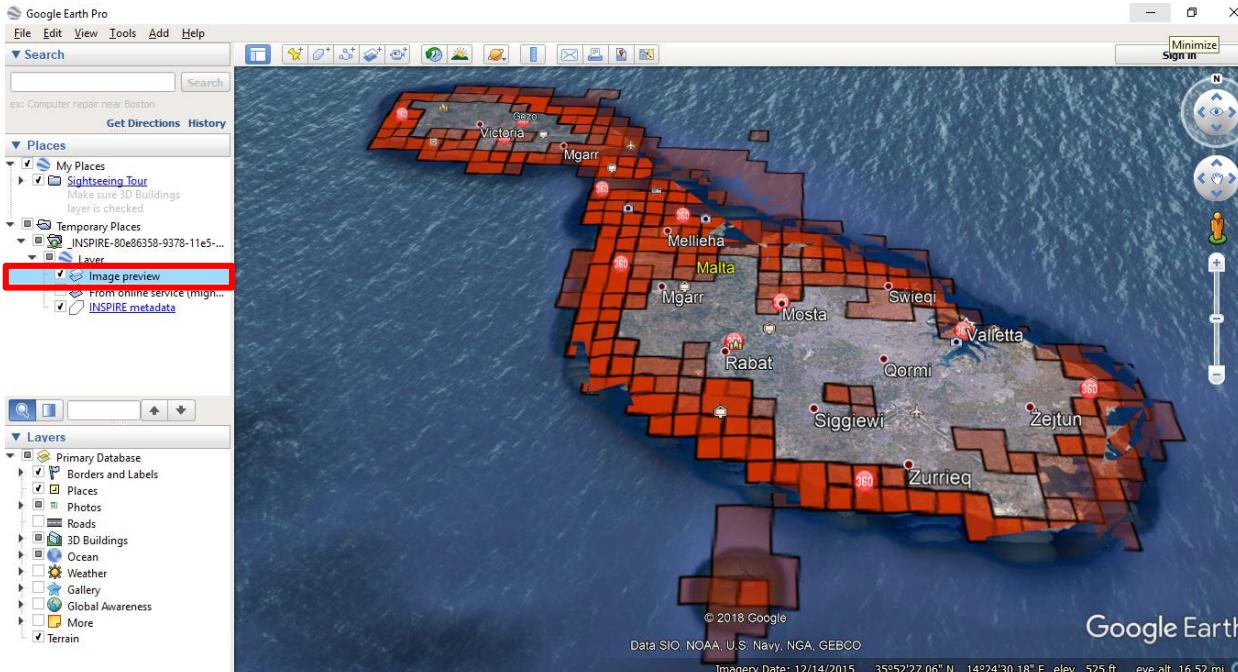
Search..

Simple Viewer	Layer title	Layer name	CRS	Desktop Tool ⓘ	Service metadata
Preview Data Set ⚠	Habitat Range	HB.HabitatRange	EPSG:4258	Google Earth	🔗
Preview Data Set ⚠	Habitat Range	HB.Habitat.Range	EPSG:4258	Google Earth	🔗

Data set Metadata ▾

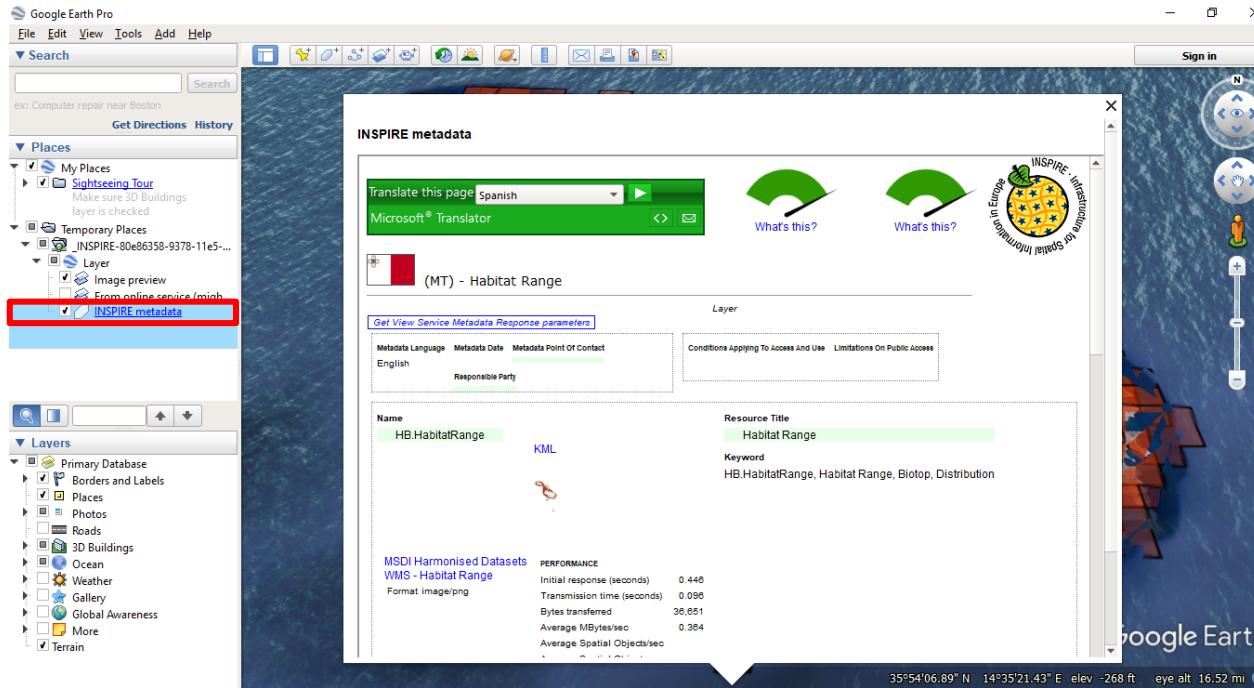
INSPIRE Geoportal – Data access

- View Service:
 - visualization in Google Earth (data)



INSPIRE Geoportal – Data access

- View Service:
 - visualization in Google Earth (metadata)



INSPIRE Geoportal – Data access

- View Service:
 - data set preview in a Leaflet Web map

* Article 17 Habitats Range

Download Options ▾

[View Options ▾](#)

Search..

Simple Viewer	Layer title	Layer name	CRS	Desktop Tool ⓘ	Service metadata
Preview Data Set ⚠	Habitat Range	HB.HabitatRange	EPSG:4258	Google Earth	🔗
Preview Data Set ⚠	Habitat Range	HB.Habitat.Range	EPSG:4258	Google Earth	🔗

Data set Metadata ▾

INSPIRE Geoportal – Data access

- View Service:
 - data set preview in a Leaflet Web map

The screenshot shows the INSPIRE Geoportal interface. On the left, there's a sidebar with navigation links like 'Home', 'Priority Data Sets', 'Article 17 Habitats Range', 'Download Options', 'View Options', 'Search...', 'Simple Viewer' (with 'Preview Data Set' buttons), and 'Data set Metadata'. The main area displays a map of Malta with a red polygon representing the 'Article 17 Habitats Range'. A legend at the bottom left identifies the red color as 'Article 17 Habitats Range'. A tooltip window titled 'Habitat Range (HB.HabitatRange)' is overlaid on the map, containing the text 'you might need to zoom-in to see the information'. The top right corner shows language settings ('English (en)') and a dropdown menu ('Find out more about'). The bottom right corner indicates 'Version: 1.0.0'.

INSPIRE Geoportal – Data access

- Download Service:

* Article 17 Habitats Range

Download Options ▾

Download link	Data Format	CRS	Service Metadata
Get Data Set 		http://www.opengis.net/def/crs/EPSG/0/3045	
Get Data Set 		http://www.opengis.net/def/crs/EPSG/0/3045	

View Options ▾

Data set Metadata ▾

INSPIRE Geoportal – Data access

- Download Service:

* Article 17 Habitats Range

Download Options ▾

Download link	Data Format	CRS	Service Metadata
Get Data Set ⚠		http://www.opengis.net/def/crs/EPSG/0/3045	
Get Data Set ⚠		http://www.opengis.net/def/crs/EPSG/0/3045	

View Options ▾

Data set Metadata ▾

INSPIRE Geoportal – Data access

- Download Service:
 - service metadata

*  WFS Article 17 Habitats Range Close

Resource Title	Conditions Applying To Access And Use
WFS Article 17 Habitats Range	No conditions apply
Resource Abstract	Limitations On Public Access
WFS Download service for Article 17 of the Habitats Directive requires Member States to report every six years about the progress made with the implementation of the Habitats Directive. As the main focus of the directive is on maintaining and/or restoring a favourable conservation status for habitat types & species of community interest, monitoring & reporting under the directive is focusing on that. Monitoring of conservation status is not restricted to Natura 2000 sites and data need to be collected both in and outside the Natura 2000 network to achieve a full appreciation of conservation status. Some data on sensitive species is restricted from public access, as the disclosure of such might adversely affect the conservation of the species in question; this is in line with the provisions of Article 4 2(h) of Directive	no limitation
	Resource Locator
	https://msdi.data.gov.mt/geoserver/MITA_WFS_Art17HabRange
	/ows?request=GetCapabilities&service=WFS&AcceptVersions=2.0.0
	Responsible Party
	Organisation name Malta Information Technology Agency (MITA)
	E-mail euaffairs.mita@gov.mt
	Metadata Point Of Contact
	Organisation name Malta Information Technology Agency
	E-mail euaffairs.mita@gov.mt

INSPIRE Geoportal – Data access

- Download Service:

* Article 17 Habitats Range

Download Options ▾

Download link	Data Format	CRS	Service Metadata
Get Data Set 		http://www.opengis.net/def/crs/EPSG/0/3045	
Get Data Set 		http://www.opengis.net/def/crs/EPSG/0/3045	

View Options ▾

Data set Metadata ▾

INSPIRE Geoportal – Data access

- Download Service:

The screenshot shows a web browser interface for the INSPIRE Geoportal. On the left, there is a sidebar with options like 'Article 17 Habitats Range', 'Download Options', 'Search..', 'Download link', 'Data Format', 'Get Data Set' (with a warning icon), 'View Options', and 'Data set Metadata'. A central panel displays 'Service Metadata' with two items. A modal dialog box titled 'Opening hb_HabitatRange' is overlaid on the page. It contains the message: 'You have chosen to open: hb_HabitatRange which is: application/gml+xml (73.0 KB) from: https://msdi.data.gov.mt'. Below this, it asks 'What should Firefox do with this file?' with two radio button options: 'Open with' (unchecked) and 'Save File' (checked). There is also a checkbox 'Do this automatically for files like this from now on.' At the bottom of the dialog are 'OK' and 'Cancel' buttons.

Practice – Section 2: Accessing INSPIRE data with QGIS

Accessing viewable data sets – WMS/WMTS

- From the Geoportal, identify:
 - the WMS/WMTS layer name

* Article 17 Habitats Range

Download Options ▾

[View Options ▾](#)

Search..

Simple Viewer	Layer title	Layer name	CRS	Desktop Tool ⓘ	Service metadata
Preview Data Set ⚠	Habitat Range	HB.HabitatRange	EPSG:4258	Google Earth	🔗
Preview Data Set ⚠	Habitat Range	HB.Habitat.Range	EPSG:4258	Google Earth	🔗

Data set Metadata ▾

Accessing viewable data sets – WMS/WMTS

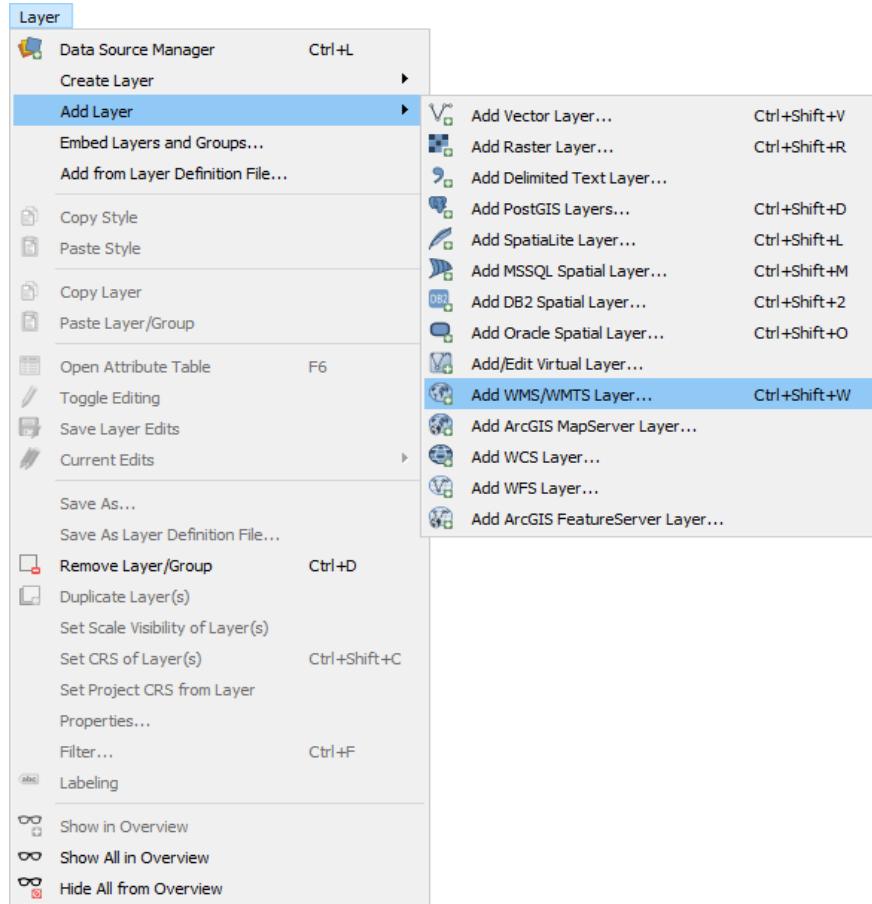
- From the Geoportal, identify:
 - the WMS/WMTS layer name
 - the WMS/WMTS service endpoint, available in the service metadata

MSDI Harmonised Datasets WMS Close

Resource Title	MSDI Harmonised Datasets WMS	Conditions Applying To Access And Use
		NONE
Resource Abstract	MSDI Harmonised INSPIRE WMS View service	Limitations On Public Access
		None
Resource Locator	https://msdi.data.gov.mt/deegree/services /wms?request=GetCapabilities&service=WMS& version=1.3.0	
Responsible Party	Organisation name Malta Information Technology Agency E-mail inspire.mita@gov.mt	
Metadata Point Of Contact	Organisation name MITA E-mail inspire.mita@gov.mt	
Metadata Language	Metadata Date	

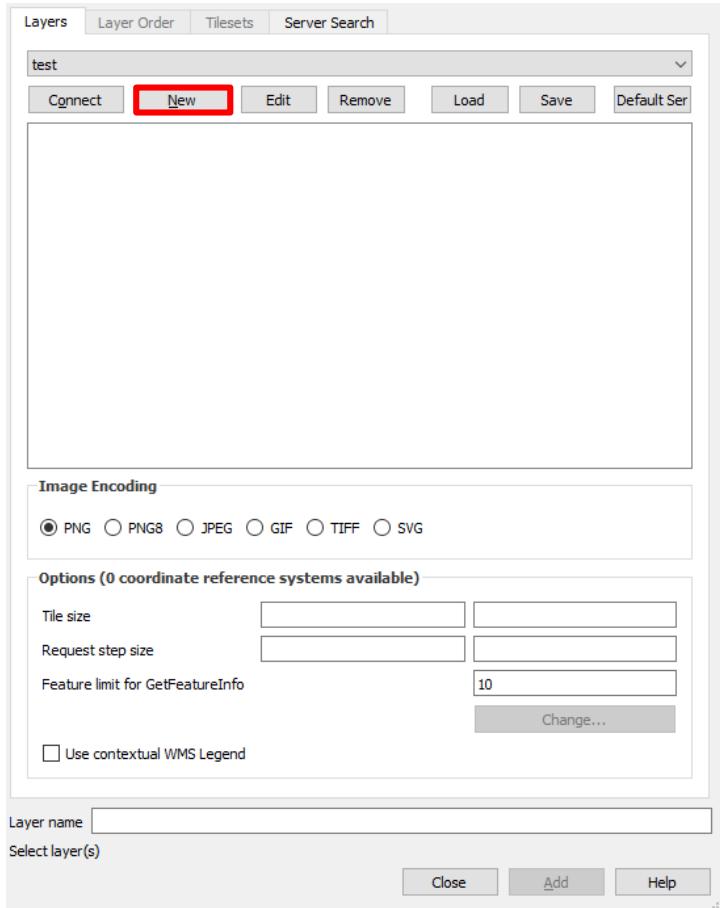
Accessing viewable data sets – WMS/WMTS

- From QGIS:
 - open the menu Layer → Add Layer
→ Add WMS/WMTS Layer



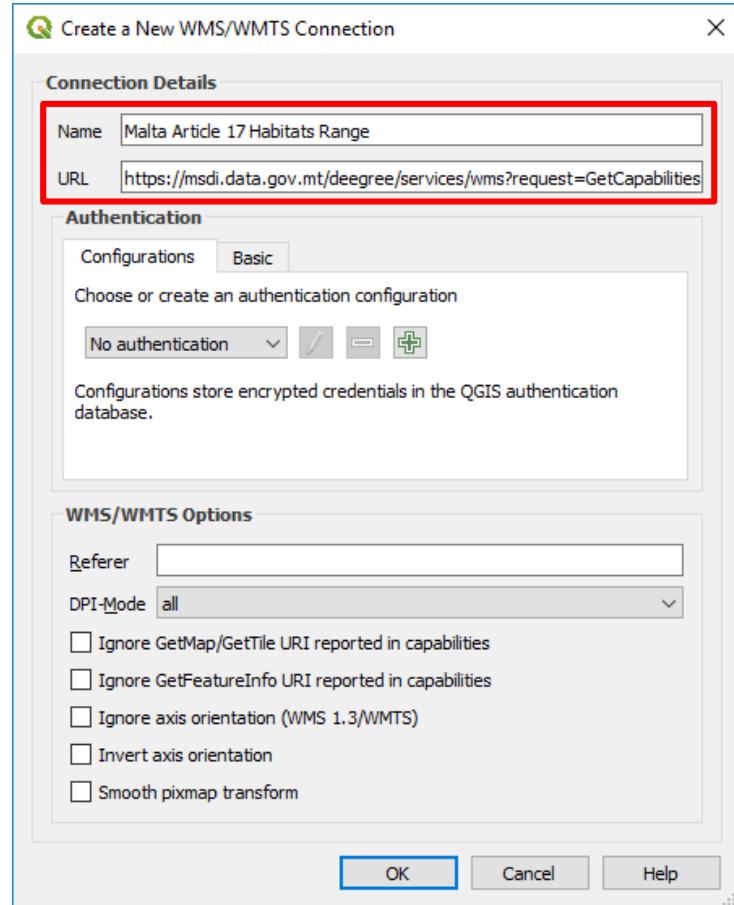
Accessing viewable data sets – WMS/WMTS

- From QGIS:
 - open the menu Layer → Add Layer → Add WMS/WMTS Layer
 - press New to create a new WMS/WMTS connection



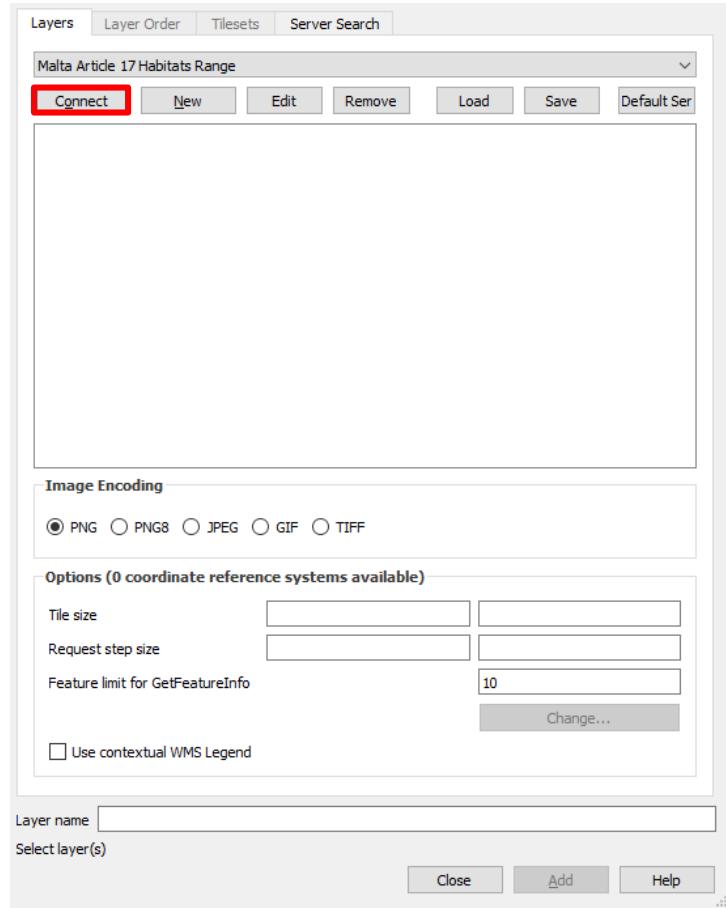
Accessing viewable data sets – WMS/WMTS

- From QGIS:
 - open the menu Layer → Add Layer → Add WMS/WMTS Layer
 - press New to create a new WMS/WMTS connection
 - give a Name to the WMS connection, paste the WMS/WMTS service endpoint URL and press OK



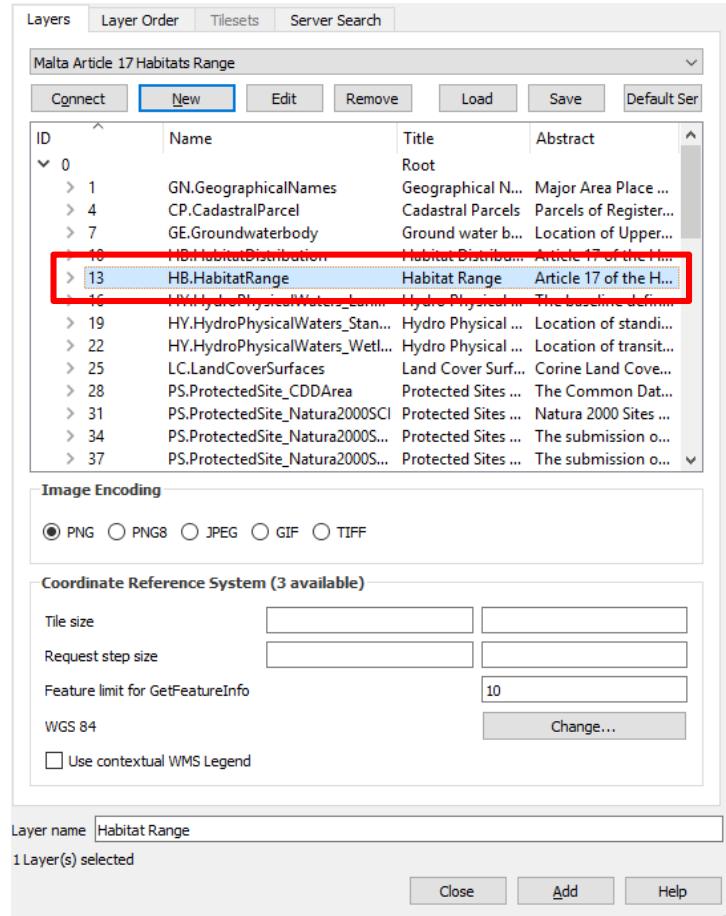
Accessing viewable data sets – WMS/WMTS

- From QGIS:
 - open the menu Layer → Add Layer → Add WMS/WMTS Layer
 - press New to create a new WMS/WMTS connection
 - give a Name to the WMS connection, paste the WMS/WMTS service endpoint URL and press OK
 - press Connect to connect to the WMS/WMTS service



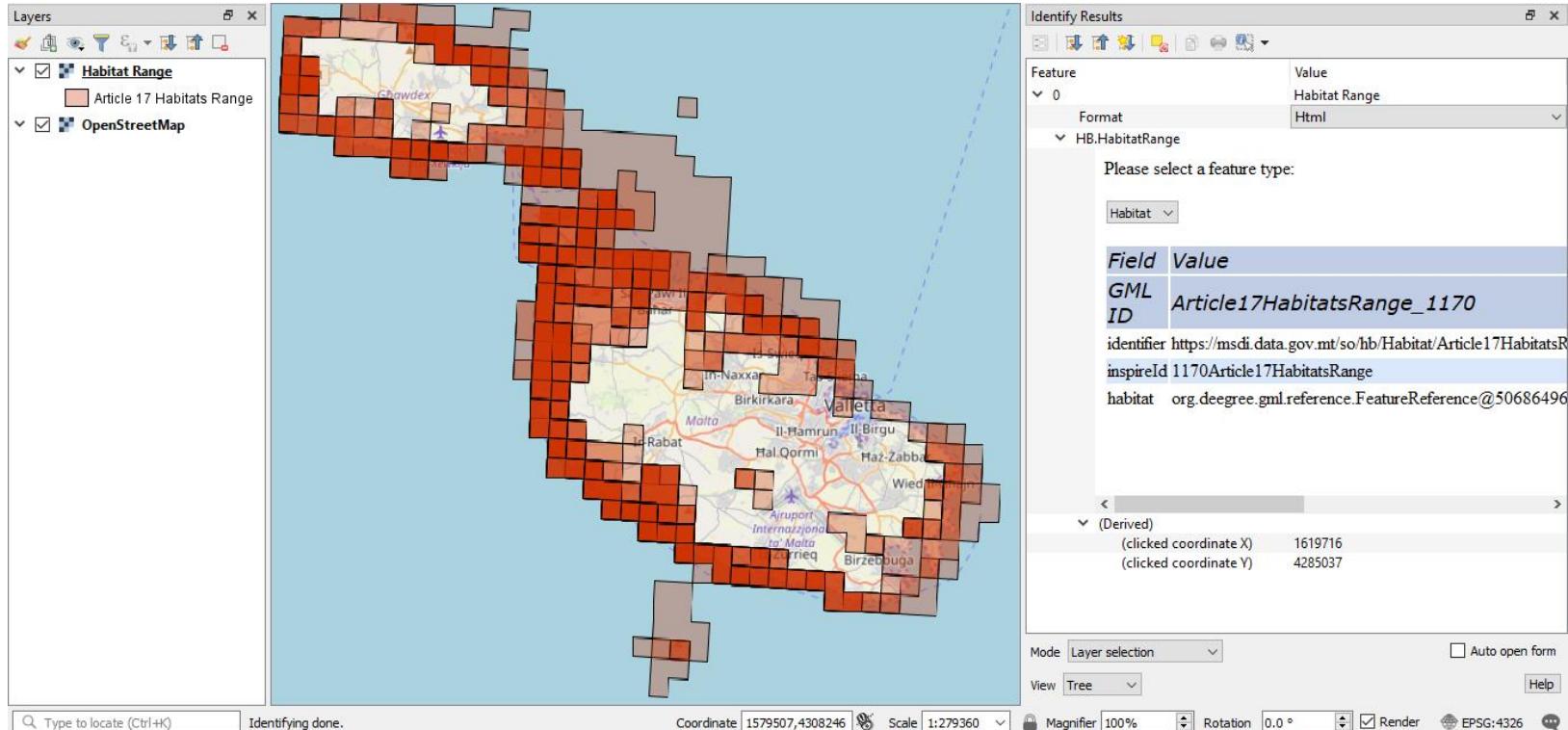
Accessing viewable data sets – WMS/WMTS

- From QGIS:
 - open the menu Layer → Add Layer → Add WMS/WMTS Layer
 - press New to create a new WMS/WMTS connection
 - give a Name to the WMS connection, paste the WMS/WMTS service endpoint URL and press OK
 - press Connect to connect to the WMS/WMTS service
 - find the WMS/WMTS layer of interest in the list, select it and press Add



Accessing viewable data sets – WMS/WMTS

- From QGIS:
 - visualize the WMS/WMTS layer and query its features



Accessing downloadable data sets – WFS

- From the Geoportal, identify:
 - the WFS layer name, available under the View Options

+ NLS-FI INSPIRE Hydrography Theme Dataset

Download Options ▾

View Options ▾

Search..

Preview Data Set	⚠	Layer Name	Namespace	Crs	Status	Actions
Preview Data Set	⚠	Watercourse	HY:HY.PhysicalWaters.Waterbodies.Watercourse	EPSG:3857	Not available	
Preview Data Set	⚠	Waterbody	HY.PhysicalWaters.Waterbodies	EPSG:3857	Not available	
Preview Data Set	⚠	Hydro Point of Interest	HY.PhysicalWaters.HydroPointOfInterest	EPSG:3857	Google Earth	
Preview Data Set	⚠	Land-Water Boundary	HY.PhysicalWaters.LandWaterBoundary	EPSG:3857	Google Earth	

Data set Metadata ▾

Accessing downloadable data sets – WFS

- From the Geoportal, identify:
 - the WFS layer name, available under the [View Options](#)
 - the WFS [service endpoint](#), available in the service metadata

+ NLS-FI INSPIRE Download Service (WFS) for Hydrography Theme Close

Resource Title
NLS-FI INSPIRE Download Service (WFS) for Hydrography Theme

Resource Abstract
NLS-FI INSPIRE Download Service (WFS) for Hydrography Theme is an INSPIRE compliant direct access Web Feature Service. It contains the following INSPIRE feature types: Dam Or Weir, Land-water Boundary, Rapids, Shoreline Construction, Standing Water, Watercourse. The service is based on the NLS-FI INSPIRE Hydrography Physical Waters dataset. The dataset is administrated by the National Land Survey of Finland.

Conditions Applying To Access And Use
no access constraints

Limitations On Public Access
None, unclassified

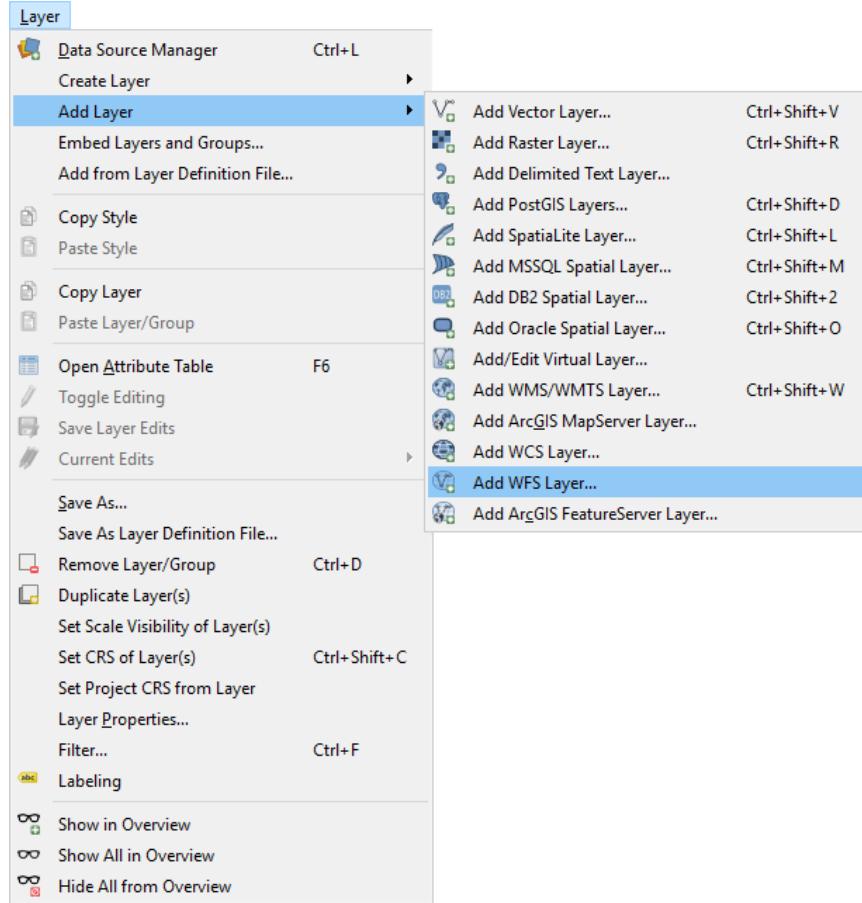
Resource Locator
<https://inspire-wfs.maanmittauslaitos.fi/inspire-wfs/hy?request=GetCapabilities&service=WFS&AcceptVersions=2.0.0>

Responsible Party
Organisation name National Land Survey of Finland
E-mail inspire@nls.fi

Metadata Point Of Contact
Organisation name National Land Survey of Finland
E-mail sovellustuki@maanmittauslaitos.fi

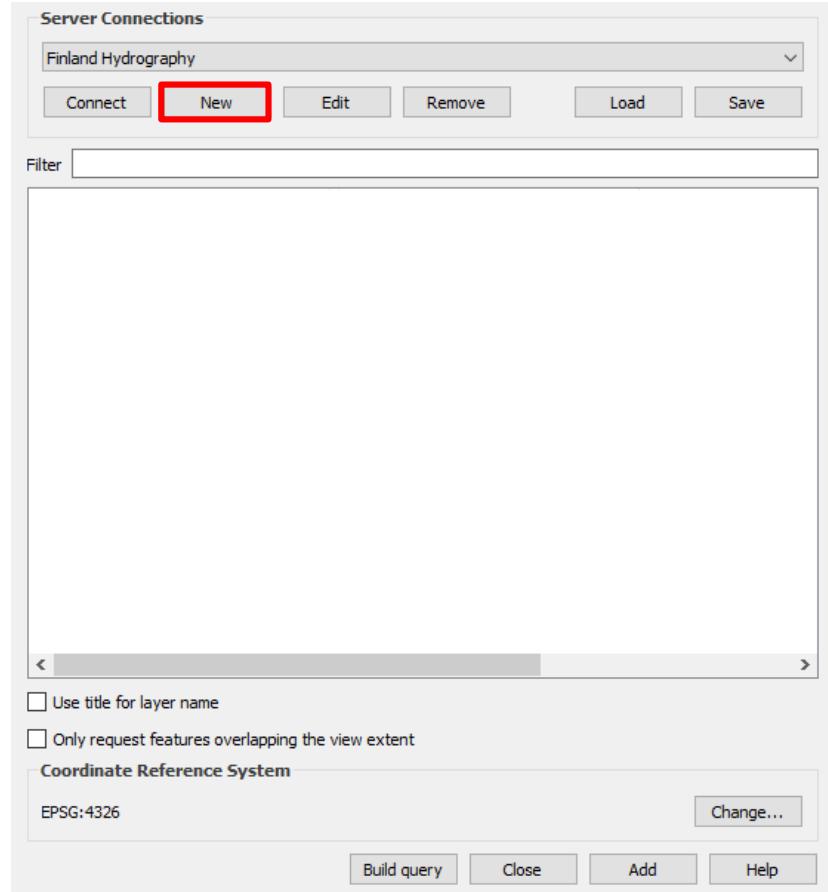
Accessing downloadable data sets – WFS

- From QGIS:
 - open the menu Layer → Add Layer
→ Add WFS Layer



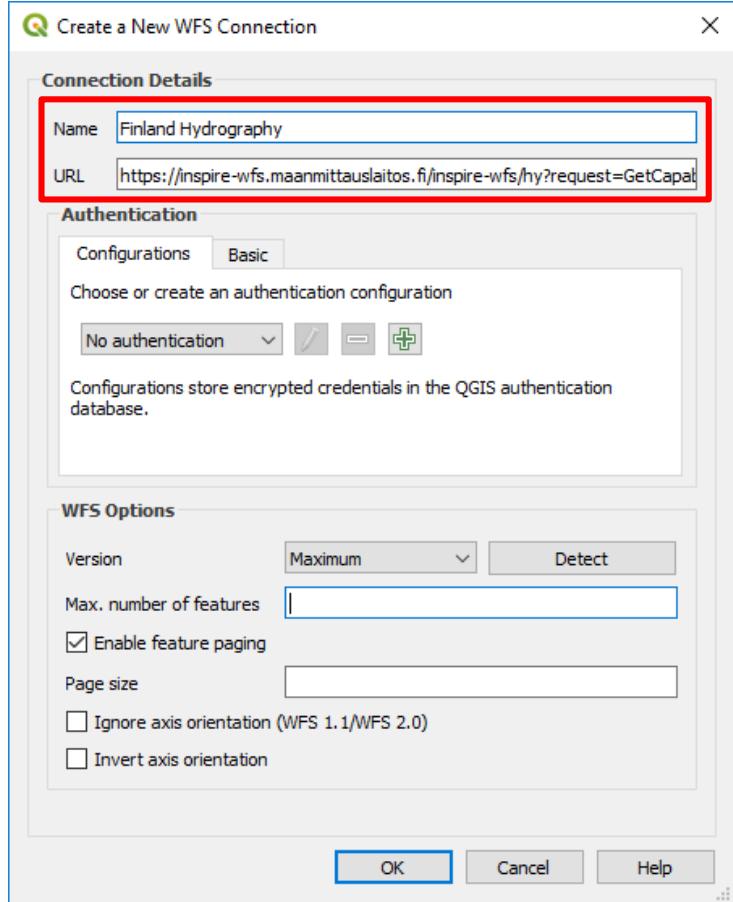
Accessing downloadable data sets – WFS

- From QGIS:
 - open the menu **Layer** → **Add Layer** → **Add WFS Layer**
 - press **New** to create a new WFS connection



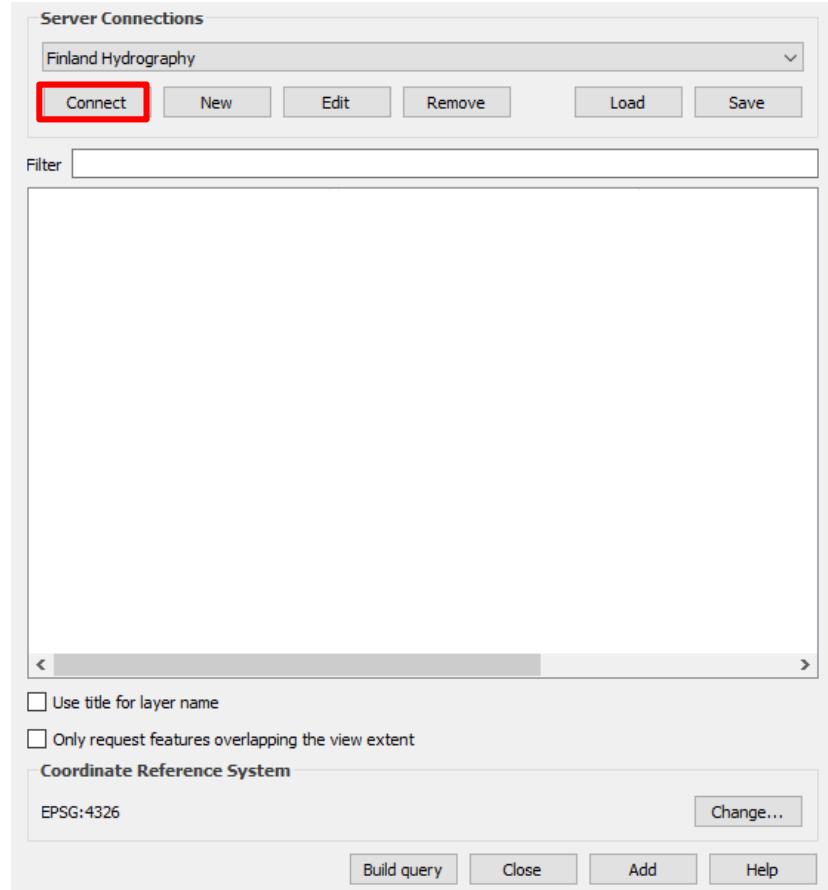
Accessing downloadable data sets – WFS

- From QGIS:
 - open the menu **Layer** → **Add Layer** → **Add WFS Layer**
 - press **New** to create a new WFS connection
 - give a **Name** to the WFS connection, paste the WFS service endpoint **URL** and press **OK**



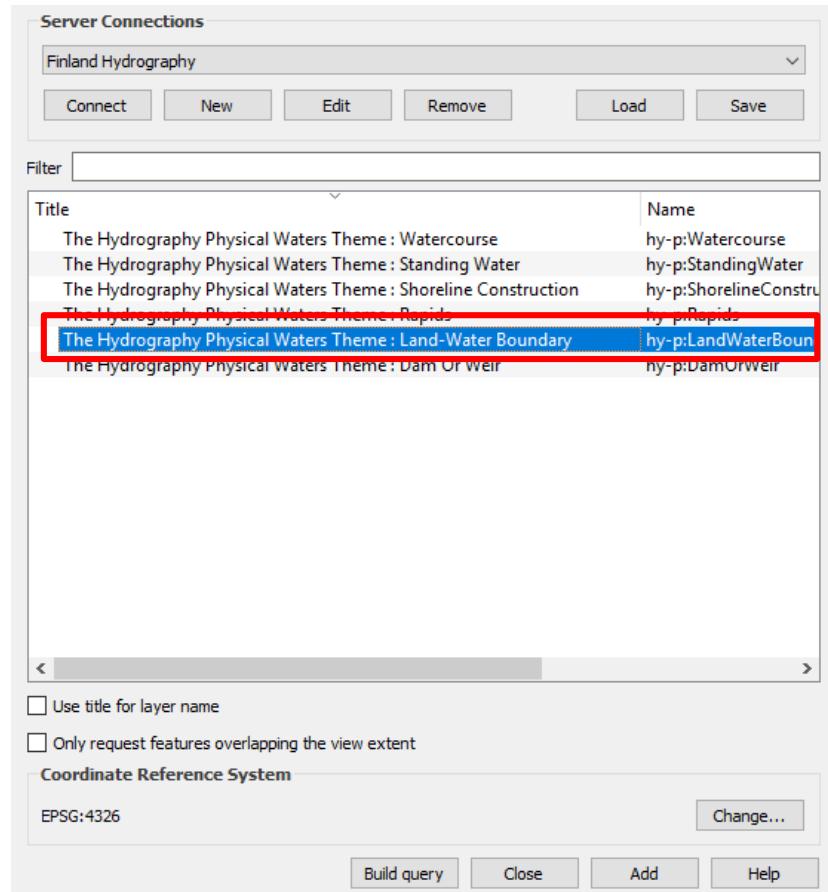
Accessing downloadable data sets – WFS

- From QGIS:
 - open the menu **Layer** → **Add Layer** → **Add WFS Layer**
 - press **New** to create a new WFS connection
 - give a **Name** to the WFS connection, paste the WFS service endpoint **URL** and press **OK**
 - press **Connect** to connect to the WFS service



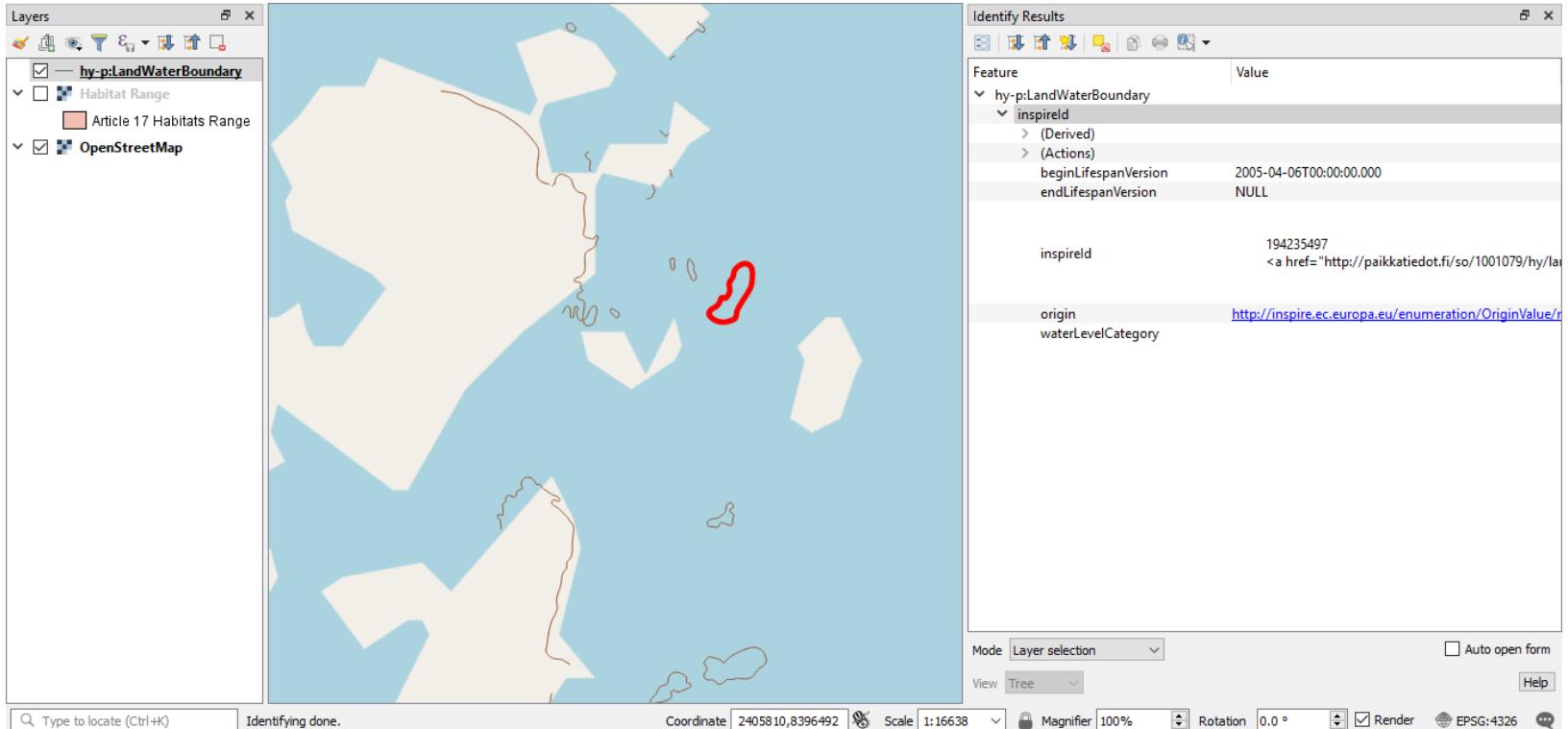
Accessing downloadable data sets – WFS

- From QGIS:
 - open the menu **Layer** → **Add Layer** → **Add WFS Layer**
 - press **New** to create a new WFS connection
 - give a **Name** to the WFS connection, paste the WFS service endpoint **URL** and press **OK**
 - press **Connect** to connect to the WFS service
 - find the WFS layer of interest in the list, select it and press **Add**



Accessing downloadable data sets – WFS

- From QGIS:
 - visualize the WFS layer and query its features

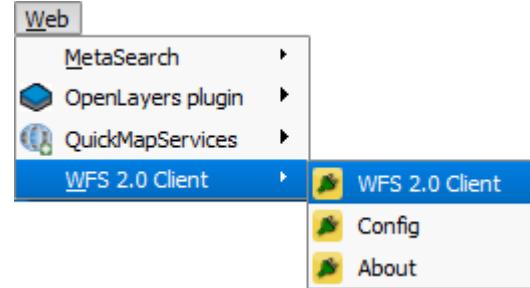


Accessing data sets via WFS 2.0

- The QGIS plugin [WFS 2.0 Client](#) (for QGIS 2) allows to consume data sets served through WFS 2.0.
- Website:
 - <https://plugins.qgis.org/plugins/wfsclient>
- Source code (GPL):
 - <https://github.com/JuergenWeichand/qgis-wfs20-client-plugin>

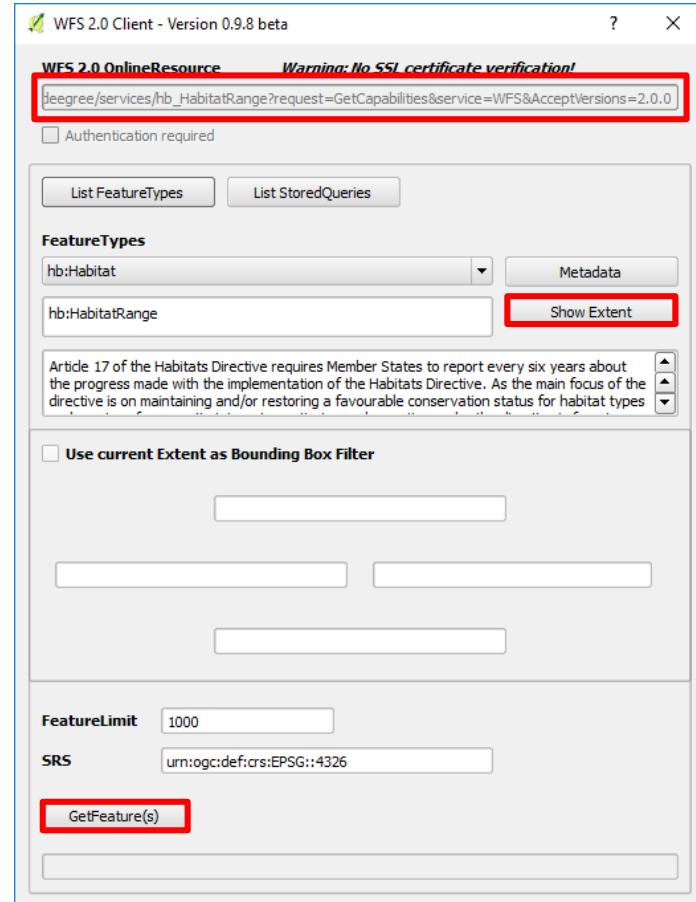
Accessing data sets via WFS 2.0

- From QGIS:
 - open the menu **Web** → **WFS 2.0 Client**



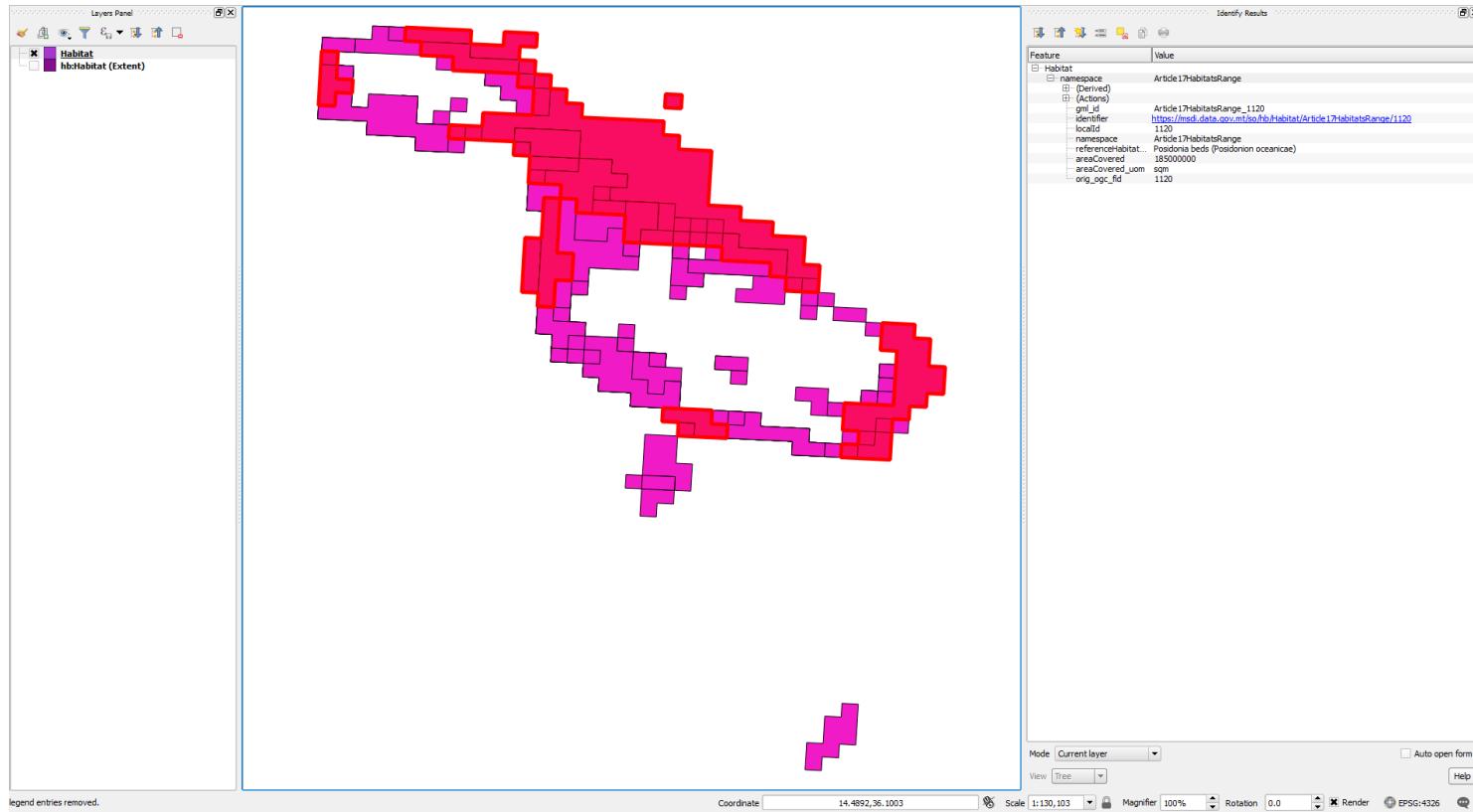
Accessing data sets via WFS 2.0

- From QGIS:
 - open the menu **Web → WFS 2.0 Client → WFS 2.0 Client**
 - enter the WFS 2.0 service endpoint
 - press **Show Extent** to visualize the data set extent in the map view
 - press **GetFeature(s)** to download the data set



Accessing data sets via WFS 2.0

- From QGIS, visualize the WFS layer and query its features.



Accessing downloadable data sets – Formats

- INSPIRE Download services can provide data sets in multiple formats:
 - GML (Geography Markup Language) - [application/gml+xml](#)
 - ATOM feed - [application/atom+xml](#)
 - ESRI shapefile - [application/x-shapefile](#)
 - ZIP archive - [application/zip](#)
 - KML/KMZ (Keyhole Markup Language – Zipped) -
[application/vnd.google-earth.kmz](#)
 - GMZ (Geography Markup Language – Zipped) - [application/x-gmz](#)
 - plain text - [text/plain](#)
 - GeoTIFF [raster] - [image/tiff](#)

Accessing downloadable data sets – GML

- From the Geoportal:
 - under the **Download Options**, identify the data set to download
 - press **Get Data Set** to download the data set

CartoCiudad

Download Options ▾

Download link	Data Format	CRS	Service Metadata
Get Data Set ▲		http://www.opengis.net/def/crs/EPSG/0/4258	🔗
Get Data Set ▲		http://www.opengis.net/def/crs/EPSG/0/4258	🔗
Get Data Set ▲		http://www.opengis.net/def/crs/EPSG/0/4258	🔗
Get Data Set ▲		http://www.opengis.net/def/crs/EPSG/0/4258	🔗

View Options ▾

Data set Metadata ▾

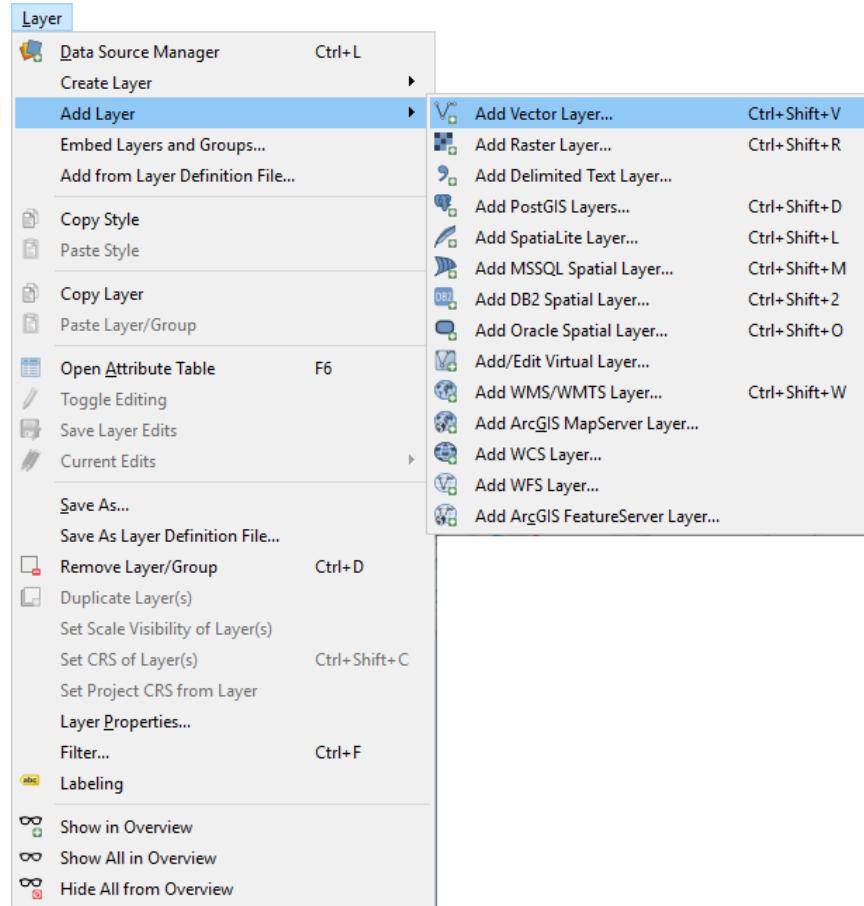
Accessing downloadable data sets – GML

- From the Geoportal:
 - under the **Download Options**, identify the data set to download
 - press **Get Data Set** to download the data set
 - if the data set is served in the GML format, you can visualize it in the browser and/or download it

```
1 <?xml version='1.0' encoding='UTF-8'?>
2 <wfs:FeatureCollection xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.opengis.net/wfs/2.0 http://schemas.opengis.net/wfs/
3   <wfs:boundedBy>
4     <gml:Envelope srsName="urn:ogc:def:crs:EPSG::4258">
5       <gml:lowerCorner>36.101337 -6.304985 0.000000</gml:lowerCorner>
6       <gml:upperCorner>36.675784 -5.430876 0.000000</gml:upperCorner>
7     </gml:Envelope>
8   </wfs:boundedBy>
9   <wfs:member>
10    <ad:Address xmlns:ad="http://inspire.ec.europa.eu/schemas/ad/4.0" gml:id="AD_ADDRESS_PPK_110200159003">
11      <ad:inspireId>
12        <base:Identifier xmlns:base="http://inspire.ec.europa.eu/schemas/base/3.3">
13          <base:localId>PPK_110200159003</base:localId>
14          <base:namespace>ES.CNIG.CARTOCIUDAD</base:namespace>
15        </base:Identifier>
16      </ad:inspireId>
17      <ad:position>
18        <ad:GeographicPosition>
19          <ad:geometry>
20            <gml:Point gml:id="AD_ADDRESS_PPK_110200159003_AD_POSITION" srsName="urn:ogc:def:crs:EPSG::4258">
21              <gml:pos>36.675784 -6.133414</gml:pos>
22            </gml:Point>
```

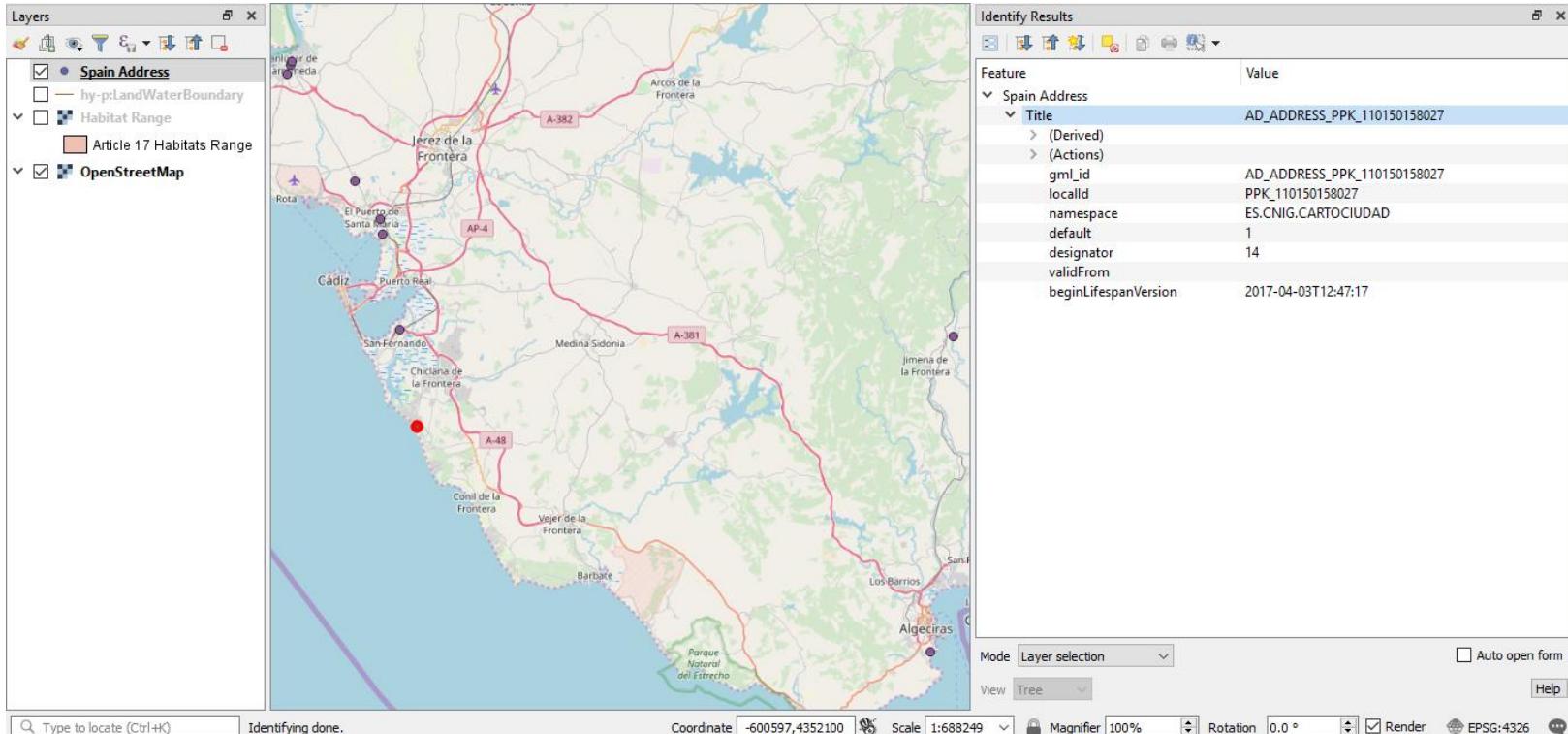
Accessing downloadable data sets – GML

- From QGIS:
 - open the menu **Layer** → **Add Layer** → **Add Vector Layer** and load the GML data set as a standard vector layer



Accessing downloadable data sets – GML

- From QGIS:
 - visualize the GML layer and query its features

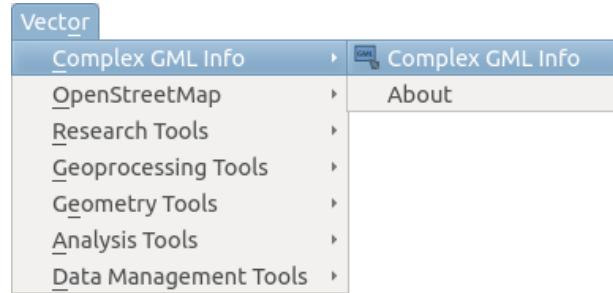


Visualizing GML data sets – Plugin

- The QGIS plugin [Complex GML Info](#) (for QGIS 2) allows to visualize complex GML files in QGIS.
- Website:
 - <https://plugins.qgis.org/plugins/ComplexGmlInfo>
- Source code (GPL):
 - <https://github.com/JuergenWeichand/qgis-complex-gmlinfo-plugin>

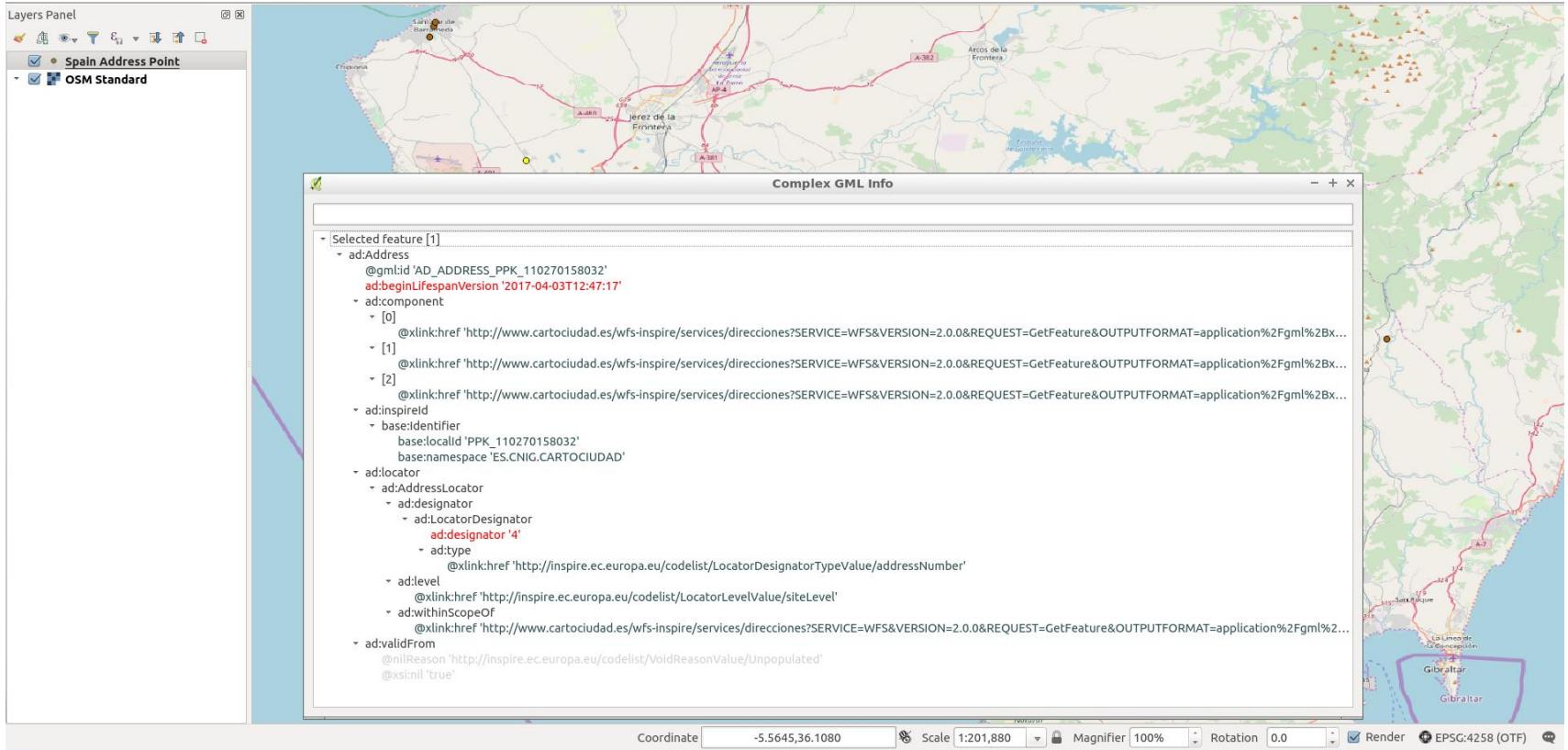
Visualizing GML data sets – Plugin

- From QGIS:
 - install the plugin
 - select at least one feature of the GML vector layer
 - open the plugin from the menu **Vector → Complex GML Info**



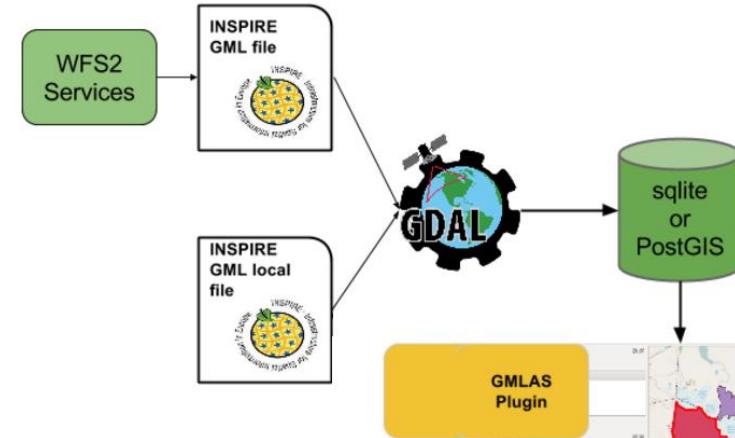
Visualizing GML data sets – Plugin

- From QGIS, visualize the complex GML structure of the selected feature(s).



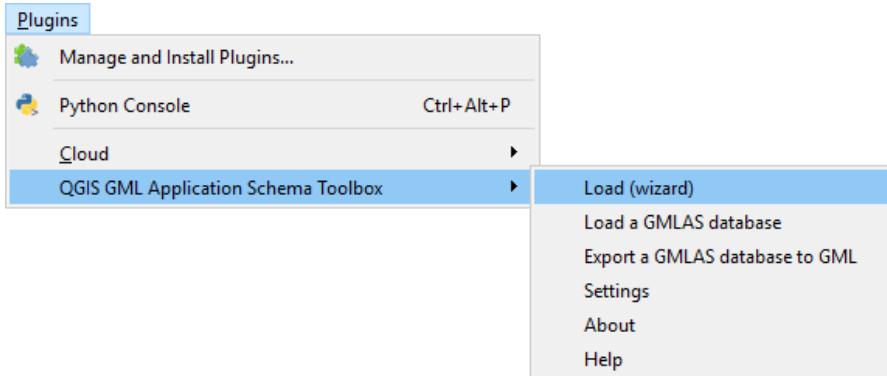
Accessing downloadable data sets – Plugin

- The QGIS plugin [QGIS GML Application Schema Toolbox](#) (for QGIS 3) allows to import and consume GML Complex Features in QGIS.
- Website:
 - https://plugins.qgis.org/plugins/gml_application_schema_toolbox
- Source code (GPL):
 - https://github.com/BRGM/gml_application_schema_toolbox
- Developed by BRGM, Oslandia, Copernicus, Campatocamp, Spatialys, titellus
- Main features:
 - download GML from [WFS 2](#) services
 - read GML App Schema files in [XML](#) mode
 - convert GML App Schema files in PostGIS and SQLite format
 - export PostGIS and SQLite format to GML App Schema files



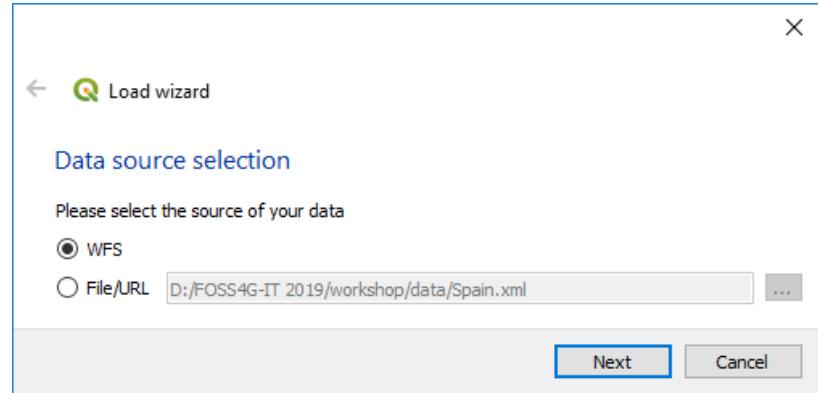
Accessing downloadable data sets – Plugin

- To open a GML data set from a WFS service:
 - open the menu Plugins → QGIS GML Application Schema Toolbox → Load (wizard)



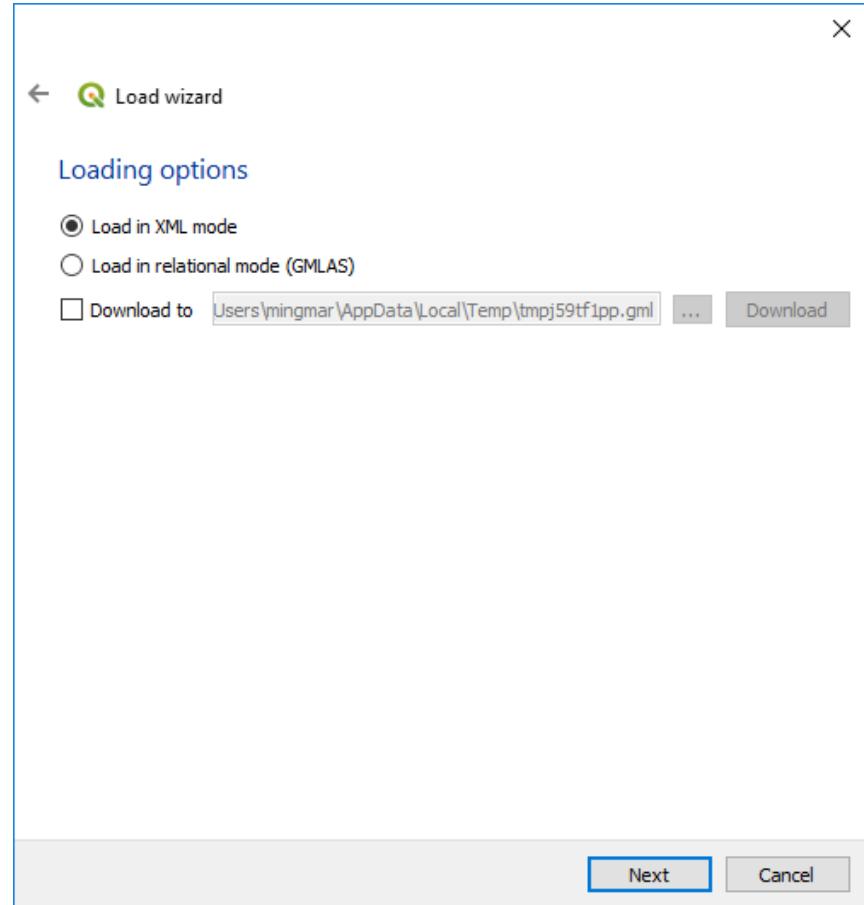
Accessing downloadable data sets – Plugin

- To open a GML data set from a WFS service:
 - open the menu **Plugins** → **QGIS GML Application Schema Toolbox** → **Load (wizard)**
 - select **WFS** and press **Next**



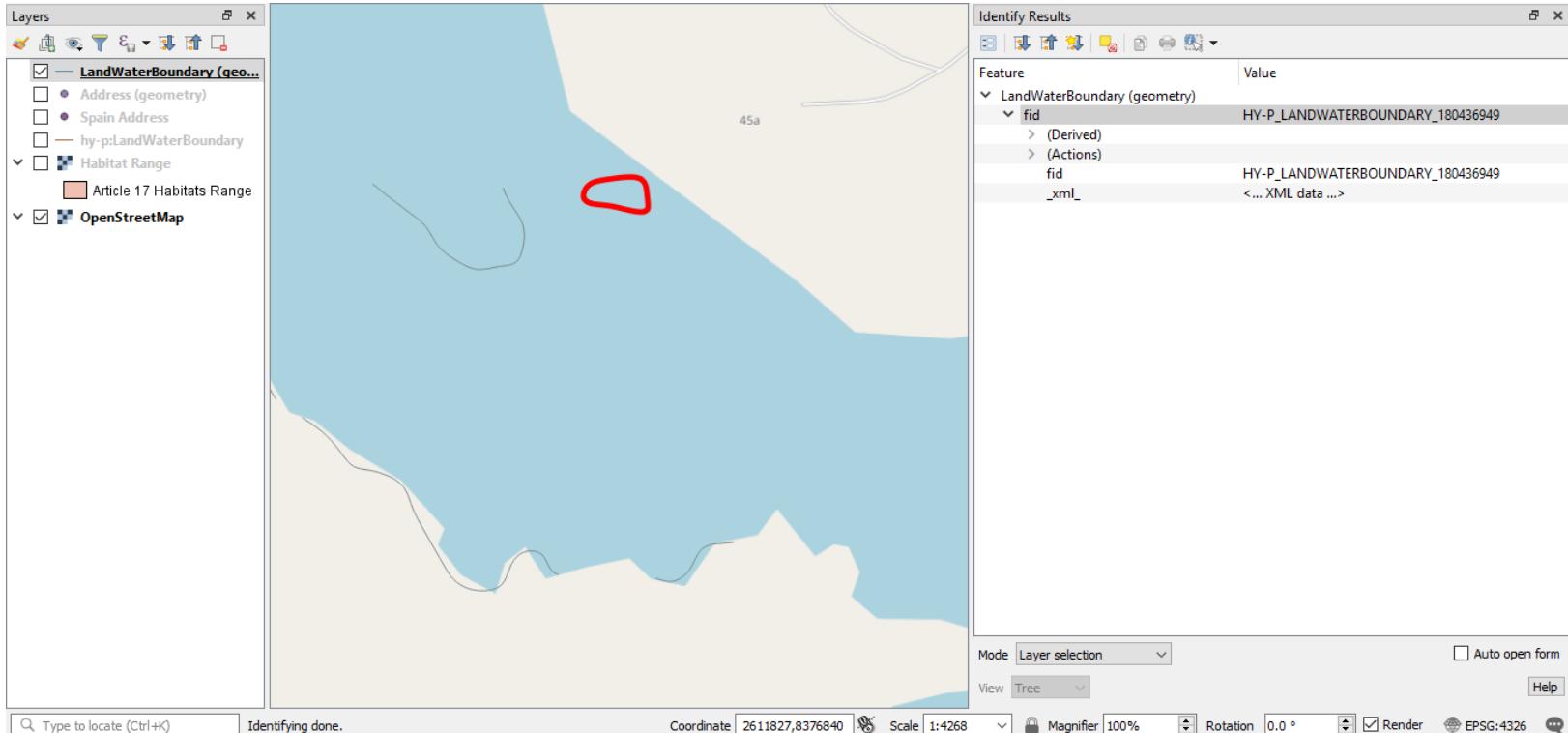
Accessing downloadable data sets – Plugin

- To open a GML data set from a WFS service:
 - open the menu Plugins → QGIS GML Application Schema Toolbox → Load (wizard)
 - select WFS and press Next
 - press Connect to connect to a WFS service, find the WFS layer of interest in the list, select it and press Next
 - select Load in XML mode and press Next



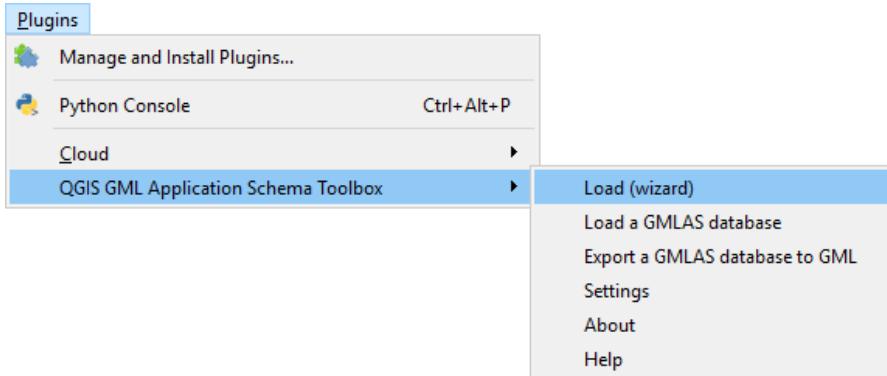
Accessing downloadable data sets – Plugin

- To open a GML data set from a WFS service:
 - visualize the GML layer and query its features



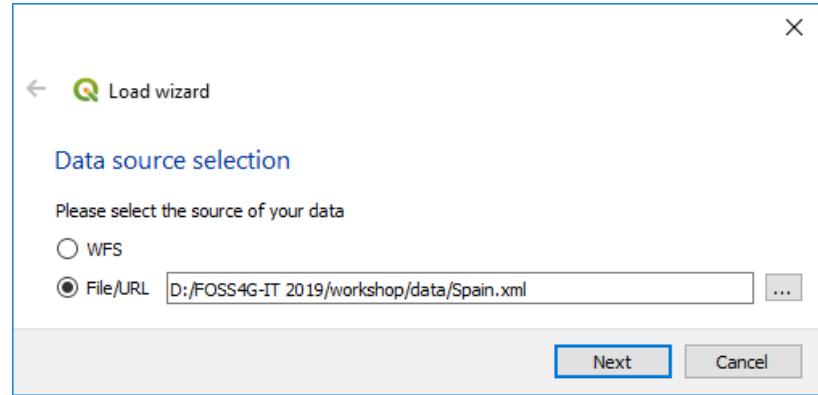
Accessing downloadable data sets – Plugin

- To open a GML data set from a local GML file:
 - open the menu Plugins → QGIS GML Application Schema Toolbox → Load (wizard)



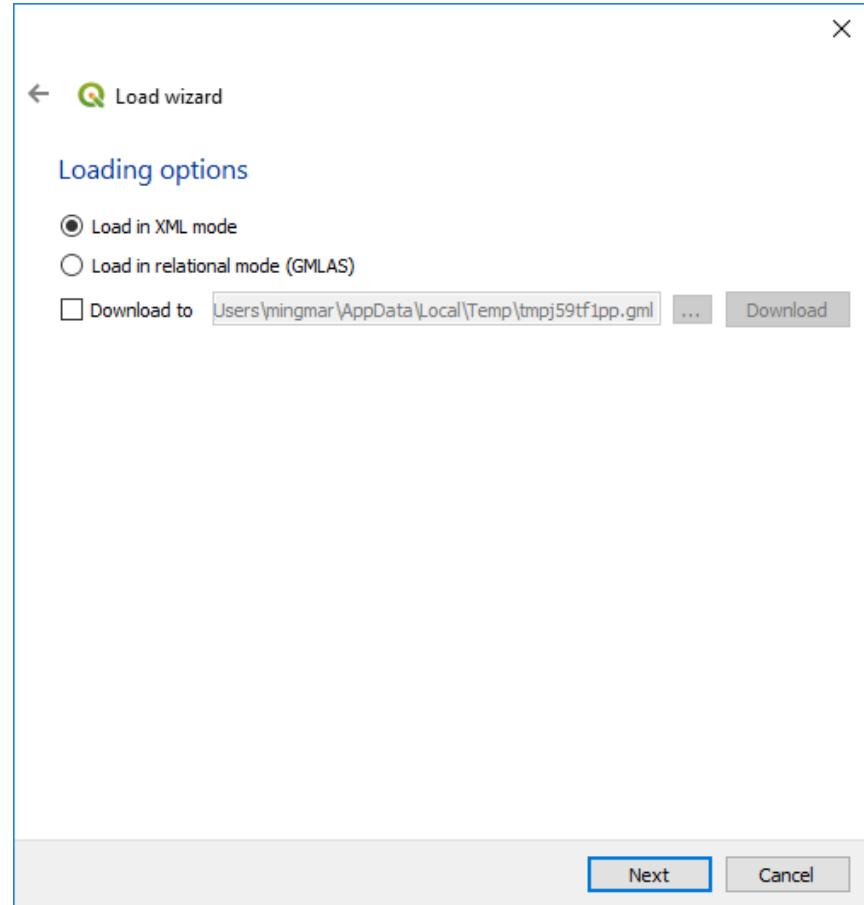
Accessing downloadable data sets – Plugin

- To open a GML data set from a local GML file:
 - open the menu **Plugins** → **QGIS GML Application Schema Toolbox** → **Load (wizard)**
 - select **File/URL**, locate the file on the file system and press **Next**



Accessing downloadable data sets – Plugin

- To open a GML data set from a local GML file:
 - open the menu **Plugins** → **QGIS GML Application Schema Toolbox** → **Load (wizard)**
 - select **File/URL**, locate the file on the file system and press **Next**
 - select **Load in XML mode** and press **Next**



Accessing downloadable data sets – Plugin

- To open a GML data set from a local GML file:
 - data is included in a single QGIS layer

The screenshot shows a QGIS interface with a map of Southern Spain. A red dot is placed on the map at coordinates $-683817, 4348822$. The map displays various layers including roads, rivers, and administrative boundaries. The 'Layers' panel on the left shows several layers listed, with 'Address (geometry)' checked. The 'Identify Results' dialog is open on the right, showing details for the selected feature. The feature is identified as 'Address (geometry)' with a value of 'AD_ADDRESS_PPK_110150158027'. Other fields shown include '_fid' and '_xml_'. The 'Identify Results' dialog also includes a 'Mode' dropdown set to 'Layer selection' and a 'View' dropdown set to 'Tree'.

Layers

- Address (geometry)
- LandWaterBoundary (geo...)
- Address (geometry)
- Spain Address
- hy-p:LandWaterBoundary
- Habitat Range
- Article 17 Habitats Range
- OpenStreetMap

Identify Results

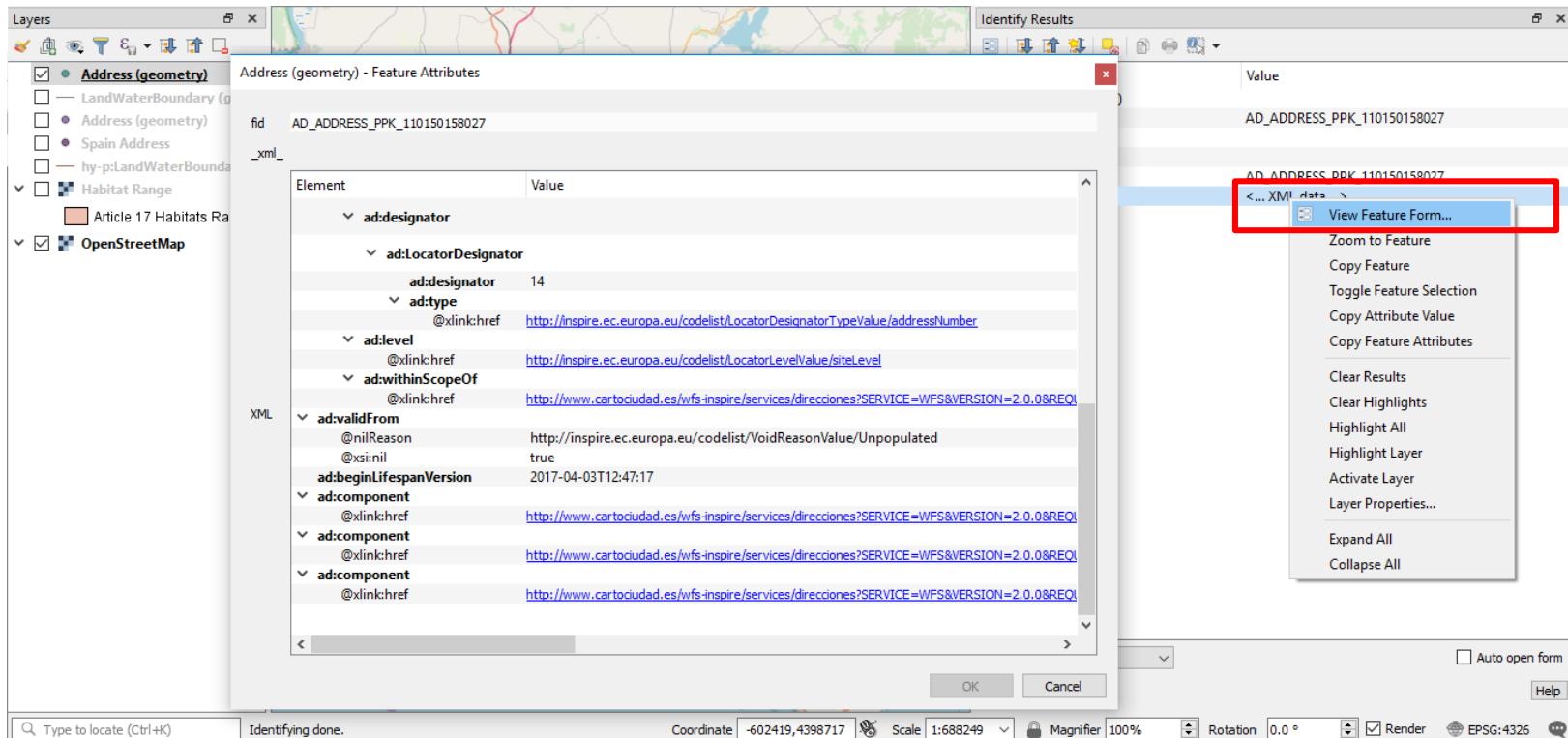
Feature	Value
Address (geometry)	AD_ADDRESS_PPK_110150158027
_fid	(Derived)
_fid	AD_ADDRESS_PPK_110150158027
xml	<... XML data ...>

Type to locate (Ctrl+H) Identifying done.

Coordinate $-683817, 4348822$ Scale 1:688249 Magnifier 100% Rotation 0.0° Render EPSG:4326 Help

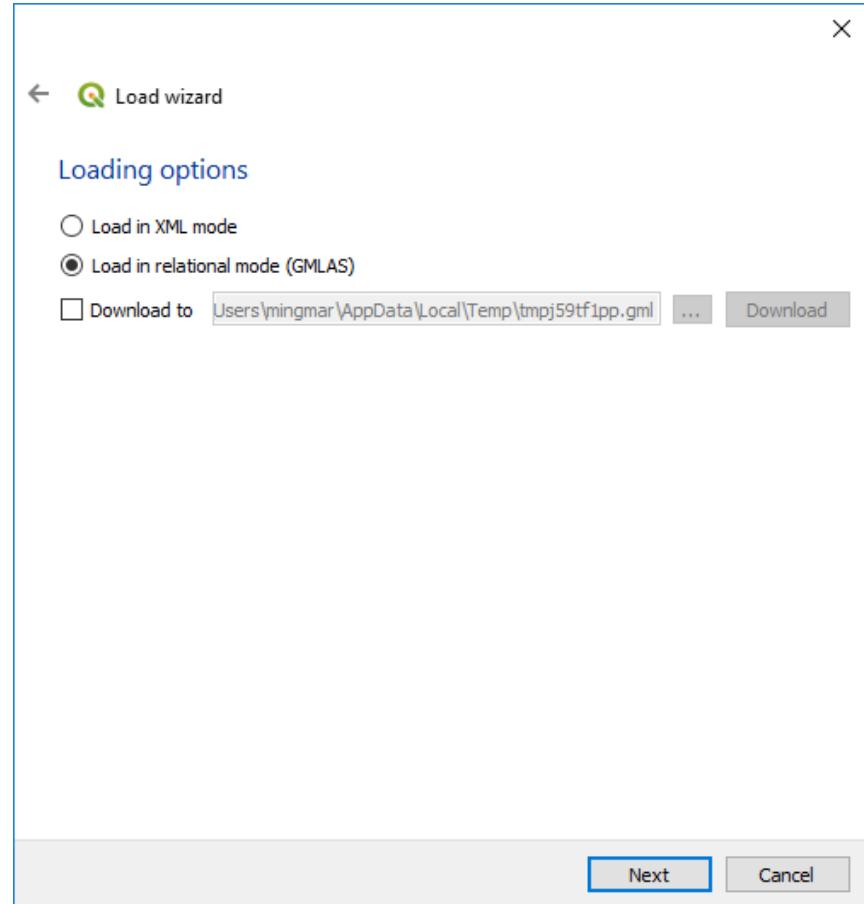
Accessing downloadable data sets – Plugin

- To access a hierarchical view of the INSPIRE GML data set:
 - right-click on <... XML data ...> and select View Feature Form



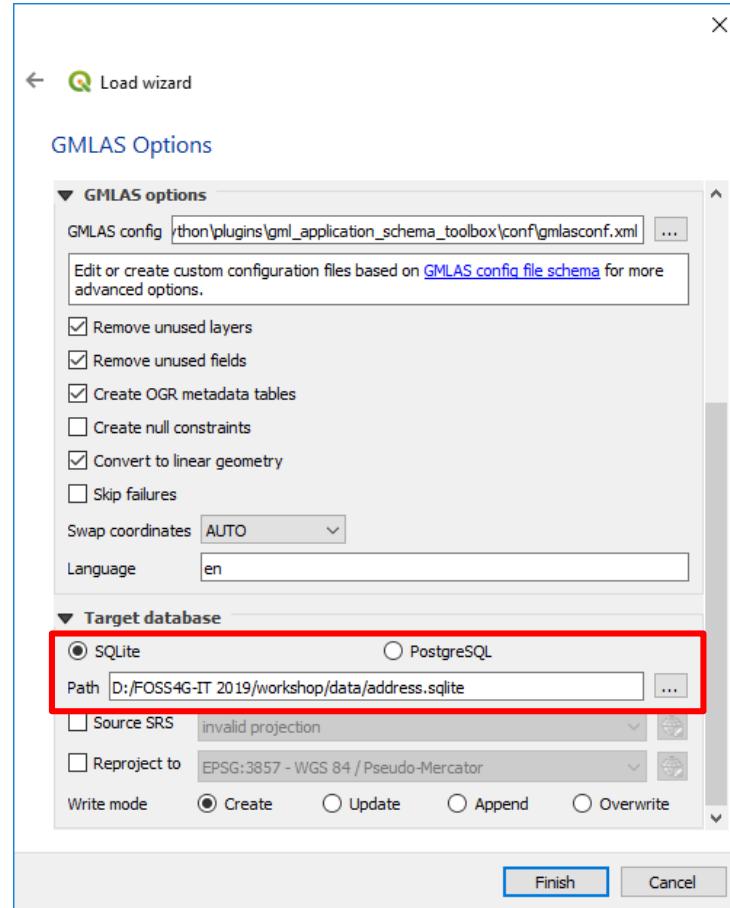
Accessing downloadable data sets – Plugin

- GML data can be also converted into PostGIS and SQLite formats:
 - select **Load in relational mode GMLAS** and press **Next**



Accessing downloadable data sets – Plugin

- GML data can be also converted into PostGIS and SQLite formats:
 - select **Load in relational mode GMLAS** and press **Next**
 - select **SQLite** or **PostgreSQL** as database format and specify the path where to save the file



Accessing downloadable data sets – Plugin

- GML data can be also converted into PostGIS and SQLite formats:
 - data is spread across different QGIS layers, each with an attribute table

The screenshot shows the QGIS application interface with three main windows:

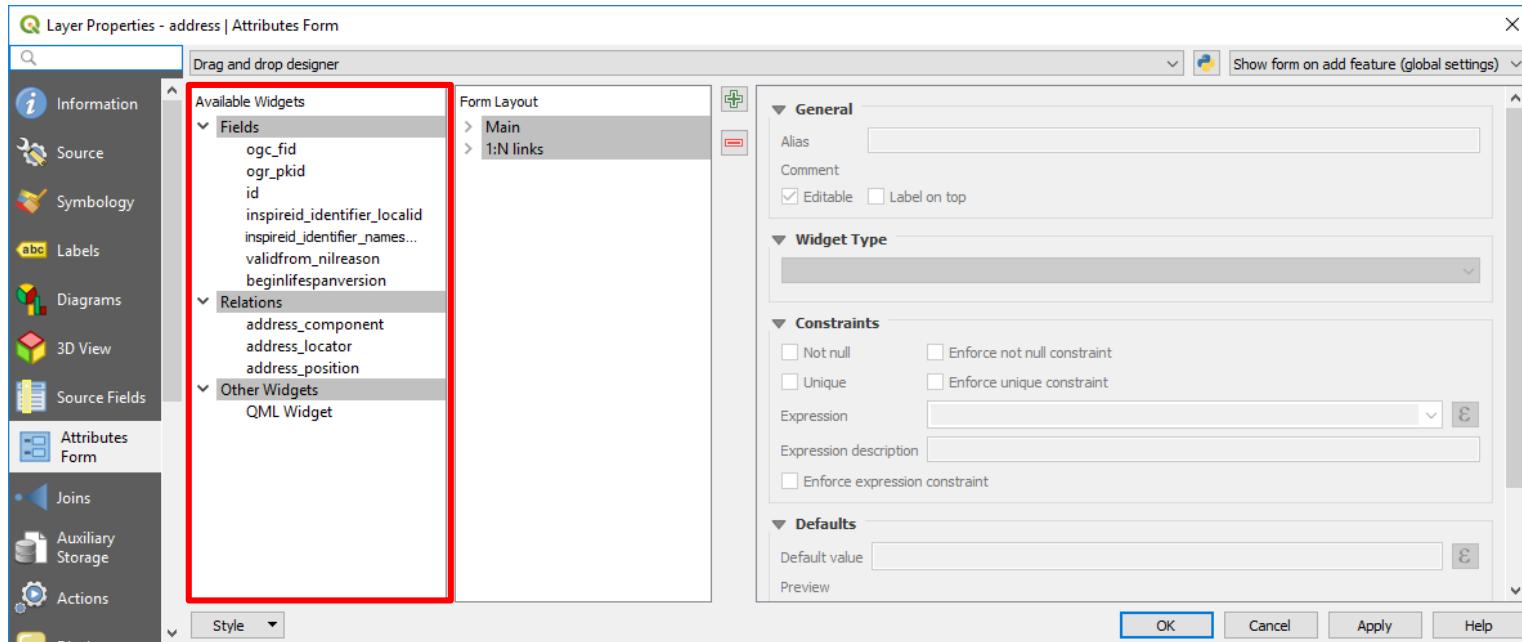
- Layers Panel:** On the left, it lists various data layers. A red box highlights the "address_position" layer, which is checked. Other visible layers include "address_locator_addresslocator_designator", "address_locator", "address_component", and "address".
- Map View:** The central map view shows a coastal area with several towns labeled: El Puerto de Santa María, Jerez de la Frontera, Cádiz, San Fernando, Chiclana de la Frontera, Barbate, Vejer de la Frontera, Medina Sidonia, Arcos de la Frontera, Jimena de la Frontera, Los Barrios, Algeciras, and Tarifa. Major roads like AP-4, A-382, A-381, and A-48 are shown.
- Identify Results Panel:** On the right, the "Identify Results" panel displays the attributes for the selected "address_position" layer. The table shows the following data for the selected feature (Title value 5):

Feature	Value
address_position	
Title	5
> (Derived)	
> (Actions)	
ogr_fid	5
ogr_pkid	C2C206A995D604168F31163D8A11F740_Address_5...
parent_ogr_pkid	C2C206A995D604168F31163D8A11F740_Address_5...
geographicposition_specific...	http://inspire.ec.europa.eu/codelist/GeometrySpecific
geographicposition_method...	http://inspire.ec.europa.eu/codelist/GeometryMethod
geographicposition_default	1

At the bottom, there are status bars for coordinate (-600707, 4345246), scale (1:770636), magnifier (100%), rotation (0.0 °), render, and EPSG:4326.

Accessing downloadable data sets – Plugin

- GML data can be also converted into PostGIS and SQLite formats:
 - data is spread across different QGIS layers, each with an attribute table
 - from the properties of any of these layers, the tab **Attributes Form** allows to visualize the fields and the relations between the layers (tables)



Survey - Section 2: Geoportal quiz

https://ec.europa.eu/eusurvey/runner/FOSS4G-IT_workshop



Survey - Section 3: INSPIRE Geoportal for your use case

https://ec.europa.eu/eusurvey/runner/FOSS4G-IT_workshop



Theory – Section 3: Usability issues and future improvements

Usability of data sets in the INSPIRE Geoportal

- There are currently a number of potential barriers a user faces when searching for, accessing, viewing/downloading and using data sets on the INSPIRE Geoportal:
 - language barriers
 - absence of viewable and/or downloadable data sets
 - diversity of data licenses
 - data set protection – view services
 - data set protection – download services
 - license discrepancy between data set and service metadata
 - third-party contacts not reachable
 - multiple data sets for a single service

Language barriers

- Metadata are available in a language that is not accessible to all users:



Hydrography Data sets in France

1313 | 52 | 162

Filters: Downloadable Viewable

Show data with national coverage i

Title	Properties
Points de prélèvement en eaux souterraines 049	
Points de prélèvement en eaux superficielles 049	
Points de vidange des plans d'eau 049	
Bassins versants Alimentation en Eau Potable 085	
ODyC Guyane, position du trait de côte du littoral guyanais en 1950	
ODyC Guyane, position du trait de côte du littoral guyanais en 1988	
ODyC Guyane, position du trait de côte du littoral guyanais en 1997	
Hydro-ecoregions de la Guyane (2005)	
ODyC Guyane, position du trait de côte du littoral guyanais en 2006	
Masses d'eau SDAGE 2010-2015 - masses d'eau cotières	

Title	Properties
-------	------------

Language barriers

- Metadata are available in a **language** that is not accessible to all users:
 - hard to understand the content, the conditions for access and use, etc.

FR Tronçons

Download Options ▾

View Options ▾

Data set Metadata ▾

Resource Title

Tronçons

Resource Abstract

Ancien référentiel des voies d'eau, remplacé grâce au travail "tronçons refonte"

Lineage

Valeur par défaut : La géométrie initiale est issue du thème hydrographie de la BdCarto© IGN
Valeur pour la DT Centre-Bourgogne : non renseigné
Valeur pour la DT Strasbourg : La géométrie est issue du thème hydrographie de la BdCarto© IGN.
Valeur pour la DT Nord-Est : vecteurs représentant les itinéraires des voies confiées en gestion à VNF DT NE, y compris les systèmes alimentaires et ouvrages connexes aux voies naviguées, au sens des textes définissant le Domaine Public Fluvial, Pour la DT NE
Valeur pour la DT Rhône Saône : non renseigné
Valeur pour la DT Sud-Ouest : non renseigné
Valeur pour la DT Bassin de la Seine : non renseigné
Valeur pour la DT Nord-Pas-De-Calais : non renseigné

Unique Resource Identifier

Code: TRONCON

Reporting Tags

Conditions Applying To Access And Use

PROD_Une convention d'échange de données numériques sera à signer avec l'établissement. Elle définit les conditions générales de mise à disposition et d'utilisation de la donnée. Pour plus d'informations, contacter VNF à l'adresse contact.sigfed@vnf.fr

Limitations On Public Access

license

unclassified

Geographic Bounding Box



Absence of viewable/downloadable data sets

- Only a view service is available for a data set:



Hydrography Data sets in Italy

670 | 0 | 10

Filters: Downloadable Viewable

Show data with national coverage i

Title	Properties
Laghi sc 1:5000	
Reticolo Idrografico e Nodi Idrografici sc. 1:10000	
Classificazione dello Stato dei Corpi Idrici Superficiali Triennio 2009-2011 - DGR n.1615/2012	
Derivazioni Idriche 2015	
Idrografia	
Bacini Idrografici	
Idrografia - Bacini Principali	
Idrografia - Bacini Secondari	
Idrografia - Dora Baltea	
Idrografia - Laghi	

Title

Properties

Absence of viewable/downloadable data sets

- Only a download service is available for a data set:



Hydrography Data sets in France

1313 | 52 | 162

Filters: Downloadable Viewable

Show data with national coverage i

Title	Properties
BD Carthage Guyane / Bassins versants élémentaires	
Cours d'eau principal du Maroni	
Emprises des MNE-LIDAR sur les cours d'eau de Guyane	
Emprises des MNSE-LIDAR sur les cours d'eau de Guyane	
Emprises des MNT-LIDAR sur les cours d'eau de Guyane	
Ilets principaux situés sur le cours d'eau principal du Maroni	
Zones d'hydrographie de texture - Guadeloupe	
Ouvrages littoraux en Pays-de-Loire (objets linéaires)	
Ouvrages littoraux en Pays-de-Loire (objets ponctuels)	
Travaux en rivière relevant de la loi sur l'eau Maine et Loire	

Absence of viewable/downloadable data sets

- Neither a view nor a download service are available for a data set:



Hydrography Data sets in Italy

IT 670 | 0 | 10

Filters: Downloadable Viewable

Show data with national coverage i

Title	Properties
Condotta	
Diga	
Dusaf 1.0 - Uso suolo 1999-2000	
Carta Tecnica Comunale Numerica 0.5 K Vettoriale CAD	
Carta Tecnica Regionale 1:10.000 - CT10	
IDROGRAFIA REGIONALE 1:10.000 - REGIONE MARCHE	
Carta Tecnica Regionale 1:10.000 ed. 1980-94	
Aree di pertinenza della rete idrografica - 1:10.000 (Digitale) - Edizione del 1988	
Casse di espansione - 1:10.000 (Digitale) - Edizione del 1988	
Carta geologica, 1:25.000 - Edizione 2004 - Risorse e prospettive - 50k	

Title	Properties
-------	------------

Diversity of data licenses

- In case a user wants to combine two or more data sets and/or create a derived product from them, a barrier can be represented by the diversity of their licenses.

Conditions Applying To Access And Use

Dati forniti secondo licenza "CC BY 3.0" - <http://creativecommons.org/licenses/by/3.0/deed.it>

Limitations On Public Access

Dato pubblico

unclassified

Geographic Bounding Box



Conditions Applying To Access And Use

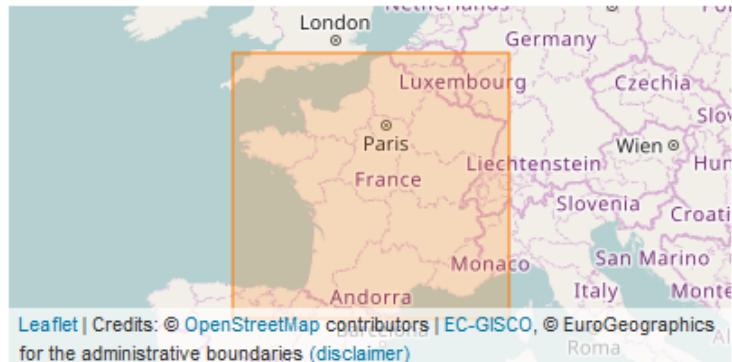
PROD_Une convention d'échange de données numériques sera à signer avec l'établissement. Elle définit les conditions générales de mise à disposition et d'utilisation de la donnée. Pour plus d'informations, contacter VNF à l'adresse contact.sigfed@vnf.fr

Limitations On Public Access

license

unclassified

Geographic Bounding Box



Data set protection – View services

- Data set visualization is protected:
 - users cannot even view the data set

BuildingPart (BU.BuildingPart)

you might need to zoom-in to see the information

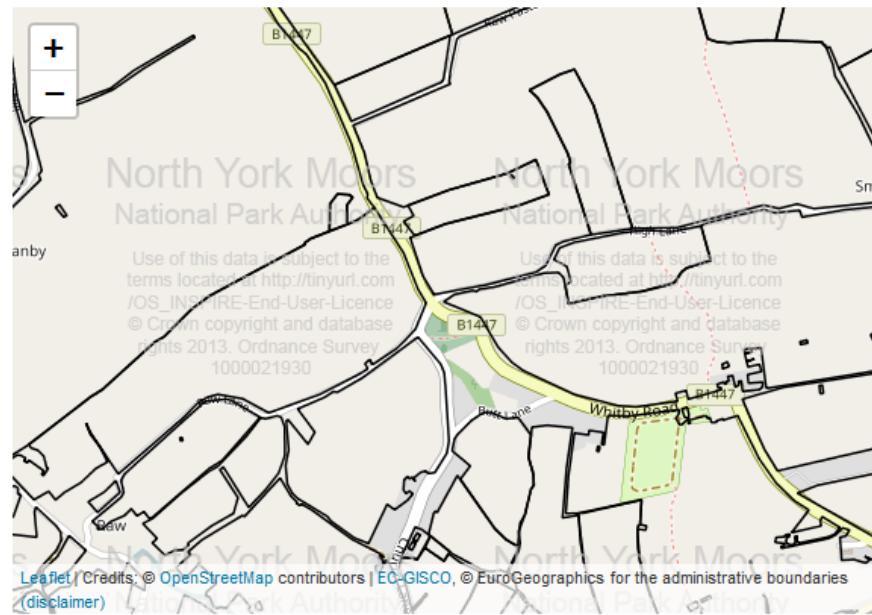


Data set protection – View services

- Data set visualization is protected:
 - users cannot even view the data set
- Possible solutions to protect a data set while allowing users to view it:
 - using a **watermark** which shows the copyright¹
 - not displaying the data set above a **specific zoom level**

NYMNPA Phase 1 Habitat Survey Areas 1989 (nymnpa-phase1areas89)

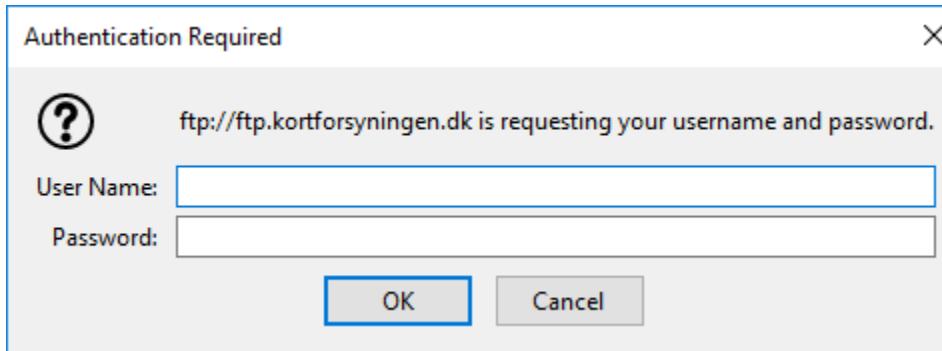
you might need to zoom-in to see the information



¹ see for example http://inspire-geoportal.ec.europa.eu/download_details.html?view=downloadDetails&resourceId=%2FINSPIRE-f89f4772-05f5-11e1-b7de-52540004b857_20190117-191106%2Fservices%2F1%2FPullResults%2F17661-17680%2Fdatasets%2F1&expandedSection=metadata

Data set protection – Download services

- Data access is only possible through [authentication](#):



- users do not have [access credentials](#) and don't know how to get them
- it would be useful to redirect users to a page explaining:
 - why an authentication service is required
 - how to get access credentials

Different license for data set & service metadata

- For the same data set, there is an inconsistency between the license reported in the data set and in the service metadata:

Conditions Applying To Access And Use

No conditions apply

Limitations On Public Access

Ingen restriktioner

Geographic Bounding Box



Conditions Applying To Access And Use

Energistyrelsens vilkår for brug af frie geografiske data Generel information: Energistyrelsen har de immaterielle rettigheder til de frie geografiske data, og giver på nedenstående vilkår for brugsret til data.

Vilkårene accepteres ved enhver brug af data.

Vilkårene reguleres af dansk ret. Brugsret:

Energistyrelsen giver en gratis, ikke-eksklusiv og ubegrænset brugsret til data, som bl.a. kan: - Kopieres, distribueres og offentliggøres - Ændres og sammensættes med andet materiale - Bruges

kommercielt og ikke-kommercielt Vilkår: Data må ikke bruges på en måde, så det kan fremstå som om at Energistyrelsen godkender, støtter, anbefaler eller markedsfører brugerden, brugerens produkter eller tjenester. Det skal sikres, at brug af data er i overensstemmelse med dansk ret. Kildeangivelse: Energistyrelsen håndhæver sin ophavsret. Når data

Third-party contacts not reachable

- The contact e-mail provided has issues, e.g.:
 - the e-mail address does not exist
 - e-mails sent to this addressed are bounced
 - etc.

Responsible Party

Organisation name Energistyrelsen

E-mail energidata@ens.dk

Metadata Point Of Contact

Organisation name Energistyrelsen

E-mail energidata@ens.dk

Multiple data sets for a single service

- To make use of a view service in a GIS client, a user needs:
 - the service endpoint

Resource Title

Υπηρεσία απεικόνισης

Resource Abstract

Υπηρεσία απεικόνισης του Υπουργείου Περιβάλλοντος και Ενέργειας, συμβατή με τις προδιαγραφές που εκδίδονται σε εφαρμογή της Οδηγίας 2007/2/EK (INSPIRE).

Conditions Applying To Access And Use

no conditions apply

Limitations On Public Access

no conditions apply

Resource Locator

[http://geoportal.yopen.gr/geoserver
/ows?request=GetCapabilities&service=WMS&
version=1.3.0](http://geoportal.yopen.gr/geoserver/ows?request=GetCapabilities&service=WMS&version=1.3.0)

- the data set name

 Όρια πολυγώνων Natura 2000

[Download Options ▾](#)

[View Options ▾](#)

Search..

Simple Viewer

Layer title

Layer name

CRS

Desktop Tool 

Service metadata

[Preview Data Set](#)



Όρια πολυγώνων Natura 2000

ypenservices:PS.ProtectedSitesNatura2000_EL

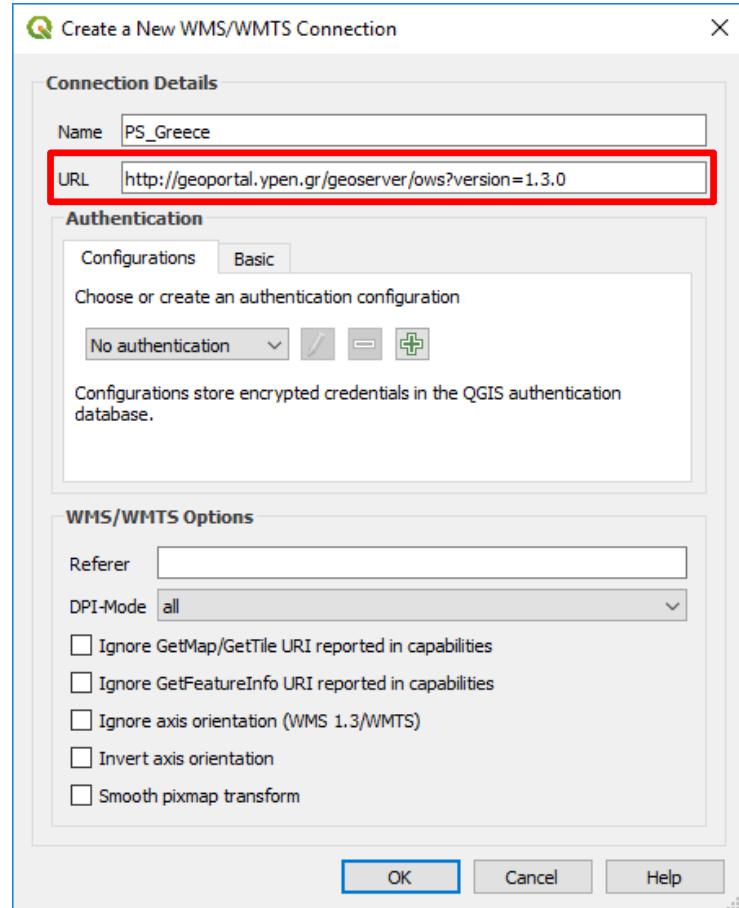
EPSG:3857

[Google Earth](#)



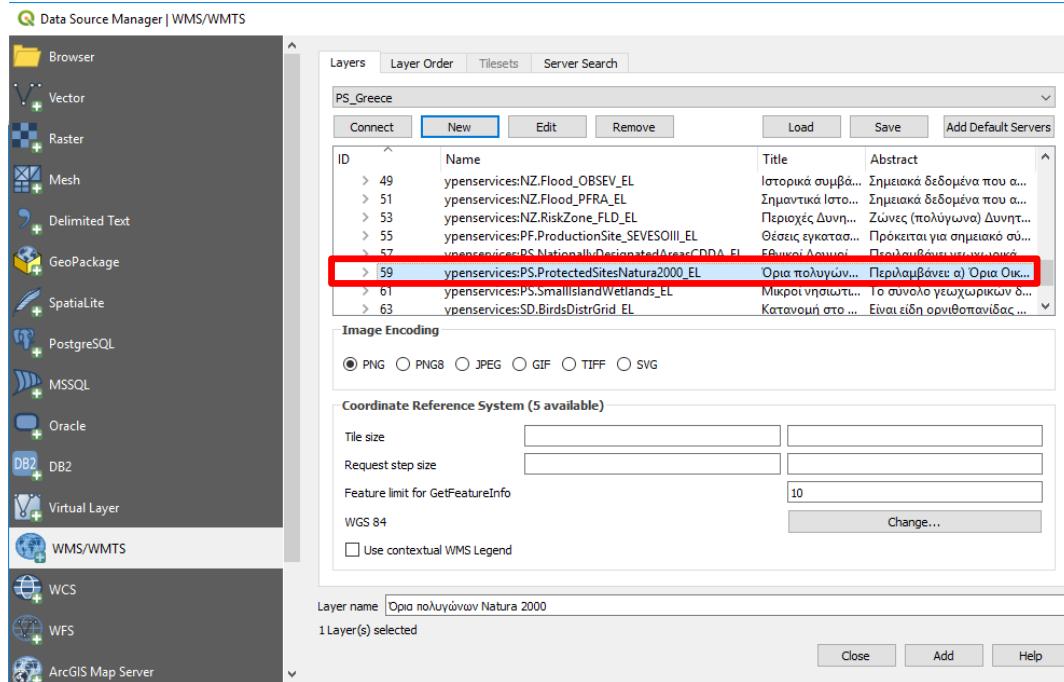
Multiple data sets for a single service

- To make use of the view service in a GIS client (e.g. QGIS), a user needs:
 - to connect to the service (here WMS)

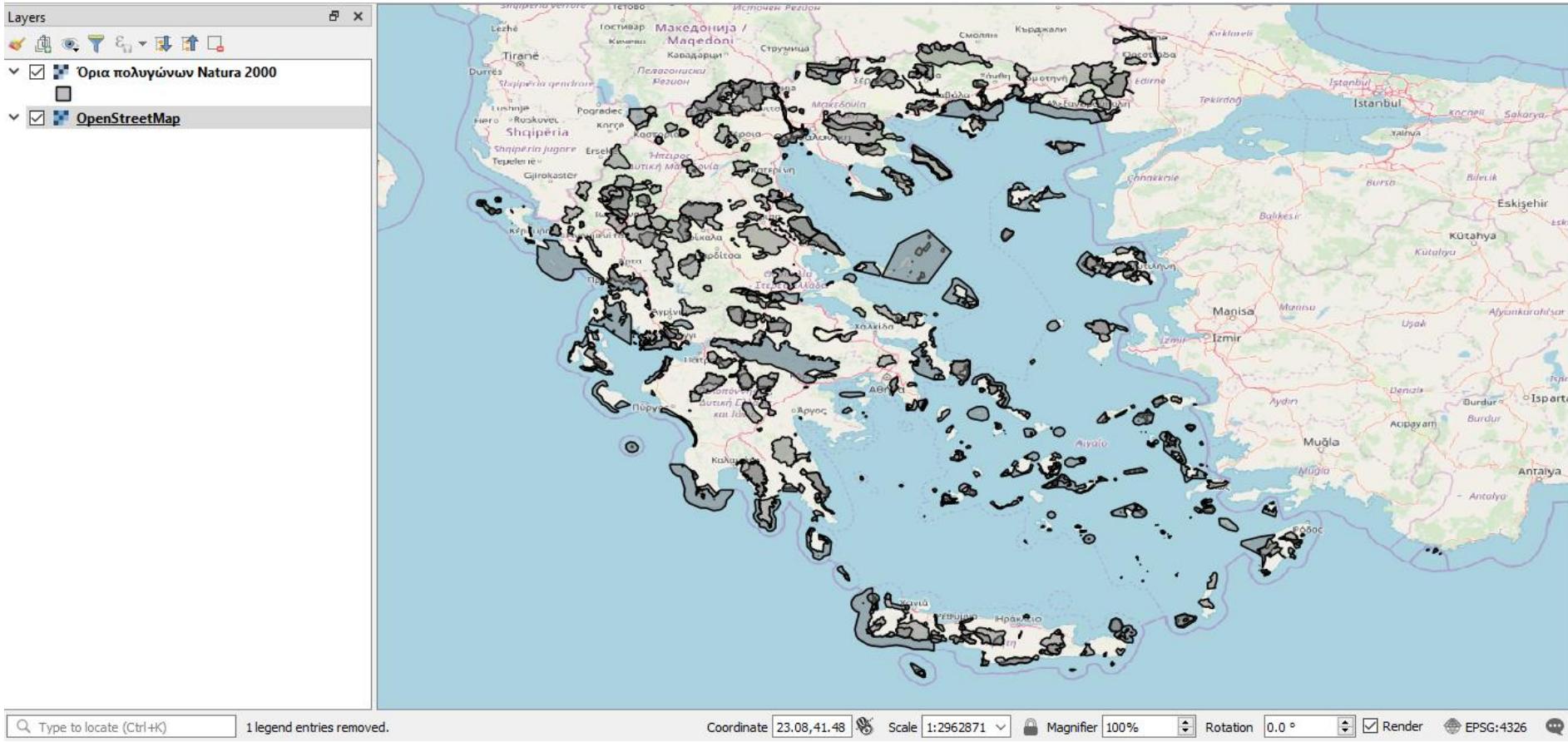


Multiple data sets for a single service

- To make use of the view service in a GIS client (e.g. QGIS), a user needs:
 - to manually look for the data set of interest in the list
 - hard if the available data sets are many (e.g. hundreds)



Multiple data sets for a single service



Future (planned) improvements for users

- INSPIRE Analytics:
 - will substitute the current [Resource Browser](#)
 - metadata [search](#) (full-text in all languages & geographical)
 - packed [download](#) of search results
 - based on an [open API](#)
- Metadata [translation](#), at least in English
- Geoportal resources indexable by [search engines](#)
- Availability of [monitoring](#) information
- (Presence of a [WebGIS](#) showing user-selected data sets)
- (Layer style selector for View Services)

Survey – Section 4: feedback and suggestions

https://ec.europa.eu/eusurvey/runner/FOSS4G-IT_workshop



Thank you!

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@MarcoMinghini



Stay in touch



EU Science Hub: ec.europa.eu/jrc



Twitter: [@EU_ScienceHub](https://twitter.com/EU_ScienceHub)



Facebook: [EU Science Hub - Joint Research Centre](https://www.facebook.com/EU.ScienceHub)



LinkedIn: [Joint Research Centre](https://www.linkedin.com/company/joint-research-centre/)



YouTube: [EU Science Hub](https://www.youtube.com/user/EU.ScienceHub)