Arctic Ship Traffic Data

USER GUIDE FOR ASTD SYSTEM

ARCTIC SHIP TRAFFIC DATA
ASTD.IS
BASED ON HAVBASE.NO

PAME
Protection of the Arctic Marine Environment

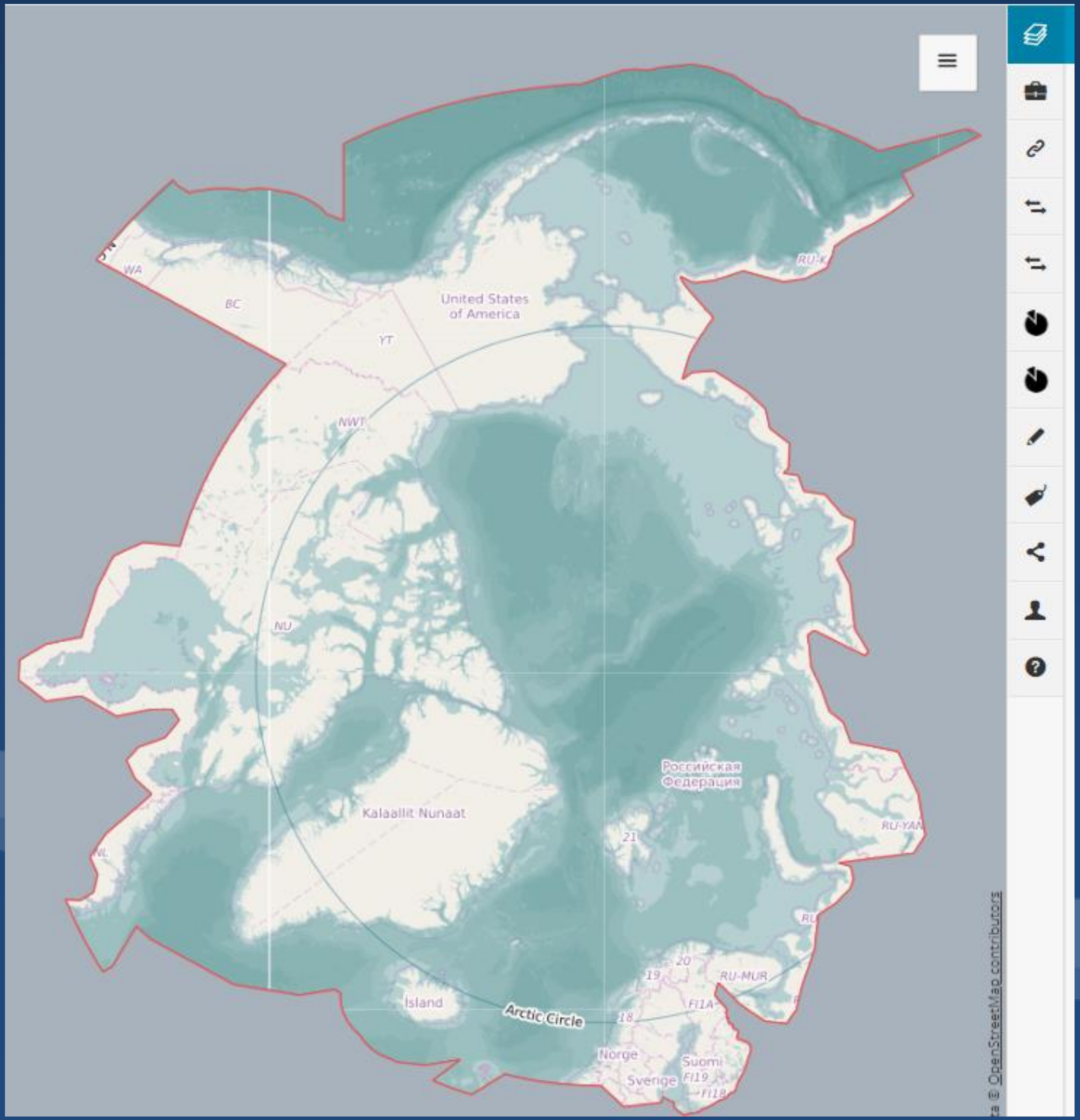
About this document

- This document has been created to help current and future users of the ASTD System.
- Please read carefully before contacting for assistance.
  - The PAME Secretariat provides technical assistance for ASTD: pame@pame.is
- The document is divided into sections according to the ASTD Menu.
  - The guide is best used when testing ASTD alongside this document.
  - We recommend a PDF viewer with a Thumbnail setting to view this document.

Version history:
V. 1: April 2020
V. 2: August 2022
V. 3: February 2023

USER GUIDE MENU *(with links)*

ASTD SYSTEM



PAME
Protection of the Arctic Marine Environment

Introduction

The Arctic Ship Traffic Data system (ASTD) is a U.S & Norway led Arctic Council initiative that has been in the making since 2015. The system is a first of its kind developed in collaboration and resources from the eight Arctic Council member states; United States, Canada, Sweden, Finland, Norway, Iceland, Russia, Finland and the Kingdom of Denmark. The 2009 Arctic Marine Shipping Assessment collected information to create the AMSA Shipping Database which sparked interest within PAME to create a long-term sustainable collection of Arctic marine shipping activity. The result is the ASTD project and its database.

Together, the member states identified the need to track shipping trends, patterns, ports data, ice movement, vessel traffic, vessel emissions and more. The system has the capability to execute all of these needs and continues to be improved by its primary developers located at the Norwegian Costal Administration who takes direction from representatives of all the nations led by CG7611 at the US Coast Guard Headquarters. Management of user accounts, administrative functions and liaison for the nations resides with the PAME Secretariat. The approved *Cooperative Agreement among the Arctic States Regarding Arctic Ship Traffic Data Sharing* outlines access and use of the ASTD data and includes the role of the participants in the project, the Arctic States who choose to do so. Together, the nations have put forth the ASTD as the leading and only tool to track human, marine and environmental activity in the ever-changing Arctic .

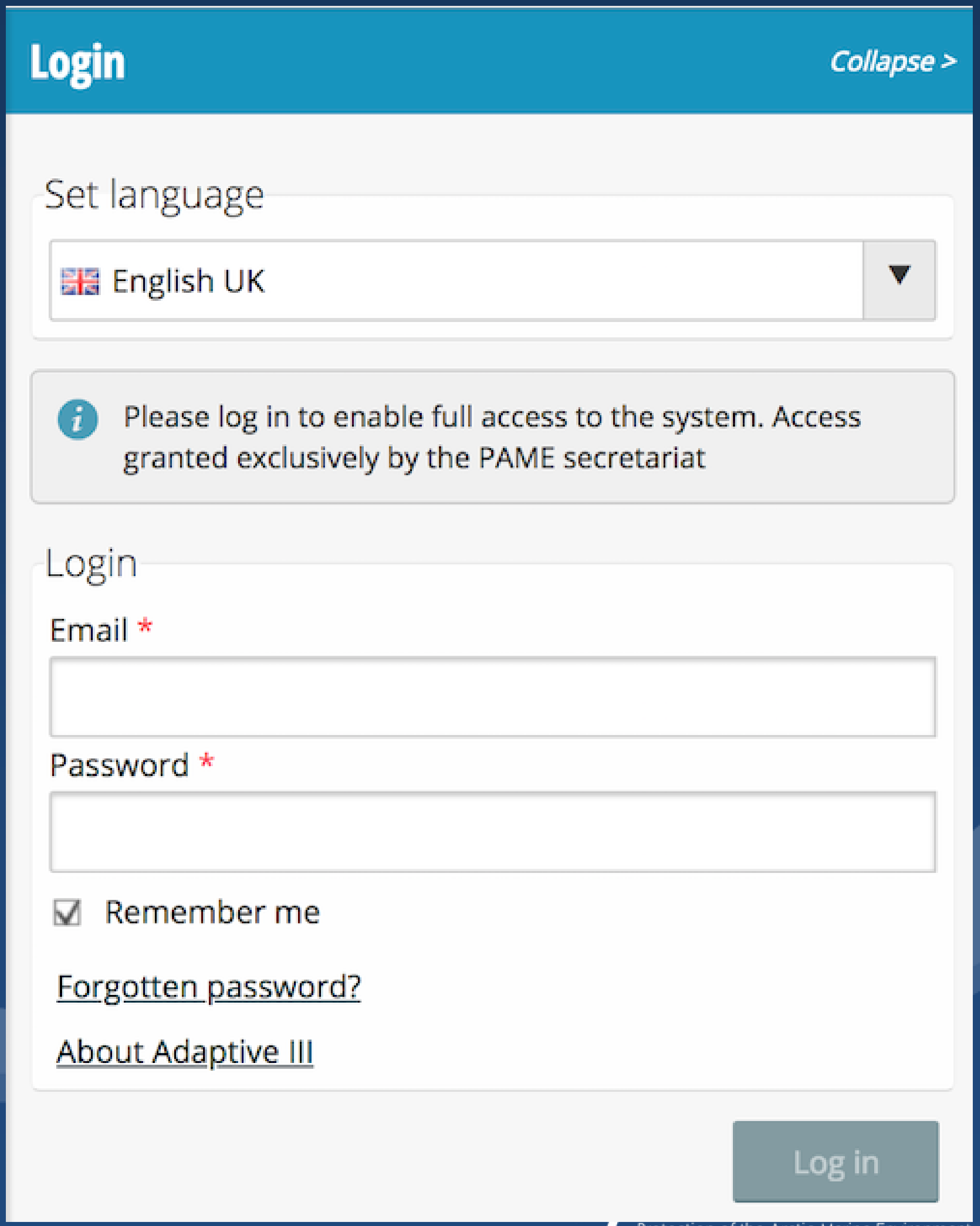
The purpose of this document is to help current and future users of the ASTD database and its data to advance its work.

PAME

Protection of the Arctic Marine Environment

User access

- Access to ASTD and its data is outlined in this document - *ASTD User access (link).*
  - A username and password is required to access the database.
- The PAME Secretariat is the administrator for the user access
  - Contact PAME at *pame@pame.is*
- Note that all information inserted to the system, all areas drawn and information otherwise created or imported is only available to that specific user.



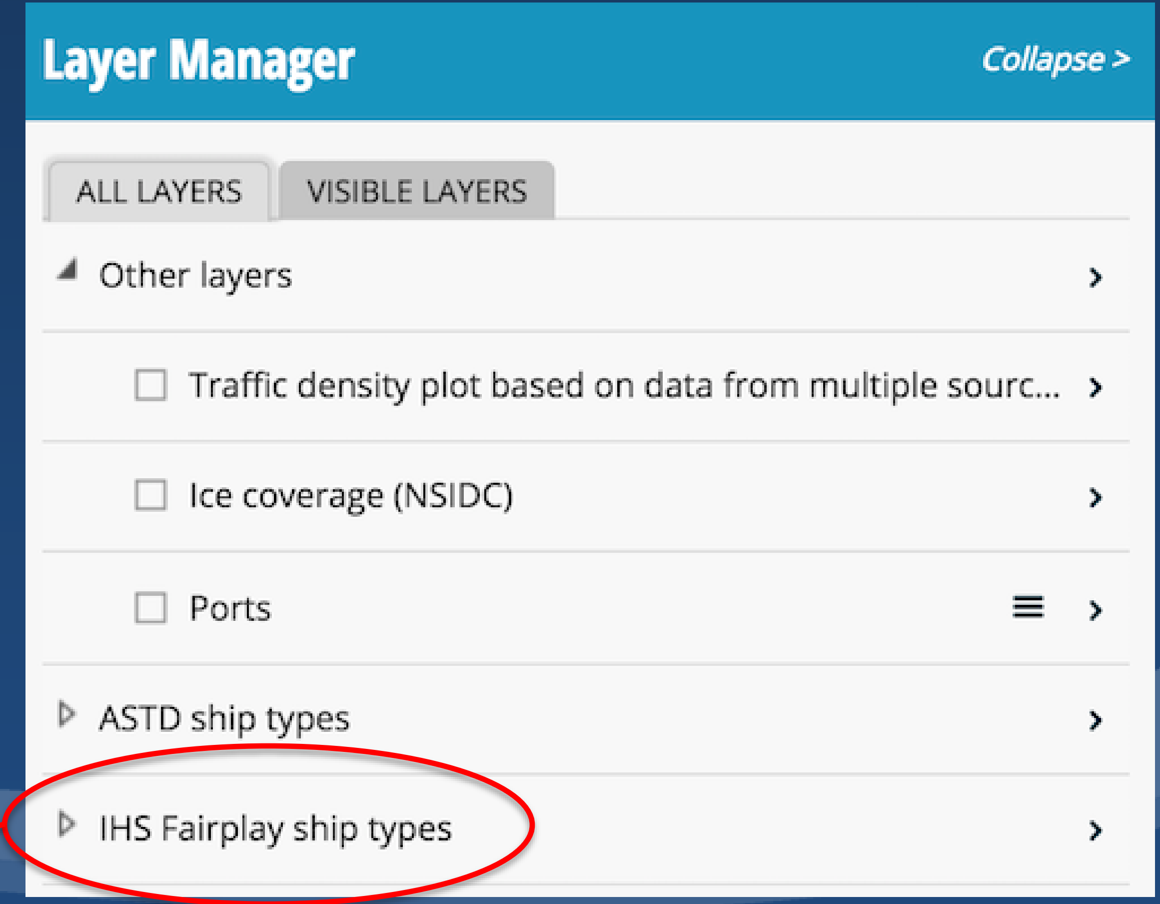
ASTD Menu

The menu is available to logged in users only

- **Layer manager:** Identify ship tracks of ships in the Arctic, by shiptype.
- **Add data:** Add WMS information, file data like .csv or shapefiles.
- **Port calls:** Identify the number of ships entering over 50 ports in the Arctic.
- **Traffic over passing lines:** Identify the number of passes (and heading) over specific lines in ASTD.
- **Traffic over user created passing lines:** Create passlines and identify the number of passes.
- **Arctic area traffic:** Detailed statistics in areas in the Arctic, including the EEZ and other areas.
- **Arctic area traffic (user created areas):** Define your own areas and analyse ship movements and statistics.
- **Ship voyage:** See the ship tracks of a specific ship or ships. For Level 1 users only.
- **Draw and measure:** Draw or measure distances, including to insert to maps created by users.
- **Legend:** Shows what items are on the map visualized.
- **Save, Share or print map:** Send files directly to e-mails, save as JPG, embed maps or print from ASTD.
- **Profile:** User information, change password etc.
- **General information:** About ASTD.

Layer manager

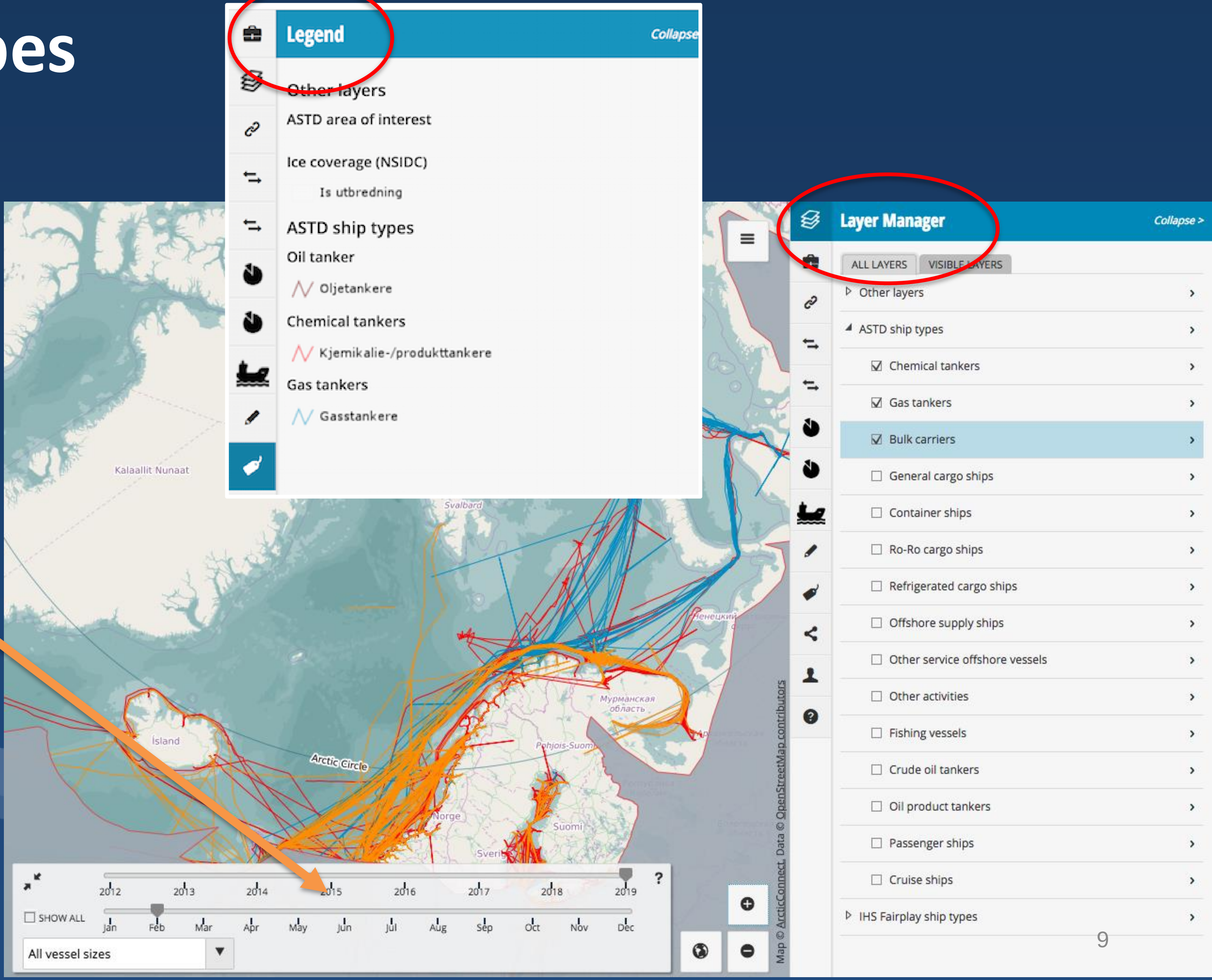
- The number and availability of ship types is dependent on user rights.
  - Access to ASTD is given on 3 levels, based on user rights - each access level has different shiptype aggregation.
  - Click the buttons to display the ice information from NSIDC.



Only available on Level I and II – Not on Level III

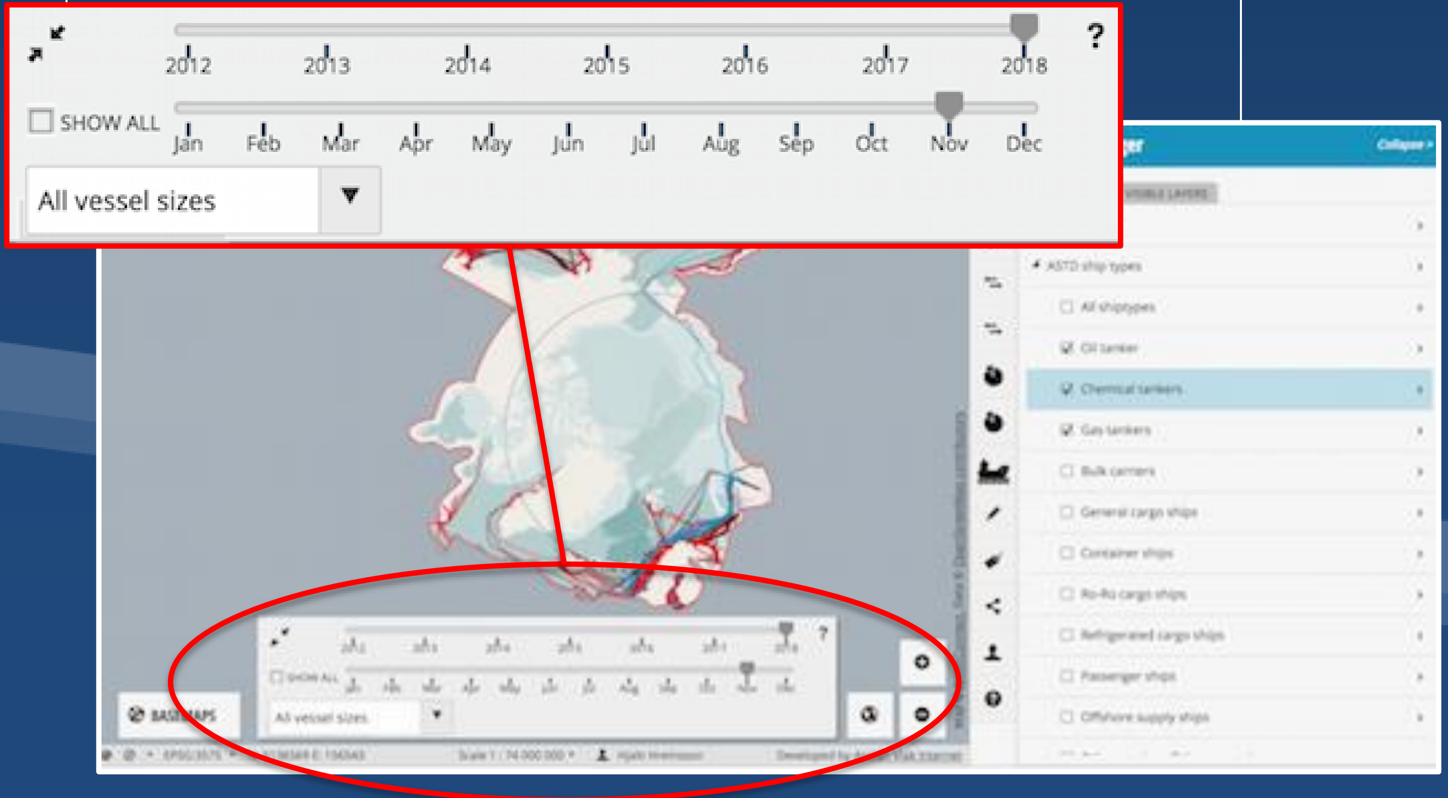
Adding ship types to the map

- Simply click the boxes and choose what time to display on the Time slider.
- Users can add multiple ship types
  - The Legend box identifies which ship type is which color

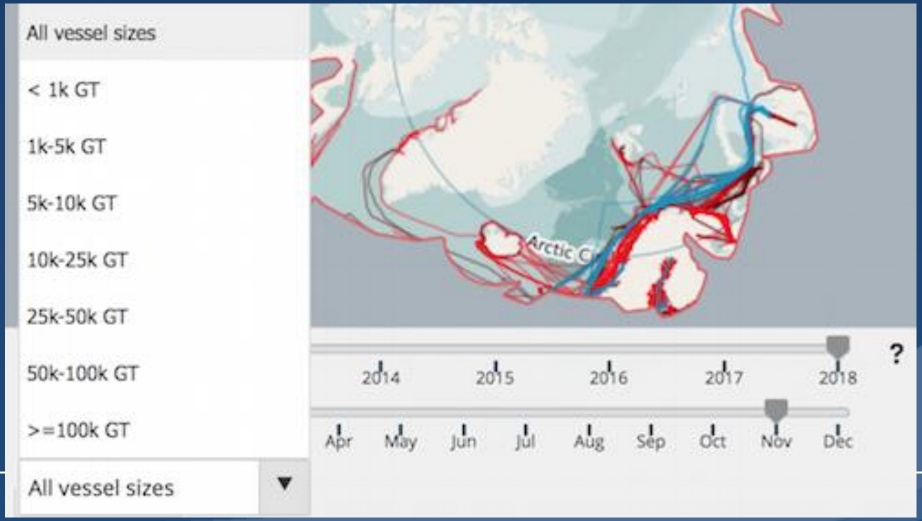


Track timings and ship sizes

The layer manager allows for analysis for a specific month in a given year. Choose the timing with the Time slider.



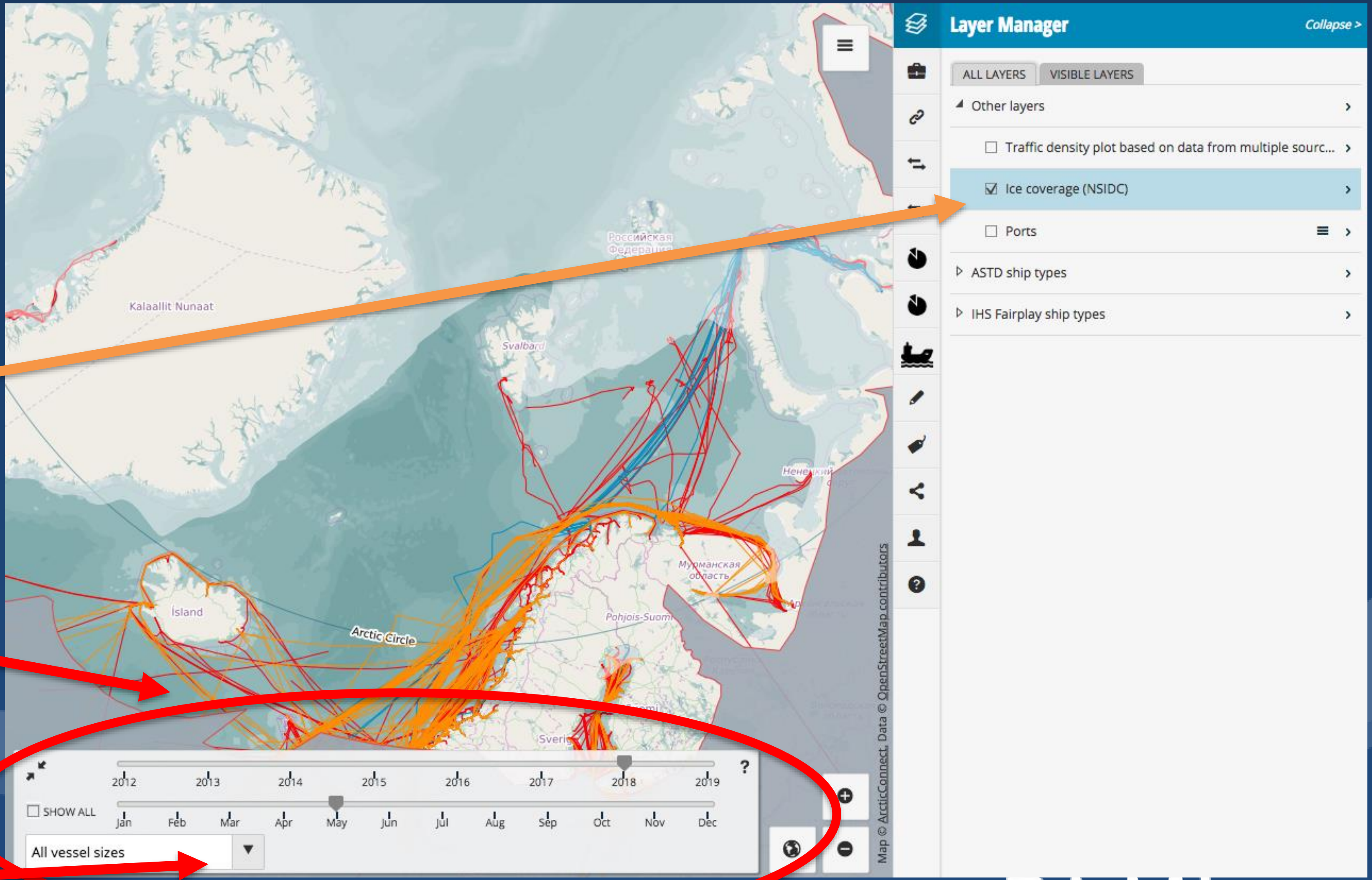
Users can also analyse specific sizes of vessels from the Time slider.



PAME Protection of the Arctic Marine Environment

Ice information

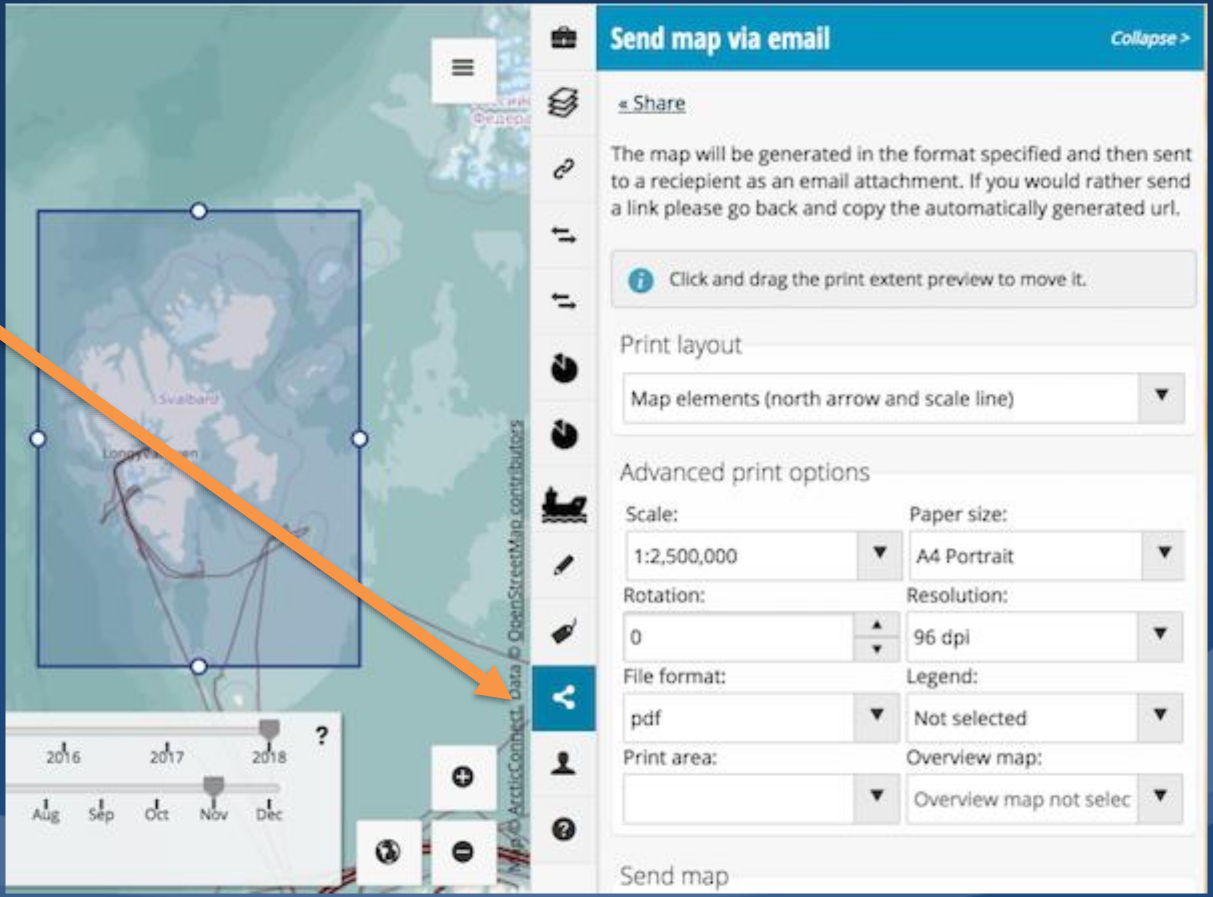
- Sea ice information is from the National Snow and Ice Data Center (NSIDC).
- Click on the Ice coverage button.
- Choose the period in the Time slider.
- Choose to see what sizes of vessels to display on the map



PAME
Protection of the Arctic Marine Environment

Save maps

- Use the *Save, share or print* function to save the map created.
- See more information below in the user guide.



PAME
Protection of the Arctic Marine Environment

Add data

Add data

Collapse >

[Add WMS from catalog]
Find WMS services from Catalog, based on your criteria

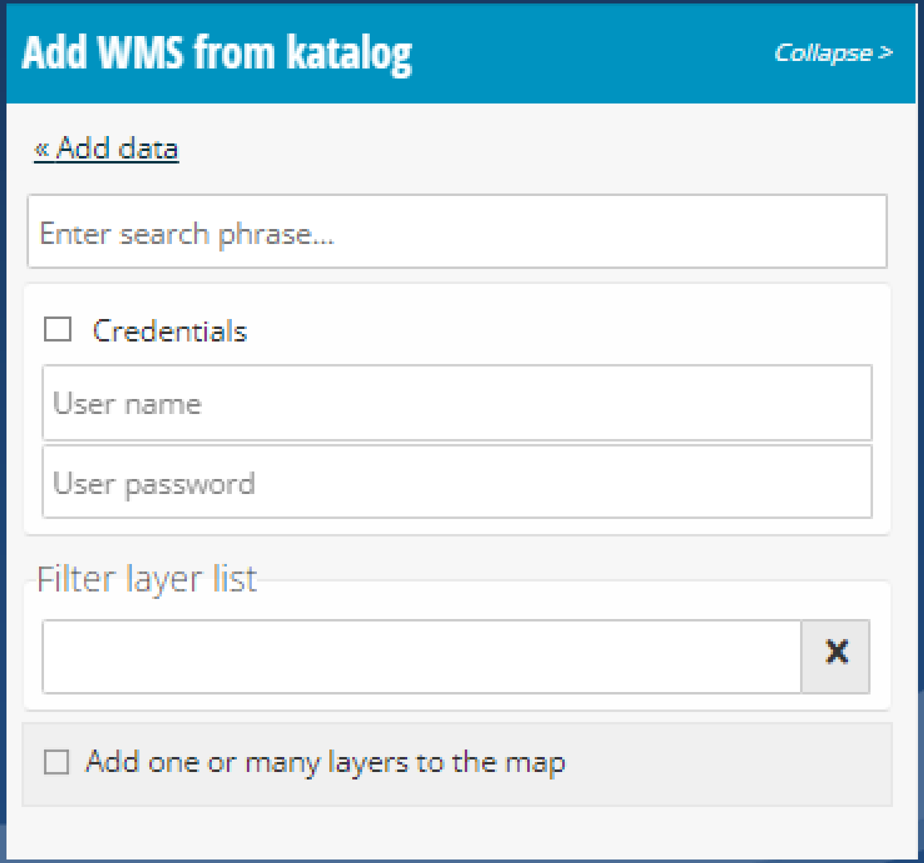
[Add WMS]
Discover available layers for given WMS Service URL, and add selected layers to the map

[Add single file data]
Upload KML, GPX, SOSI, XLSX, CSV, GeoJSON, DXF or GML files and display them on the map

[Add shape file]
Upload Shape files and show them on the map

Add WMS from catalog

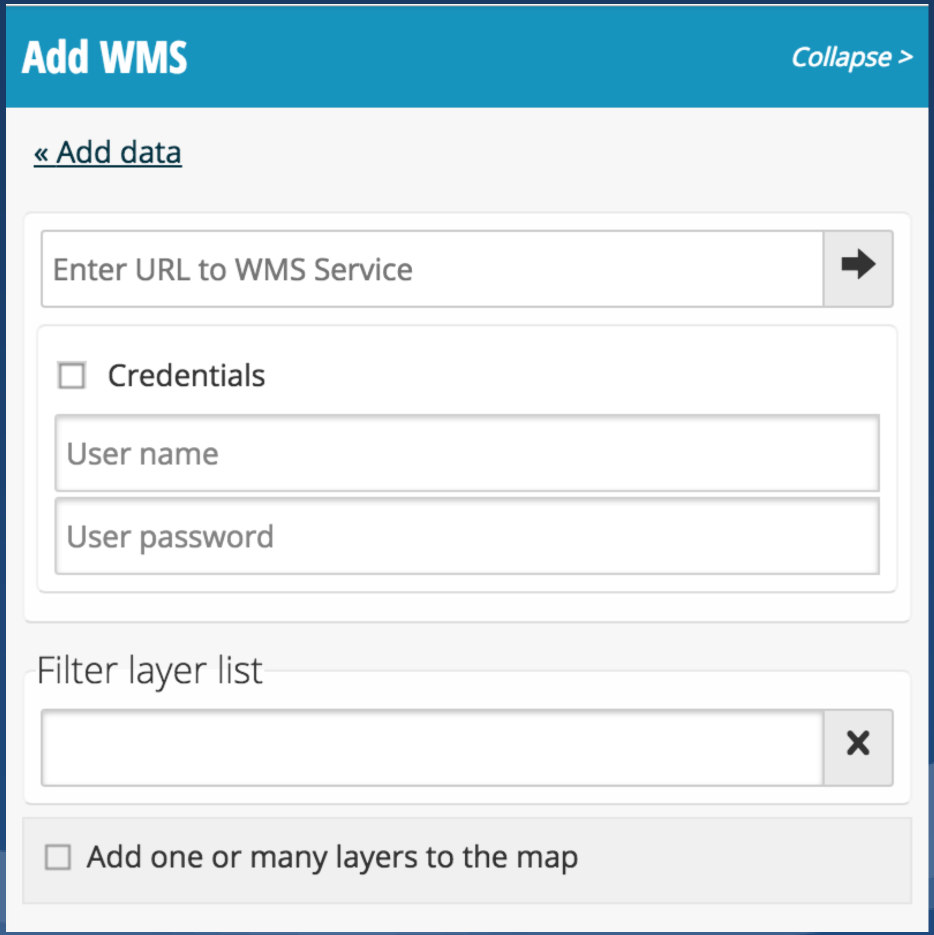
- Users can add certain WMS services directly via a Norwegian WMS service, in Norwegian.
- Next page shows availability for a service in English.



PAME
Protection of the Arctic Marine Environment

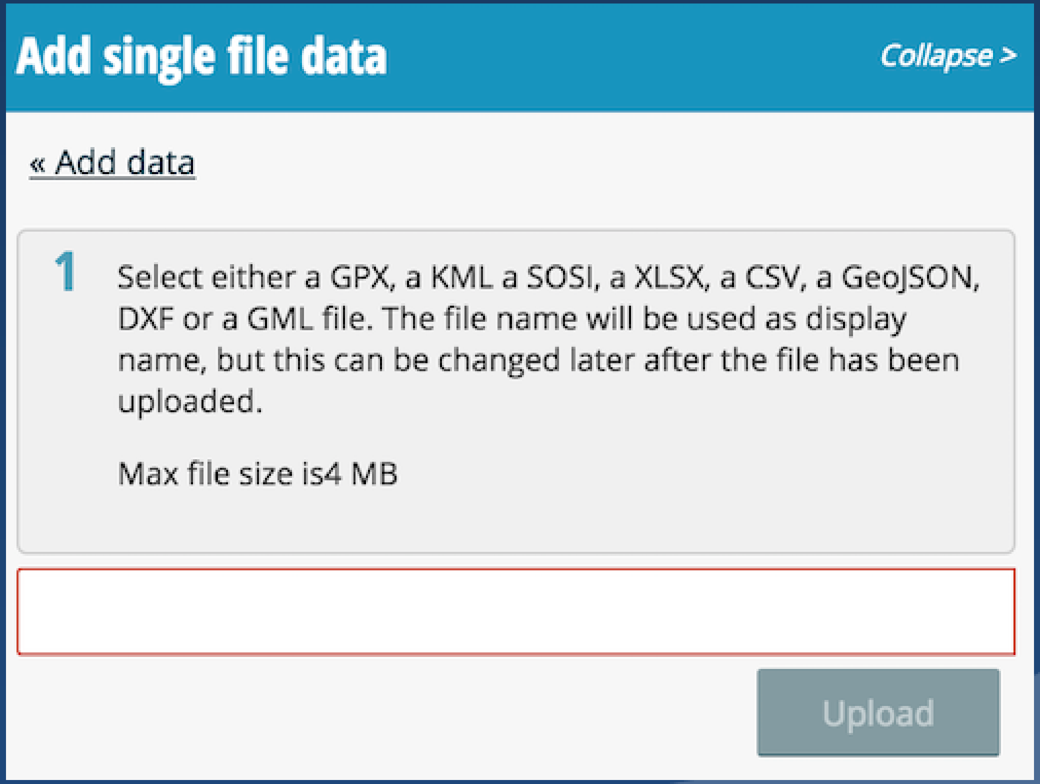
Add WMS

- Users can add feeds from WMS services of their choice.
- Copy and paste the link from the WMS service and press the arrow.
- Insert the credentials if needed.
- A list of layers is available below.



Add single file data

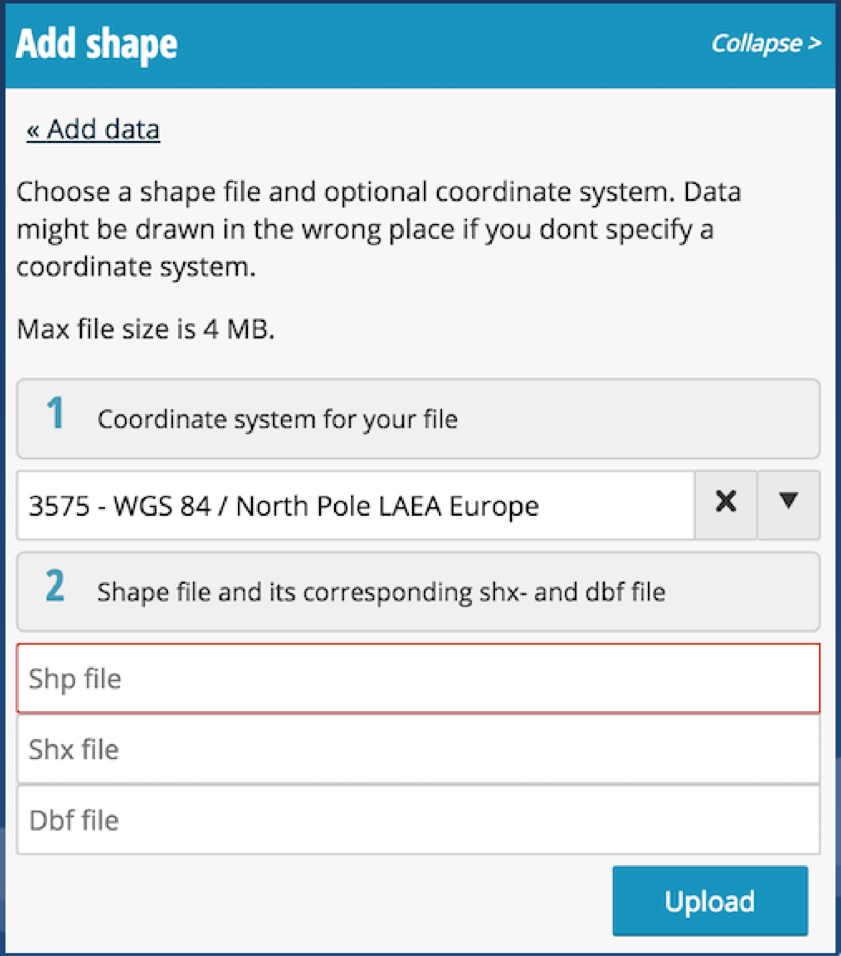
- Users can add their data to ASTD.
- List of available formats to the right.



PAME
Protection of the Arctic Marine Environment

Add shape file

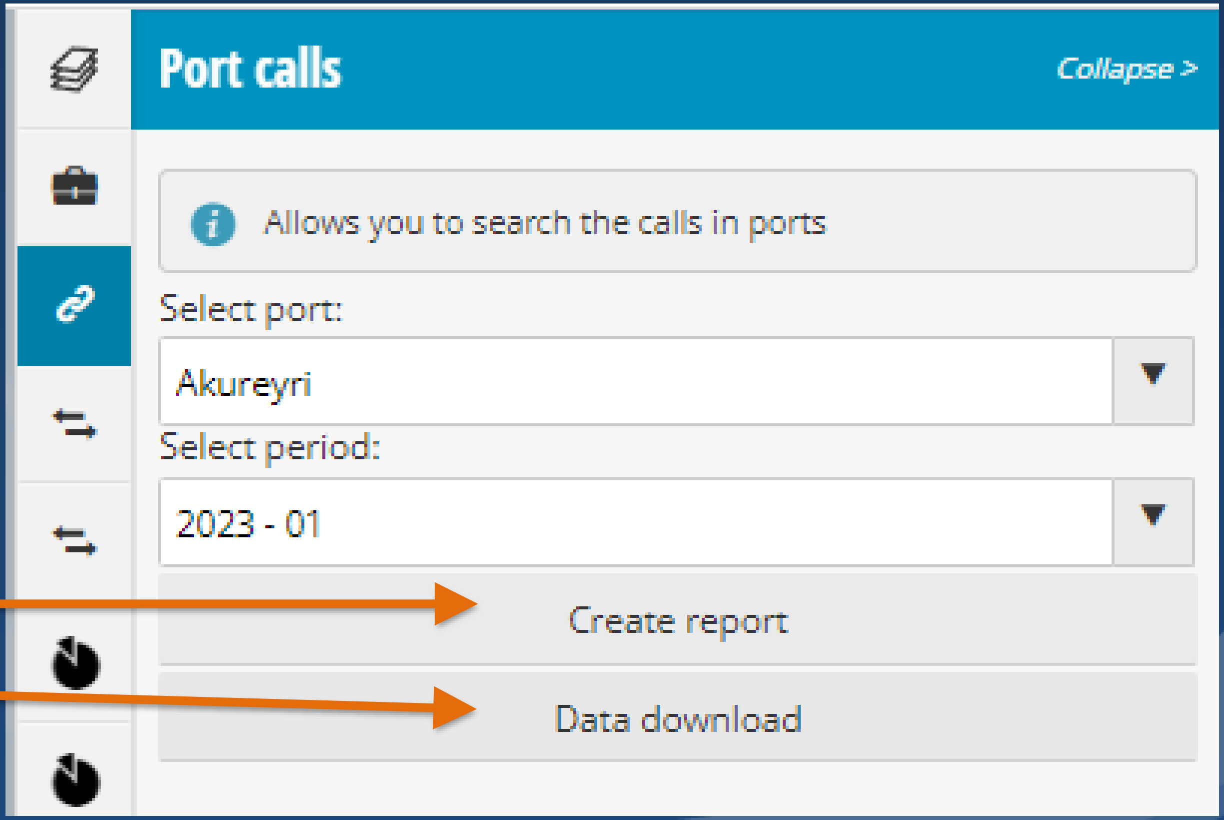
- Upload shapefiles to display
  - Max size is 4mb.
- Make sure the file is in any of the projections available in the drop-down list.
  - Choose the appropriate projection
- Press upload to display



PAME
Protection of the Arctic Marine Environment

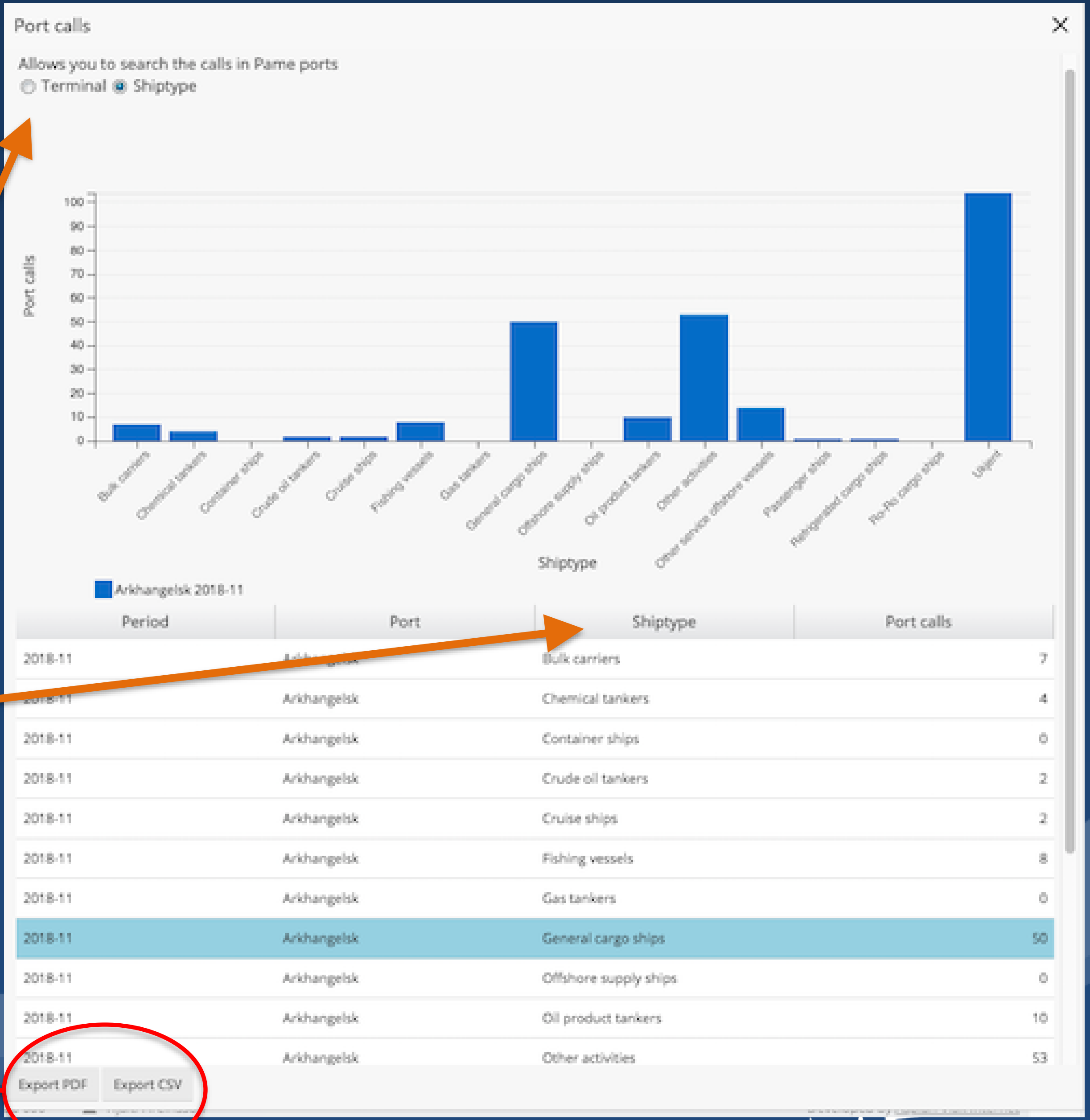
Port calls

- Select the port and period to see how many ships entered the selected port.
  - *Note: Each ship entering the port is counted every time it enters the port.*
- Click create report
- Download of the data is available



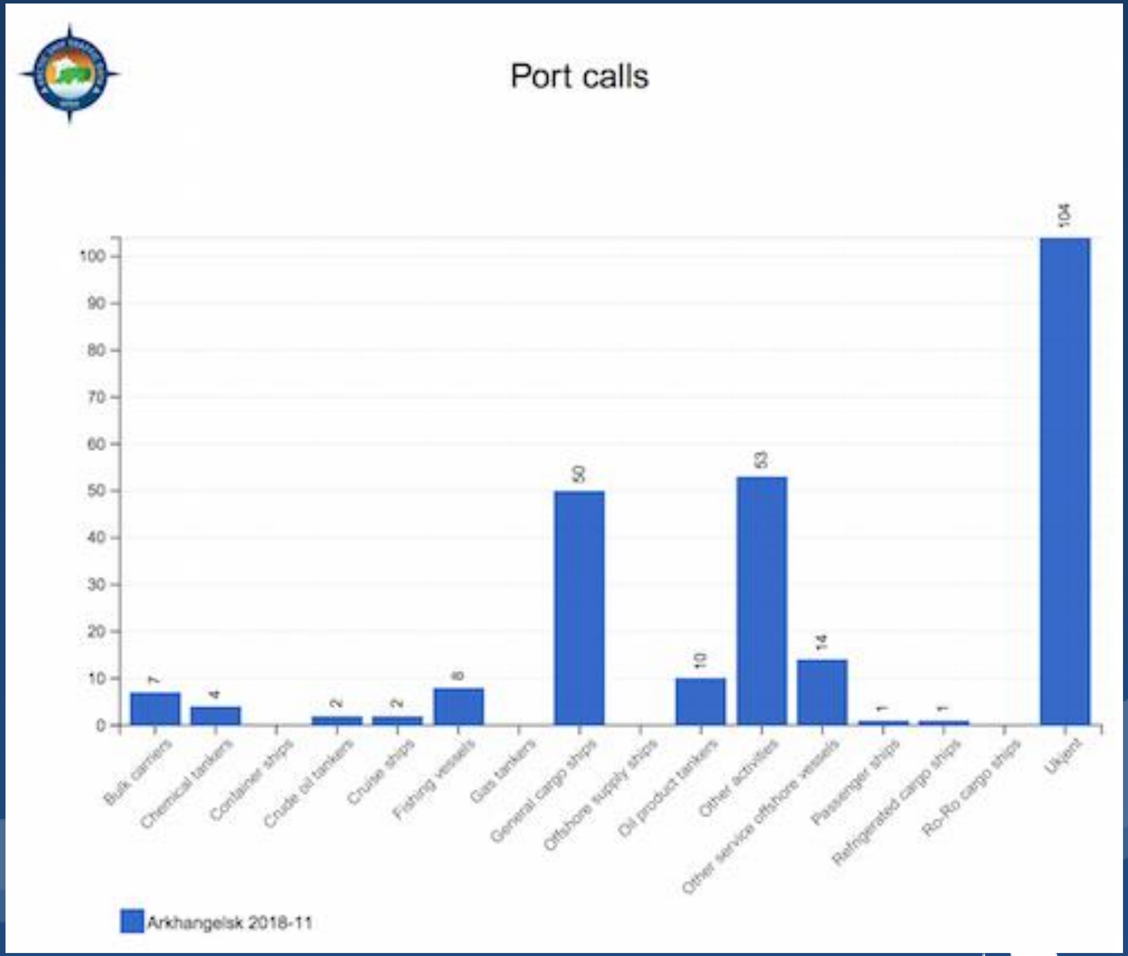
Ports: Create Report

- Port calls refers to the number of ships entering the port
- Terminal: Some ports are divided into terminals. If that is the case, the port calls can be divided by terminals.
- Ship types: Analysis port calls by ship type
- The total number is at the bottom of the pop-up window.
- Users can from here choose two export options:
  - Export PDF
  - Export CSV (to download the data)



Exporting Ports: PDF

- Automatically creates a PDF report
- Includes a chart with the number of ships for each ship type
- These files can be easily shared.



Exporting Ports: CSV

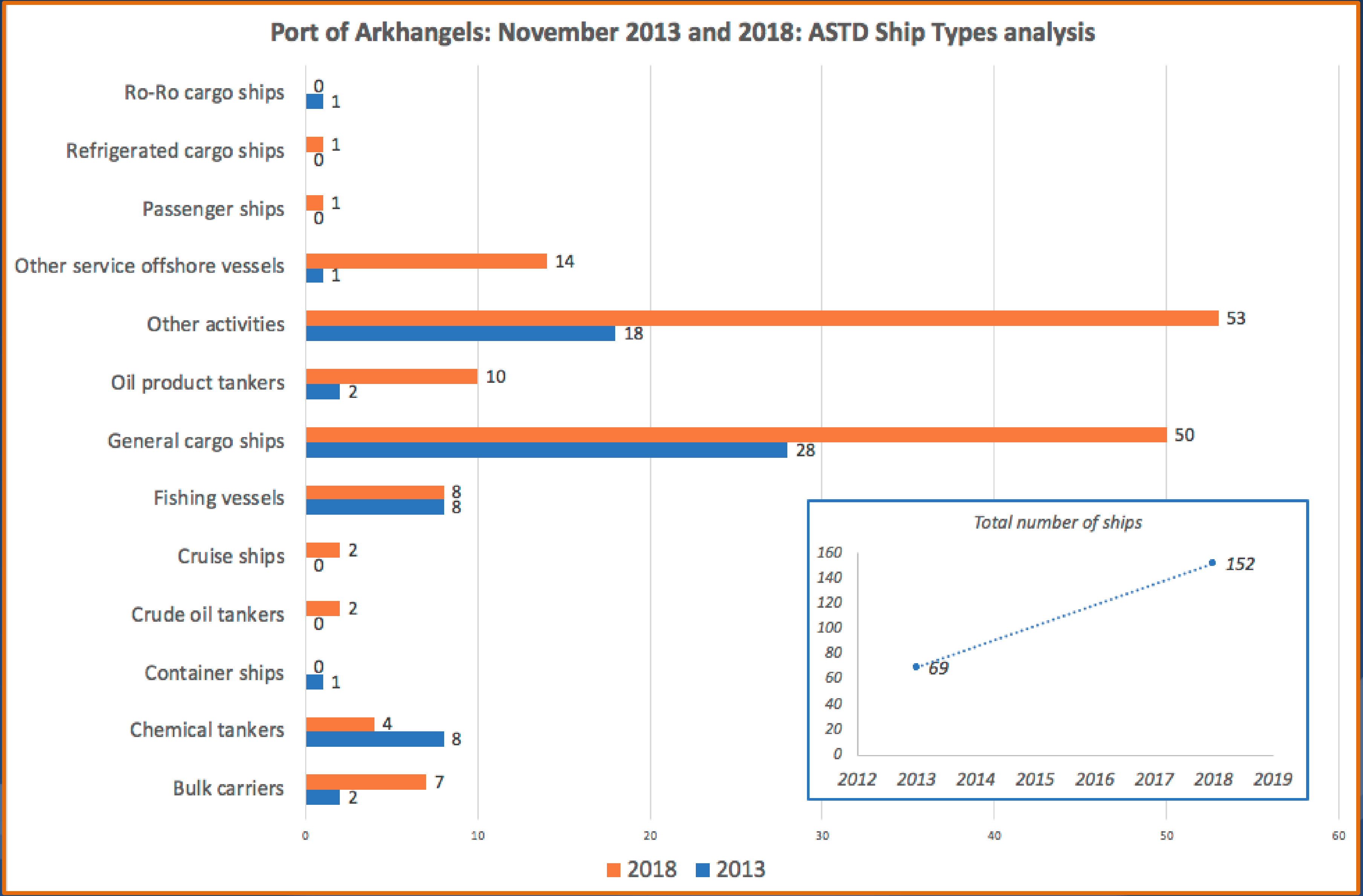
- .CSV files mean "Comma Seperated Values"
  - These are files for many strings of data
- Export CSV and open the file in Excel
- Choose the A field > Press Data > Text to columns > Deliminated > Next > Comma > Finish
  - This results in each field with only one value
  - The file and information can be easily worked within Excel

	A	B	C
1	Period,Port,Terminal,Port calls		
2	2018,Arkhangelsk,terminal_42,54		
3	2018,Arkhangelsk,terminal_43,104		
4	2018,Arkhangelsk,terminal_44,62		
5	2018,Arkhangelsk,terminal_45,886		
6	2018,Arkhangelsk,terminal_46,710		
7	2018,Arkhangelsk,terminal_47,28		
8	2018,Arkhangelsk,terminal_48,141		
9	2018,Arkhangelsk,[illegible]rminal_49,303		
10	2018,Arkhangelsk,term[illegible]al_50,197		
11	2018,Arkhangelsk,terminal[illegible]1,121		
12	2018,Arkhangelsk,terminal_52,[illegible]		
13	2018,Arkhangelsk,terminal_53,25		

	A	B	C	D
[illegible]	[illegible]mma	Port	Terminal	Port calls
2	2018	Arkhangelsk	terminal_42	54
3	2018	Arkhangelsk	terminal_43	104
4	2018	Arkhangelsk	terminal_44	62
5	2018	Arkhangelsk	terminal_45	886
6	2018	Arkhangelsk	terminal_46	710
7	2018	Arkhangelsk	terminal_47	28
8	2018	Arkhangelsk	terminal_48	141
9	2018	Arkhangelsk	terminal_49	303
10	2018	Arkhangelsk	terminal_50	197
11	2018	Arkhangelsk	terminal_51	121
12	2018	Arkhangelsk	terminal_52	19
13	2018	Arkhangelsk	terminal_53	25

Ports: Case Study

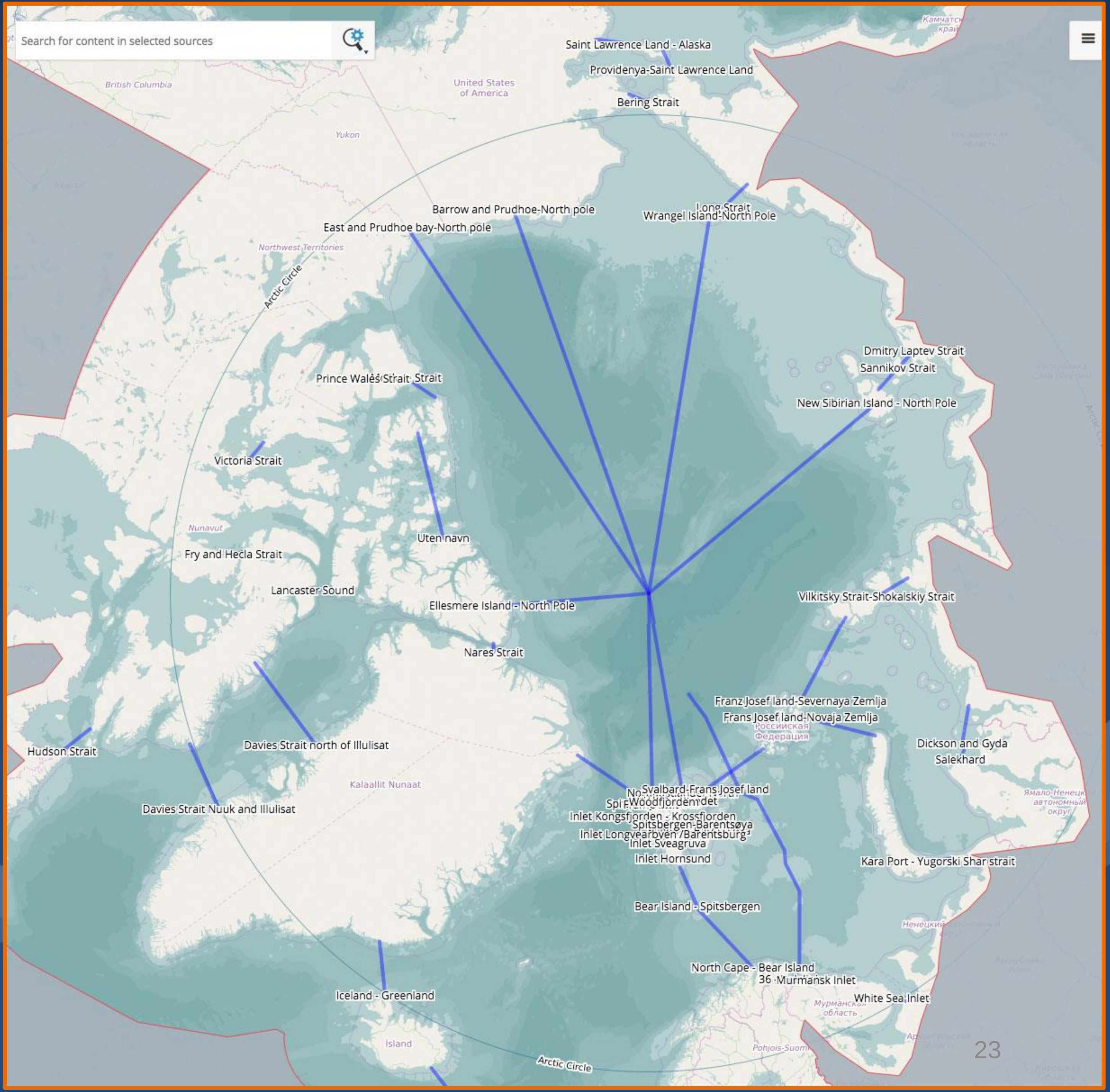
- Downloading this data can help with comparing either ports or months/years.
- Simply copy/and paste from the data download files to create graphs/tables etc to highlight what you want.
- See an example of an analysis made by downloading data.



PAME
Protection of the Arctic Marine Environment

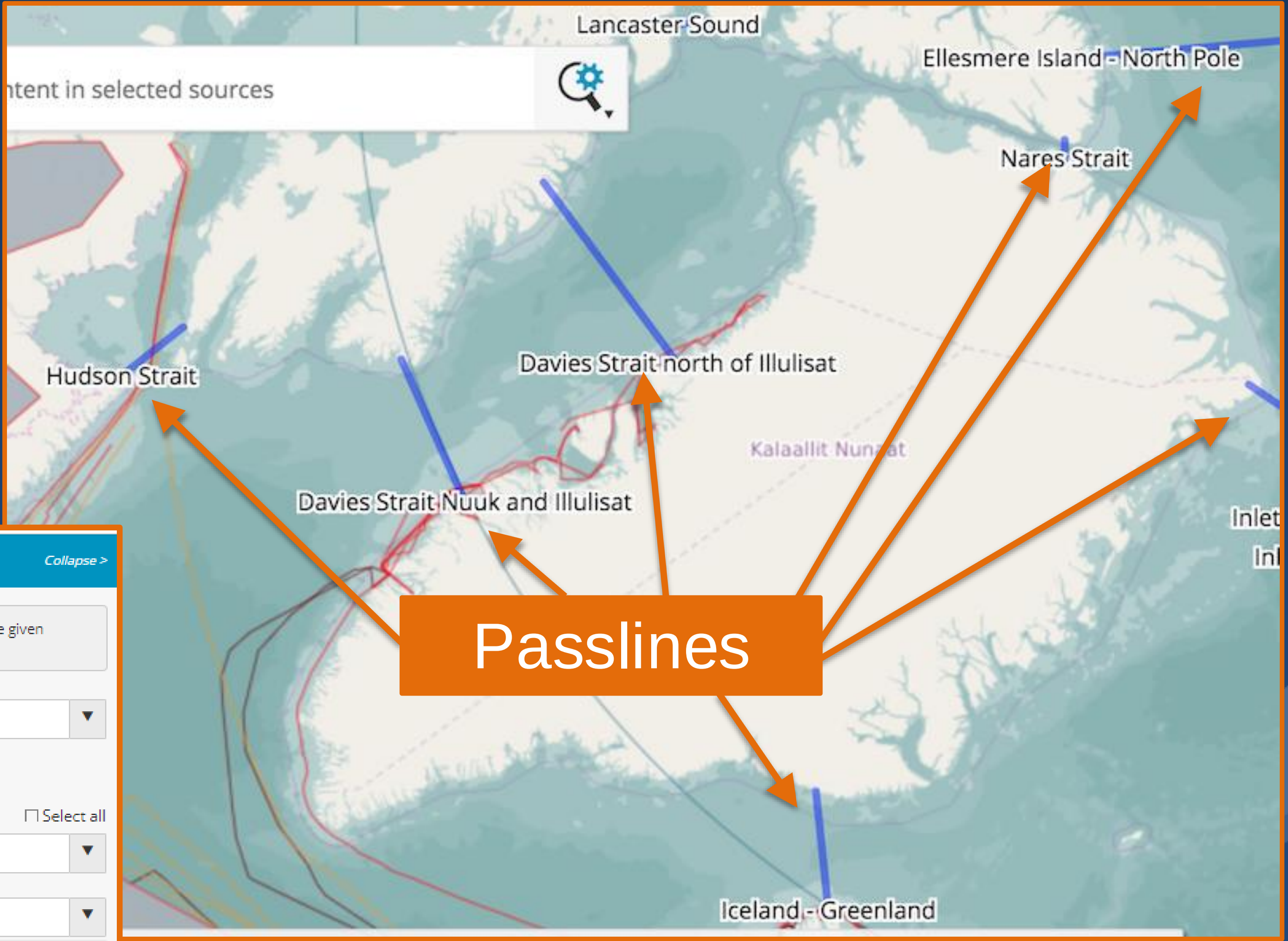
Traffic over pre-defined passing lines

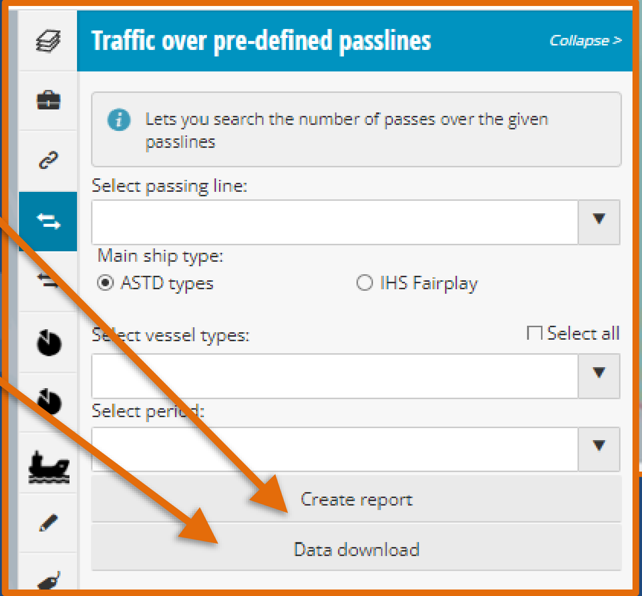
- ASTD has 47 pre-defined passlines
- The ships are counted in each passing
- Users can see the heading of the ships over the passline as well



Traffic over pre-defined passing lines

- Passline refers to a line drawn between two locations to count the number of ships passing that line.
- Click create report
- Or Data download





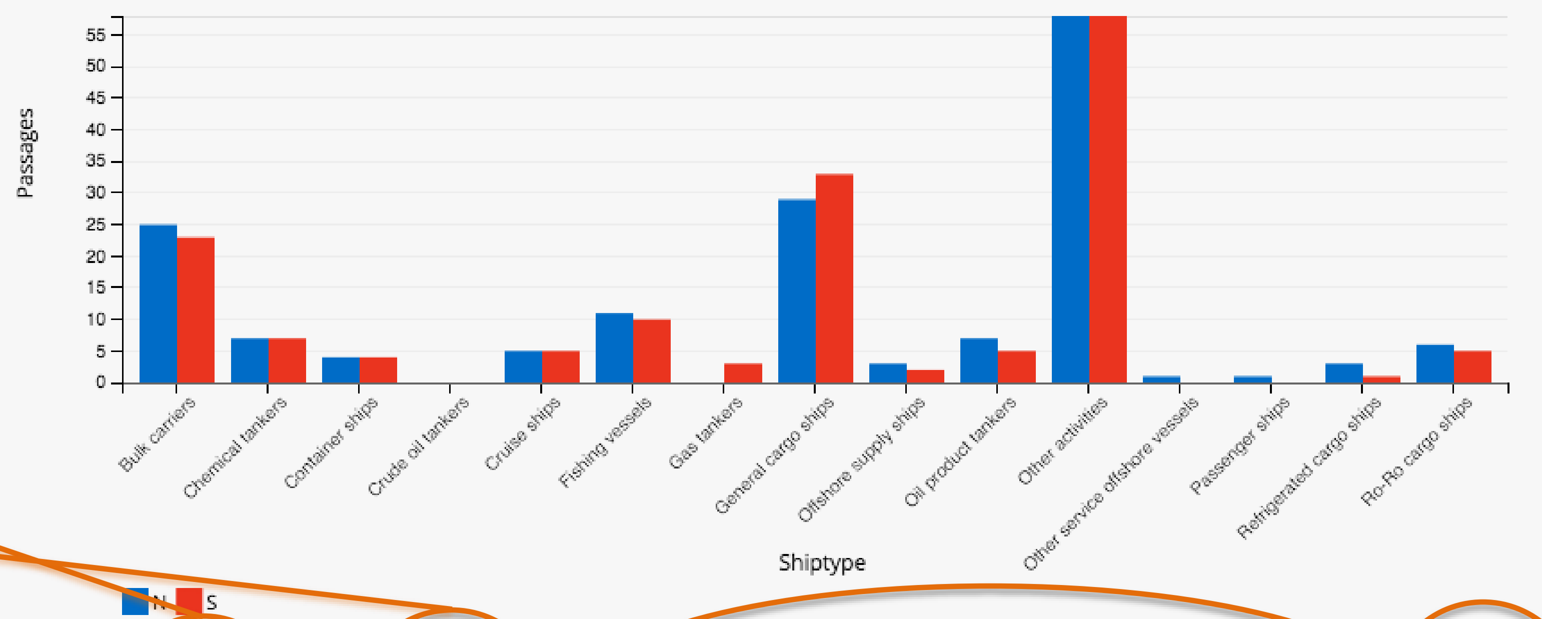
PAME Protection of the Arctic Marine Environment

Traffic over pre-defined passing lines: Reports

- Select a passing line
- Select vessel type(s)
- Select period
- Click Create report
- The report shows:
  - The ship type
  - The heading of the ships
  - The size of the ships
  - The number of passings
  - Total number of passings (at the bottom of the report)

Traffic over passing lines

Lets you search the number of passes over the given passing lines

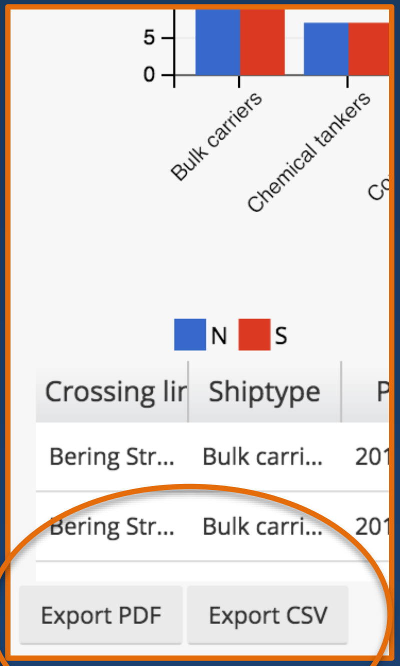


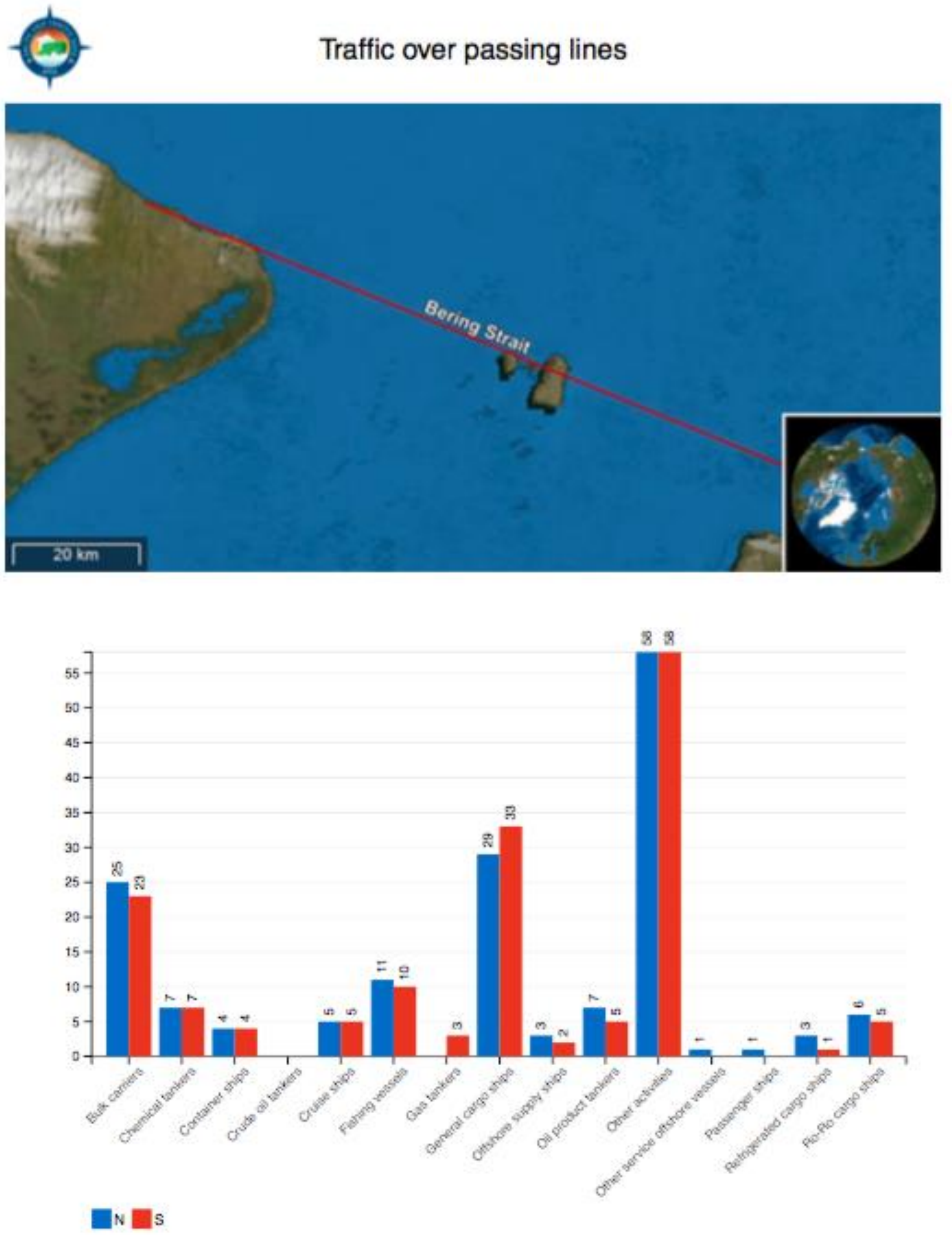
Crossing li	Shiptype	Period	Pass headi	<1000 GT	1000-4999	5000-9999	10000-249	25000-499	50000-999	>=100000 (	Passings
Bering Str...	Bulk carri...	2017	S	0	0	0	0	22	1	0	23
Bering Str...	Bulk carri...	2017	N	0	0	0	2	22	1	0	25

Export PDF | Export CSV

Traffic over passing lines: Export PDF

- The Reports can be Exported to either PDF, or CSV (Comma Seperated Values)
  - If you download CSV you can work with the data.
- The PDF contains the chart and is easily share-able.





Traffic over passing lines: CSV

- .CSV files mean ”Comma Seperated Values”
  - These are files for many strings of data
- Export CSV and open the file in Excel or other programs
- Choose the A field > Press Data > Text to columns > Deliminated > Next > Comma > Finish
  - This results in each field with only one value
  - The file and information can be easily worked within Excel

	A	B	C	D
1	Crossing line	Shiptype,Period,Pass heading,<1000 GT,10		
2	Bering Strait	Bulk carriers,2017,S,0,0,0,0,22,1,0,23		
3	Bering Strait	Bulk carriers,2017,N,0,0,0,2,22,1,0,25		
4	Bering Strait	Chemical tankers,2017,S,0,1,4,0,2,0,0,7		
5	Bering Strait	Chemical tankers,2017,N,0,1,3,1,2,0,0,7		

	A	B	C	D	E	F	G	H	I	J	K	L
1	Crossing line	Shiptype	Period	Pass heading	<1000 GT	1000-4999 GT	5000-9999 GT	10000-24999 GT	25000-49999 GT	50000-99999 GT	>=100000 GT	Passings
2	Bering Strait	Bulk carriers	2017	S	0	0	0	0	22	1	0	23
3	Bering Strait	Bulk carriers	2017	N	0	0	0	2	22	1	0	25
4	Bering Strait	Chemical tankers	2017	S	0	1	4	0	2	0	0	7
5	Bering Strait	Chemical tankers	2017	N	0	1	3	1	2	0	0	7
6	Bering Strait	Container ships	2017	S	0	0	4	0	0	0	0	4
7	Bering Strait	Container ships	2017	N	0	0	4	0	0	0	0	4
8	Bering Strait	Crude oil tankers	2017	S	0	0	0	0	0	0	0	0
9	Bering Strait	Crude oil tankers	2017	N	0	0	0	0	0	0	0	0
10	Bering Strait	Cruise ships	2017	S	0	2	2	0	0	1	0	5
11	Bering Strait	Cruise ships	2017	N	0	3	1	1	0	0	0	5
12	Bering Strait	Fishing vessels	2017	S	10	0	0	0	0	0	0	10
13	Bering Strait	Fishing vessels	2017	N	9	2	0	0	0	0	0	11
14	Bering Strait	Gas tankers	2017	S	0	0	0	0	1	0	2	3
15	Bering Strait	Gas tankers	2017	N	0	0	0	0	0	0	0	0
16	Bering Strait	General cargo ships	2017	S	0	6	18	6	3	0	0	33
17	Bering Strait	General cargo ships	2017	N	1	7	13	5	3	0	0	29
18	Bering Strait	Offshore supply ships	2017	S	2	0	0	0	0	0	0	2
19	Bering Strait	Offshore supply ships	2017	N	2	1	0	0	0	0	0	3
20	Bering Strait	Oil product tankers	2017	S	0	2	2	0	1	0	0	5
21	Bering Strait	Oil product tankers	2017	N	0	2	4	0	1	0	0	7
22	Bering Strait	Other activities	2017	S	34	15	3	6	0	0	0	58
23	Bering Strait	Other activities	2017	N	31	17	2	8	0	0	0	58
24	Bering Strait	r service offshore ve	2017	S	0	0	0	0	0	0	0	0
25	Bering Strait	r service offshore ve	2017	N	0	0	1	0	0	0	0	1
26	Bering Strait	Passenger ships	2017	S	0	0	0	0	0	0	0	0
27	Bering Strait	Passenger ships	2017	N	0	1	0	0	0	0	0	1

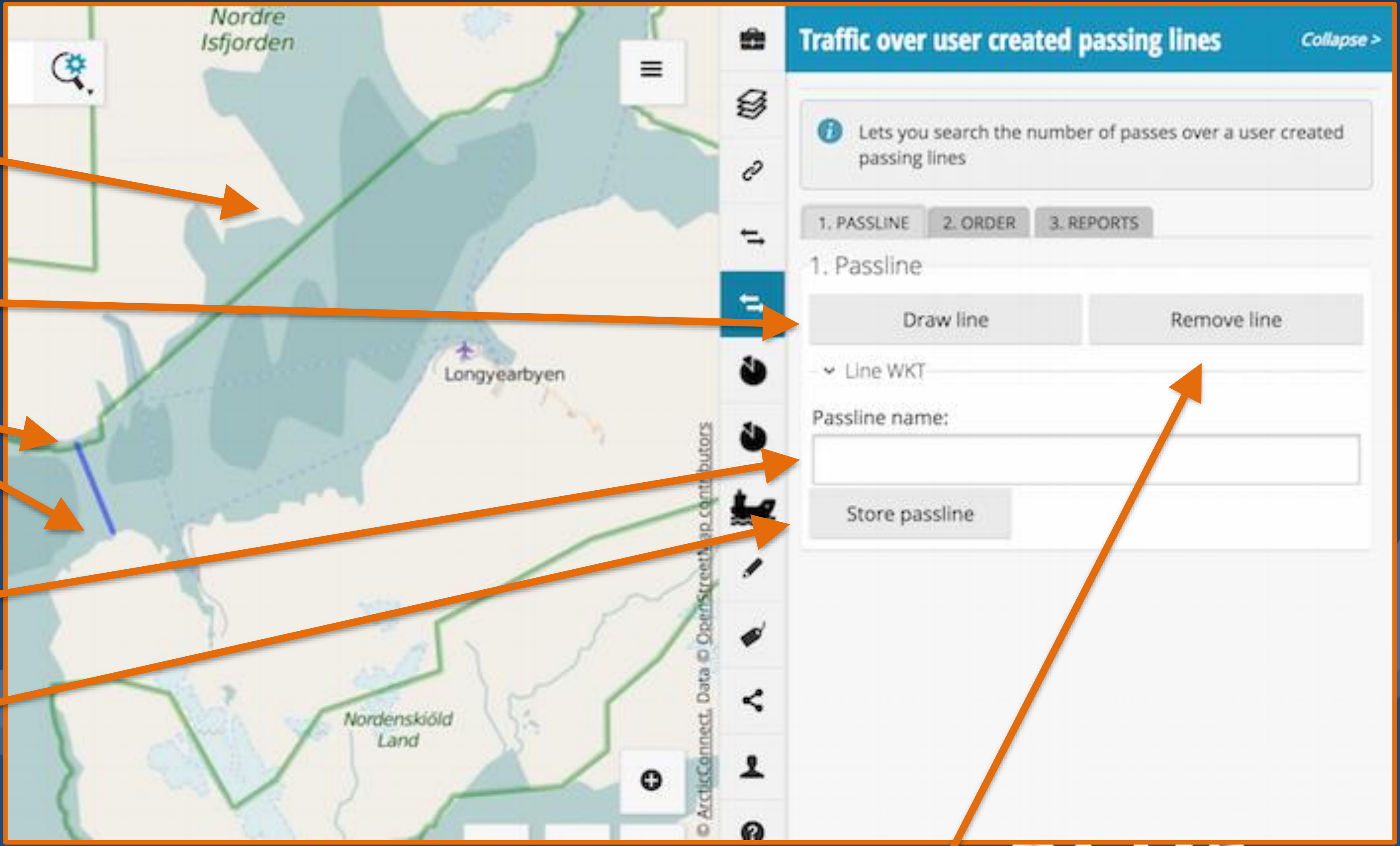
Traffic over user created passing lines

- Users can create their own passlines
  - The passlines created are only available and seen by that logged in user
- Historical analysis can be performed by comparing passings over the line created.

PAME
Protection of the Arctic Marine Environment

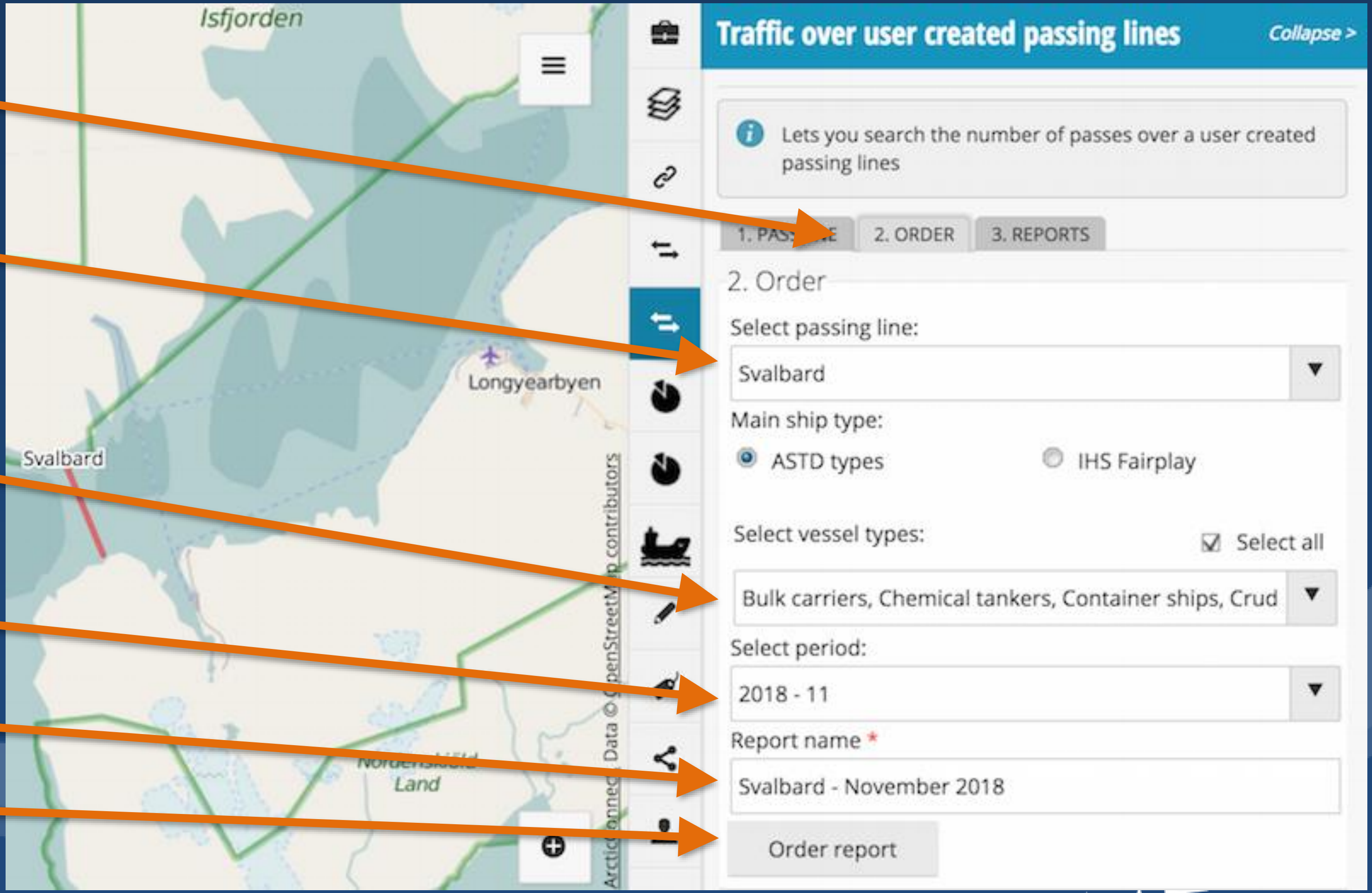
Traffic over user created passing lines

1. Find the location on the map where you want to draw the line
2. Click Draw line
3. Click on two locations on the map
4. Give the passline a name
5. Click Store passline
6. Users can also remove the line by clicking the line and then Remove line



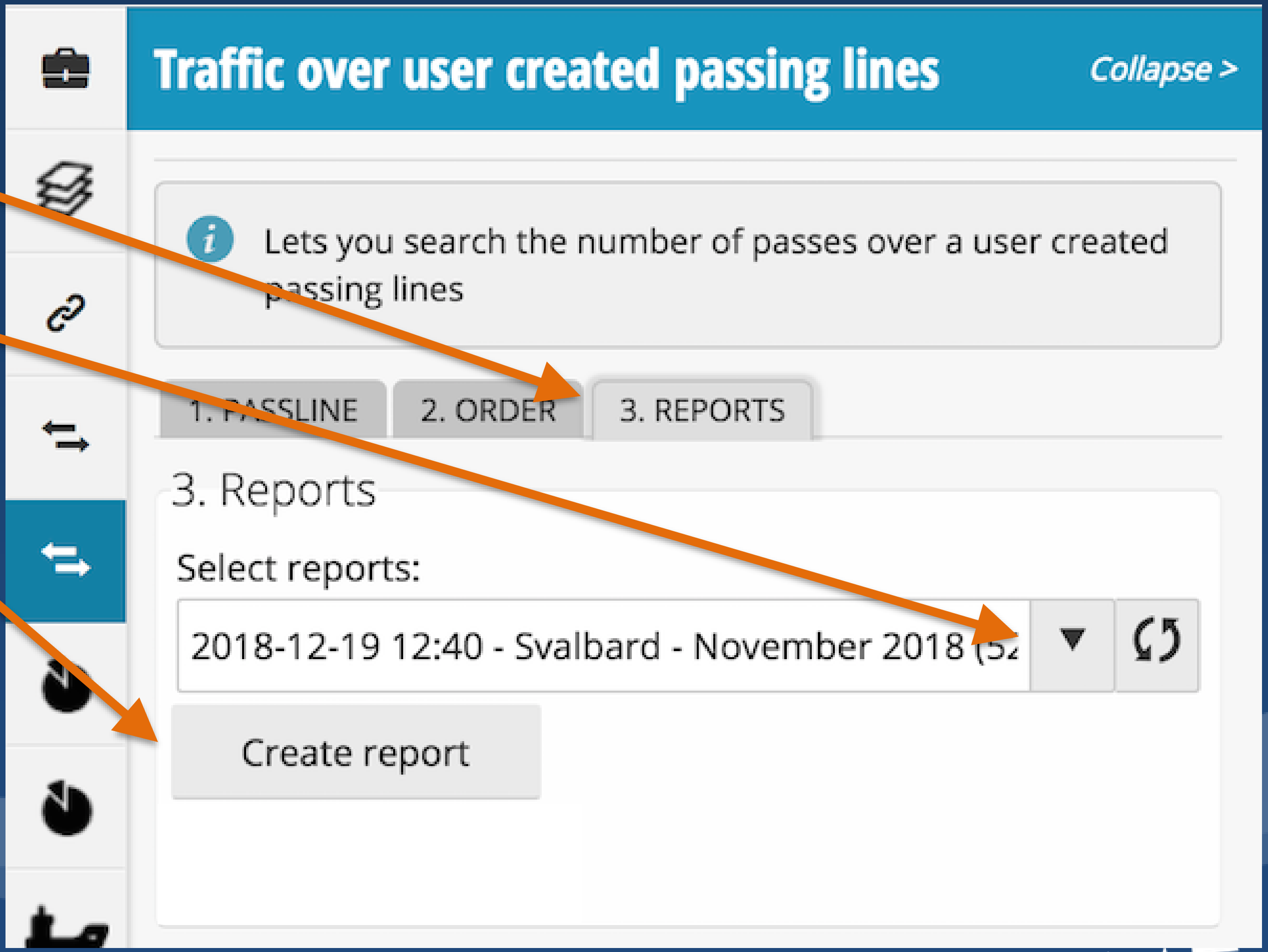
Traffic over user created passing lines

1. Choose order
2. Select the passline you created, or another line previously created
3. Select the ship types to analyse
4. Select the period
5. Give the Report a name
6. Click Order report



Traffic over user created passing lines

1. Select Reports
2. Select the Report name from the list
3. Click Create report

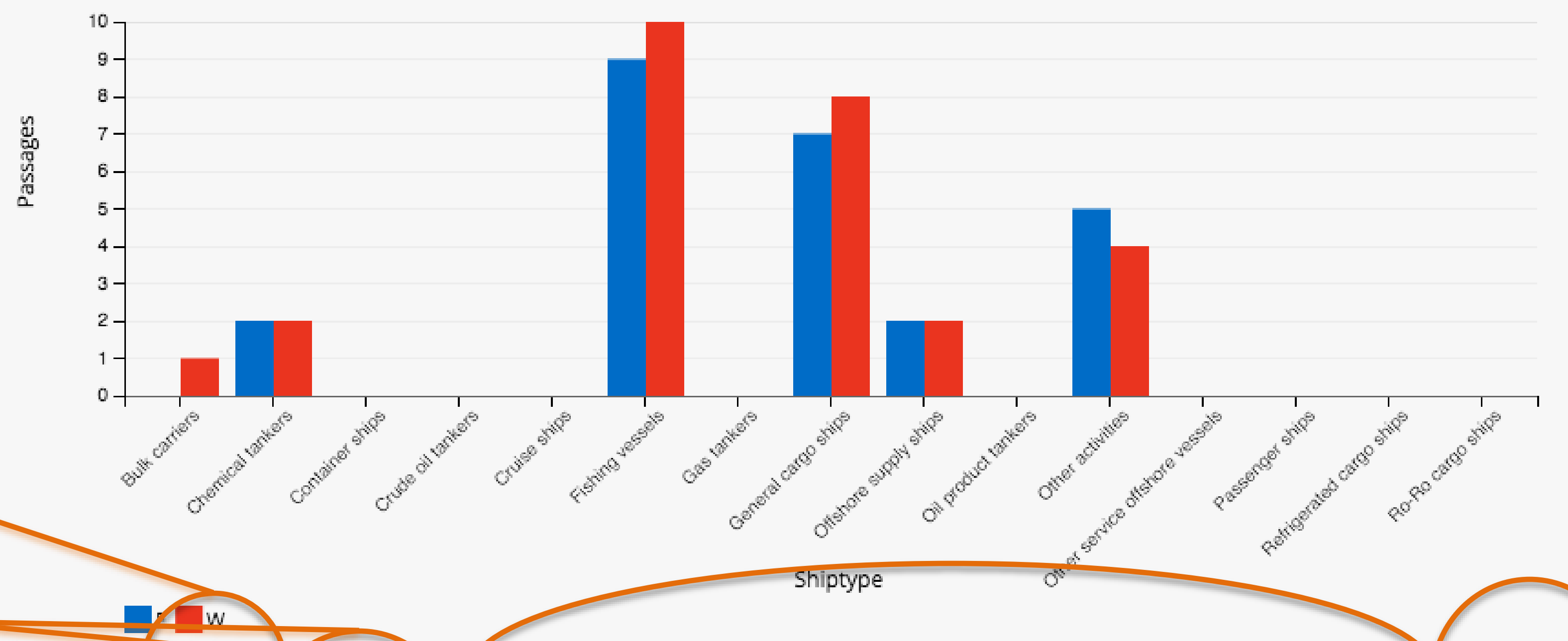


Traffic over user created passing lines: Reports

- Select a passing line
- Select vessel types
- Select period
- Click Create report
- The report shows:
  - The ship type
  - The heading of the ships
  - The size of the ships
  - The number of passings
  - Total number of passings (at the bottom of the report)

Traffic over user created passing lines

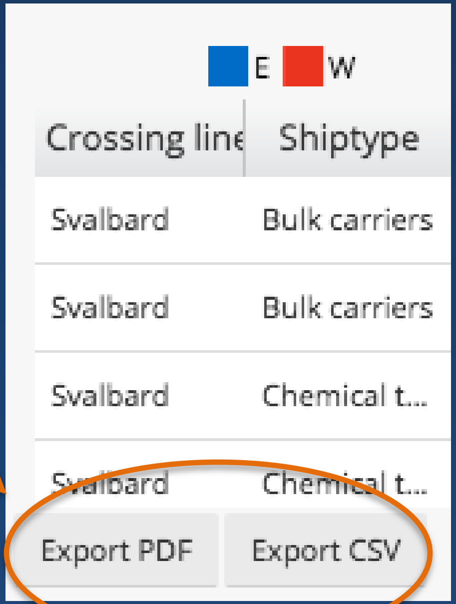
Lets you search the number of passes over a user created passing lines



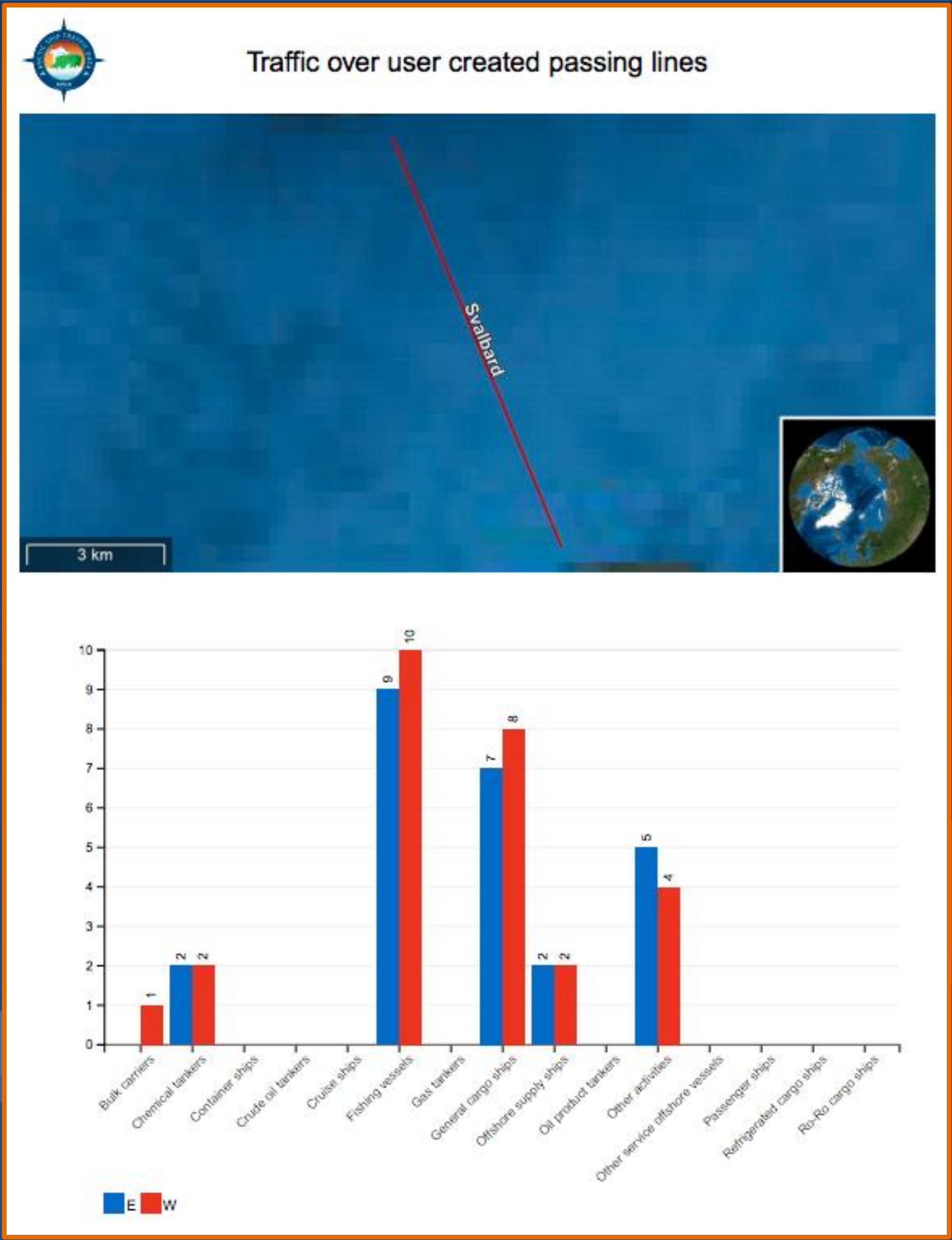
Crossing line	Shiptype	Pass heading	<1000 GT	1000-4999 G	5000-9999 G	10000-2499	25000-4999	50000-9999	>=100000 G	Passings
Svalbard	Bulk carriers	E	0	0	0	0	0	0	0	0
Svalbard	Bulk carriers	W	0	0	0	1	0	0	0	1

Traffic over user created passing lines: Export PDF

- The Reports can be Exported to either PDF, or CSV (Comma Seperated Values)



- The PDF contains the chart and is easily share-able.



Traffic over user created passing lines: CSV

- .CSV files mean ”Comma Seperated Values”
  - These are files for many strings of data
- Export CSV and open the file in Excel
- Choose the A field > Press Data > Text to columns > Deliminated > Next > Comma > Finish
  - This results in each field with only one value
  - The file and information can be easily worked with in Excel

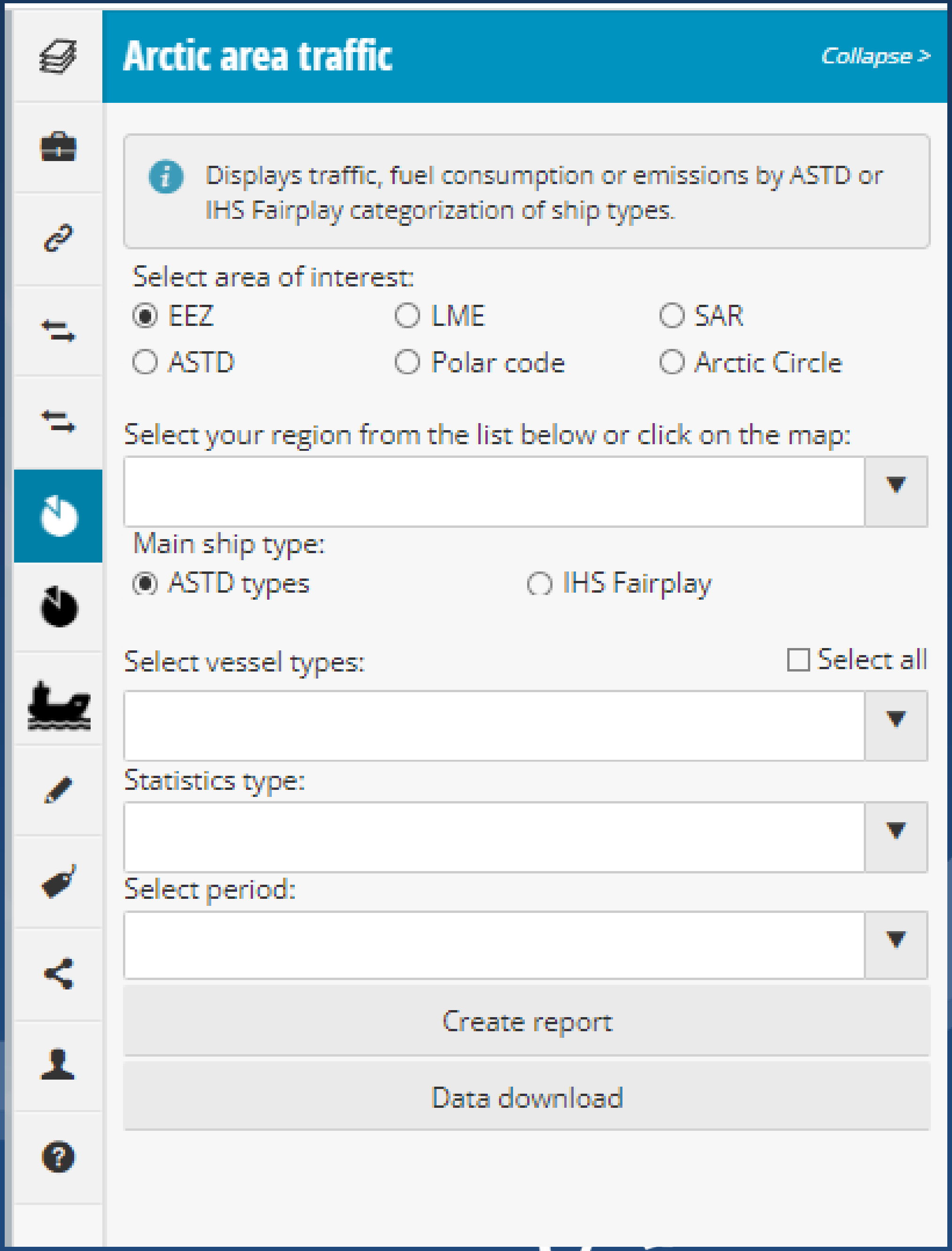
	A	B	C	D
1	Crossing line,Shiptype,Pass heading,<1000 GT,100			
2	Svalbard,Bulk carriers,E,0,0,0,0,0,0,0,0			
3	Svalbard,Bulk carriers,W,0,0,0,1,0,0,0,1			
4	Svalbard,Chemical tankers,E,0,2,0,0,0,0,0,2			
5	Svalbard,Chemical tankers,W,0,2,0,0,0,0,0,2			

	A	B	C	D	E	F	G	H	I	J	K
1	Crossing line	Shiptype	Pass heading	<1000 GT	1000-4999 GT	5000-9999 GT	10000-24999 GT	25000-49999 GT	50000-99999 GT	>=100000 GT	Passings
2	Svalbard	Bulk carriers	E	0	0	0	0	0	0	0	0
3	Svalbard	Bulk carriers	W	0	0	0	1	0	0	0	1
4	Svalbard	Chemical tankers	E	0	2	0	0	0	0	0	2
5	Svalbard	Chemical tankers	W	0	2	0	0	0	0	0	2
6	Svalbard	Container ships	E	0	0	0	0	0	0	0	0
7	Svalbard	Container ships	W	0	0	0	0	0	0	0	0
8	Svalbard	Crude oil tankers	E	0	0	0	0	0	0	0	0
9	Svalbard	Crude oil tankers	W	0	0	0	0	0	0	0	0
10	Svalbard	Cruise ships	E	0	0	0	0	0	0	0	0
11	Svalbard	Cruise ships	W	0	0	0	0	0	0	0	0
12	Svalbard	Fishing vessels	E	1	8	0	0	0	0	0	9
13	Svalbard	Fishing vessels	W	1	9	0	0	0	0	0	10
14	Svalbard	Gas tankers	E	0	0	0	0	0	0	0	0
15	Svalbard	Gas tankers	W	0	0	0	0	0	0	0	0
16	Svalbard	General cargo ships	E	0	7	0	0	0	0	0	7
17	Svalbard	General cargo ships	W	0	7	1	0	0	0	0	8
18	Svalbard	Offshore supply ships	E	0	2	0	0	0	0	0	2
19	Svalbard	Offshore supply ships	W	0	2	0	0	0	0	0	2
20	Svalbard	Oil product tankers	E	0	0	0	0	0	0	0	0

Arctic Area Traffic

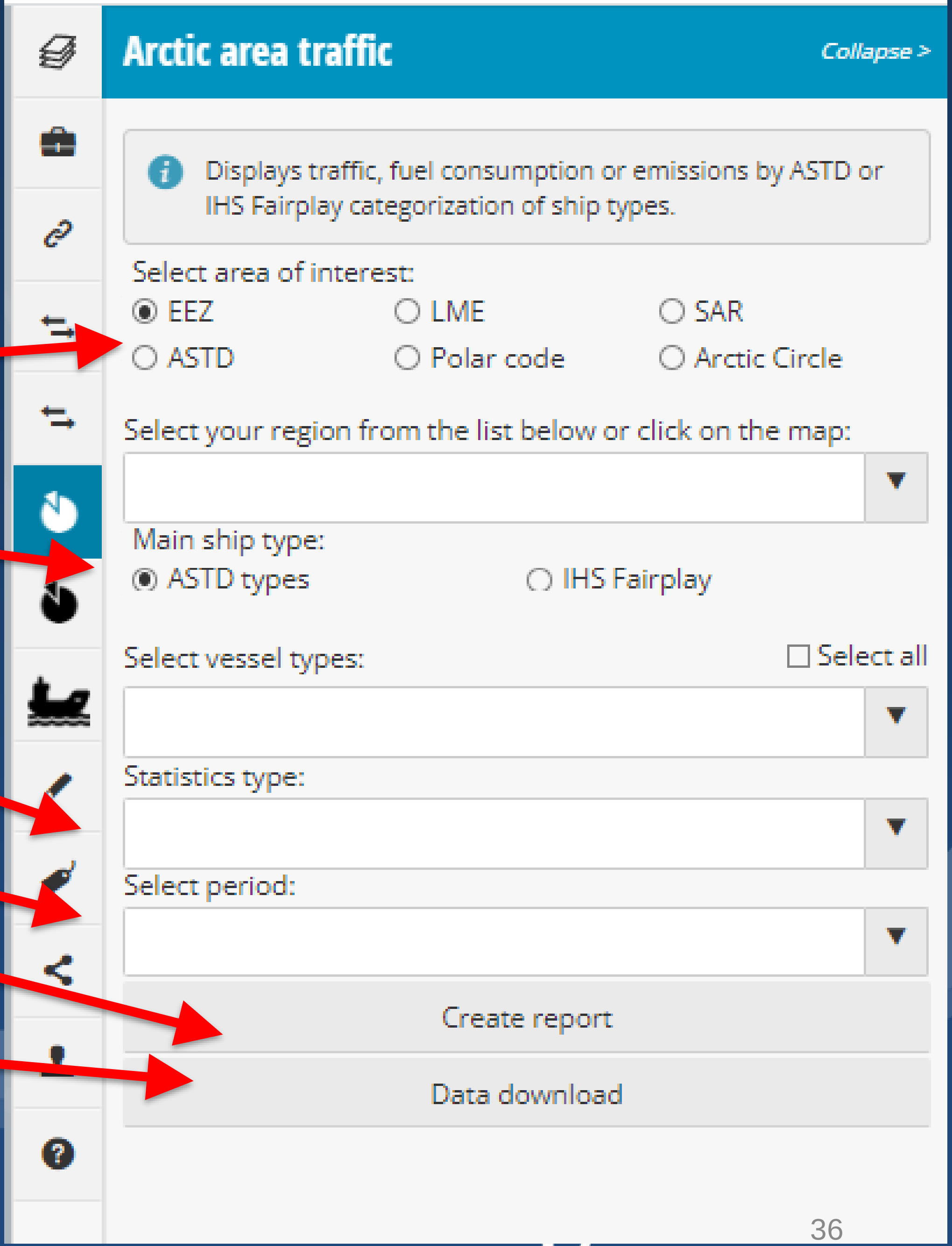
Allows users to analyse statistics in specific areas in the Arctic. The areas are:

1. The eight Arctic States' Exclusive Economic Zones (EEZ)
2. The 18 Large Marine Ecosystems of the Arctic (LME)
   - Read more about the LME's here: https://pame.is/index.php/projects/ecosystem-approach/arctic-large-marine-ecosystems-lme-s
3. Search and Rescue areas (SAR)
   - According to the Arctic Council *Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic* (signed 2011)
4. Polar code area
   - As defined in the IMO Polar Code: http://www.imo.org/en/MediaCentre/HotTopics/polar/Pages/default.aspx



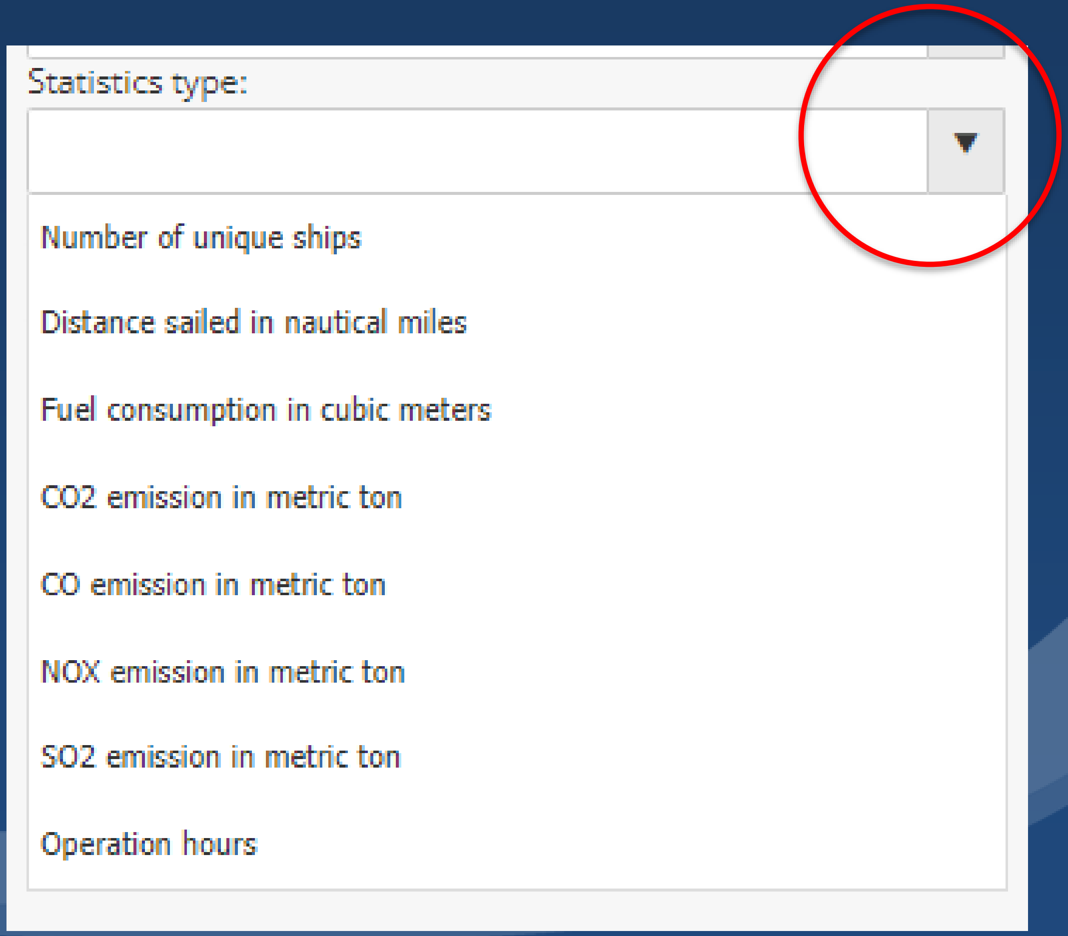
Using Arctic area traffic

- As before, users:
  1. select an area
  2. then the ship types to look at
     - (Dependent on user rights)
  3. Choose the Statistics type
  4. Select the period
  5. Click Create report
  6. Or Download the data directly to CSV



Types of Statistics 1/3

- User reports can show each statistic type
  - When data is downloaded, all these data features are automatically included.
- These Types of statistics are available:
  - Number of unique ships
  - Distance sailed in nautical miles
  - Fuel consumption in cubic meters
  - CO_2 emission in metric ton
  - CO emission in metric ton
  - NOX emission in metric ton
  - SO_2 emission in metric ton
  - Operation hours



Types of Statistics 2/3

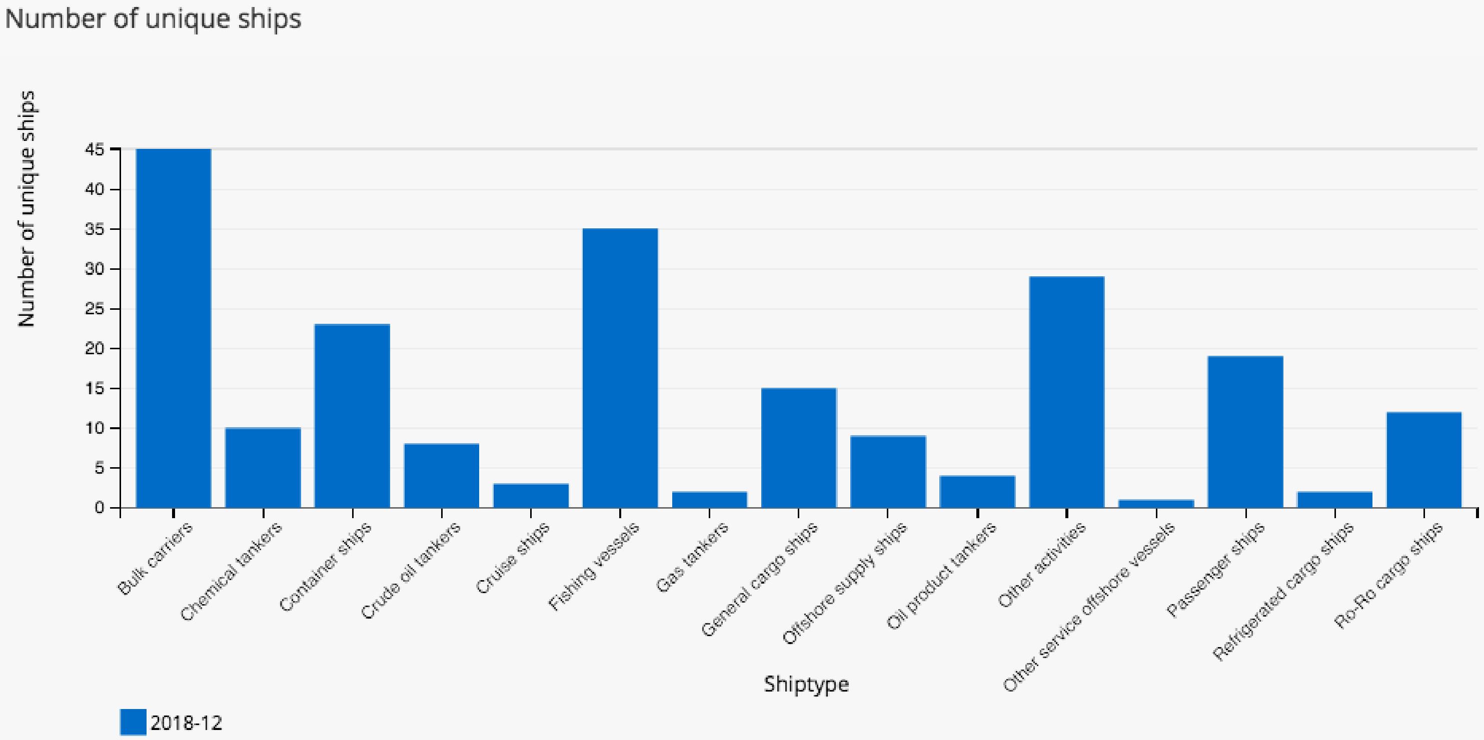
- **Number of Unique ships**
  - Refers to the number of ships entering the chosen area. Each ship is only counted once, so the total number of ship entries during the chosen period can be multiple because each ship can enter the area multiple times during the chosen period.
- **Distance sailed in nautical miles**
  - Refers to the total distance sailed in nautical miles by the chosen ship types within the chosen area.
- **Fuel consumption in cubic meters**
  - Refers to the estimated fuel consumption calculated in cubic meters.
  - Includes all ships of the chosen shiptype in the chosen area.
  - Each individual ship is identified and the amount of fuel used calculated by identifying the fuel, the engine type, the speed of the ship and other factors.

Types of Statistics 3/3

- **CO2 emission in metric ton**
  - Refers to the amount of **Carbon Dioxide (CO_2)** released by the total number of ships of the chosen ship type in the chosen area.
- **CO emission in metric ton**
  - Refers to the amount of **Carbon monoxide** released by the total number of ships of the chosen ship type in the chosen area.
- **NOX emission in metric ton**
  - Refers to the amount of **Nitrogen Oxide** (NOx) released by the total number of ships of the chosen ship type in the chosen area.
- **SO2 emission in metric ton**
  - Refers to the amount of **Sulfur Dioxide** (SO2) released by the total number of ships of the chosen ship type in the chosen area.
- **Operation hours**
  - Refers to the total number of hours the total number of ships of the chosen ship type spent in the chosen area.

Statistics reports

- The reports show a graphic with the numbers according to the chosen Statistics type.
  - Here, the number of unique ships in the Canadian EEZ in December 2018 was chosen.
- The report shows:
  - Ship type
  - Size of the ship
  - The number of ships
  - Total number of ships
  - Can be exported to PDF or to CSV



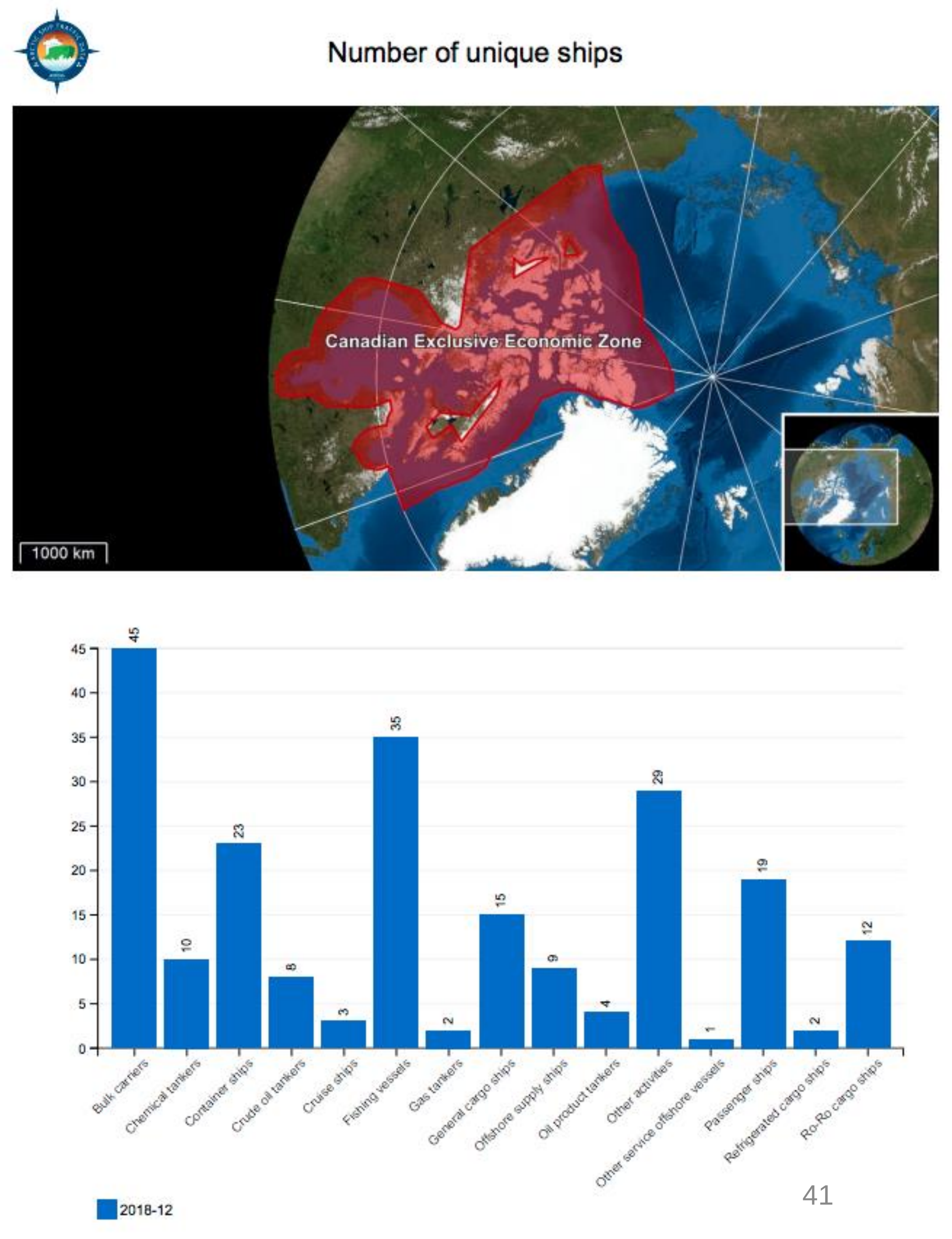
Shiptype	Period	<1000 GT	1000-4999 GT	5000-9999 GT	10000-24999	25000-49999	50000-99999	>=100000 GT	Total
Bulk carriers	2018-12	0	0	0	13	24	7	1	45
Chemical ta...	2018-12	0	1	0	4	5	0	0	10
Container sh...	2018-12	0	0	1	2	3	14	3	23
Crude oil ta...	2018-12	0	0	0	1	1	5	1	8
Cruise ships	2018-12	0	0	0	2	0	0	1	3

Export PDF Export CSV

Shiptype	Period	<1000 GT	1000-4999 GT	5000-9999 GT	10000-24999	25000-49999	50000-99999	>=100000 GT	Total
		68	30	8	33	38	34	6	217

Exporting Arctic area traffic: PDF Reports

- The Arctic area PDF reports are simple to make and use
- Click the PDF button after choosing the criteria



Exporting Arctic Area Traffic: CSV

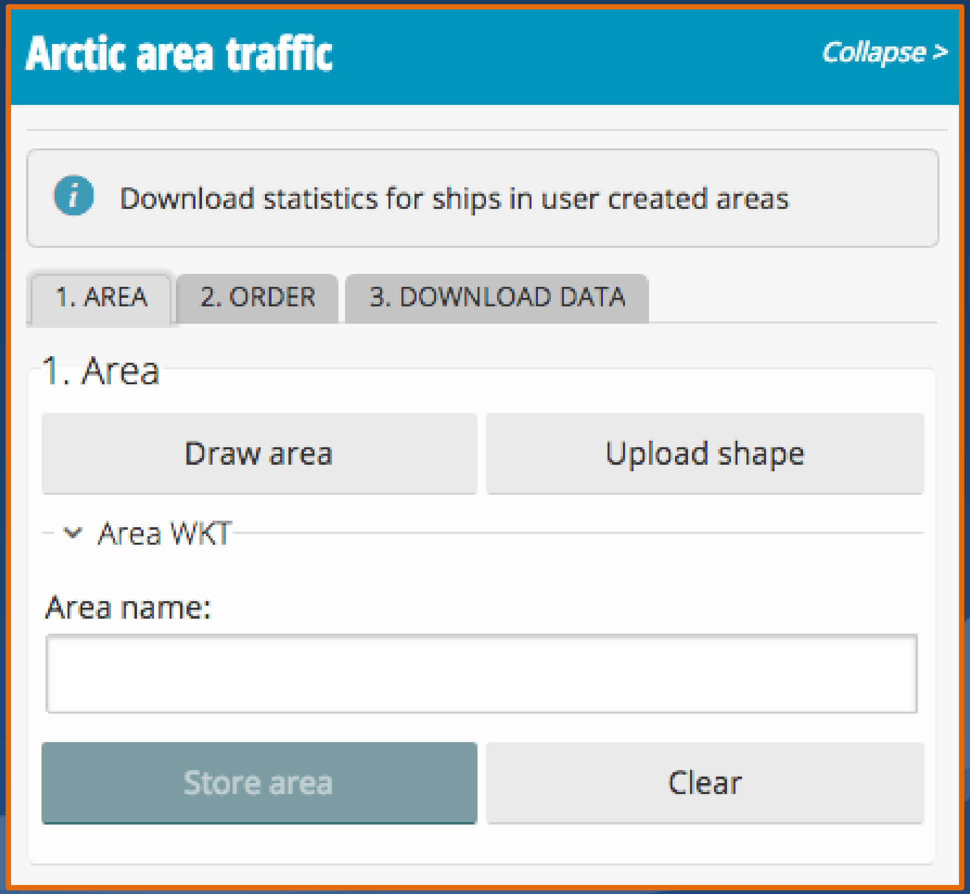
- .CSV files mean ”Comma Seperated Values”
  - These are files for many strings of data
- Export CSV and open the file in Excel
- Choose the A field > Press Data > Text to columns > Deliminated > Next > Comma > Finish
  - This results in each field with only one value
  - The file and information can be easily worked with in Excel

	A	B	C	D
1	ï»¿Shiptype,Period,<1000 GT,1000-4999 GT,5000-9999			
2	Bulk carriers,2018-12,0,0,0,13,24,7,1,45			
3	Chemical tankers,2018-12,0,1,0,4,5,0,0,10			
4	Container ships,2018-12,0,0,1,2,3,14,3,23			
5	Crude oil tankers,2018-12,0,0,0,1,1,5,1,8			
6	Cruise ships,2018-12,0,0,0,2,0,0,1,3			
7	Fishing vessels,2018-12,22,13,0,0,0,0,0,35			
8	Gas tankers,2018-12,0,0,0,0,2,0,0,2			
9	General cargo ships,2018-12,3,4,2,5,1,0,0,15			
10	Offshore supply ships,2018-12,5,3,1,0,0,0,0,9			
11	Oil product tankers,2018-12,1,2,0,1,0,0,0,4			
12	Other activities,2018-12,25,3,1,0,0,0,0,29			
13	Other service offshore vessels,2018-12,0,0,0,1,0,0,0,1			
14	Passenger ships,2018-12,9,4,2,3,1,0,0,19			
15	Refrigerated cargo ships,2018-12,2,0,0,0,0,0,0,2			
16	Ro-Ro cargo ships,2018-12,1,0,1,1,1,8,0,12			

	A	B	C	D	E	F	G	H	I	J
1	ï»¿Shiptype	Period	<1000 GT	1000-4999 G	5000-9999 G	10000-2499	25000-4999	50000-9999	>=100000 G	Total
2	Bulk carriers	2018-12	0	0	0	13	24	7	1	45
3	Chemical tankers	2018-12	0	1	0	4	5	0	0	10
4	Container ships	2018-12	0	0	1	2	3	14	3	23
5	Crude oil tankers	2018-12	0	0	0	1	1	5	1	8
6	Cruise ships	2018-12	0	0	0	2	0	0	1	3
7	Fishing vessels	2018-12	22	13	0	0	0	0	0	35
8	Gas tankers	2018-12	0	0	0	0	2	0	0	2
9	General cargo ships	2018-12	3	4	2	5	1	0	0	15
10	Offshore supply ships	2018-12	5	3	1	0	0	0	0	9
11	Oil product tankers	2018-12	1	2	0	1	0	0	0	4
12	Other activities	2018-12	25	3	1	0	0	0	0	29
13	Other service offshore vessels	2018-12	0	0	0	1	0	0	0	1
14	Passenger ships	2018-12	9	4	2	3	1	0	0	19
15	Refrigerated cargo ships	2018-12	2	0	0	0	0	0	0	2
16	Ro-Ro cargo ships	2018-12	1	0	1	1	1	8	0	12

Arctic Area Traffic: User created areas

- ASTD users can draw areas in the system for analysis.
- Each area drawn is only available for that specific user which is logged in.
- Users can also upload shapefiles to the system and analyze shipping activity within the area uploaded.



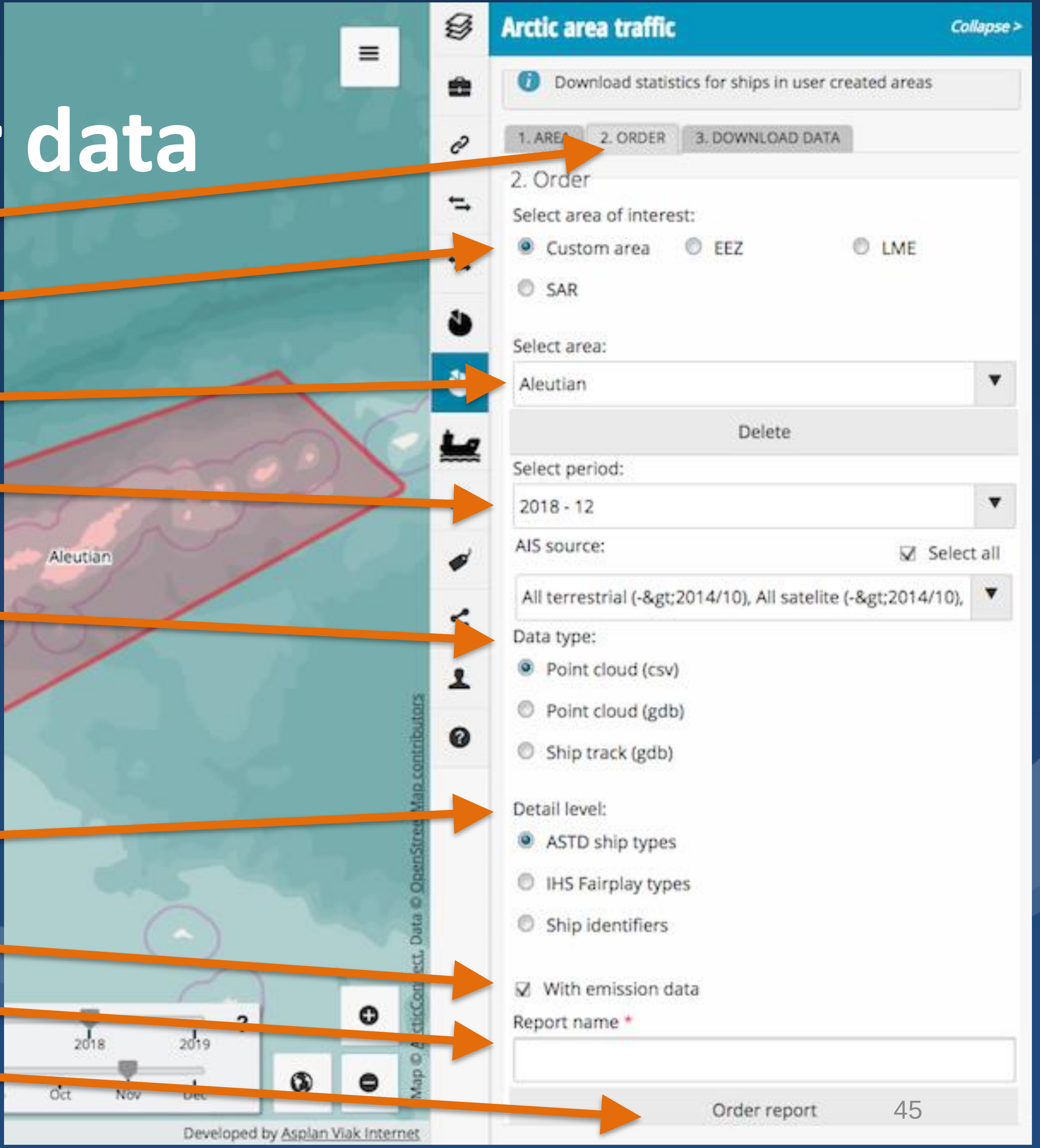
PAME
Protection of the Arctic Marine Environment

Arctic area traffic: Drawing areas

- Click draw area
- Click the area you want to analyse and finish by double clicking
  – Note that users can only draw areas less than 100.000 km^2

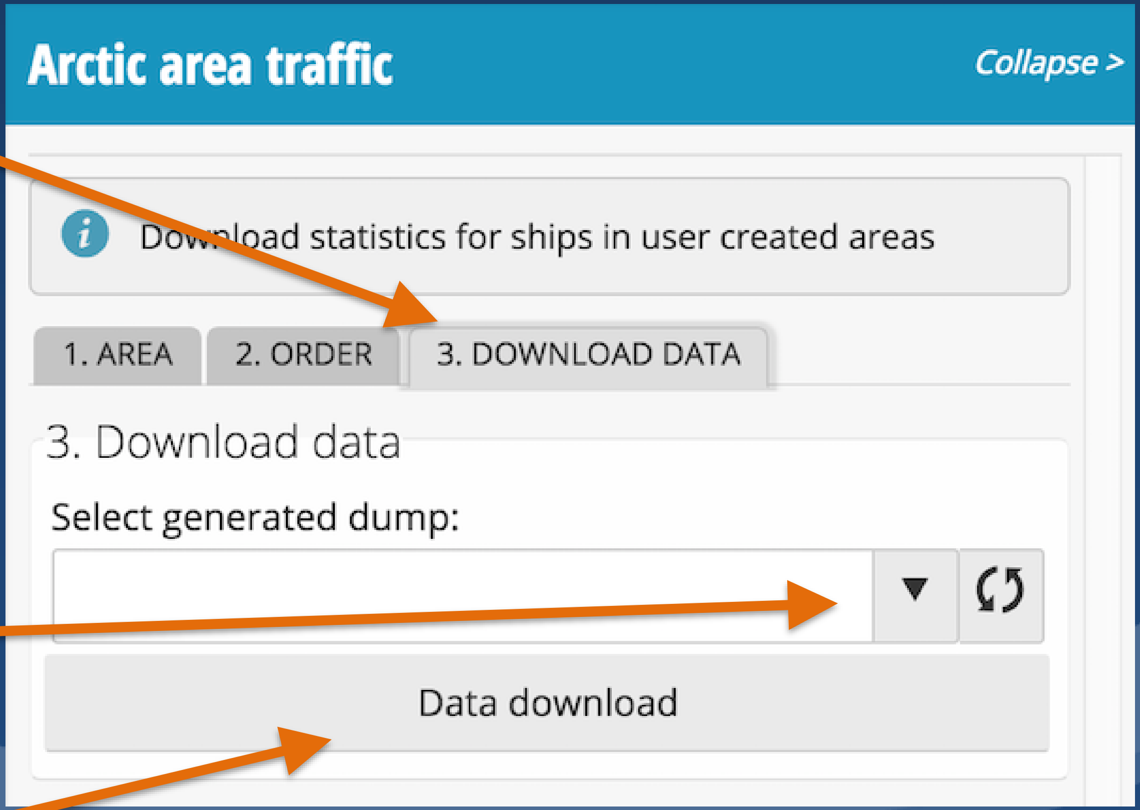
Arctic area traffic: Order data

1. Click order
2. Select Custom area
3. Find the area you created
4. Select the period
5. Choose type of data
   - Point cloud (csv format)
   - Point cloud (gdb format)
   - Ship track (gdb format)
     - Shows the tracks of the ships in the chosen area
6. Choose detail level (ship levels are available according to your user rights)
7. Choose if you want the emission data or not
8. Give the report a name
9. Click order report



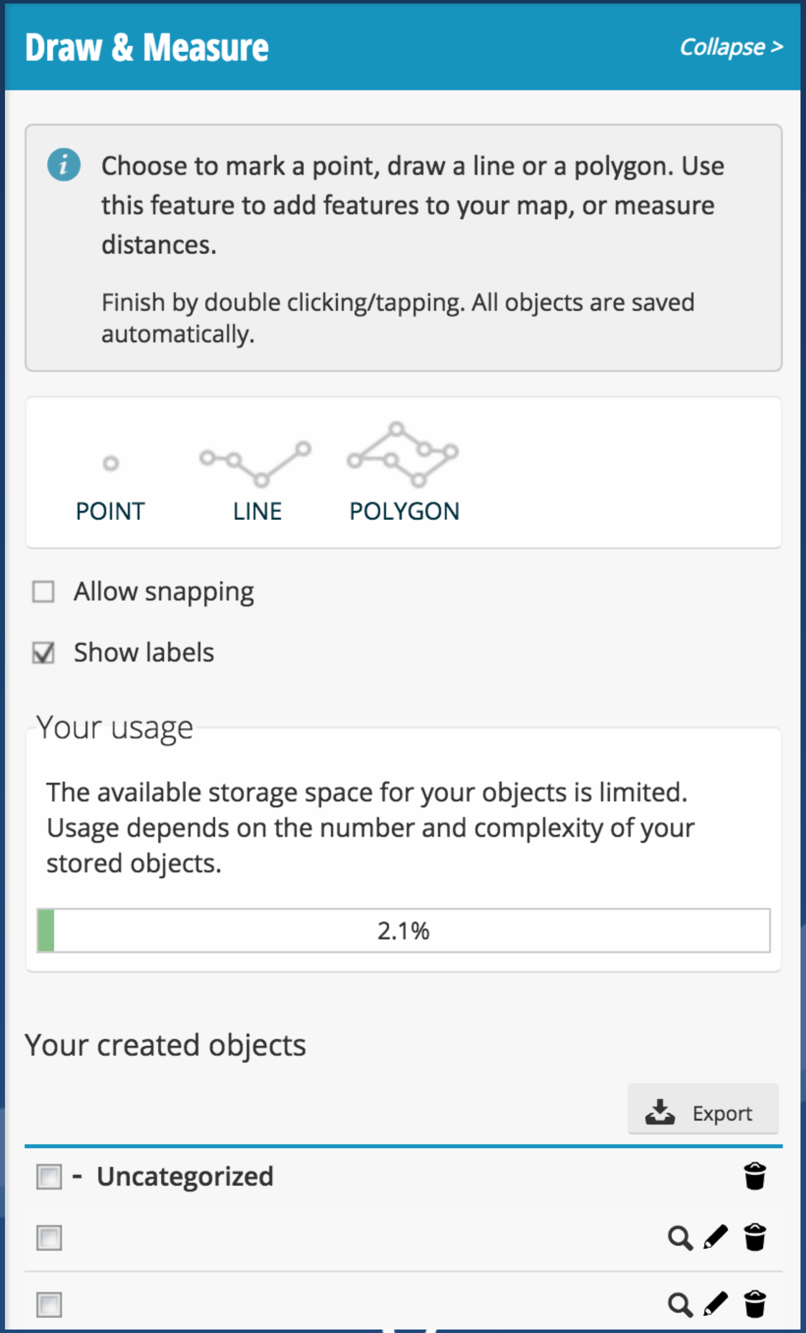
Arctic area traffic: Downloading data

- Click download data
  - Note: Now the data will be generated by the database. This might take some time, depening on the size of the area chosen and the information requested. Please show patience and allow for some time, up to one day, for the data to be generated.
  - **Only click Data download once**
- Find the report you ordered in the list
  - You will receive an e-mail when the report is ready
- Click Data download



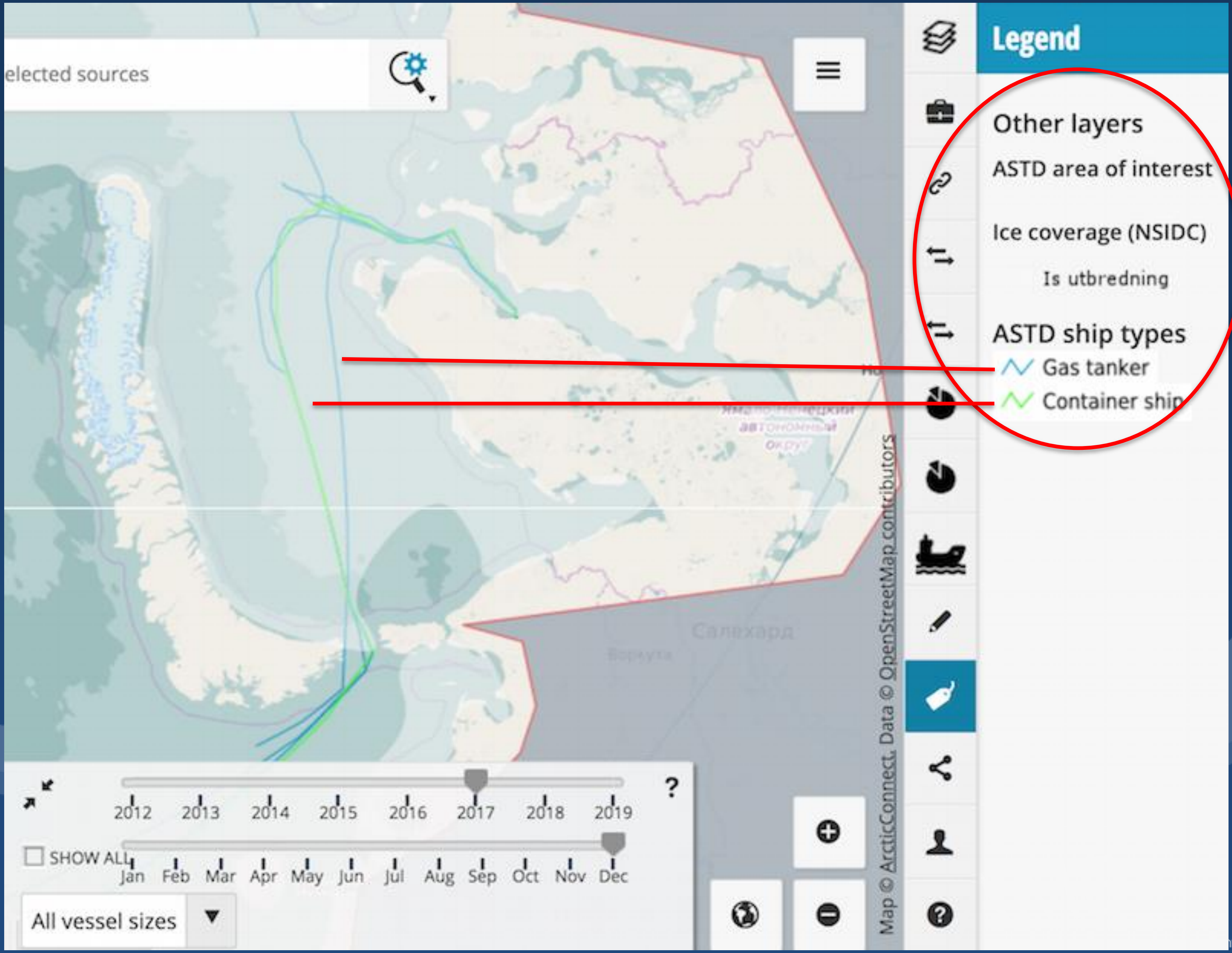
Draw and Measure

- Users can draw into the maps, either :
  - Points (e.g. to mark places)
  - Lines, or;
  - Polygons
- Users can include this in exports, e.g. Maps
- Objects are saved for that particular users
  - Limited storage space for each user



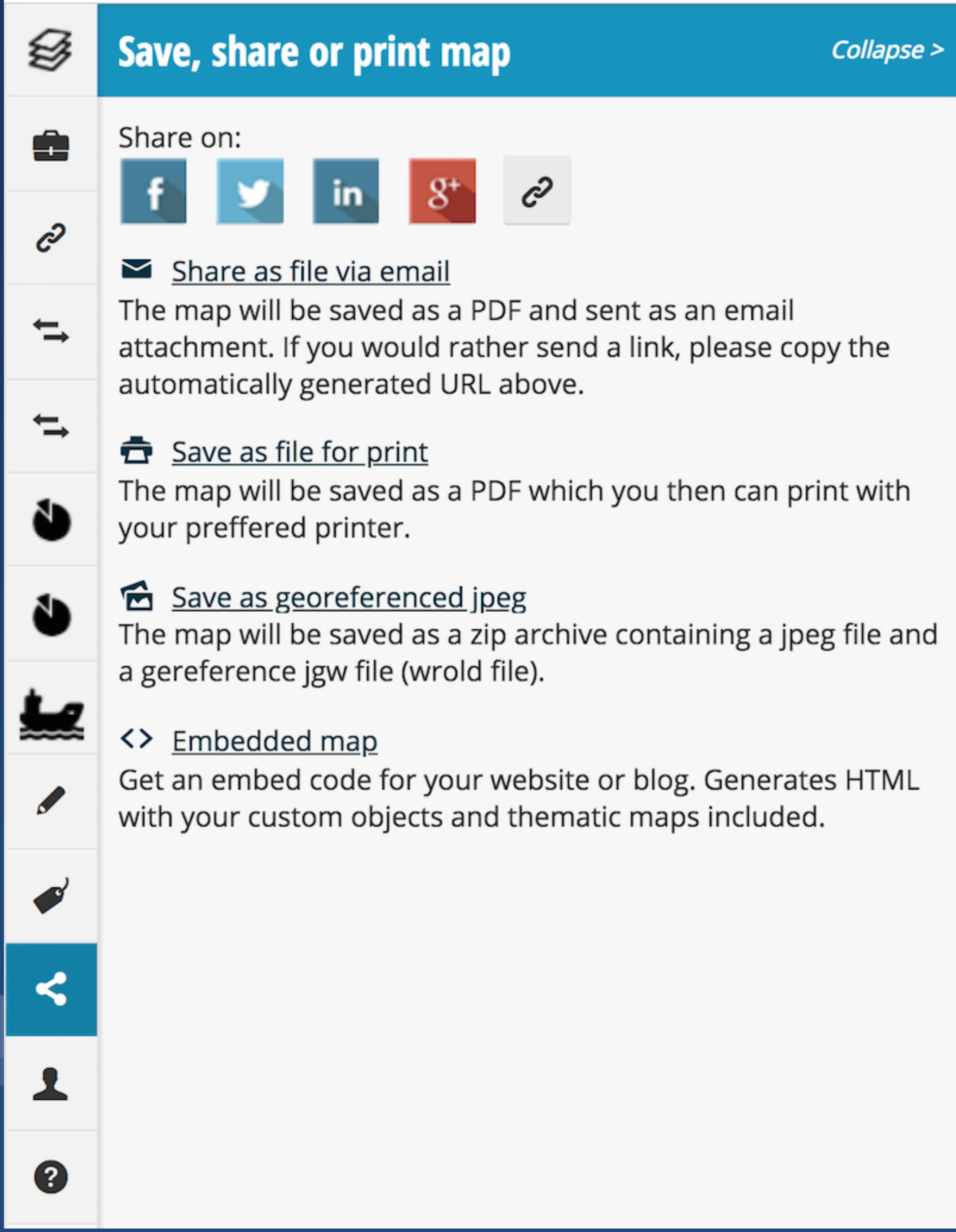
Legend

- Shows what layers are visible



Save, share or print map

- Allows users to share their maps easily
- Follow instructions in the system



Login

- Users can:
  - Switch to Norwegian language
  - Change their password
  - Or change their information
  - Log out