



ICES – Web services & Data services Hands-on

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FixO3 Network – Workshop
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Exercises

- a) Download shapefile of CB153 from ICES Data portal and view it in Quantum GIS.
- b) Connect to wms of the spatial facility and view the ICES areas in QGIS.
- c) Use the ICES Data portal webservises to see in which ICES Area is falls the point (Latitude=57,Longitude=1)
- d) Download data from DOME views and convert from Dry weight to wet weight using Excel.
- e) Download data from OCEAN and grid it using ODV.
- f) Download the stock of Haddock in Division Vb last year and make a chart of Landings (with R or Excel)
- g) Download data from DATRAS and visualize using WEKA.
- h) Download data from EggsAndLarvae, make a database either in MySQL or in MS Access and check what is the most common species and what is the year with most data?

Download a file

Search for CB153 in the Data portal inventory

ICES DATA PORTAL

Hold down shift key and left click mouse to draw a rectangle



Spatial range (decimal degrees, west and south are negative)

West Lon:

South Lat:

North Lat:

East Lon:

Start Date: End Date:

dd/mm/yyyy dd/mm/yyyy

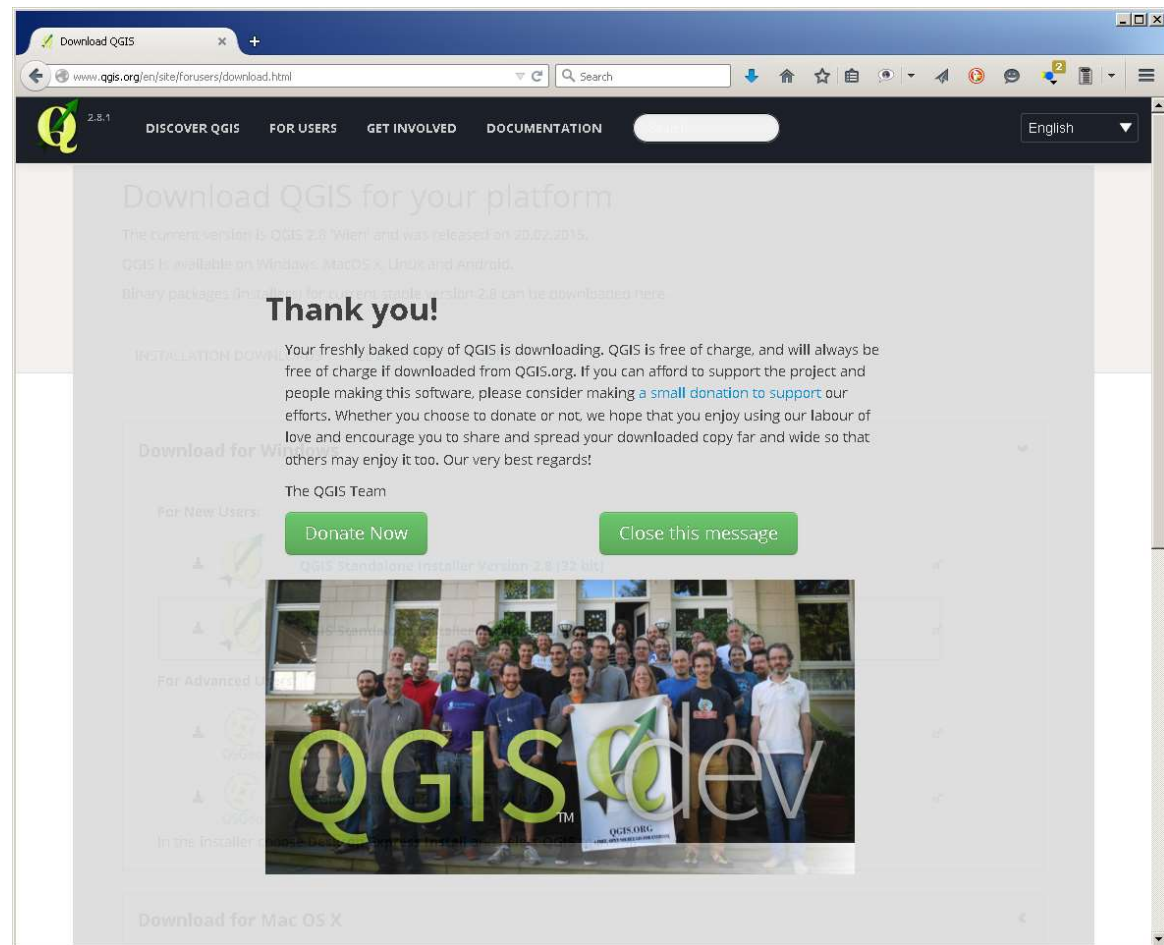
[Update summaries](#) [Reset](#)

Filter for: [Search](#) [Reset](#)

Dataset set (0)		Data Type (0)		Matrix (0)		Parameter group (0)		Parameter (3)		Kingdom (0)		Phylum (0)		Class (0)			
Order (0)	Family (0)	Genus (0)	Species (0)	ICES Areas (0)	OSPAR Regions (0)	HELCOM Sub basins (0)											
				Chlorobiphenyls	2 2' 4 4' 5 5'-hexachlorobiphenyl (CB153)									Measurements	First year	Last year	Years with data
				Chlorobiphenyls	sum of CBs.- Sum of (CB28 CB52 CB101 CB118 CB138 CB153 CB180)									43 932	1979	2013	35
				Chlorobiphenyls	sum of CBs.- Sum of (CB28 CB52 CB101 CB138 CB153 CB180)									1 683	1984	2010	18
				Chlorobiphenyls	sum of CBs.- Sum of (CB28 CB52 CB101 CB138 CB153 CB180)									46	1983	1998	2

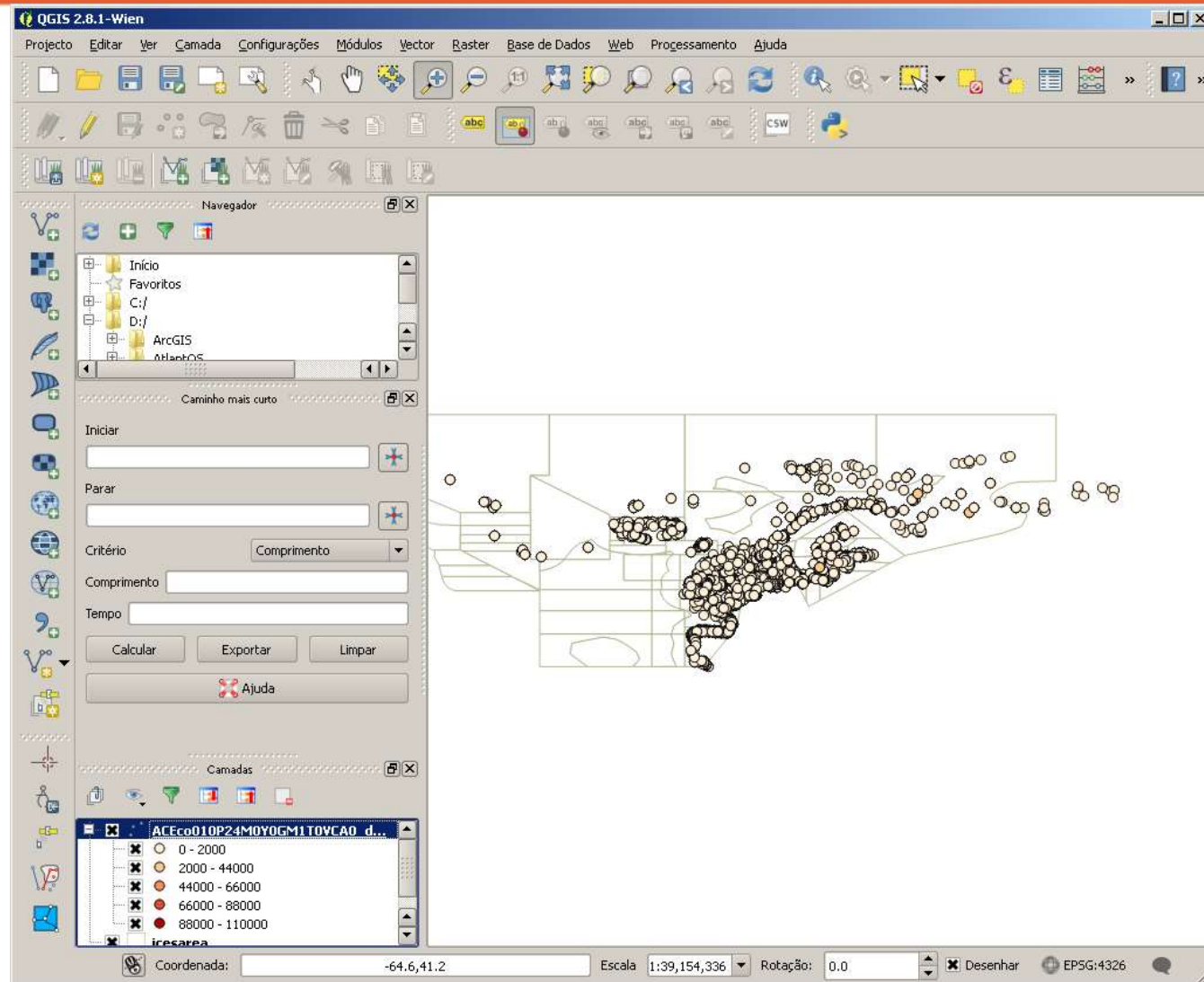
<http://ecosystemdata.ices.dk/Map/index.aspx?Action=AddLayer&Param=24>

Download a QGIS

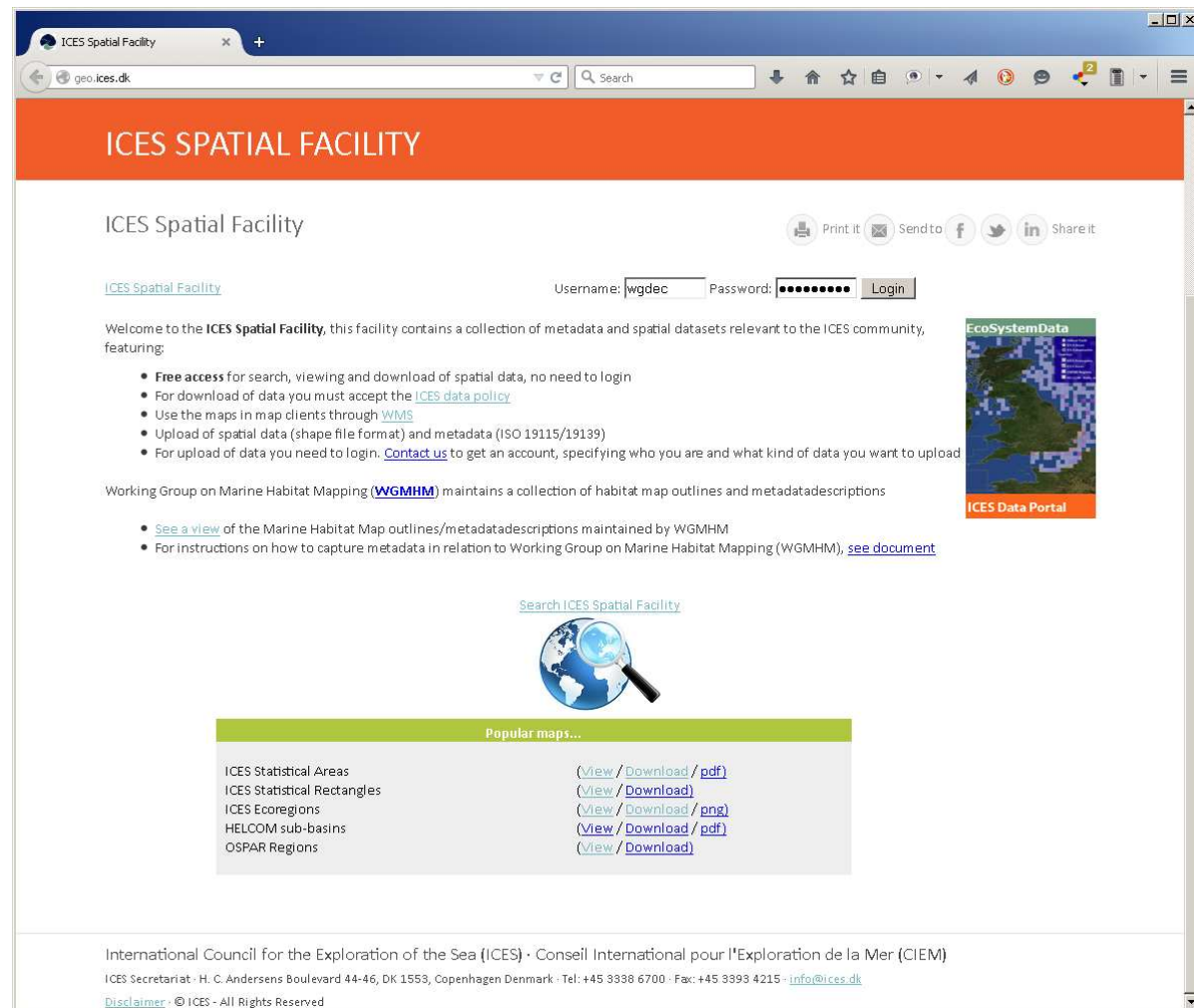


<http://www.qgis.org>

View and classify the values of layer in 5 classes

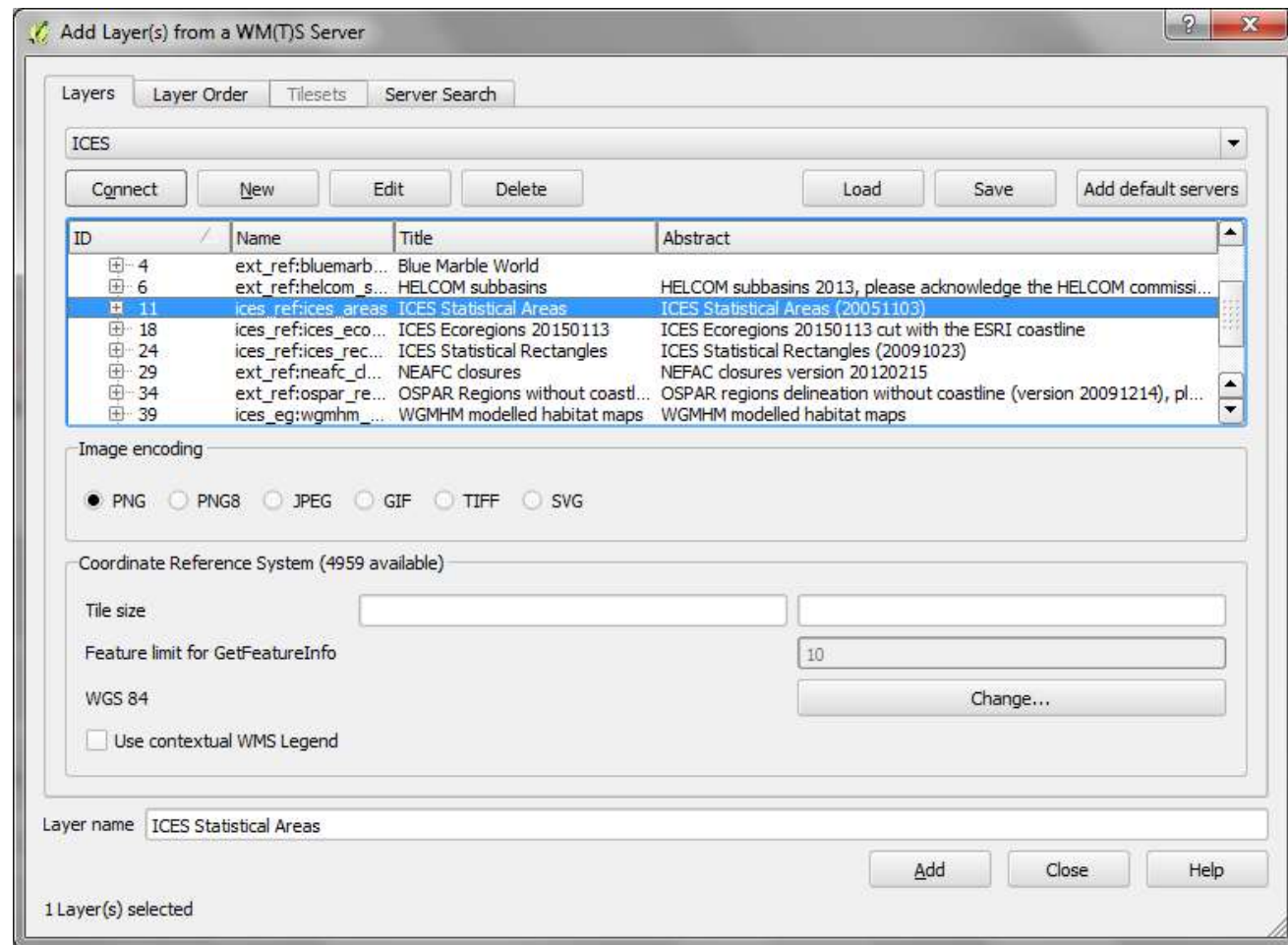


Show the ICES Areas in Quantum GIS

A screenshot of the ICES Spatial Facility website in a web browser. The browser's address bar shows "geo.ices.dk". The website has an orange header with the text "ICES SPATIAL FACILITY". Below the header, there's a login section with fields for "Username" (containing "wgdec") and "Password" (masked with dots), and a "Login" button. To the right of the login fields are social media sharing icons for Print, Email, Facebook, Twitter, and LinkedIn. Below the login section, a welcome message states: "Welcome to the ICES Spatial Facility, this facility contains a collection of metadata and spatial datasets relevant to the ICES community, featuring:". This is followed by a bulleted list of features: "Free access for search, viewing and download of spatial data, no need to login", "For download of data you must accept the ICES data policy", "Use the maps in map clients through WMS", "Upload of spatial data (shape file format) and metadata (ISO 19115/19139)", and "For upload of data you need to login. Contact us to get an account, specifying who you are and what kind of data you want to upload". Below the list, it mentions the "Working Group on Marine Habitat Mapping (WGMHM)" and provides links to "See a view" and "see document". A search bar with a magnifying glass icon is labeled "Search ICES Spatial Facility". Below this is a section titled "Popular maps..." with a list of map types and their corresponding download links: "ICES Statistical Areas" (View / Download / pdf), "ICES Statistical Rectangles" (View / Download), "ICES Ecoregions" (View / Download / png), "HELCOM sub-basins" (View / Download / pdf), and "OSPAR Regions" (View / Download). On the right side of the page, there's a small thumbnail image of a map labeled "EcoSystemData" and "ICES Data Portal". The footer contains the full name of the organization, "International Council for the Exploration of the Sea (ICES) · Conseil International pour l'Exploration de la Mer (CIEM)", its address, contact information, and a disclaimer.

<http://geo.ices.dk/>

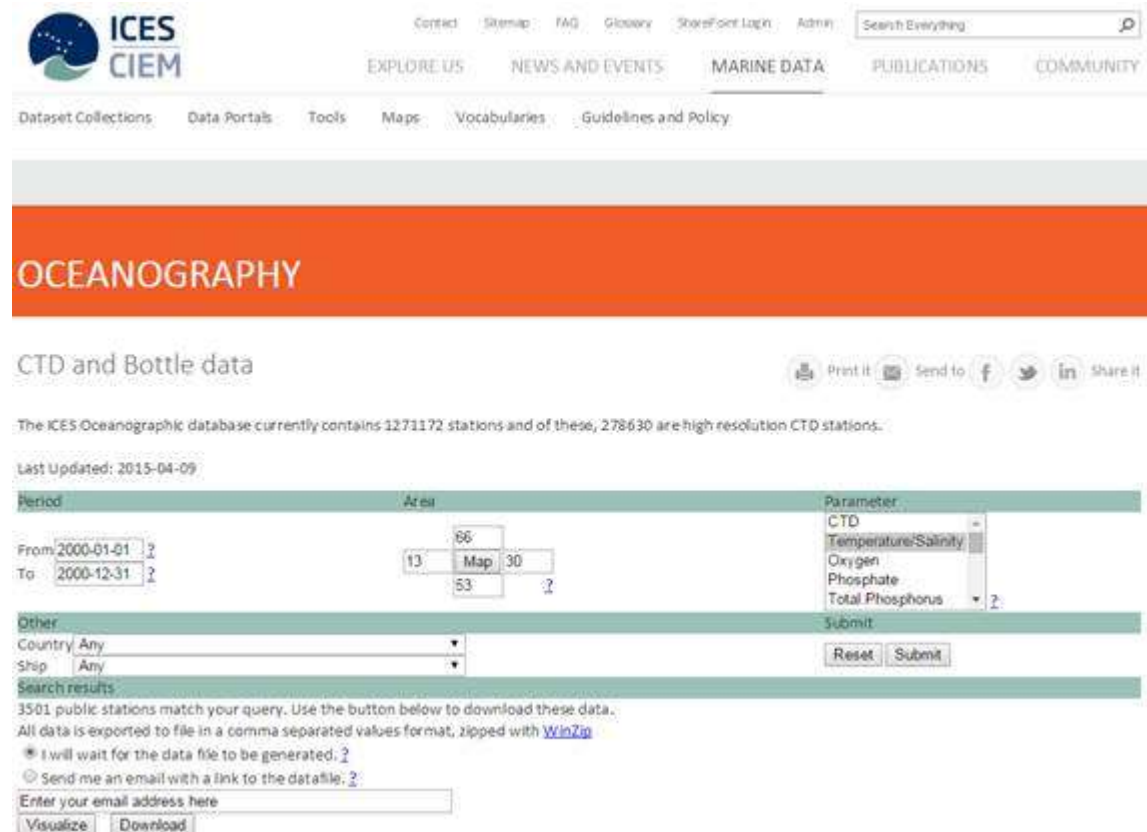
Show the ICES Areas in Quantum GIS



<http://geo.ices.dk/>

Go to Ocean website of ICES

<http://ocean.ices.dk/hydchem/hydchem.aspx>



The screenshot shows the ICES CIEM Oceanography website. The header includes the ICES CIEM logo, navigation links (Contact, Sitemap, FAQ, Glossary, SharePoint Login, Admin), a search bar, and main menu items (EXPLORE US, NEWS AND EVENTS, MARINE DATA, PUBLICATIONS, COMMUNITY). A secondary menu lists Dataset Collections, Data Portals, Tools, Maps, Vocabularies, and Guidelines and Policy. The main content area is titled "OCEANOGRAPHY" and "CTD and Bottle data". It includes a text description of the database, a "Last Updated" date, and a search form with fields for Period (From/To), Area (Map), Parameter (CTD, Temperature/Salinity, Oxygen, Phosphate, Total Phosphorus), and Other (Country, Ship). The search results section shows 3501 public stations matching the query and provides options to download the data or receive an email notification.

ICES
CIEM

Contact Sitemap FAQ Glossary SharePoint Login Admin Search Everything

EXPLORE US NEWS AND EVENTS MARINE DATA PUBLICATIONS COMMUNITY

Dataset Collections Data Portals Tools Maps Vocabularies Guidelines and Policy

OCEANOGRAPHY

CTD and Bottle data

The ICES Oceanographic database currently contains 1271172 stations and of these, 278630 are high resolution CTD stations.

Last Updated: 2015-04-09

Period Area Parameter

From: 2000-01-01 To: 2000-12-31

Map

Parameter: CTD, Temperature/Salinity, Oxygen, Phosphate, Total Phosphorus

Other: Country, Ship

Submit

Reset Submit

Search results

3501 public stations match your query. Use the button below to download these data.

All data is exported to file in a comma separated values format, zipped with WinZip

☒ I will wait for the data file to be generated.

☐ Send me an email with a link to the datafile.

Enter your email address here

Visualize Download

OCEAN Webiste

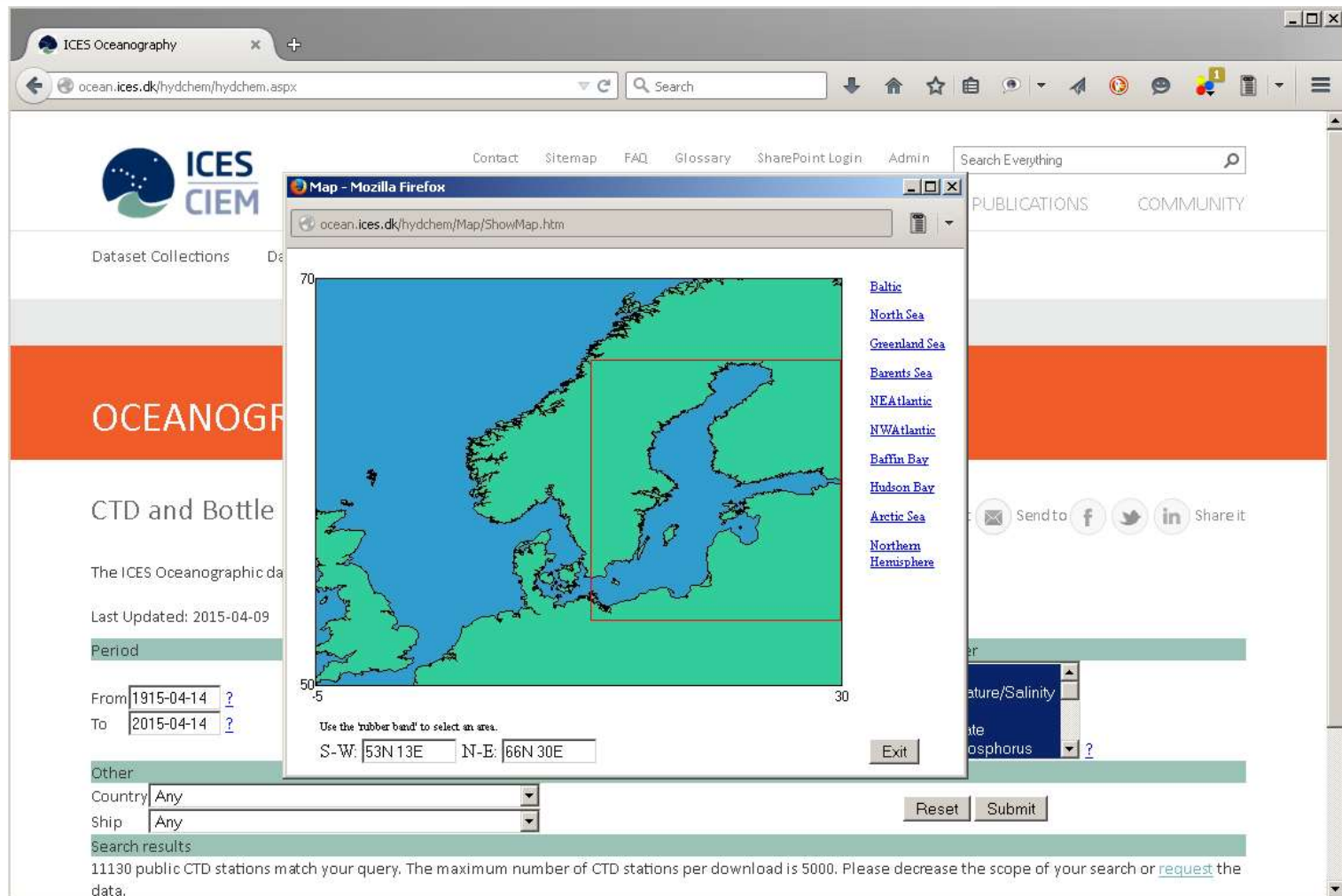


Download and install ODV from <http://odv.awi.de>



Download ODV

Download the Baltic data for one year (e.g. 2010)



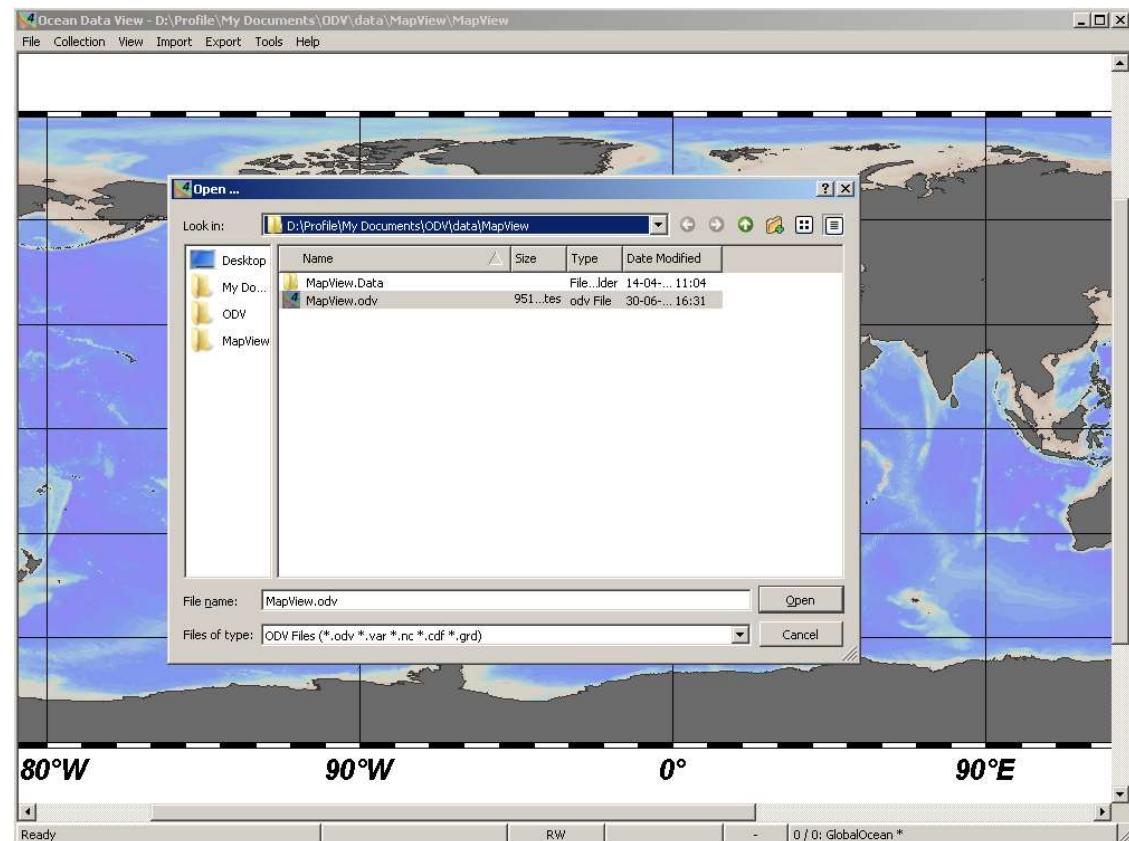
The screenshot shows the ICES Oceanography website interface. The main navigation bar includes links for Contact, Sitemap, FAQ, Glossary, SharePoint Login, and Admin. A search bar is located on the right. The left sidebar displays the ICES CIEM logo and a section titled "Dataset Collections" with a sub-section "OCEANOGRAPHY". Below this, there is a section for "CTD and Bottle" data, last updated on 2015-04-09. The main content area features a map of the North Atlantic and Arctic regions, with a red box highlighting the Baltic Sea. A list of regions is provided on the right: Baltic, North Sea, Greenland Sea, Barents Sea, NE Atlantic, NW Atlantic, Baffin Bay, Hudson Bay, Arctic Sea, and Northern Hemisphere. The map interface includes a "Use the 'rubber band' to select an area." instruction and input fields for S-W (53N 13E) and N-E (66N 30E). Below the map, there are "Reset" and "Submit" buttons. The bottom section shows search results: "11130 public CTD stations match your query. The maximum number of CTD stations per download is 5000. Please decrease the scope of your search or [request](#) the data."

Import the downloaded dataset into ODV

Notes:

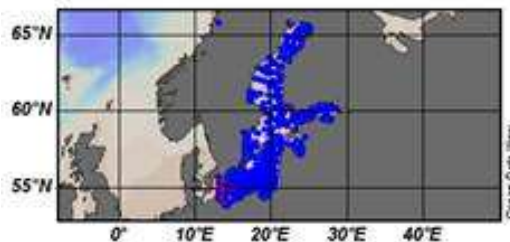
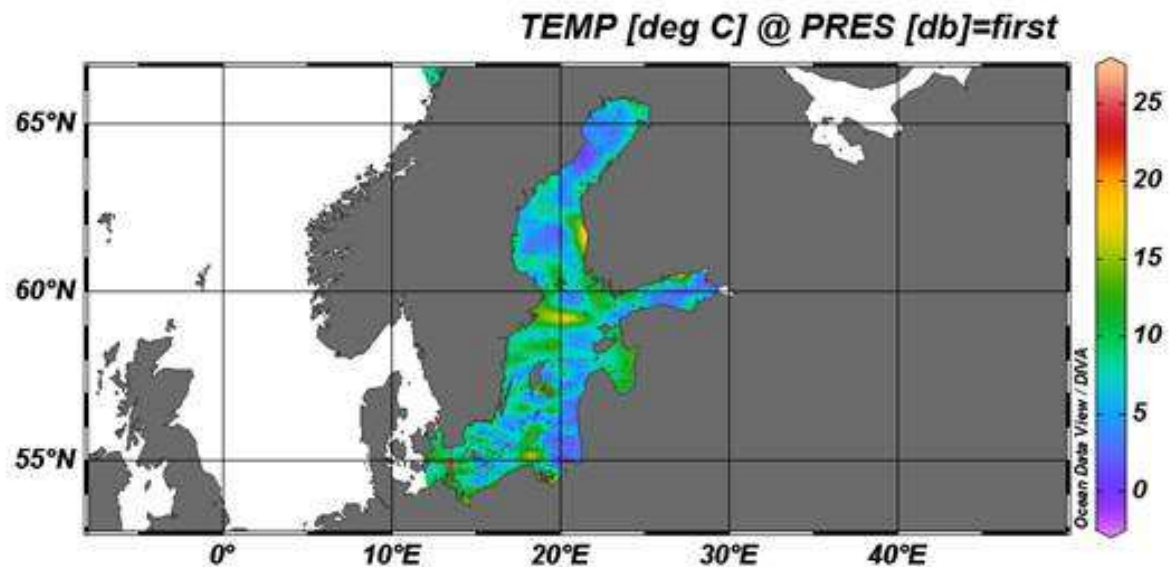
Import/ODV Spreadsheet

Choose comma separated instead of tab



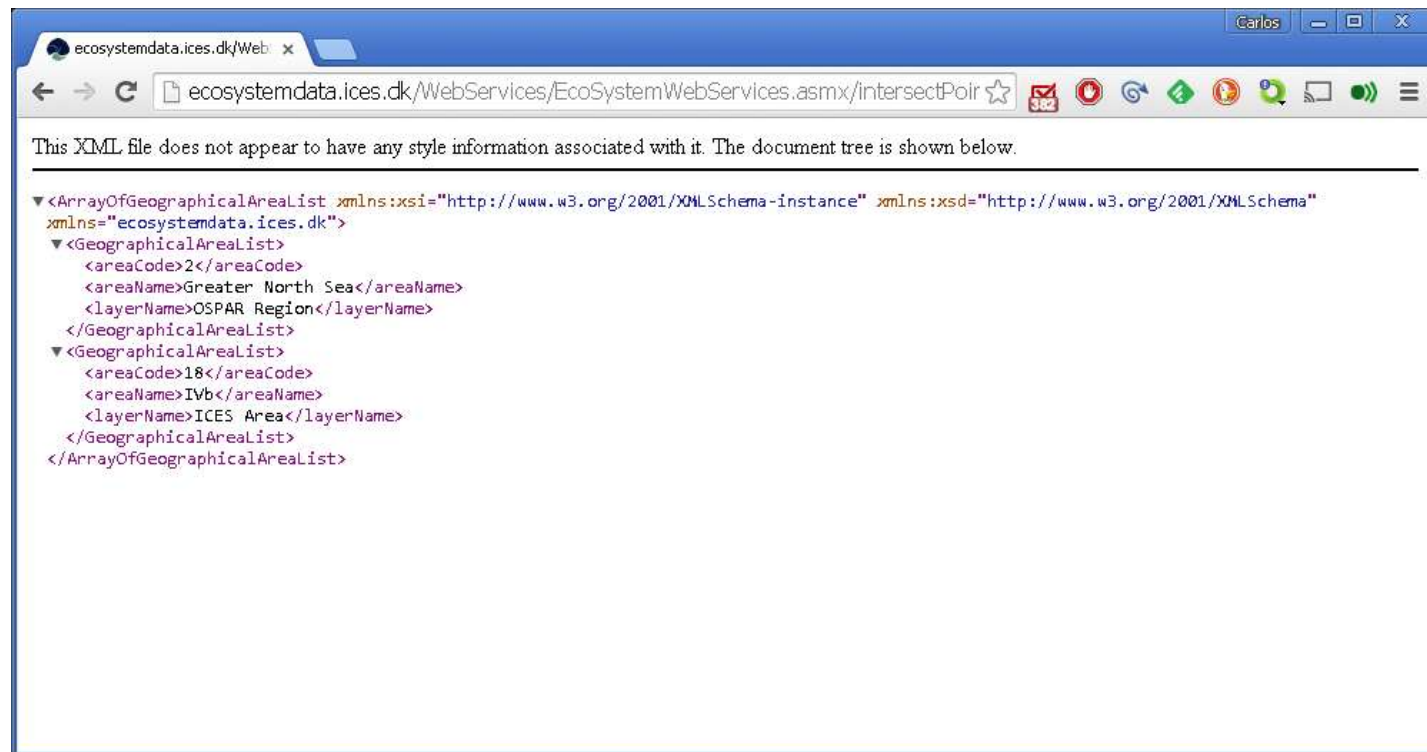
Create a grid map

- View/Layout Templates/1 Surface Map
- Surface Map/Properties/Display Style/Gridded field/DIVA Gridding



ICES Data portal Web services

Use the ICES Data portal webservices to see in which ICES Area is falls the point (Latitude=57,Longitude=1)



```
<ArrayOfGeographicalAreaList xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns="ecosystemdata.ices.dk">
  <GeographicalAreaList>
    <areaCode>2</areaCode>
    <areaName>Greater North Sea</areaName>
    <layerName>OSPAR Region</layerName>
  </GeographicalAreaList>
  <GeographicalAreaList>
    <areaCode>18</areaCode>
    <areaName>IVb</areaName>
    <layerName>ICES Area</layerName>
  </GeographicalAreaList>
</ArrayOfGeographicalAreaList>
```

ICES Data portal Web services

Download the data from 200 for metals in great north sea

<http://dome.ices.dk/>

Contaminants and biological effects of contaminants in biota

Temporal and spatial trend data for monitoring the environmental quality. For example OSPAR, HELCOM, AMAP and ICES working groups.

-Please note that downloaded data may include additional related measurements, e.g. length, weight, age, dry weight percent, lipid weight percent.

Year:

Beginning End

[Proceed to download the data](#) [Reset search](#)

Biota	Sediment	Seawater	Diseases
Reporting Laboratory	Analytical Laboratory	Parameter Group	Measurements
ICNF	ICNF	Metals and metalloids	2405
BFCG	BFRG	Metals and metalloids	125
BODC	BLUK	Metals and metalloids	1798
BODC	MAFL	Metals and metalloids	3115
LNUG	LVUG	Metals and metalloids	72
NIVA	NIVA	Metals and metalloids	23478
NLKG	NOWG	Metals and metalloids	88
SERI	NLS	Metals and metalloids	3446

ICES Data portal Web services

Filter the data for species “*Gadus morhua*”, Matrix “Liver” and Parameters “Mercury and DRYWT %”

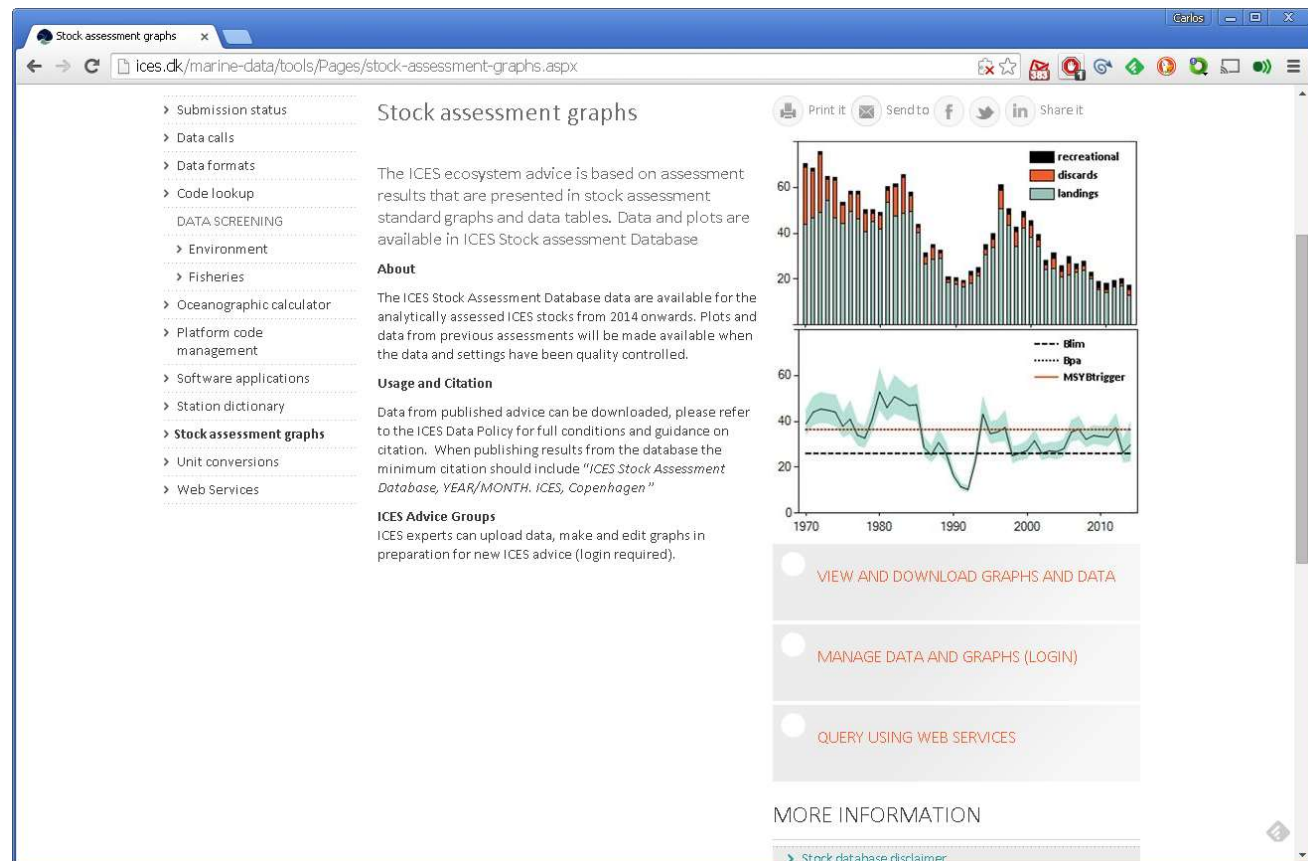
MPROG	PURPM	Country	LABO	STATN	MYEAR	DATE	Latitude	Longitude	Species	SEXC	NOINP	MATRIX	NODIS	PARGROUP	PARAM	BASIS	QFLAG	Value	MUNIT
JMP**WGA	T**H	Belgium	MUMM		2001	18/09/2001	51.33333333	2.83333333	Gadus morhua			5 LI		I-MET	CD	W		22 ug/kg	
JMP**WGA	T**H	Belgium	MUMM		2001	18/09/2001	51.33333333	2.83333333	Gadus morhua			5 LI		I-MET	CD	W		3 ug/kg	
JMP**WGA	T**H	Belgium	MUMM		2001	18/09/2001	51.33333333	2.83333333	Gadus morhua			5 LI		I-MET	CD	W		16 ug/kg	
JMP**WGA	T**H	Belgium	MUMM		2001	18/09/2001	51.33333333	2.83333333	Gadus morhua			5 LI		I-MET	CD	W	<	2 ug/kg	
JMP**WGA	T**H	Belgium	MUMM		2001	18/09/2001	51.33333333	2.83333333	Gadus morhua			5 LI		I-MET	CD	W		7 ug/kg	
JMP	T	Belgium	MUMM	BCP	2002	22/10/2002	51.33333333	2.83333333	Gadus morhua			5 LI		I-MET	CD	W		0.096 ug/g	
JMP	T	Belgium	MUMM	BCP	2002	22/10/2002	51.33333333	2.83333333	Gadus morhua			5 LI		I-MET	CD	W		0.148 ug/g	
JMP	T	Belgium	MUMM	BCP	2002	22/10/2002	51.33333333	2.83333333	Gadus morhua			5 LI		I-MET	CD	W		0.066 ug/g	
JMP	T	Belgium	MUMM	BCP	2002	22/10/2002	51.33333333	2.83333333	Gadus morhua			5 LI		I-MET	CD	W		0.082 ug/g	
JMP	T	Belgium	MUMM	BCP	2002	22/10/2002	51.33333333	2.83333333	Gadus morhua			4 LI		I-MET	CD	W		0.105 ug/g	
JMP**WGA	T**H	Belgium	MUMM		2000	05/10/2000	51.33333333	2.83333333	Gadus morhua			5 LI		I-MET	CD	W	D	6 ug/kg	
JMP**WGA	T**H	Belgium	MUMM		2000	05/10/2000	51.33333333	2.83333333	Gadus morhua			5 LI		I-MET	CD	W	D	14 ug/kg	
JMP**WGA	T**H	Belgium	MUMM		2000	05/10/2000	51.33333333	2.83333333	Gadus morhua			5 LI		I-MET	CD	W		35 ug/kg	
JMP**WGA	T**H	Belgium	MUMM		2000	05/10/2000	51.33333333	2.83333333	Gadus morhua			5 LI		I-MET	CD	W	D	10 ug/kg	
JMP**WGA	T**H	Belgium	MUMM		2000	05/10/2000	51.33333333	2.83333333	Gadus morhua			5 LI		I-MET	CD	W	D	15 ug/kg	
CEMP**COMB	T	Sweden	SERI	E/W FLADEN	2000	03/10/2000	57.2247	11.828	Gadus morhua	F		1 LI		I-MET	CD	D		160 ug/kg	
CEMP**COMB	T	Sweden	SERI	E/W FLADEN	2000	03/10/2000	57.2247	11.828	Gadus morhua	M		1 LI		I-MET	CD	D		70 ug/kg	
CEMP**COMB	T	Sweden	SERI	E/W FLADEN	2000	03/10/2000	57.2247	11.828	Gadus morhua	M		1 LI		I-MET	CD	D		160 ug/kg	
CEMP**COMB	T	Sweden	SERI	E/W FLADEN	2000	03/10/2000	57.2247	11.828	Gadus morhua	F		1 LI		I-MET	CD	D		100 ug/kg	
CEMP**COMB	T	Sweden	SERI	E/W FLADEN	2000	03/10/2000	57.2247	11.828	Gadus morhua	M		1 LI		I-MET	CD	D		270 ug/kg	
CEMP**COMB	T	Sweden	SERI	E/W FLADEN	2000	03/10/2000	57.2247	11.828	Gadus morhua	M		1 LI		I-MET	CD	D		90 ug/kg	
CEMP**COMB	T	Sweden	SERI	E/W FLADEN	2000	03/10/2000	57.2247	11.828	Gadus morhua	F		1 LI		I-MET	CD	D		180 ug/kg	
CEMP**COMB	T	Sweden	SERI	E/W FLADEN	2000	03/10/2000	57.2247	11.828	Gadus morhua	F		1 LI		I-MET	CD	D		250 ug/kg	

[illegible]

Stock assessment graphs

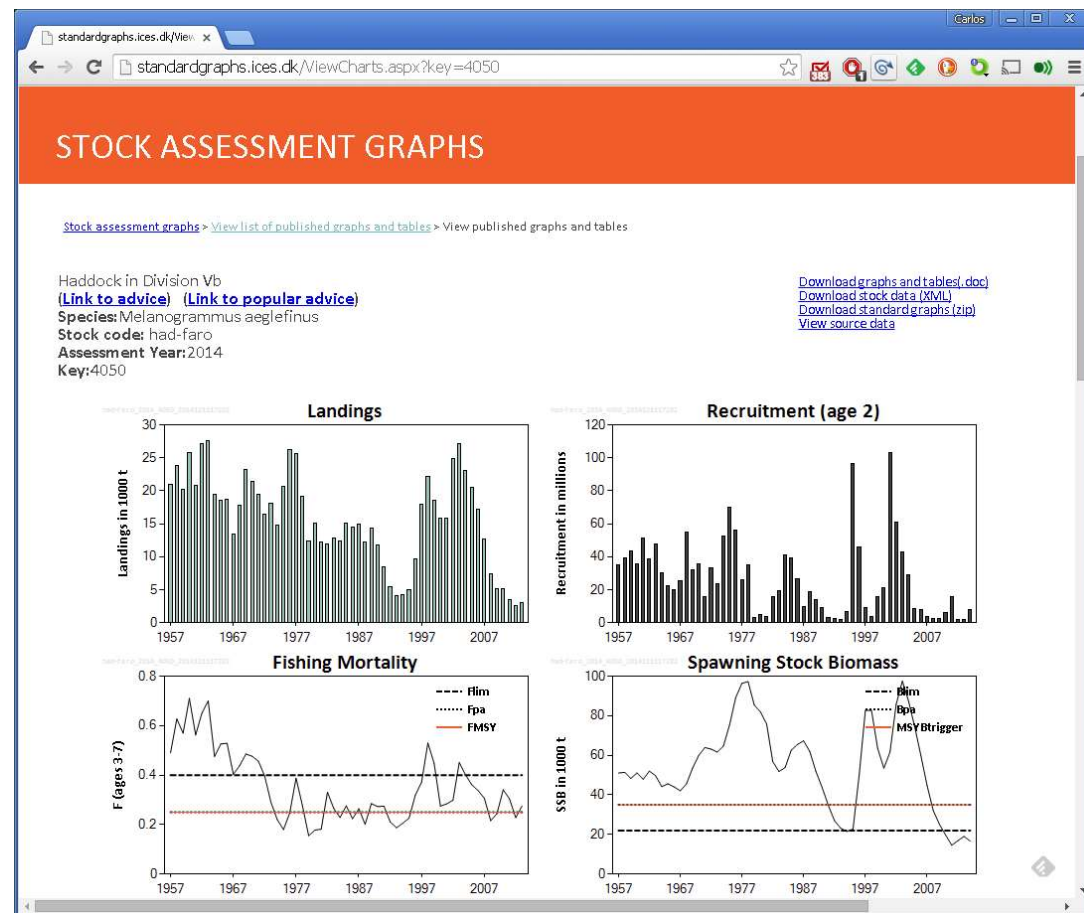
Go to the stock assessment graphs

<http://standardgraphs.ices.dk/>



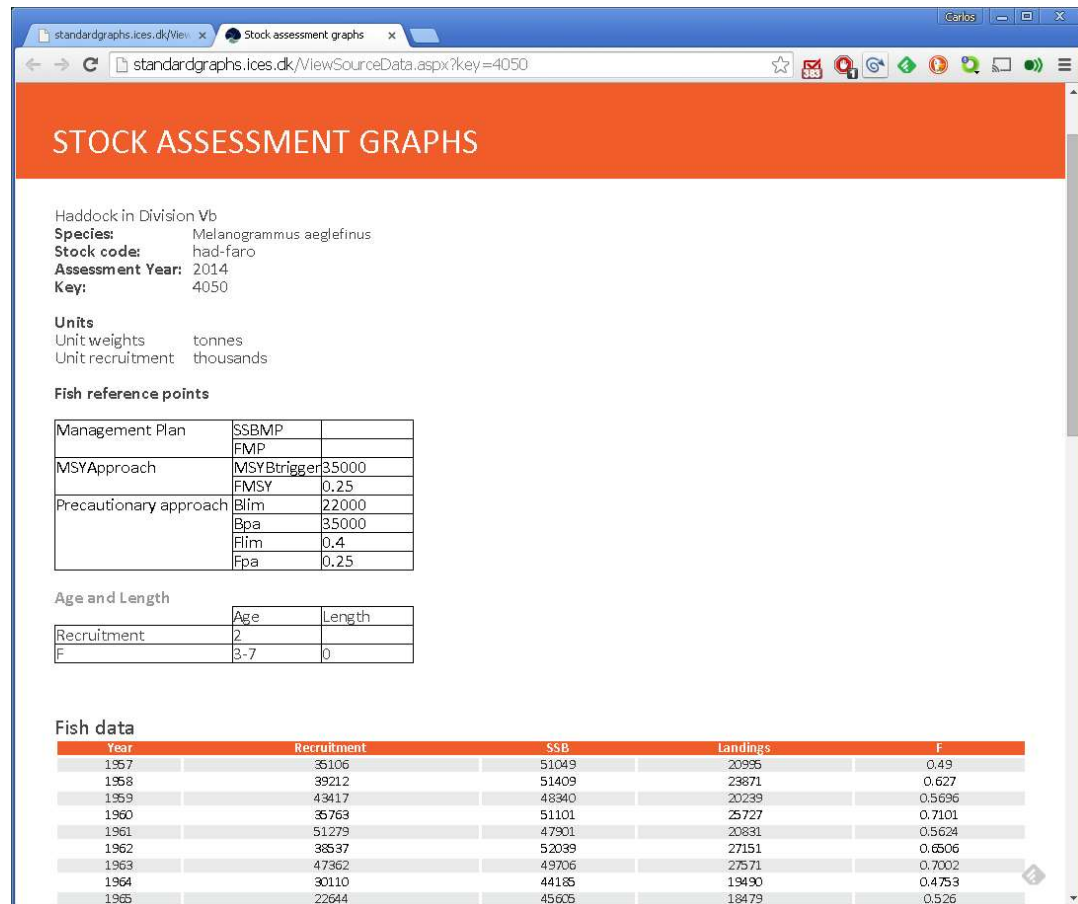
Stock assessment graphs

Find the stock “had-faro” for 2014



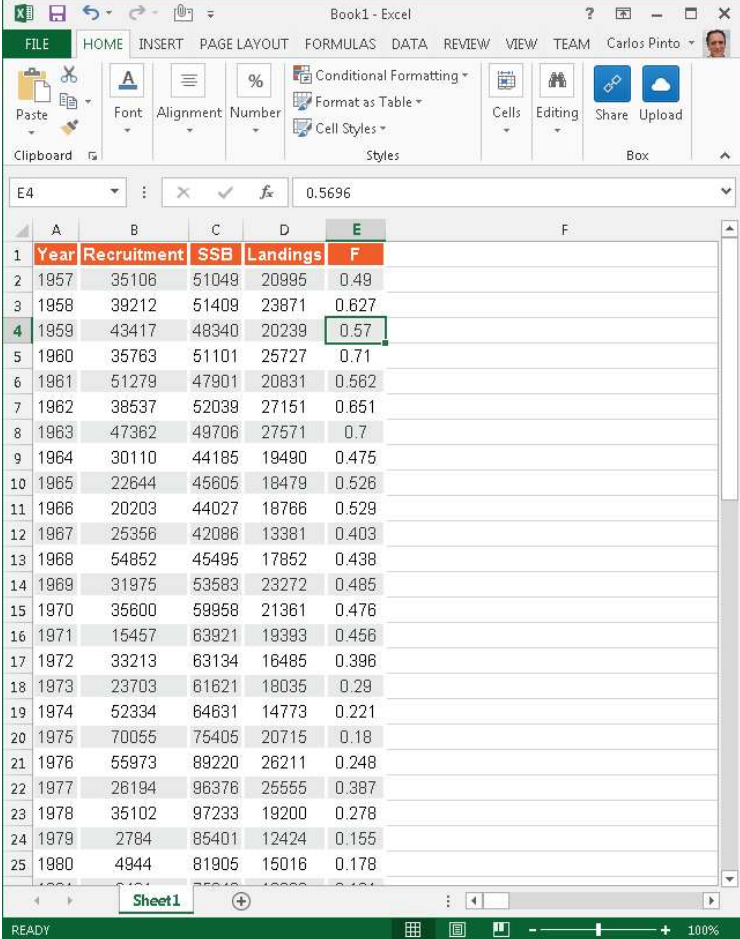
Stock assessment graphs

Click on view source



Stock assessment graphs

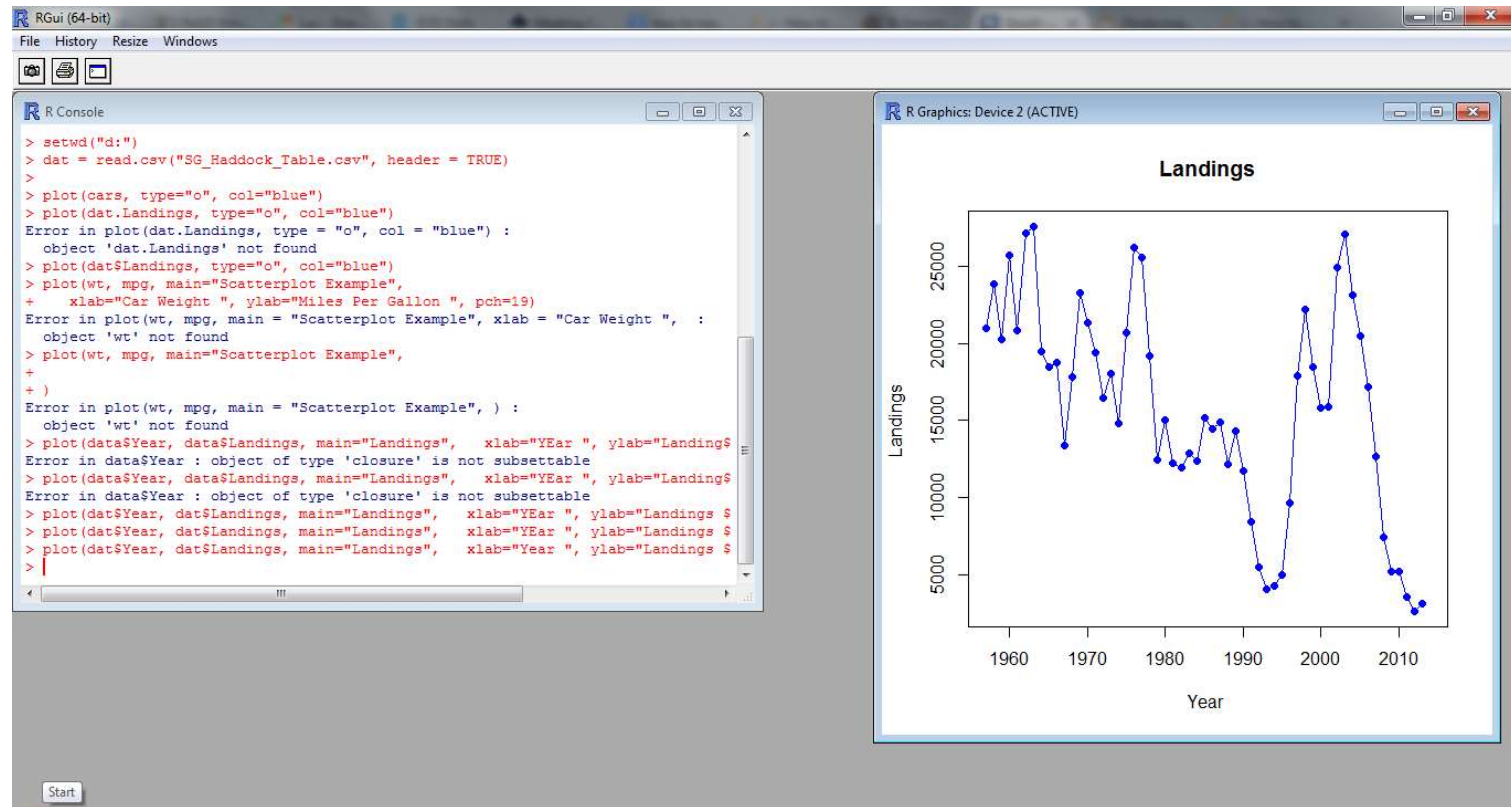
Copy the table to excel and save it has csv



Year	Recruitment	SSB	Landings	F
1957	35106	51049	20995	0.49
1958	39212	51408	23871	0.627
1959	43417	48340	20239	0.57
1960	35763	51101	25727	0.71
1961	51279	47901	20831	0.562
1962	38537	52039	27151	0.651
1963	47362	49706	27571	0.7
1964	30110	44185	19490	0.475
1965	22644	45605	18479	0.526
1966	20203	44027	18766	0.529
1967	25356	42086	13381	0.403
1968	54852	45495	17852	0.438
1969	31975	53583	23272	0.485
1970	35600	59958	21361	0.476
1971	15457	63921	19393	0.456
1972	33213	63134	16485	0.396
1973	23703	61621	18035	0.29
1974	52334	64631	14773	0.221
1975	70055	75405	20715	0.18
1976	55973	89220	26211	0.248
1977	26194	96376	25555	0.387
1978	35102	97233	19200	0.278
1979	2784	85401	12424	0.155
1980	4944	81905	15016	0.178

Stock assessment graphs

Make the graph



Download DATRAS Data

Download all BITS data for Gadus morhua in the CPUE length per area

Download

[If you have problems with downloading, click here](#)

Data products		Survey		Quarter(s)	
CPUE per length per area		BITS		☒ All ☒ 1 ☒ 2 ☒ 3 ☒ 4	
Year(s)					
☒ All	☒ 1991	☒ 1992	☒ 1993	☒ 1994	☒ 1995
☒ 1996	☒ 1997	☒ 1998	☒ 1999	☒ 2000	☒ 2001
☒ 2002	☒ 2003	☒ 2004	☒ 2005	☒ 2006	☒ 2007
☒ 2008	☒ 2009	☒ 2010	☒ 2011	☒ 2012	☒ 2013
☒ 2014	☒ 2015				
<i>Only preliminary data for the latest year and quarter</i>					
Area(s) click to see area details					
☒ All	☒ 21	☒ 22	☒ 23	☒ 24	☒ 25
☒ 26	☒ 27	☒ 28	☒ 29		
Species					
☒ Standard species ☐ All species					
☐ All ☐ Platichthys flesus ☐ Pleuronectes platessa					
☒ Gadus morhua					

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USEFUL LINKS

- [Reporting Format](#)
- [Data Submission Deadlines 2014](#)
- [Submission status](#)

https://datras.ices.dk/Data_products/Download/Download_Data_public.aspx

View DATRAS data in WEKA

Download WEKA



Machine Learning Group at the University of Waikato

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Weka 3: Data Mining Software in Java

Weka is a collection of machine learning algorithms for data mining tasks. The algorithms can either be applied directly to a dataset or called from your own Java code. Weka contains tools for data pre-processing, classification, regression, clustering, association rules, and visualization. It is also well-suited for developing new machine learning schemes.

Found only on the islands of New Zealand, the Weka is a flightless bird with an inquisitive nature. The name is pronounced like **this**, and the bird sounds like **this**.

Weka is open source software issued under the **GNU General Public License**.

Yes, it is possible to apply Weka to **big data**!

Data Mining with Weka is a 5 week MOOC, which was held first in late 2013. Check out the **MOOC site** for video lectures and details on how to enrol into this course and a new, advanced Weka course.

Getting started

- [Requirements](#)
- [Download](#)

Further information

- [Citing Weka](#)
- [Datasets](#)

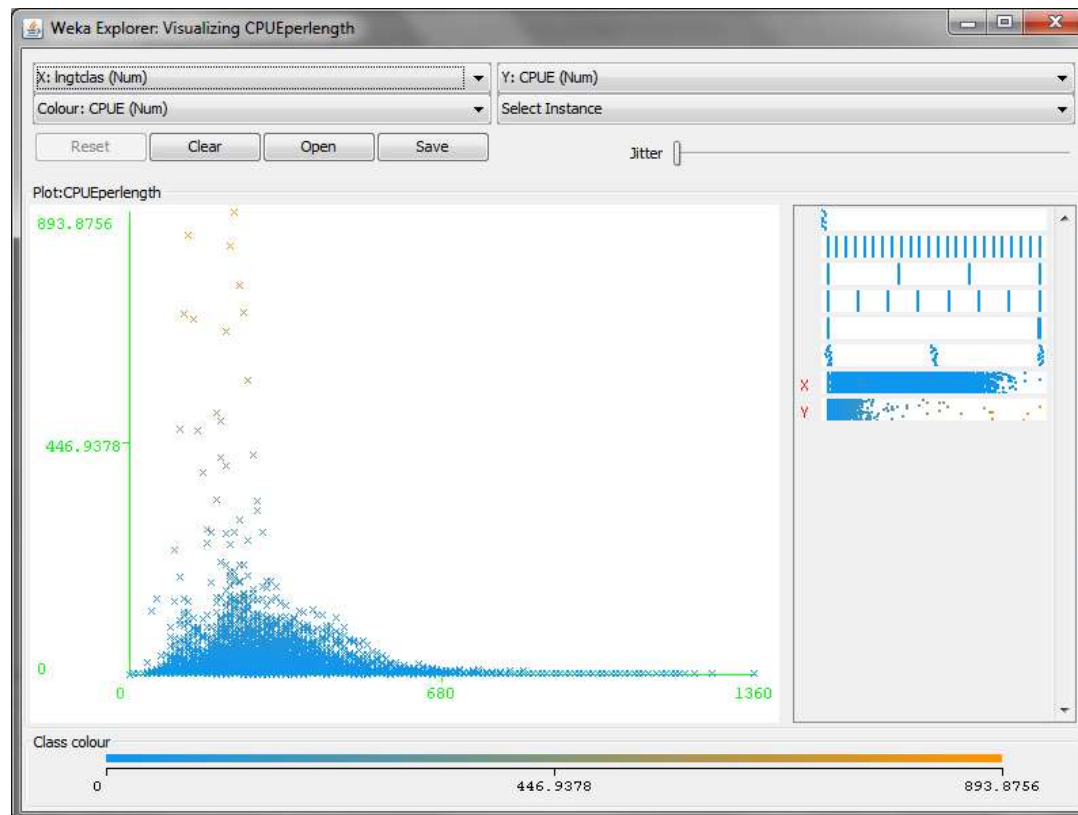
Developers

- [Development](#)
- [History](#)

<http://www.cs.waikato.ac.nz/ml/weka/>

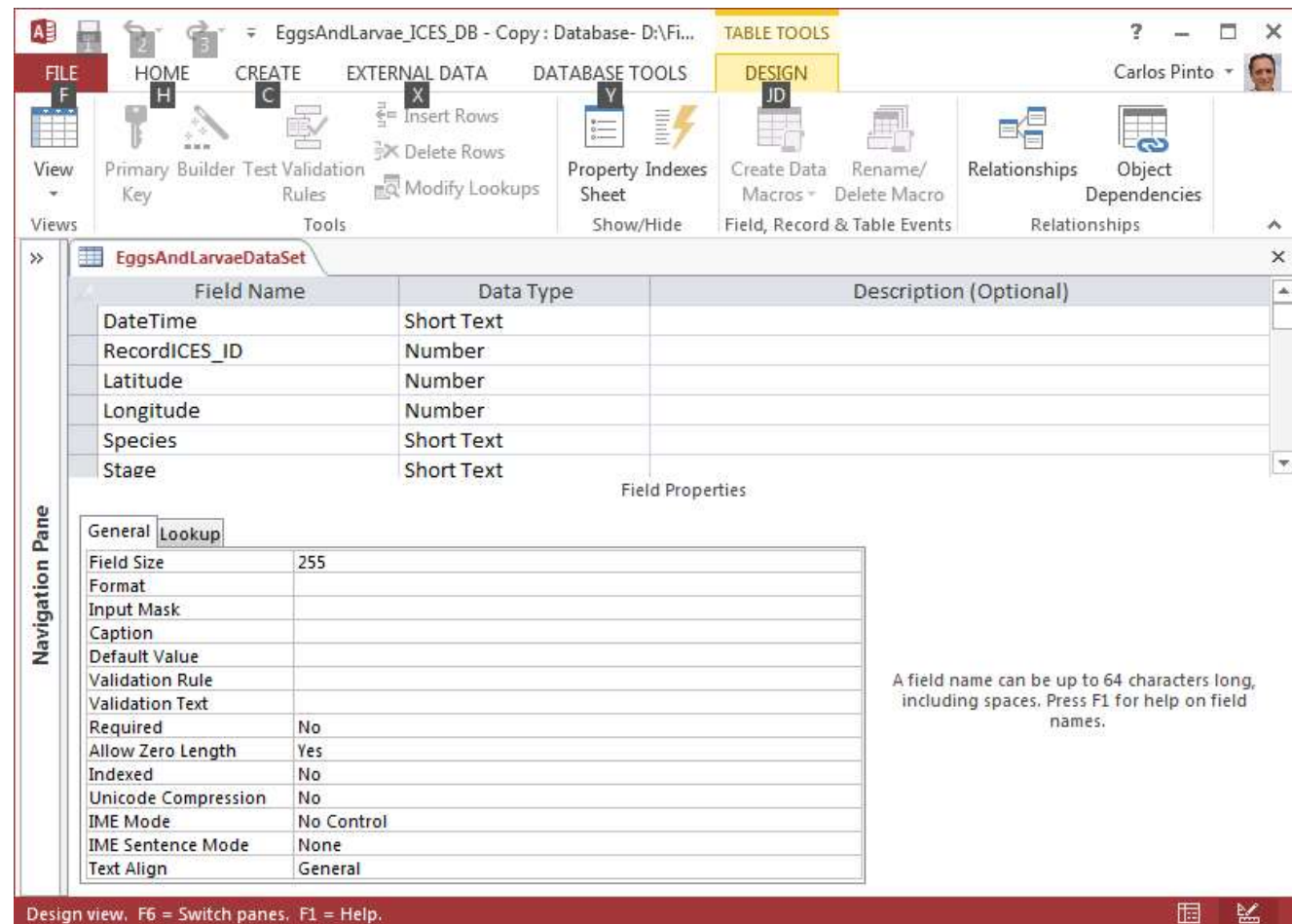
View DATRAS data in WEKA

View the correlation between length class and CPUE



Eggs And Larvae (making a database)

Make the database



The screenshot shows the Microsoft Access interface with the 'EggsAndLarvae_ICES_DB - Copy : Database- D:\Fi...' database open. The 'DESIGN' tab is selected in the ribbon, and the 'EggsAndLarvaeDataSet' table is in design view. The table has the following fields:

Field Name	Data Type	Description (Optional)
DateTime	Short Text	
RecordICES_ID	Number	
Latitude	Number	
Longitude	Number	
Species	Short Text	
Stage	Short Text	

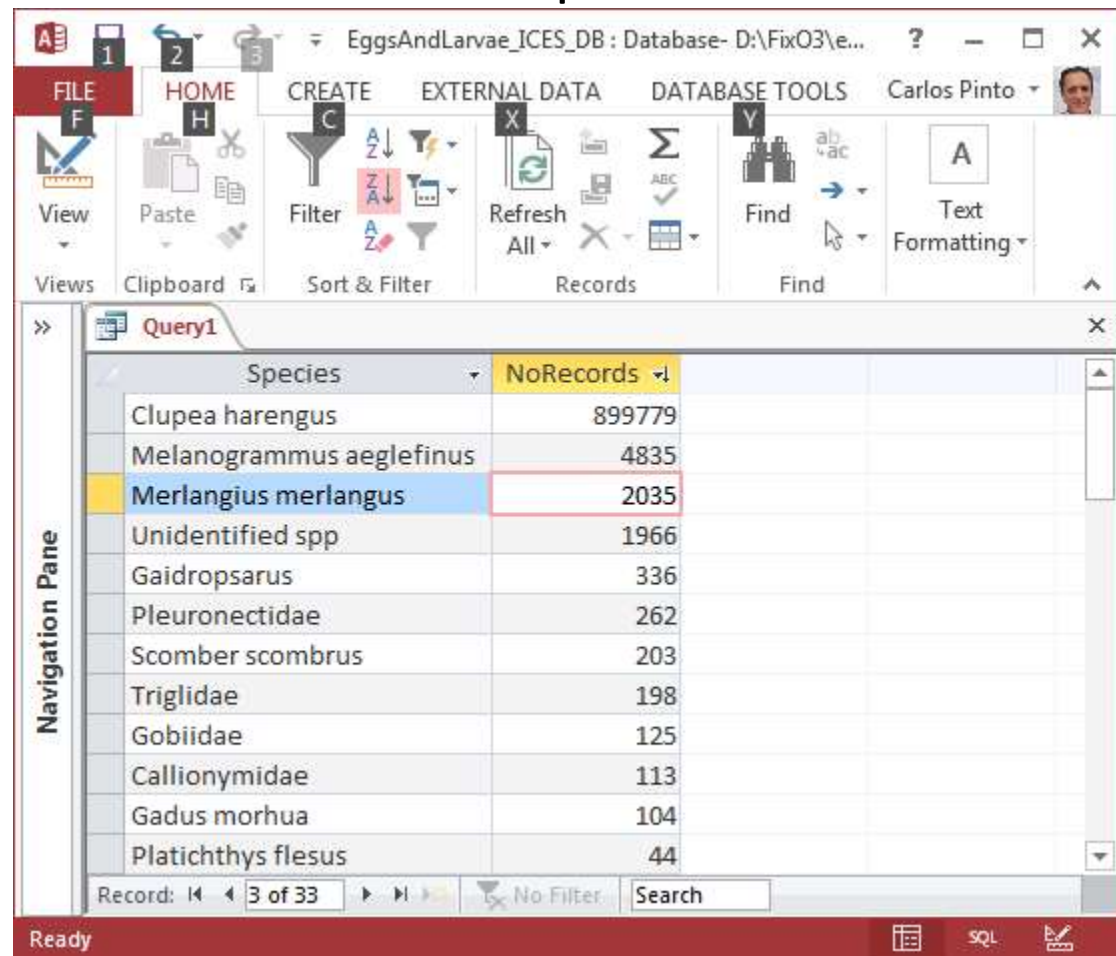
The 'Field Properties' pane is open, showing the 'General' tab for the 'DateTime' field. The 'Field Size' is set to 255. The 'Required' property is set to 'No', and the 'Indexed' property is set to 'No'. The 'Text Align' property is set to 'General'.

A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.

Design view. F6 = Switch panes. F1 = Help.

Eggs And Larvae (making a database)

Make a query to see the most common species

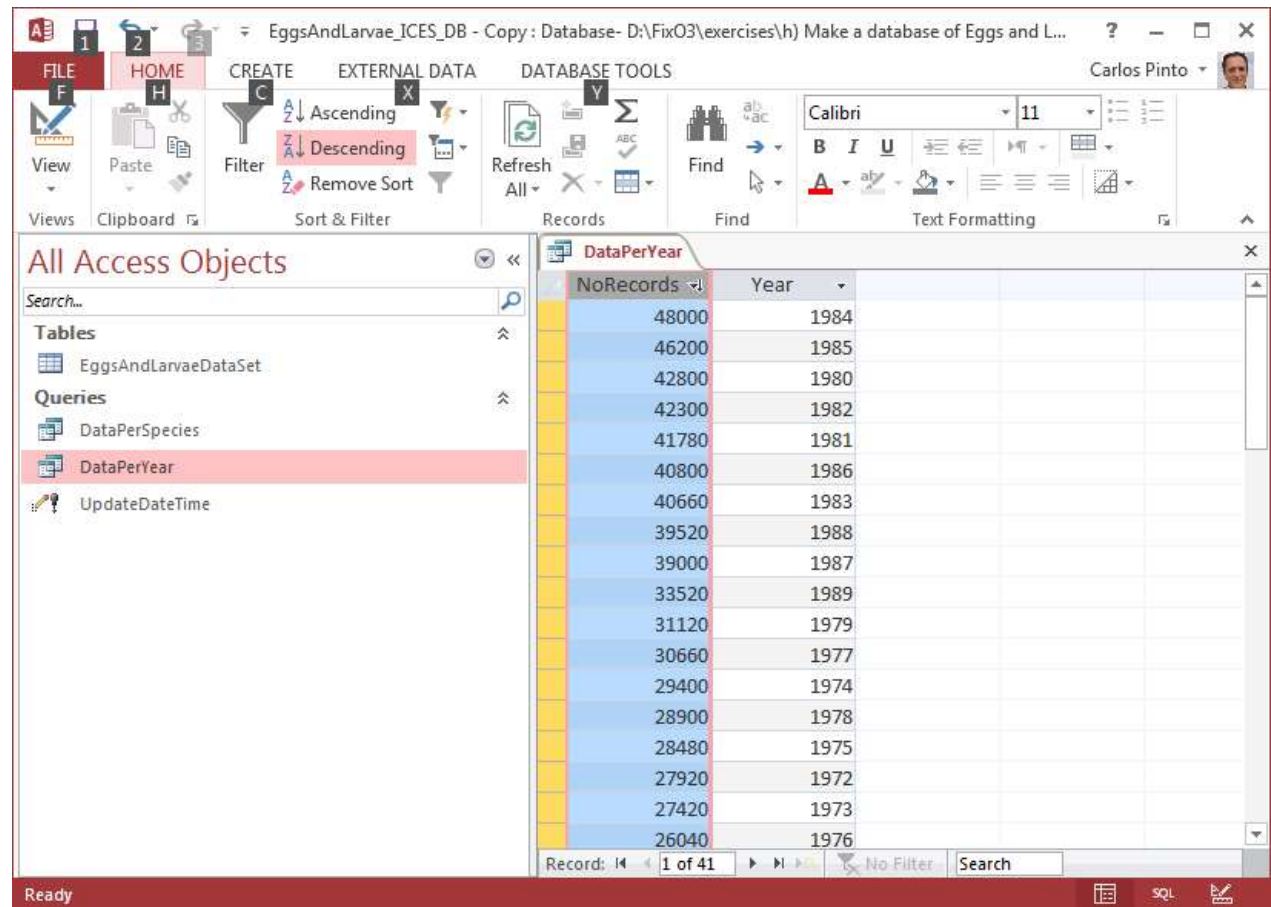


The screenshot shows the Microsoft Access interface. The title bar indicates the database is 'EggsAndLarvae_ICES_DB : Database- D:\Fix03\e...'. The ribbon includes 'FILE', 'HOME', 'CREATE', 'EXTERNAL DATA', 'DATABASE TOOLS', and a user profile for 'Carlos Pinto'. The 'Query1' window displays a table with two columns: 'Species' and 'NoRecords'. The table lists various fish species and their corresponding record counts. 'Merlangius merlangus' is highlighted in blue and has a red border around its value '2035'. The status bar at the bottom shows 'Record: 3 of 33' and 'No Filter'.

Species	NoRecords
Clupea harengus	899779
Melanogrammus aeglefinus	4835
Merlangius merlangus	2035
Unidentified spp	1966
Gaidropsarus	336
Pleuronectidae	262
Scomber scombrus	203
Triglidae	198
Gobiidae	125
Callionymidae	113
Gadus morhua	104
Platichthys flesus	44

Eggs And Larvae (making a database)

Make a query to check what is the year with most data



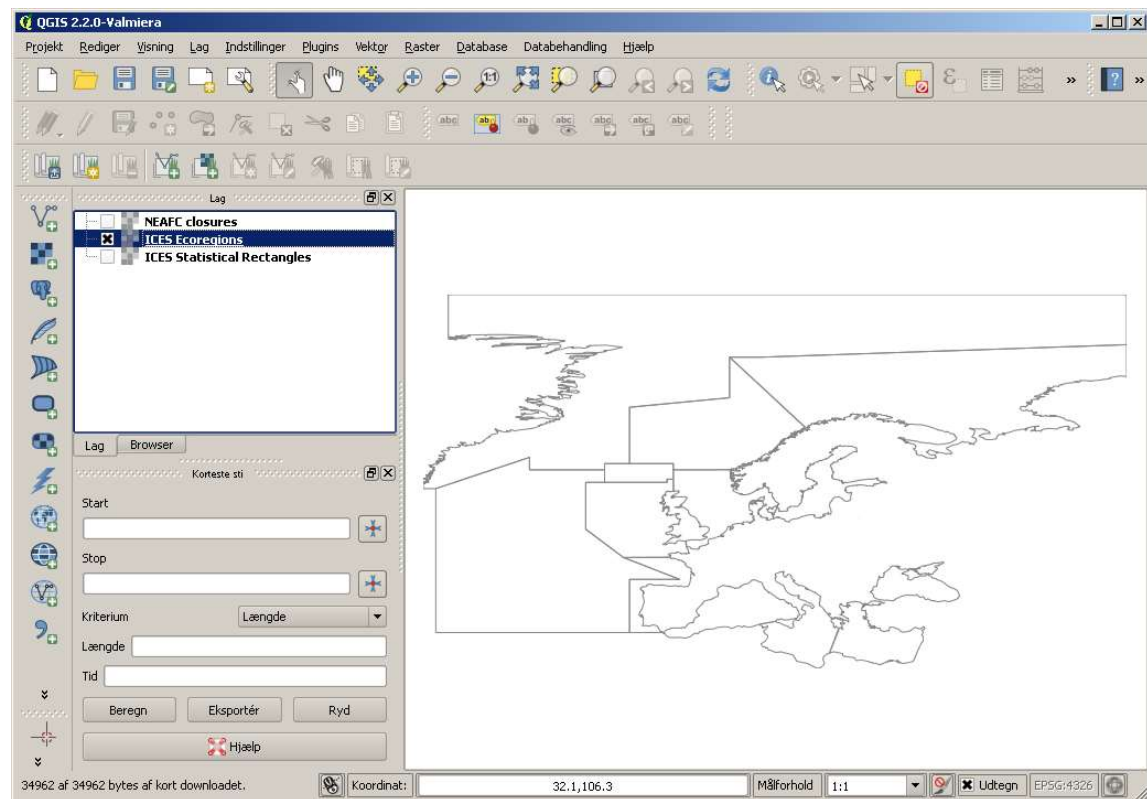
The screenshot shows the Microsoft Access interface. The title bar indicates the database is 'EggsAndLarvae_ICES_DB - Copy : Database- D:\FixO3\exercices\h) Make a database of Eggs and L...'. The ribbon includes 'FILE', 'HOME', 'CREATE', 'EXTERNAL DATA', and 'DATABASE TOOLS'. The 'DataPerYear' table is currently open, showing 41 records. The records are sorted by the first column in descending order. The 'All Access Objects' pane on the left lists the database's structure, including tables, queries, and a macro.

	Year
48000	1984
46200	1985
42800	1980
42300	1982
41780	1981
40800	1986
40660	1983
39520	1988
39000	1987
33520	1989
31120	1979
30660	1977
29400	1974
28900	1978
28480	1975
27920	1972
27420	1973
26040	1976

Optional exercises

Web map services (this is optional)

Get the regions from the spatial facility server using our web map service (wms)



EcoRegions get from ICES Spatial facility server

Optional Exercises

Imagine that your line-manager asked you to see check the abundance of “Chicharro” in the Atlantic. Could you download a shapefile from ICES with this species (you can use QGIS to display the shapefile).

Optional Exercises

They ask you to tell from the ICES area what is the area with most measurements. Could you download the Layer of ICES Areas from ICES and display it with the measurements of “hadock”.

Optional Exercises

Now you were also approached by a company that would like to build an indicator based on the contaminants found in the liver of Cod, could you check the number of measurements and range in years of Mercury, Aluminium and Cadmium in Cod? (use the inventory of ICES data portal)

Optional Exercises

Your line-manager wants to see how he can have access to the ICES trawl survey data. He knows these data can be a good indicator of some species. Could you list to him the web-services of `datras.ices.dk`?

Optional Exercises

Can you download the data of Cod from Eggs and Larvae?

How many lines has the file?

Thank you for your attention



More information
www.ices.dk