



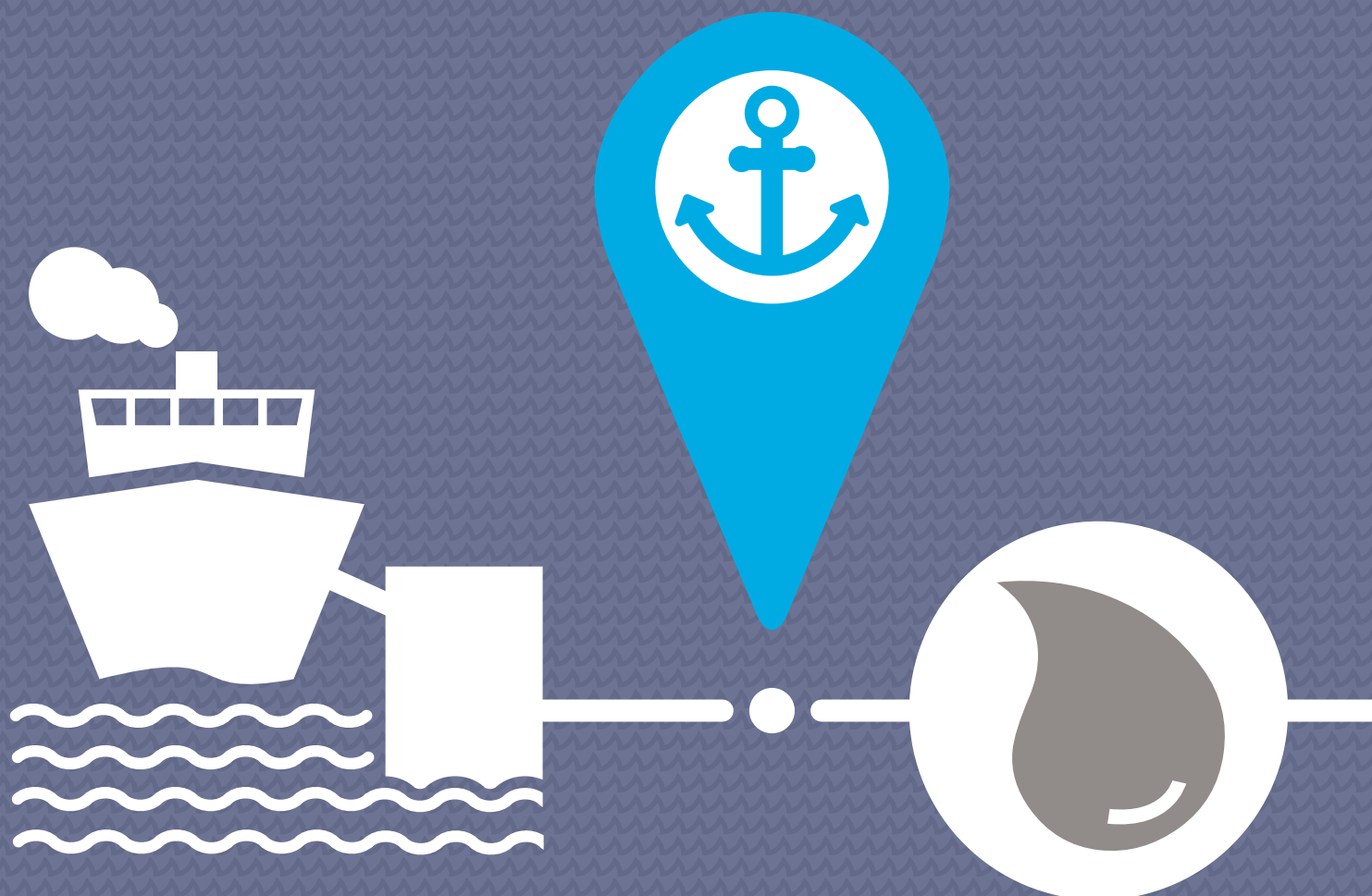
# Baltic Sea Sewage Port Reception Facilities HELCOM overview 2019

Baltic Marine Environment  
Protection Commission

Shipping



2020





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<sup>1</sup>) Secretariat of the Helsinki Commission

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# Baltic Sea Sewage Port Reception Facilities

## HELCOM overview 2019

### I. A regional sewage Port Reception Facilities overview - with focus on cruise ships

This report provides information on the status of sewage port reception facilities (PRF) and their use in the Baltic Sea area, with a focus on international cruise traffic. Cruise traffic has been growing during recent years and it is important to make Baltic Sea-wide information available on sewage PRF needs and availability in the Baltic Sea ports.

This document has been compiled by the HELCOM Secretariat based on information received by port authorities, national Administrations and the cruise and port industries. HELCOM AIS data for the period 2006 to 2018 was also used to produce some figures available in the following port sheets. In 2017, 2018 and 2019, multiple requests were sent to the national Administrations to provide new relevant and updated information regarding sewage PRF in their ports. The request also includes a call to update the available statistics such as the number of international passengers transiting per port, the number of port calls, the sewage discharged in each ports, etc.

## Information from national Administrations and industry

Information from the national Administrations has been provided via the national delegates of the HELCOM Maritime Working Group (HELCOM MARITIME), most recently following requests for updates since 2017.

Information from the industry has been collected with the generous help of HELCOM industry observers, particularly Cruise Lines International Association (CLIA), including a joint online survey for cruise ships during 2014, but also European Community Shipowners Association (ECSA), Baltic Ports Organisation (BPO) and European Sea Ports Organisation (ESPO). These industry actors have cooperated within the regional Cooperation Platform on Port Reception Facilities (PRF) in the Baltic Sea established in 2010.

In May 2014, HELCOM and the Cruise Lines International Association (CLIA) launched a joint survey in the Baltic Sea region for summer 2014. The survey aimed to collect detailed data on sewage delivery needs and available facilities in the Baltic Sea ports. The survey was available for cruise ships calling Baltic Sea ports between May and October 2014. The questionnaire was sent to ships and also to ports, but only a few ports answered. Answers from a total of 667 port calls, by 29 different cruise ships in 22 ports of the region, were received. The results of the survey have been used in this document for showing the use of sewage PRFs in the passenger ports in the Baltic Sea during 2014, as well as to document related comments by cruise ships crew.

Additional information sources for this publication have been an exchange of letters on sewage PRFs under the Nordic Council of Ministers (finalized in 2013), the *Baltic Port List* series published by the Turku University Centre for Maritime Studies, a 2013 compilation of statistics by the industry initiative Cruise Baltic ([www.cruisebaltic.com](http://www.cruisebaltic.com)) as well as a compilation of ferry lines information from the worldwide ferry portal website [www.ferrylines.com](http://www.ferrylines.com).

## AIS data

AIS data from the regional HELCOM AIS network covering the whole Baltic Sea area was used in order to generate figures to describe the cruise ships traffic in the region. From the AIS data, it is possible to retrieve relevant information such as the number of calls per port, the time spent operating at sea and in ports, etc. For each port sheets in this report, the figures 3.1, 3.2 and 3.6 are displaying information from the AIS data analysis. The methodology is explained in the [Annex I of the 2018 HELCOM Assessment on maritime activities in the Baltic Sea Region](#) and the scripts are available on the [HELCOM GitHub page](#).

For a few ports, the figures related to the number of port calls can be slightly different than the information received from the national Administrations. This is due to AIS data quality or inconsistencies in the update from the Administrations.

## 2. Cruise ships traffic in the Baltic Sea

The IMO registered passenger ships are only a small fraction of all the IMO registered ships operating in the Baltic Sea. In 2018, only 5.4% of these ships were passenger ships. However, most passenger ships are operating on regular lines between ports and this results in a fairly large proportion of the overall traffic in the Baltic Sea. In 2018 and based on HELCOM AIS data, 16.3% of the total distance sailed by the IMO registered ships was accomplished by passenger ships. The movements between the biggest ports of the Baltic Sea is visualized in figure 1 below and the traffic density is displayed in figure 2.

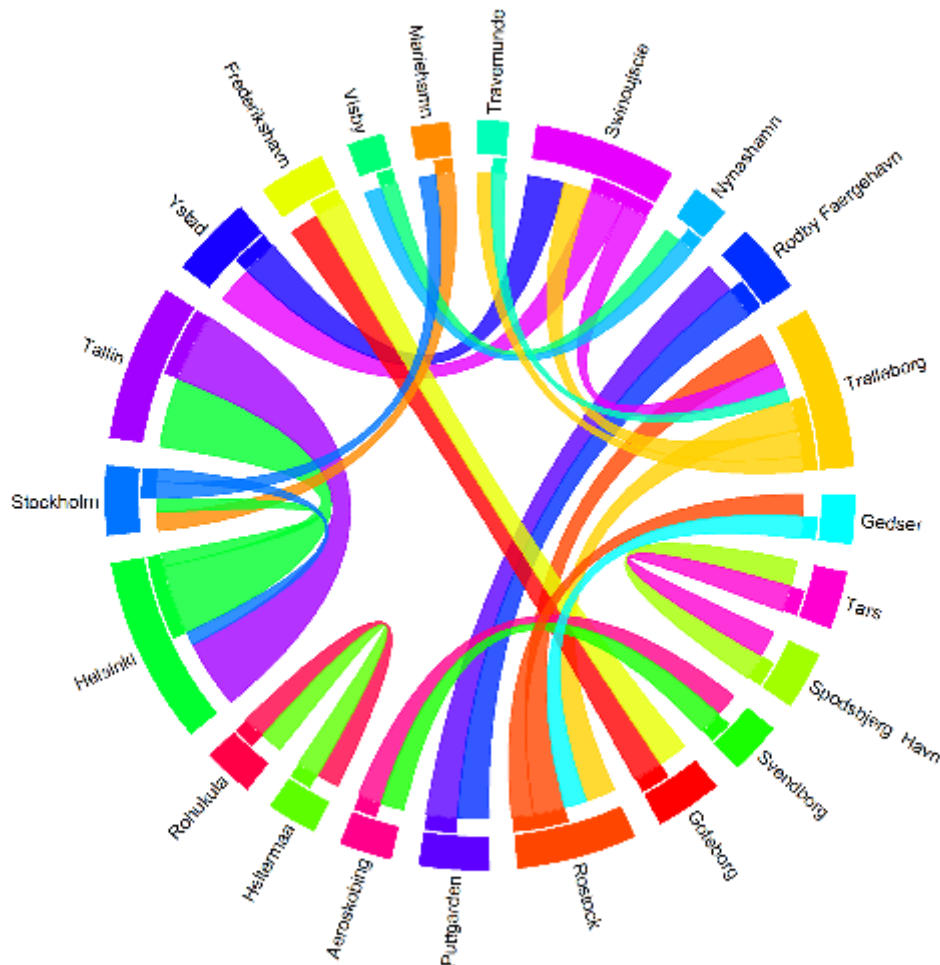


Figure 1: Passenger ship movements between ports (arrival and departures) in 2018 (between the 30 biggest ports and a minimum of 600 trips between ports). Figure based on HELCOM AIS data.

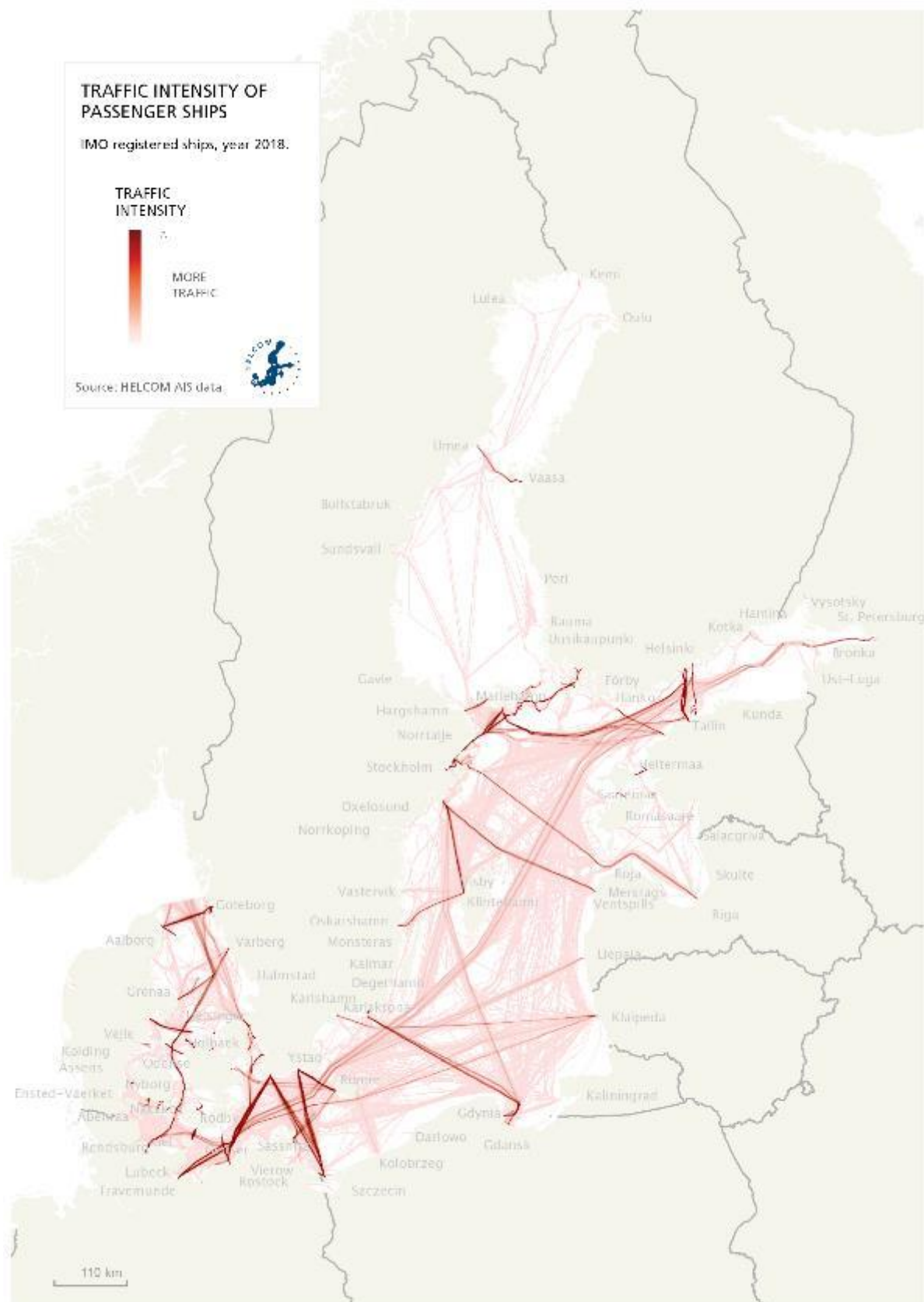


Figure 2: Traffic intensity map of all passenger ships in the Baltic Sea region in 2018  
The fleet of the passenger ships can be divided into smaller categories.



There is a strong seasonal variation of the passenger ships activity in the Baltic Sea area (HELCOM,2018). The number of ships operating on regular lines, such as the ferries, is decreasing every winter (cf. Figure 3). The cruise ships are mostly operating from April until October with an annual peak between June and August.

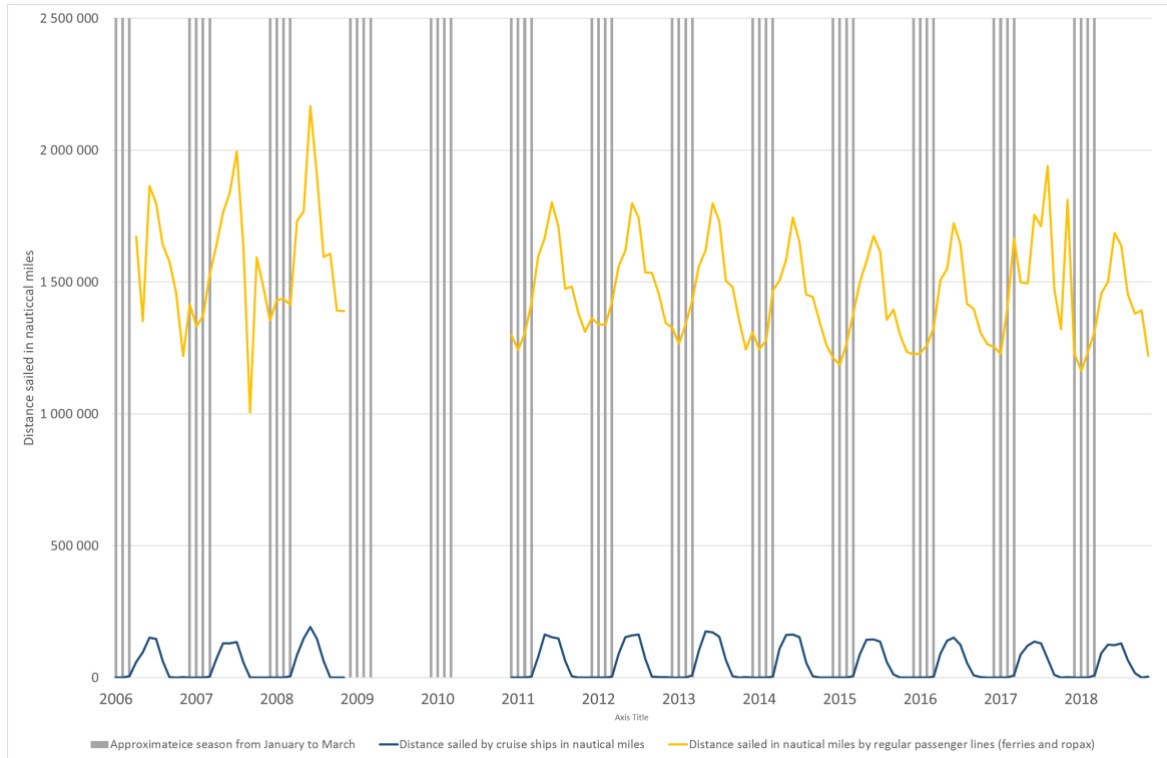


Figure 3: Distance sailed by cruise ships and regular passenger lines ( including ferries and ropax ships) in the Baltic Sea (monthly values) based on the HELCOM AIS data. The data gap of 2009 and 2010 is due to missing AIS data from the Kiel channel entrance for these years. Data from 2006–2008 is uneven in quality which should be considered when interpreting the results.

### Ports visited by cruise ships

The ports called by cruise ships during 2018 are displayed in the map below (cf. Figure 4). The cruise ships are usually visiting the same ports every year, predominantly the major touristic cities in the Baltic Sea region.

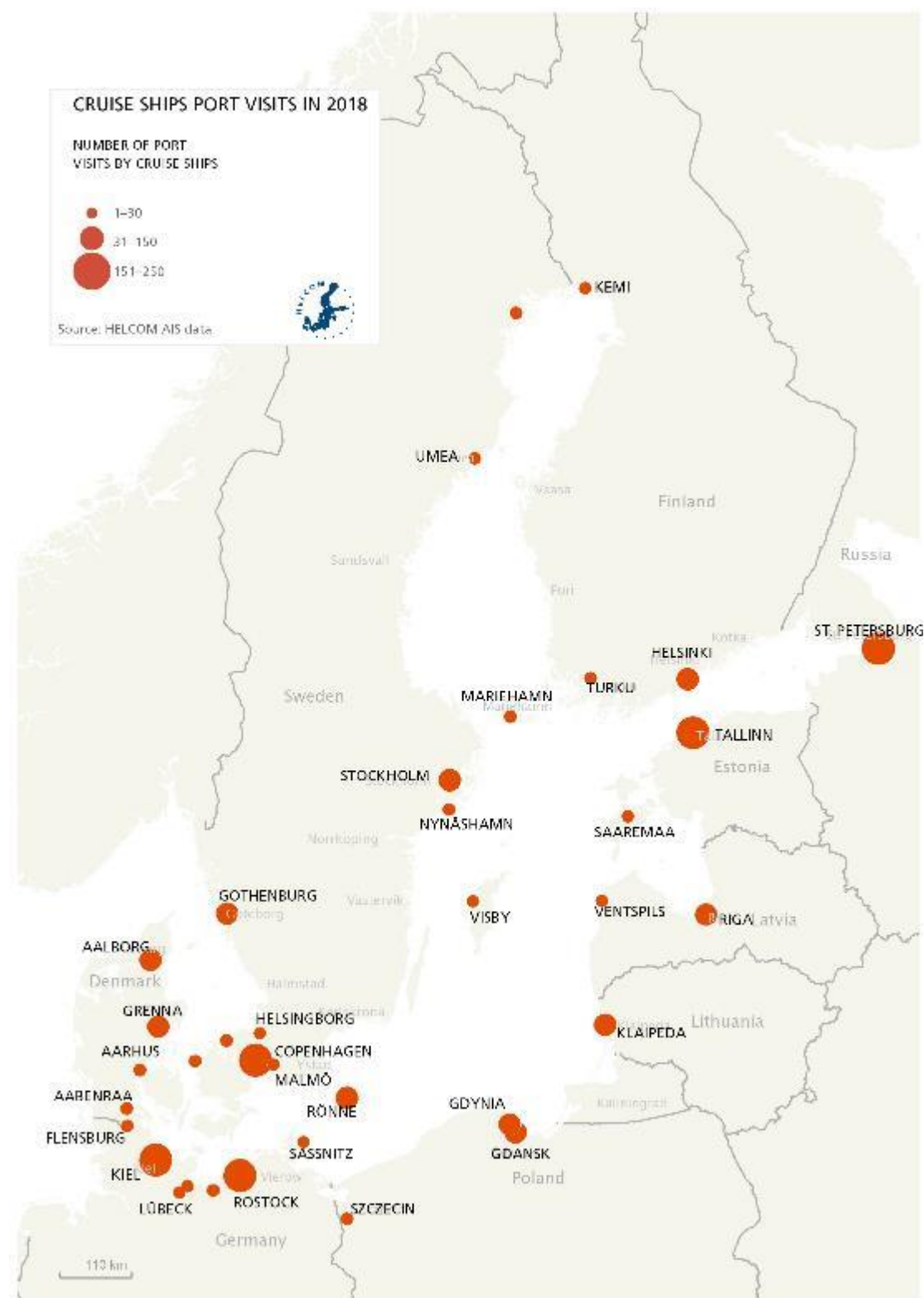


Figure 4: Cruise ships ports visits in 2018

## Cruising season in the Baltic Sea

Every year, the cruising season in the Baltic Sea area stretches from the beginning of April to the end of October (cf. Figure 5 below). The rest of the time, the cruise ships are operating in other marine areas outside the Baltic Sea region. Most of the cruise ships operating in the Baltic Sea are coming from outside the region.

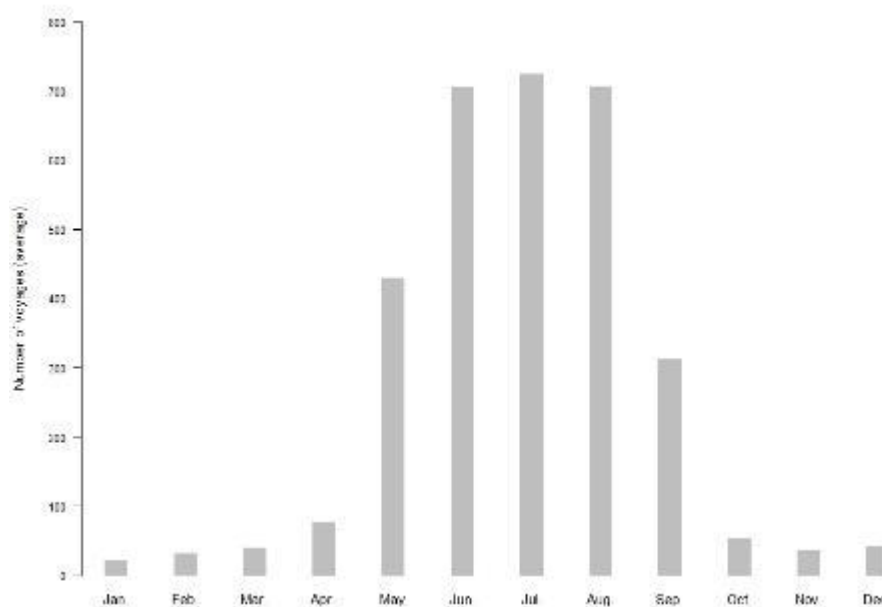


Figure. 5: Average number of voyages per month from 2006 to 2018, based on HELCOM AIS data

## Duration of the stay in ports

Between 2006 and 2018, the international cruise ships usually stop from 6 to 12 hours in the ports of the Baltic Sea (cf. Figure 6 below). Another minor peak is related to the stops with a duration between 32 and 36 hours in ports. These are mainly stops in the port of Saint Petersburg where the stops are usually longer than in other ports of the Baltic Sea region

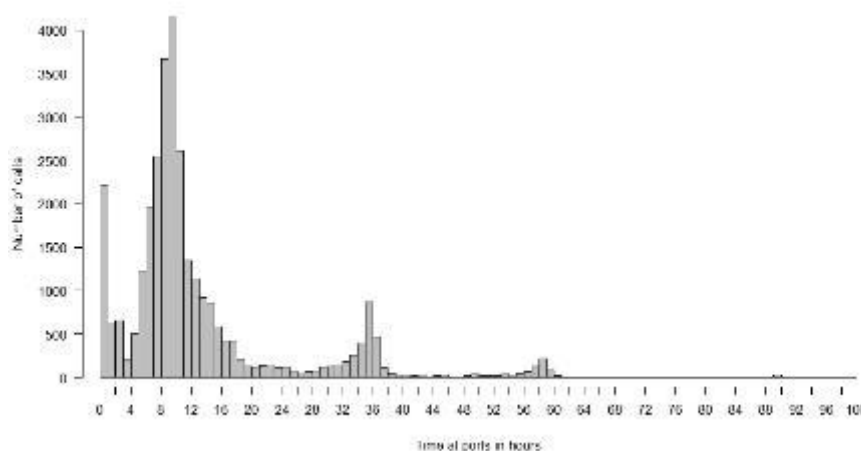


Figure 6: Duration of cruise ship visits (port calls) in the ports of the Baltic Sea from 2006 to 2018 based on HELCOM AIS data.

## Duration of the cruise ship voyages

Since 2006, half of the voyages of the cruise ships lasted between 8 to 18 hours (cf. Figure 7). Another cluster is related to the voyages with a duration between 30 to 40 hours at sea. The majority of these voyages are cruise ships traveling to Tallinn, Stockholm, Copenhagen and Rostock.

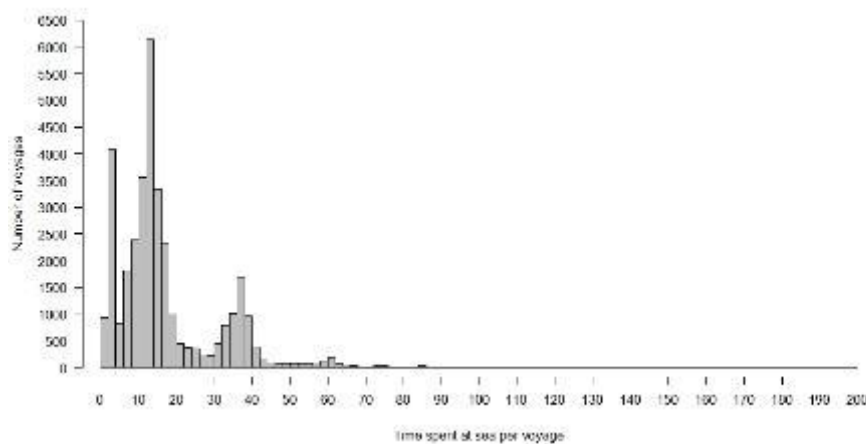


Figure 7: Duration of the voyages by cruise ships in the Baltic Sea area, based on the HELCOM AIS data.

## Anchoring

According to the HELCOM AIS data, cruise ships do not always enter certain small ports. Instead, the ships anchor outside the ports and have tender or shuttle boats to transfer passengers to the shore. Anchoring stops with a duration of a few hours or more are observed occasionally in the HELCOM AIS data. Barges are available in several ports to discharge sewage from such ships.

### 3. Ports specific information

This report provides detailed information on all ports of the Baltic Sea region that cruise ships are visiting. The information of each port is organized as follows:

## Port (Country)

<http://www.cmport.com/> UN LOC CODE: DKCPH



## General information about port.

Berths used by cruise ships according to AIS data during April - October 2014 are indicated with a red marker.

## I. Sewage Port Reception Facilities

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## Planned improvements

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 maximus consectetur et vitae neque. Suspendisse potenti.  
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## Additional information

Information on availability, planned, improvements and history of sewage PRF. The information has been received from national Administrations and ports. For some ports little information is available.

The al

## 2. Passenger traffic trends in Copenhagen

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

Cruise ships calls

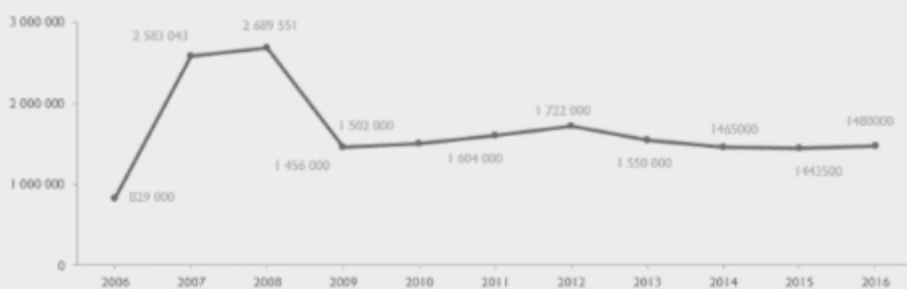


Cruise ships passengers



A compilation of passenger traffic statistics for the port based on several sources: Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

International cruise and ferry passengers



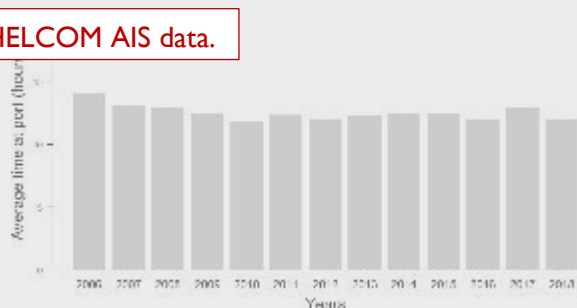
### 3. Cruise ship visits in Copenhagen

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges



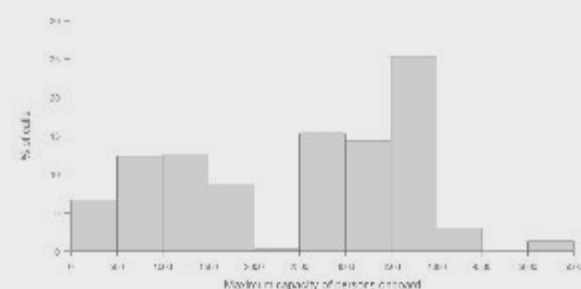
#### 3.4. Comments from cruise ships on port facilities (2014)

Because of the presence of passengers, the use of road tankers can be a safety issue. There are unreasonable charges for the use of the facilities for sewage.

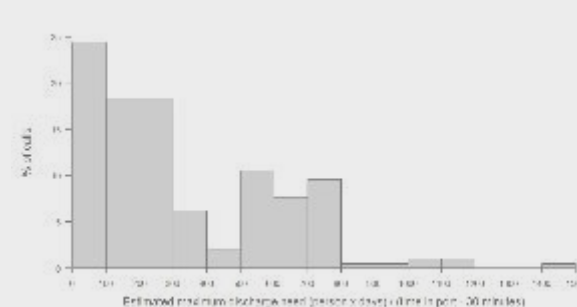
Information based on an extraction from the 2014 AIS data made using a list of cruise ships observed to operate in the Baltic Sea (annex I).

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Saint Petersburg (Russia)

<http://www.pasp.ru> UN LOCODE: RULED



## I. Sewage Port Reception Facilities

Public Limited Company "Passenger Port of St. Petersburg «Marine Façade»" has been carrying out regular servicing of passenger ships since 2009. The amount of sewage taken from cruise ships is presented in the table:

Year	Sewage from cruise ships, cub.m
2009	12254
2010	35688
2011	36830
2012	40743
2013	41366
2014	23659
2015	24105
2016	27207
2017	40947

In the seaport "Big Port of St. Petersburg" sewage is carried out by LLC "Contour SPb", LLC "Ivolga", LLC "Ecological fleet". Accordingly to the national legislation there is no obligation to collect statistic databases.

The quantity of sewage, which was taken by LLC "Ecological fleet" from passenger ships, is presented in the table:

Year	Sewage from cruise ships, tn
2011	6233,9
2012	6464
2013	6673
2014	6599
2015	4195
2016	3015
2017	4264,6

## Planned improvements

No information available.

## Additional information

Saint Petersburg was listed as having adequate PRF for sewage in the 2010 HELCOM Roadmap for upgrading PRF for sewage in passenger ports of the Baltic Sea area.

In 2009, the capacity of the sewage collection was up to 1,000 m<sup>3</sup> per day. The investment for port reception facilities was around 1 million USD.

In 2010, when three new quays in Marine Façade were put into operation the capacity of sewage collection was 2,700 m<sup>3</sup> per day. During second stage of construction the planning of investments was around 2 million USD.

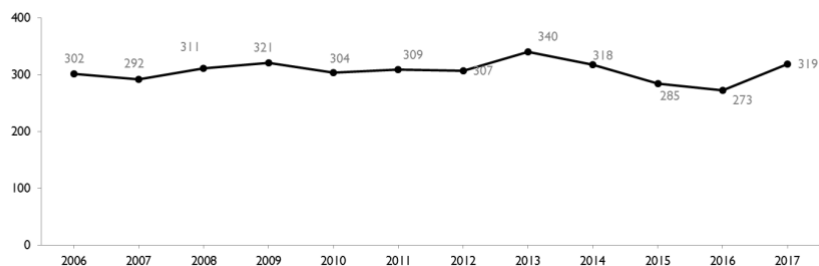
In 2011, after the completion of terminal construction and putting into operation of two new quays, the capacity of sewage collection was 4,745 m<sup>3</sup> per day.



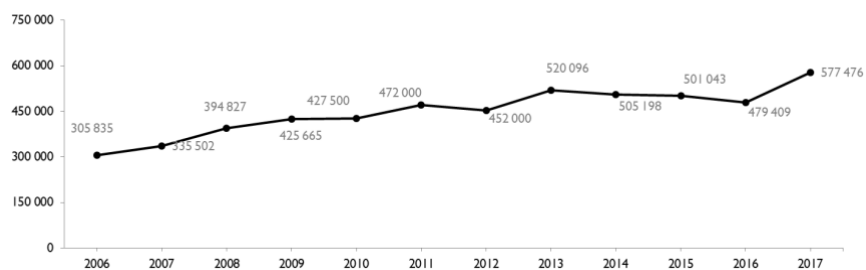
## 2. Passenger traffic trends in Saint Petersburg

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

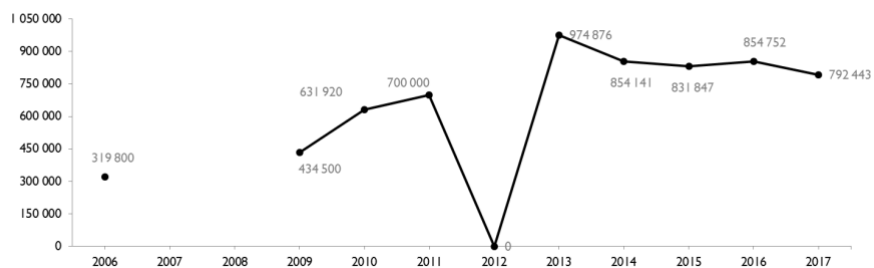
### Cruise ships calls



### Cruise ships passengers



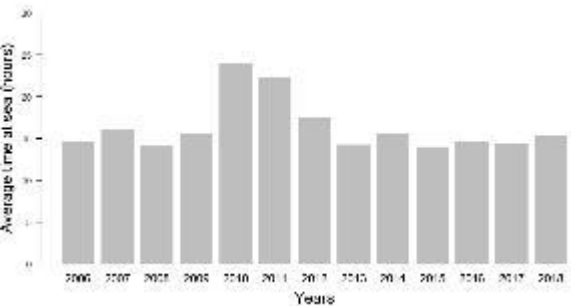
### International cruise and ferry passengers



### 3. Cruise ship visits in Saint Petersburg

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call

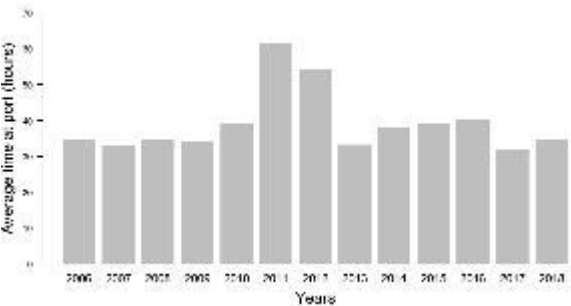
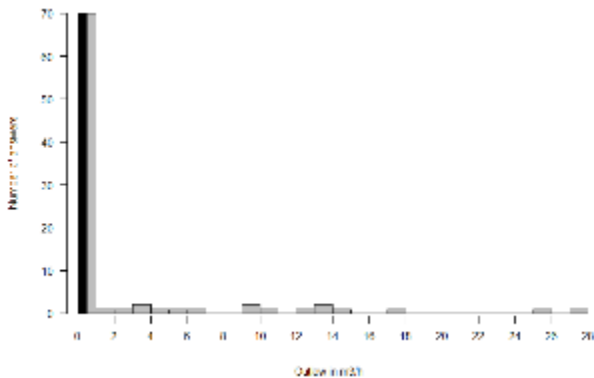


Figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

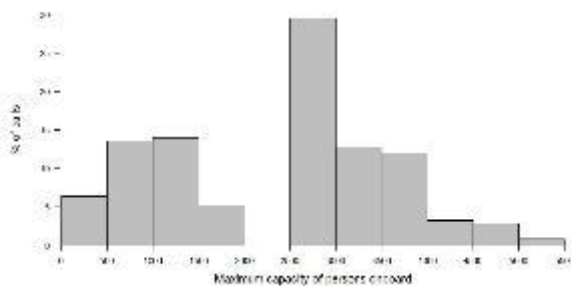


#### 3.4. Comments from cruise ships on port facilities (2014)

No information available.

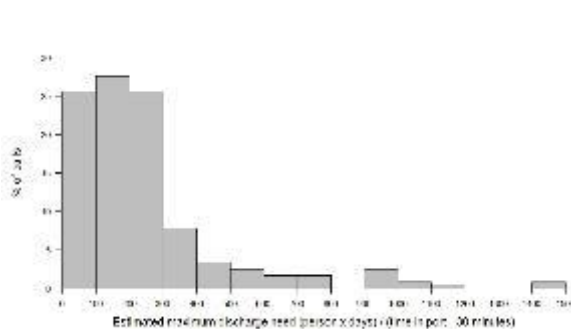
#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need

|



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Copenhagen (Denmark)

<http://www.cmport.com/> UN LOCODE: DKCPH



## I. Sewage Port Reception Facilities

Direct discharge to sewer system is available on the new 1,1 km quay which has been operational from 2014 onwards with capacity 250-300 m3 sewage per hour per berthing place. The system is equipped with the possibility of flushing with rain water to avoid clogging.

Otherwise Copenhagen Port's reception facilities for sewage utilise the tankers of a haulage company. There is a possibility to utilise three tankers per delivery. After collection, the sewage is pumped via a pump station and sewer system to the municipal sewage treatment plant.

Collection of sewage and grey water pursuant to the 'no special fee' system is made on condition that:

- The ship can deliver the sewage at the shipside at a pump capacity of 50 m3 per hour. A charge will be made for the collection of disproportionately large amounts (i.e. more than 130 liters per person for each 24-hour period since the last port of call), or for collection outside normal working hours, as specified in the list of charges.
- Tankers can obtain unhindered access to and from the place of collection without delay.

The ship is fitted with a standard flange.

## Planned improvements

No information available.

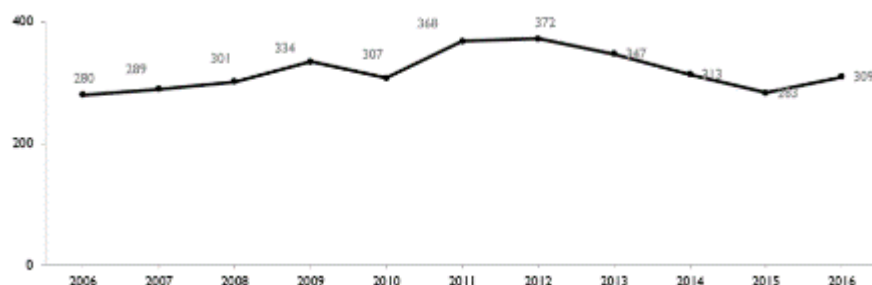
## Additional information

Copenhagen was one of the eight ports listed as first priority ports in the 2010 HELCOM Roadmap for upgrading PRF for sewage in passenger ports of the Baltic Sea area.

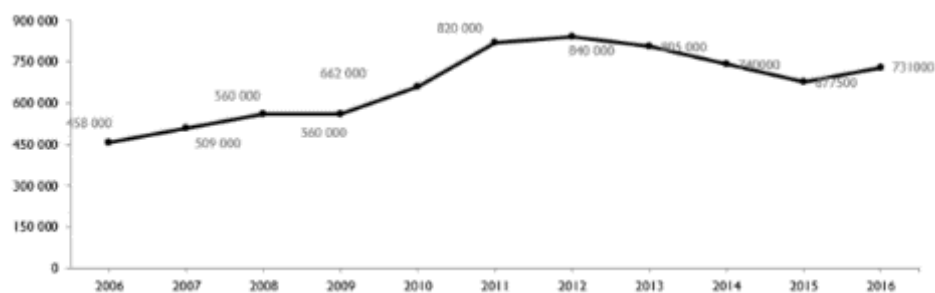
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A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

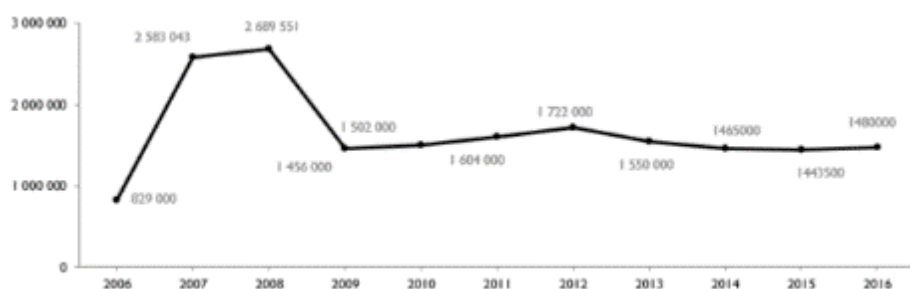
Cruise ships calls



Cruise ships passengers



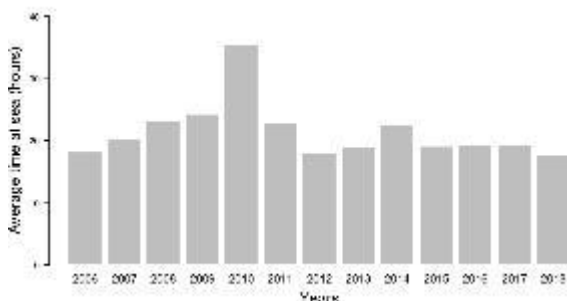
International cruise and ferry passengers



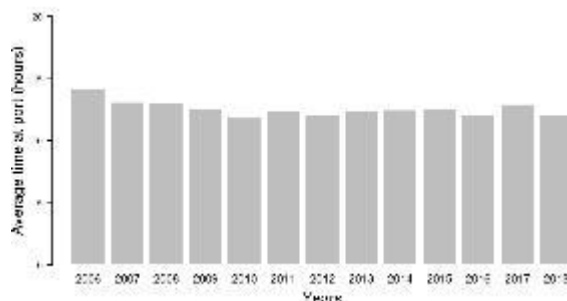
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The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port

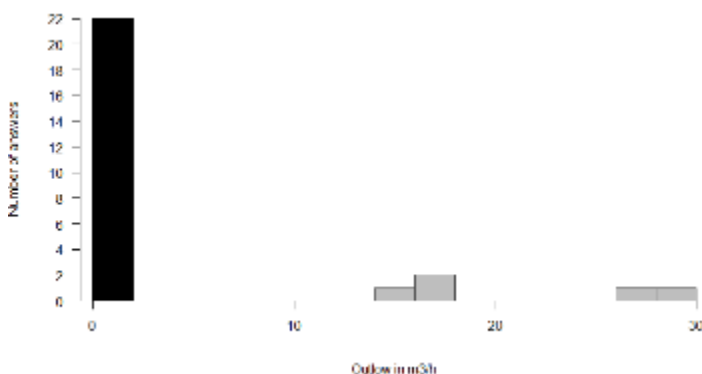


#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

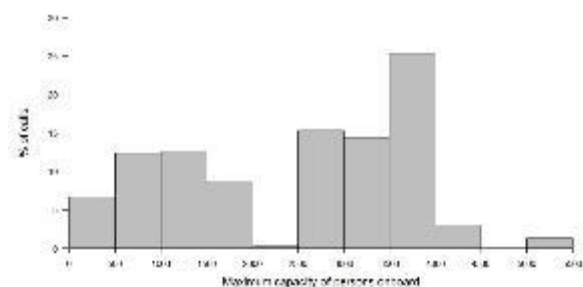


#### 3.4. Comments from cruise ships on port facilities (2014)

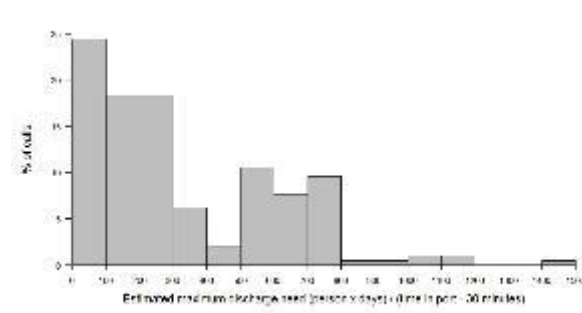
Because of the presence of passengers, the use of road tankers can be a safety issue. There are unreasonable charges for the use of the facilities for sewage.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need <sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Tallinn (Estonia)

<http://www.portoftallinn.com> UN LOCODE: EETLL

Berth used by cruise ships according to AIS data during April - October 2014



## I. Sewage Port Reception Facilities

Fixed reception points connected to public sewage system are available at Tallinn Old City Harbour quays number 1 and 3. (max total capacity 80m<sup>3</sup>/h), number 10, number 12-15 and number 24-27 (total max capacity 1200m<sup>3</sup>/h).

In other quays there is no direct discharge to sewer system –i.e. the quays are served by tank trucks (7-17m<sup>3</sup>) if requested.

A standard waste fee is charged from every ship. Starting from 2017 cruise ships can offload unlimited amount of sewage. For passenger ships sewage volumes exceeding 7m<sup>3</sup> are still subject to extra payment.

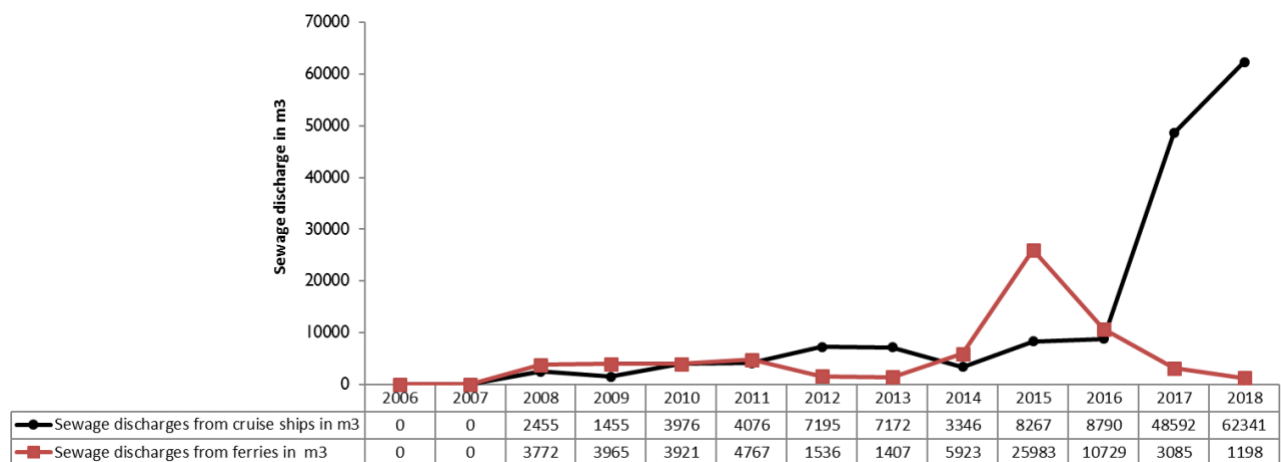
## Planned improvements

Port of Tallinn is planning to construct PRF connected to public sewage system at Old City Harbour quays no 5 and 7.

## Additional information

Tallinn was one of the eight ports listed as first priority ports in the 2010 HELCOM Roadmap for upgrading PRF for sewage in passenger ports of the Baltic Sea area.

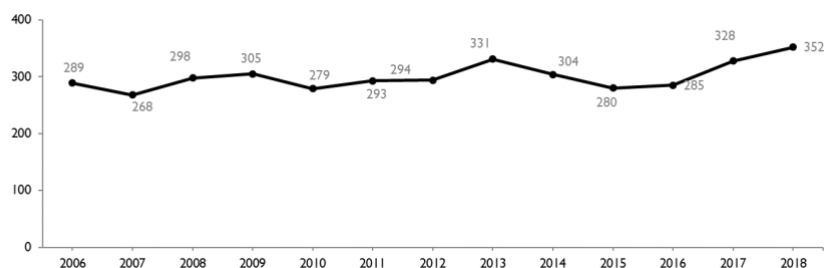
Fixed reception points connected to public sewage system at Old City Harbour have been available for a longer time for quays no. 1 and 3. In 2014 the new cruise quay (quay no 26-27) with PRF for sewage was built. Construction works for PRF's for sewage at quays no 10, 12-15 and 24-25 were completed in 2016.



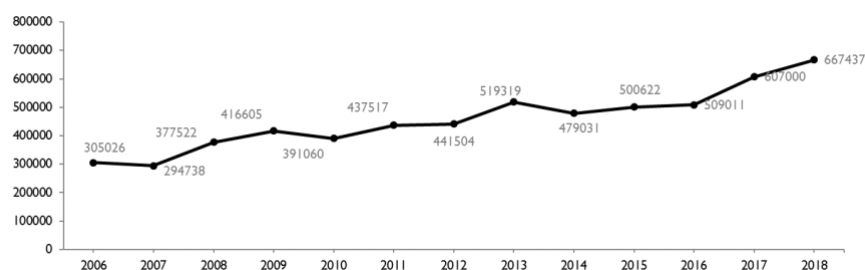
## 2. Passenger traffic trends in Tallinn

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

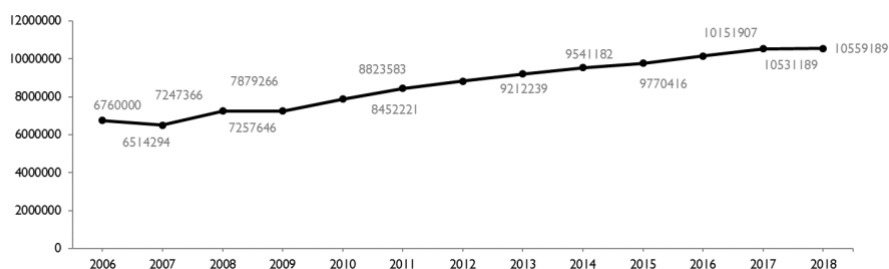
### Cruise ships calls



### Cruise ships passengers



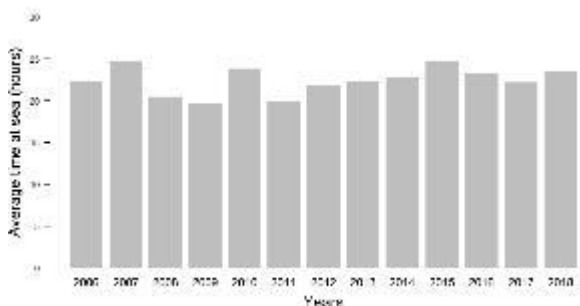
### International cruise and ferry passengers



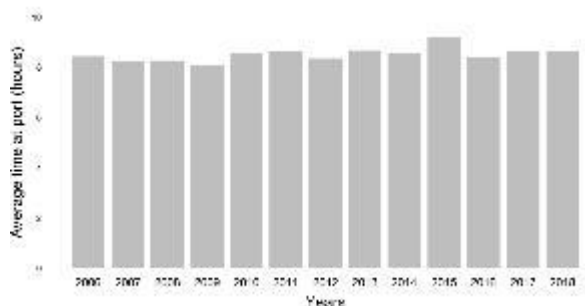
### 3. Cruise ship visits in Tallinn

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port

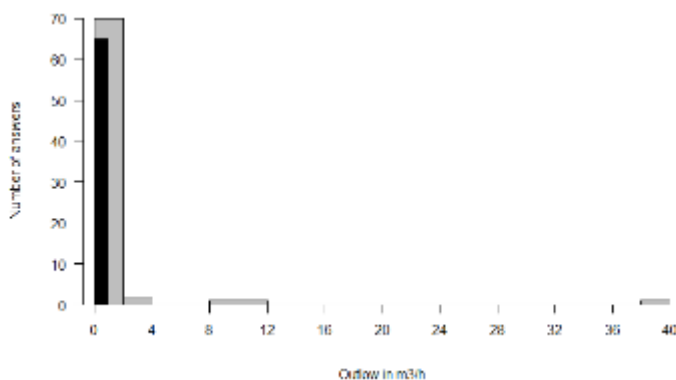


#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

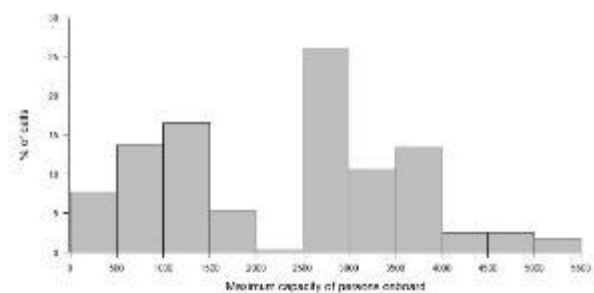


#### 3.4. Comments from cruise ships on port facilities (2014)

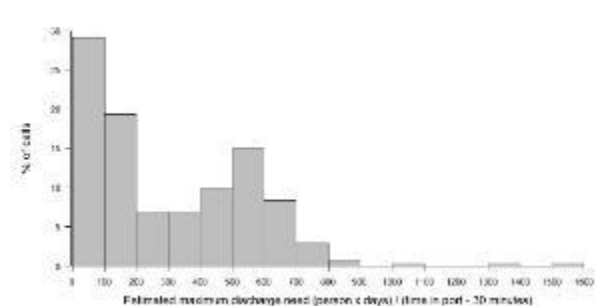
The transfer of 7m³ is included in the port fee. After this amount, the use of the PRF for sewage is not free. The tank trucks have a small capacity (12m³)."

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need <sup>1</sup>

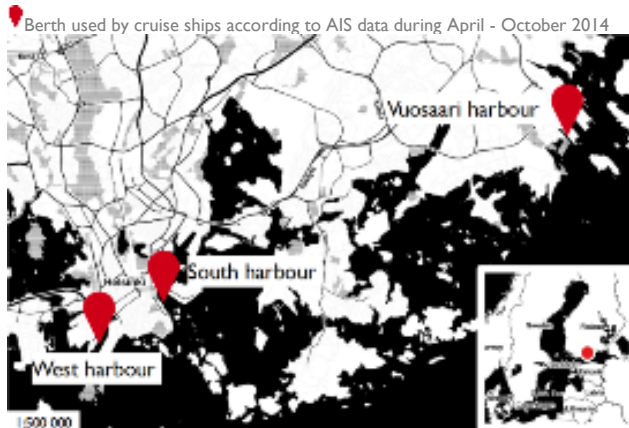


<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m³ sewage per person per day would give you the estimated total discharge need in m³h<sup>-1</sup>. More information is available in the Annex I.



# Helsinki (Finland)

<http://www.portofhelsinki.fi/> UN LOCODE: FIHEL



## I. Sewage Port Reception Facilities

At all three ports grey and black water is discharged from the vessels directly to the city waste water system. The ship service person of the port connects the hose at the appointed time. The vessel must use its own pump for discharging and the vessel must have the possibilities to flush the hoses after discharging. This service is free.

**West Harbour:** 11 berths incl. ice breakers. Discharge points are located every 40-90m. Sewer pipes have been renovated recently. Capacity of the PRF: ~100 m<sup>3</sup>/h (possibility to double the capacity if two pipes are used simultaneously).

**South Harbour:** 12 berths incl. ice breakers. Discharge points are located every 40-60m. Sewer pipes have been renovated recently. Capacity of the PRF: 100 m<sup>3</sup>/h (possibility to double the capacity if two pipes are used simultaneously).

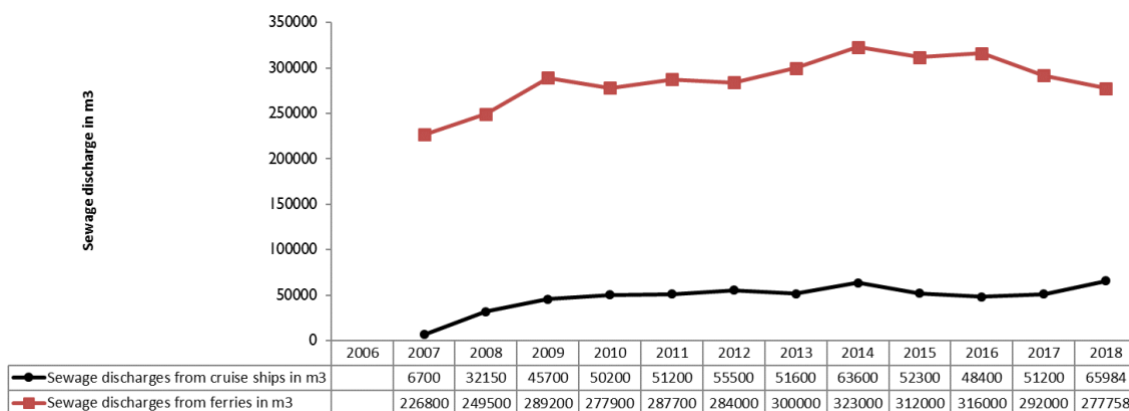
**Vuosaari cargo port:** 16 quays for roro ships and 1500m of container pier. Waste water discharge points are every 40-60m. A pre-treatment facility for waste water has also been installed in this port area.

## Planned improvements

A new quay for cruise vessels was constructed in Hernesaari in 2018 (West harbour) with sewage port reception facilities. It is available for cruise season 2019.

## Additional information

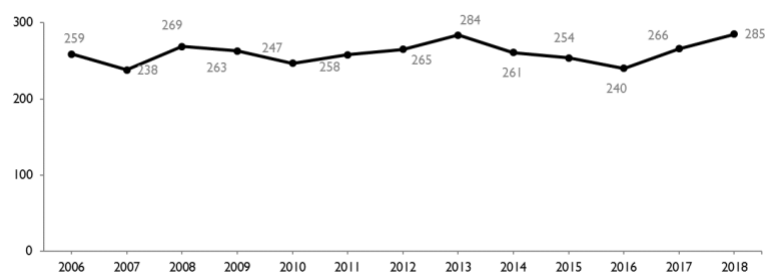
The first fixed sewage pipelines in South Harbour quays were installed in 1990, and during 1999–2009 the pipelines were assembled on all existing quays in South and West Harbours. During recent years, installations of PRF for sewage have been made when new quays have been built for cruise ships. The new Vuosaari cargo port was completed in the end of 2008 and it is equipped with sewage pipelines in all quays and piers. Helsinki was listed as having adequate PRF for sewage in the 2010 HELCOM Roadmap for upgrading PRF for sewage in passenger ports of the Baltic Sea area.



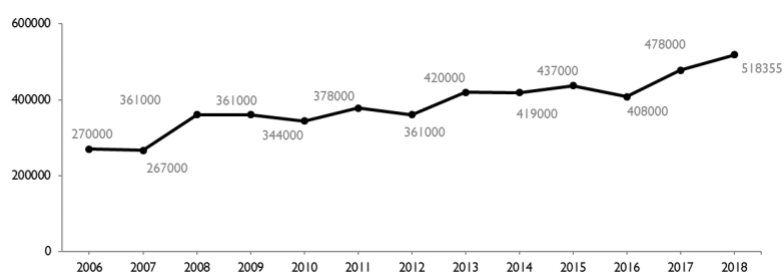
## 2. Passenger traffic trends in Helsinki

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organisations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

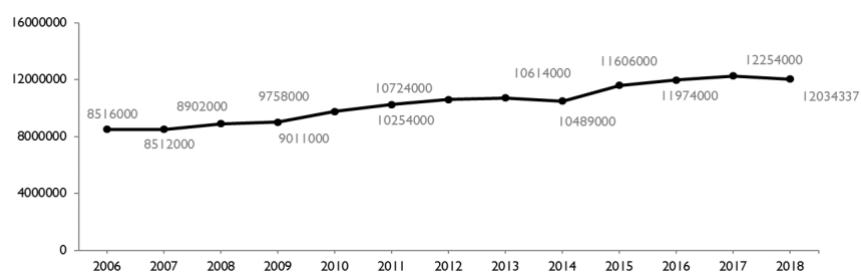
### Cruise ships calls



### Cruise ships passengers



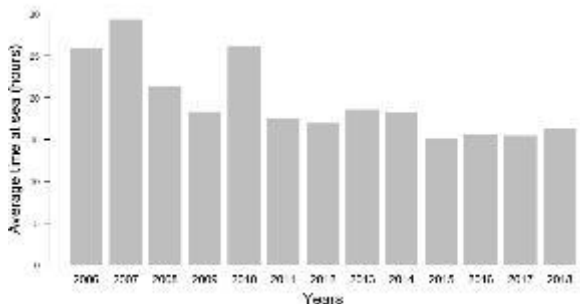
### International cruise and ferry passengers



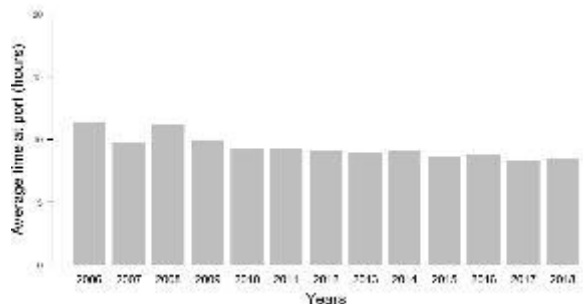
### 3. Cruise ship visits in Helsinki

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port

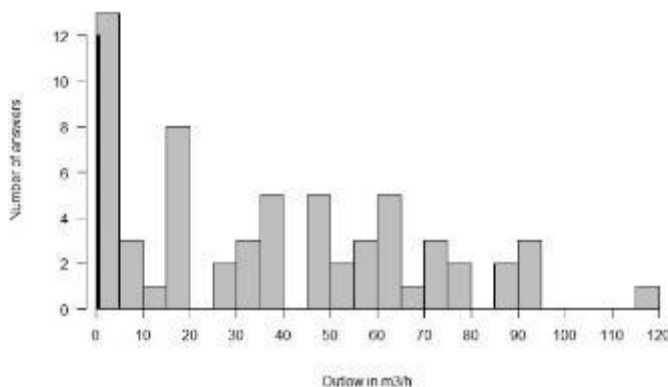


#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

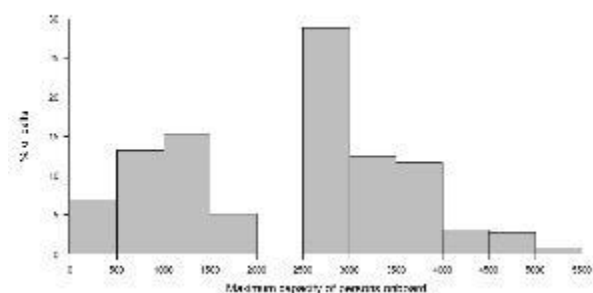


#### 3.4. Comments from cruise ships on port facilities (2014)

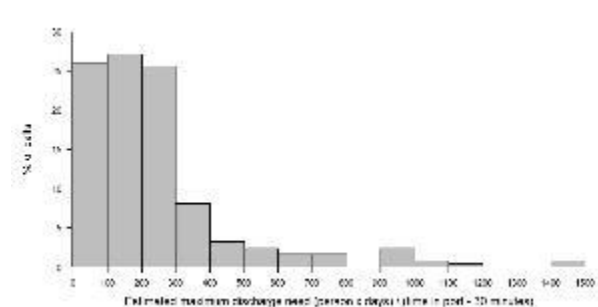
West Harbour: “Due to the size of the hose provided to deliver sewage waters, the back pressure generated reduced the discharge flow rate.”

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}$ . Multiplying this figure with a waste water production estimation in m³ sewage per person per day would give you the estimated total discharge need in m³/h<sup>-1</sup>. More information is available in the Annex I.

# Stockholm (Sweden)

<http://www.stockholmshamn.se/> UN LOCODE: SESTO

Location of the port of Stockholm. The location of the berth is not available.



## I. Sewage Port Reception Facilities

Fixed reception points for black and grey water are available at all quays used by ferry and cruise ships. The capacity is 300 m<sup>3</sup> /h at all these quays and with an average distance of 60 meters from the ship to the fixed link. Where stationary reception facilities are not available for example when a cruise vessel anchors in the port area but not along the side of a quay the Port can provide tank trucks or a barge with a capacity of 550 m<sup>3</sup> to collect waste water if needed.

The disposal of black- and greywater in port is included in the port fee. It is thus a general fee, based on the number of passengers, regardless of if the vessel offloads black- and grey water or not.

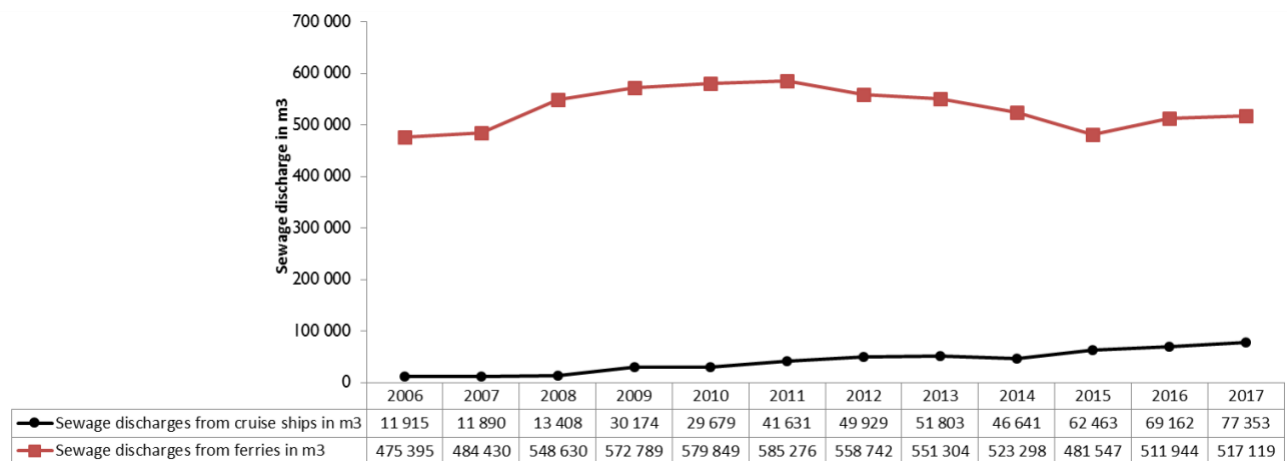
All the ferries have exemptions from the delivery of sewage given by the Swedish Transport Agency.

## Planned improvements

No information available.

## Additional information

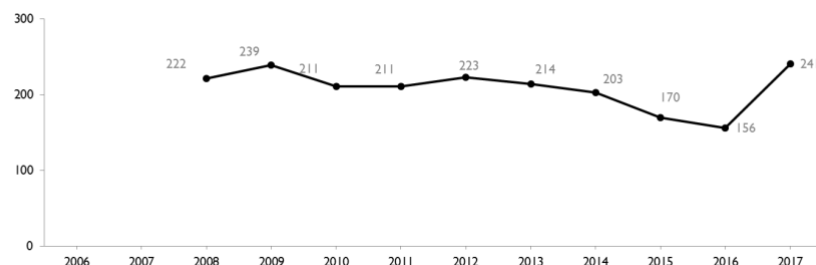
The Port of Stockholm has a long history with sewage reception. The first PRFs for ropax was constructed 1995. Direct discharge to municipal sewage system available at all quays since 2013.



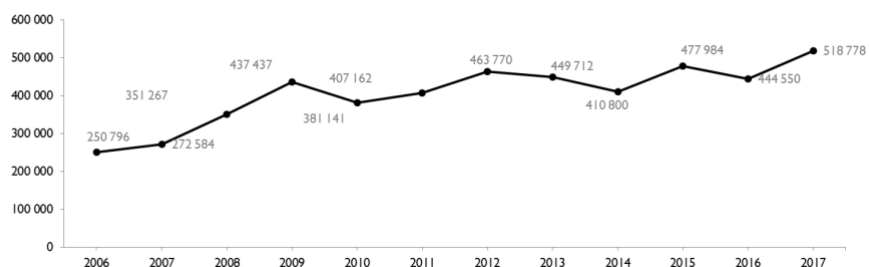
## 2. Passenger traffic trends in Stockholm

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

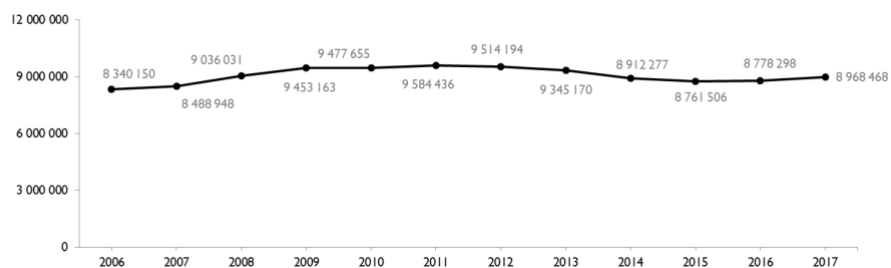
### Cruise ships calls



### Cruise ships passengers



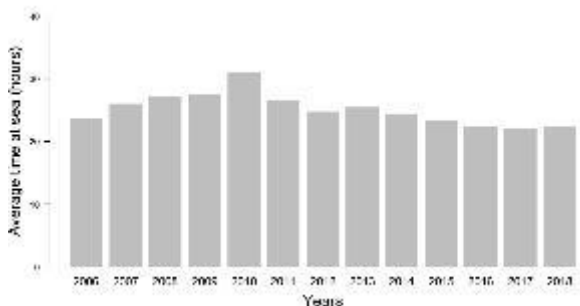
### International cruise and ferry passengers



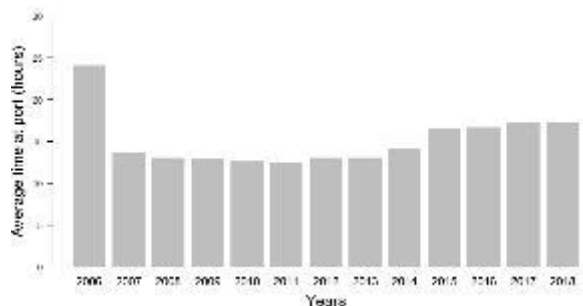
### 3. Cruise ship visits in Stockholm

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port

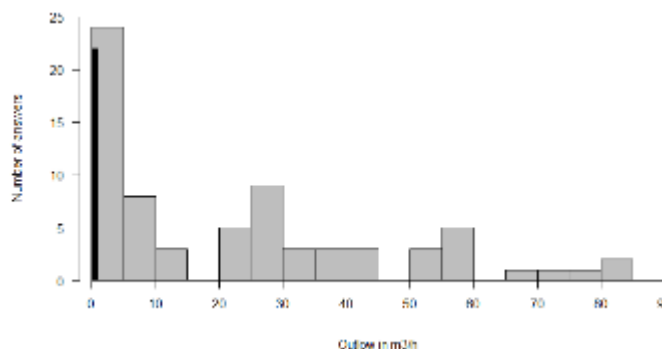


#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges



#### 3.4. Comments from cruise ships on port facilities (2014)

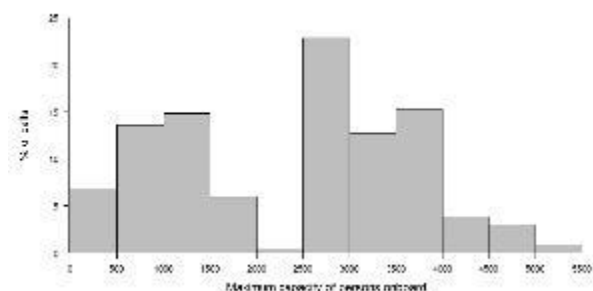
The distance to PRF depends on which side and berth the ship berths. The distance to the PRF can generate back pressure due to the length of the hose which reduces the discharge flow rate. "The discharge can take time because the pumping rate is too low."

#### Comments from ports on cruise ship visits (2014)

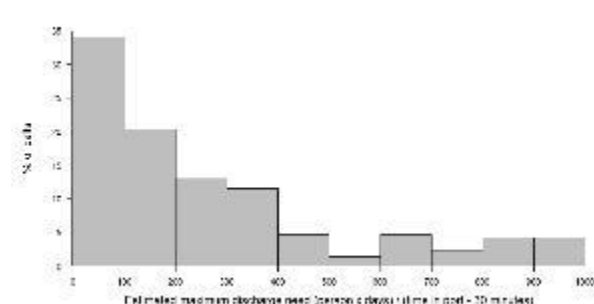
Vessels normally deliver with flow rates 60 -100 m³ /h which during an average stay of 8 hours is enough. No need for stipulated 300 m³ /h.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need <sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)} \times \text{Time (hours spent at port - 30 minutes)}$ . Multiplying this figure with a waste water production estimation in m³ sewage per person per day would give you the estimated total discharge need in m³·h<sup>-1</sup>. More information is available in the Annex I.

# Rostock (Germany)

<http://www.rostock-port.de/> UN LOCODE: DERSK



## I. Sewage Port Reception Facilities

The cruise port of Rostock-Warnemünde is equipped with a direct connection of the berths to the municipal sewer system (150m<sup>3</sup>/h as a sum for all berths). Tank trucks are available in the cargo port. Up to 300m<sup>3</sup> of sewage is included in the “no-special-fee” system. Sewage volumes exceeding 300m<sup>3</sup> are charged with 3EUR/m<sup>3</sup>.

Sewage from cruise ships (incl. grey water) is accepted only within the defined and published sewage quality parameters. The sewage quality is monitored during the sewage transfer process. In case of a divergency from the published sewage quality the transfer process will be interrupted.

## Planned improvements

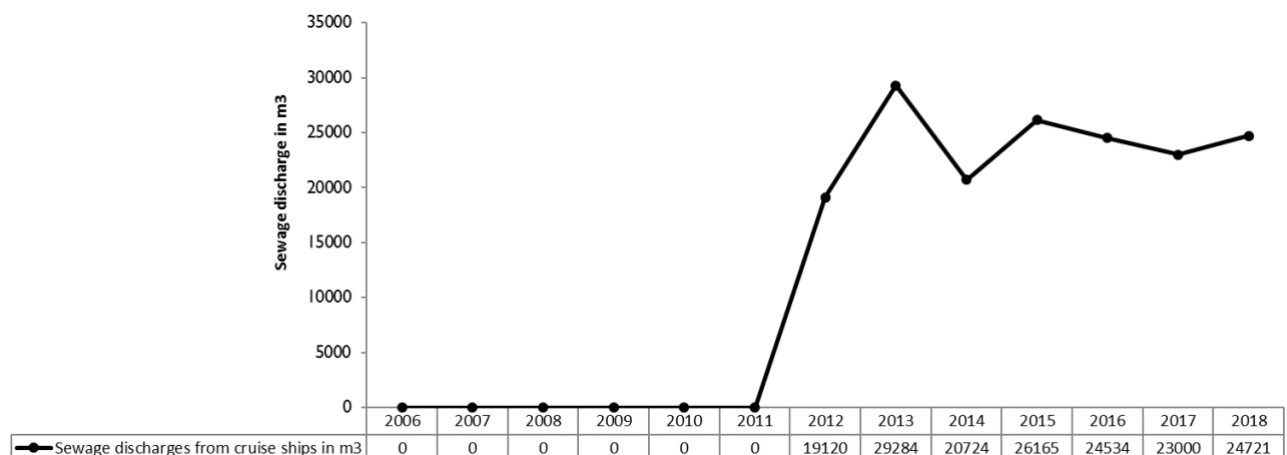
An extension of the sewer system took place in early 2017. However, no option is available to raise the max. flow rate into the municipal sewer system above 150m<sup>3</sup>/h by now. As a midterm solution intermediate storage tanks at the terminal may rise the overall volumes which can be accepted.

## Additional information

In 2012 a fixed link to the municipal sewer system became operative at the cruise berths in Warnemünde. The municipal treatment plant accepts sewage with a maximum intake rate of 144m<sup>3</sup>/h. The acceptance of sewage disposal in Rostock developed as follow:

2012 19.120 m<sup>3</sup> during 71 out of 181 calls  
 2013 29.284 m<sup>3</sup> during 111 out of 196 calls  
 2014 20.724 m<sup>3</sup> during 88 out of 182 calls  
 2015: 26.165 m<sup>3</sup>  
 2016: 24 534 m<sup>3</sup>

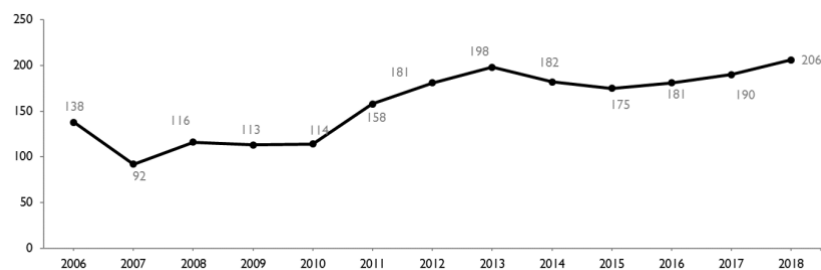
Rostock is one of the eight ports listed as first priority ports in the 2010 HELCOM Roadmap for upgrading PRF for sewage in passenger ports of the Baltic Sea area.



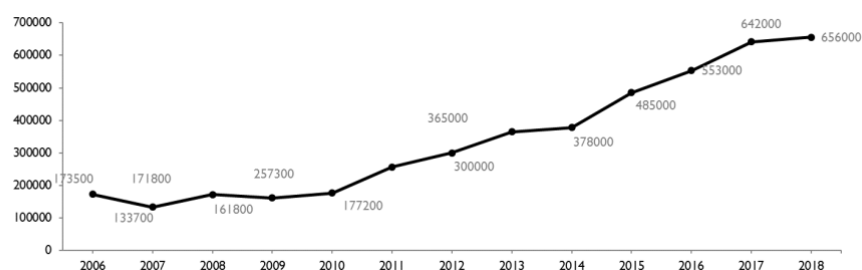
## 2. Passenger traffic trends in Rostock

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

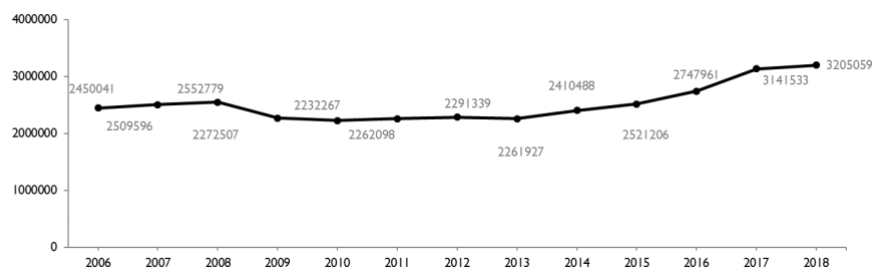
### Cruise ships calls



### Cruise ships passengers



### International cruise and ferry passengers

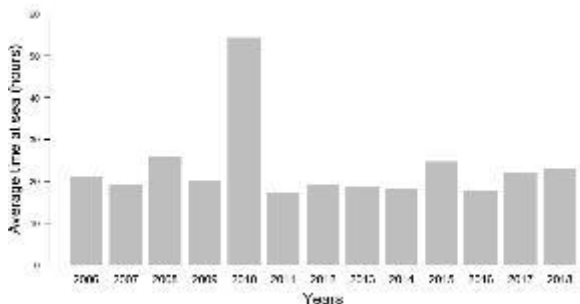




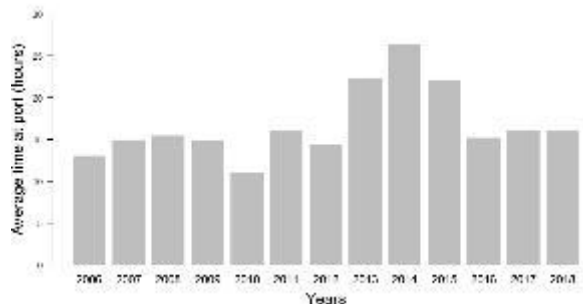
### 3. Cruise ship visits in Rostock

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

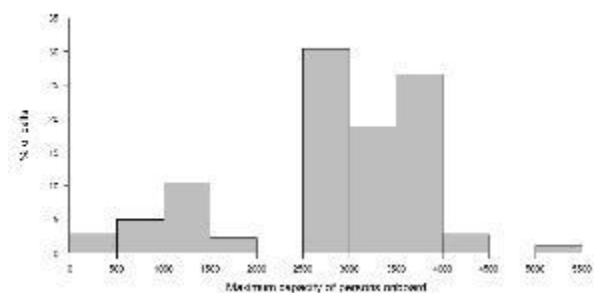
No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

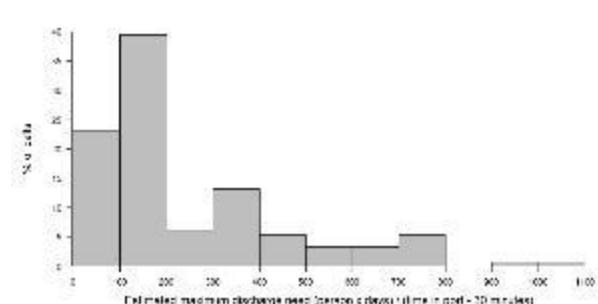
A ship can only discharge 300m<sup>3</sup> for free per port of call.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Kiel (Germany)

<http://www.portofkiel.com/> UN LOCODE: DEKEL



## I. Sewage Port Reception Facilities

Port of Kiel has reception facilities on every cruise/ferry berth. The main cruise terminal Ostseekai is directly connected to the municipal waste water treatment plant and has a capacity of up to 300 m<sup>3</sup>/h or up to 150 m<sup>3</sup>/h if two ships simultaneously connect to the terminal's facilities.

Ship's tonnage is used as a basis for ships' included volumes of sewage (no-special-fee) . 300 m<sup>3</sup> per call for ships up to 60,000 GT, 500 m<sup>3</sup> per call for ships from 60,001 GT.

Larger volumes are subject to extra payment.

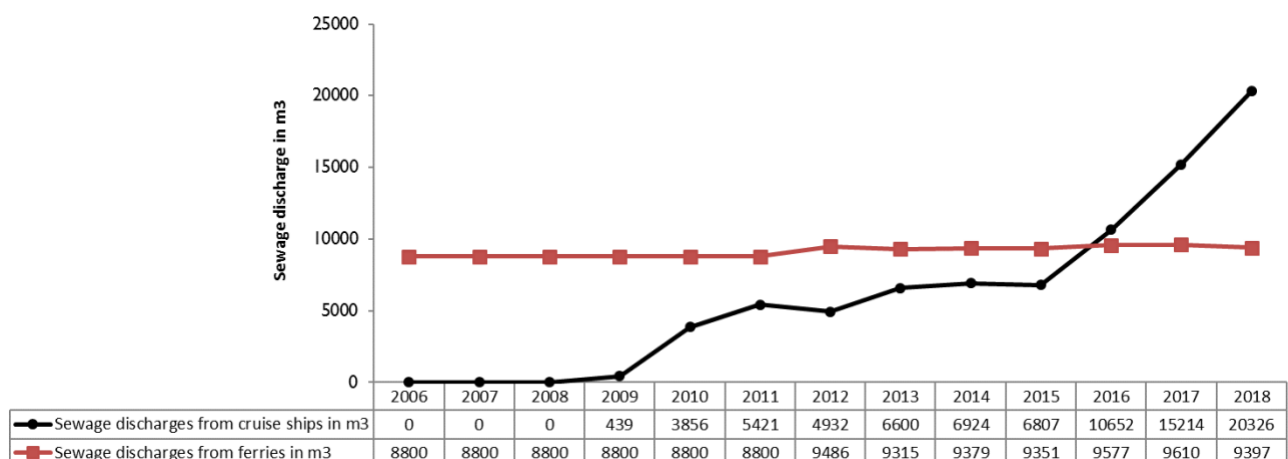
The seaport has separate suction devices and takes only a transit function. According to practical experience the disposal of the sewage capacity is currently unproblematic in the Port of Kiel.

## Planned improvements

No information available.

## Additional information

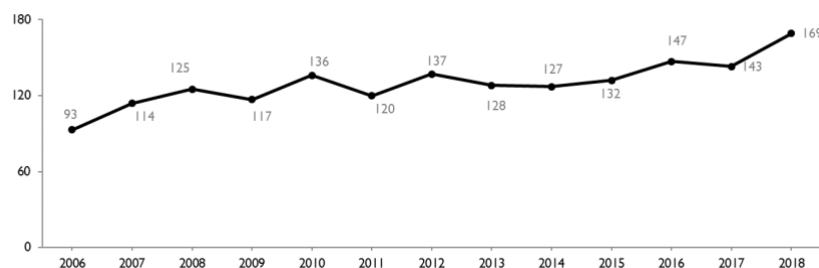
All passenger terminals in the city centre have been equipped with a direct connection to the municipal waste water system during the last years.



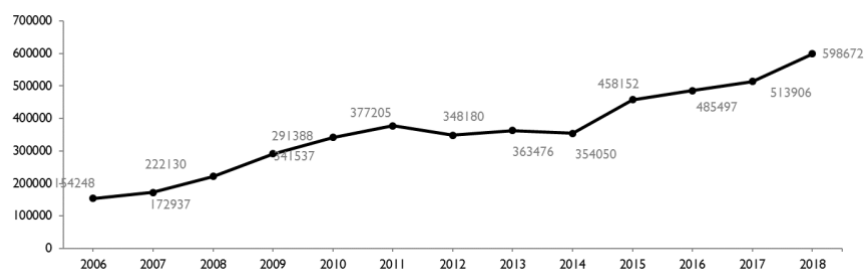
## 2. Passenger traffic trends in Kiel

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

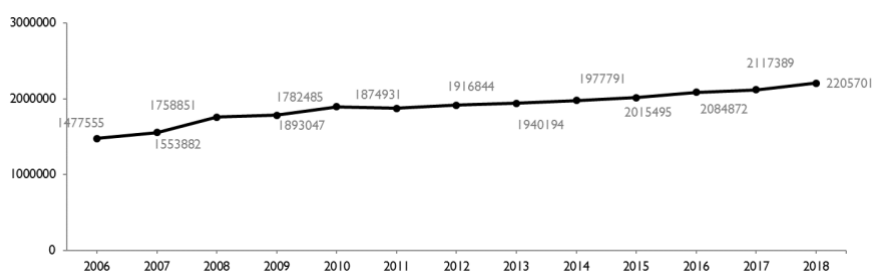
### Cruise ships calls



### Cruise ships passengers



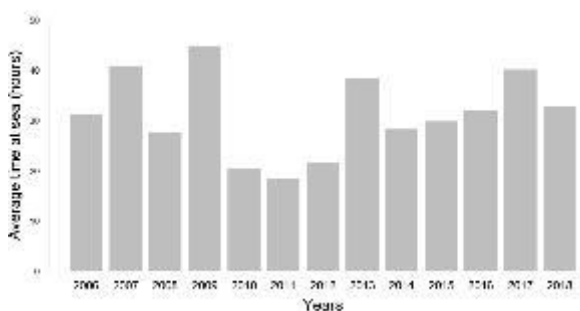
### International cruise and ferry passengers



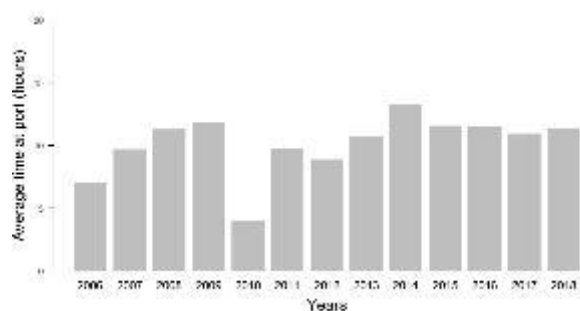
### 3. Cruise ship visits in Kiel

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port

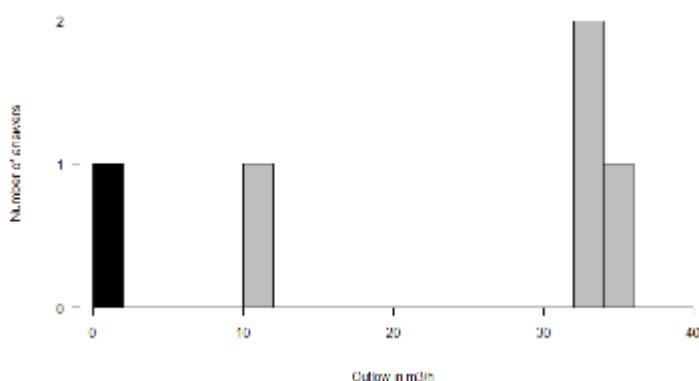


#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

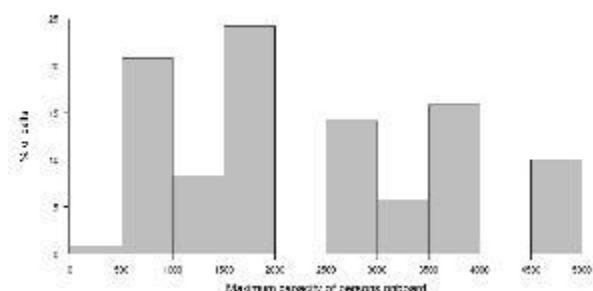


#### 3.4. Comments from cruise ships on port facilities (2014)

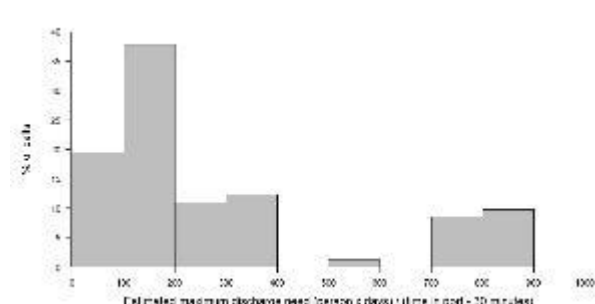
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)} \times \text{Time (hours spent at port - 30 minutes)}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>·h<sup>-1</sup>. More information is available in the Annex I.

# Gothenburg (Sweden)

<http://www.goteborgshamn.se/> UN LOCODE: SEGOT



## I. Sewage Port Reception Facilities

Cruise ship berths are available at Arendal Cruise Terminal and at America Cruise terminal (Frihamnen stopped receiving cruiseships by 2018).

There is direct connections to the municipal waste-water treatment plants available in all locations's, with the capacity of 40-45 m<sup>3</sup>/h. In America Cruise terminal and Arendal Cruise Terminal the capacity is 100 m<sup>3</sup>/h.

Barge is available with a maximum capacity of 450 m<sup>3</sup>.

Ferry traffic has their own piers from where they have arranged their sewage discharge.

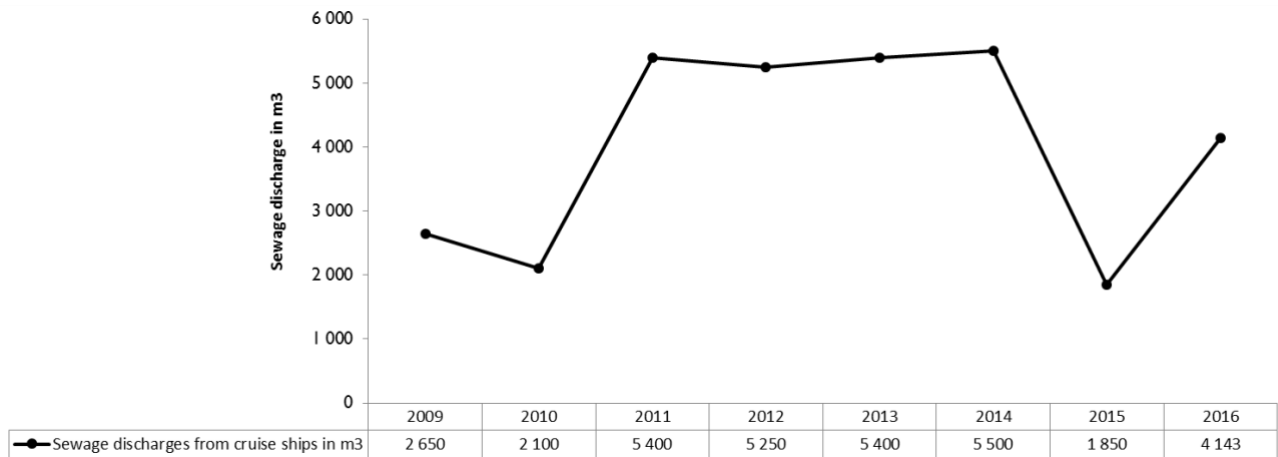
The use of PRF for discharging sewage is included in the port fee.

## Planned improvements

No planned improvements

## Additional information

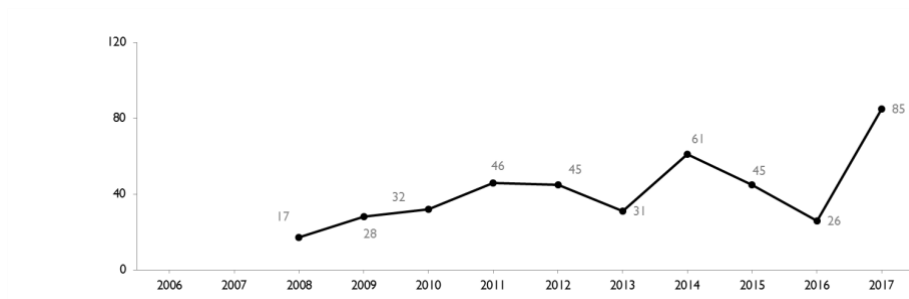
Direct connection from 2009 in Frihamnen, from 2012 in Arendal and from 2018 in America Cruise terminal.



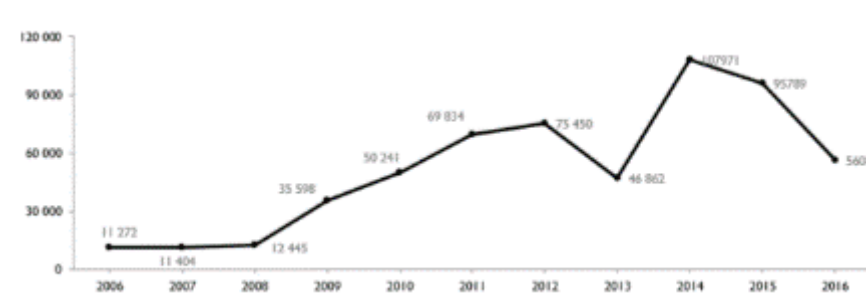
## 2. Passenger traffic trends in Gothenburg

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

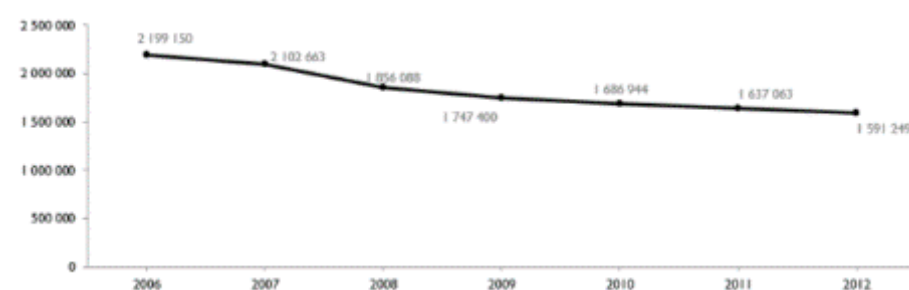
### Cruise ships calls



### Cruise ships passengers



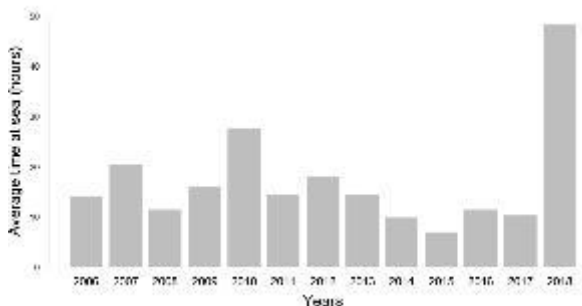
### International cruise and ferry passengers



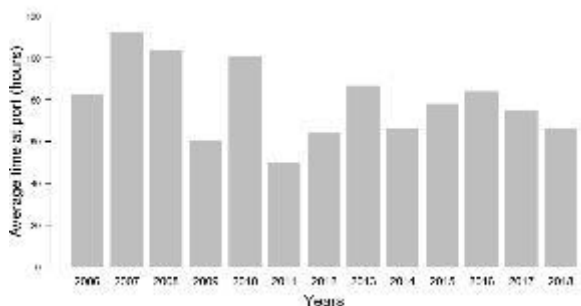
### 3. Cruise ship visits in Gothenburg

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port

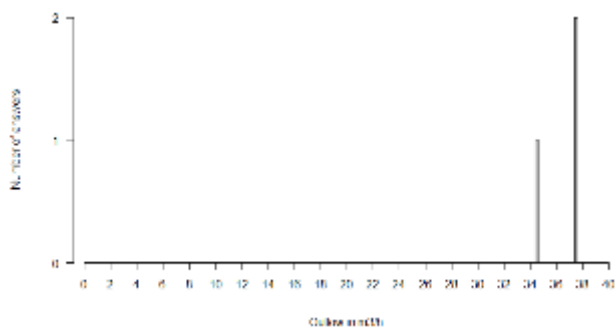


#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

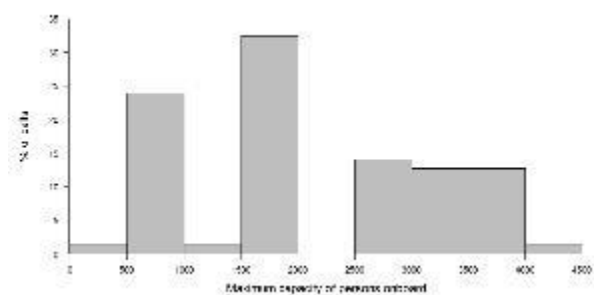


#### 3.4. Comments from cruise ships on port facilities (2014)

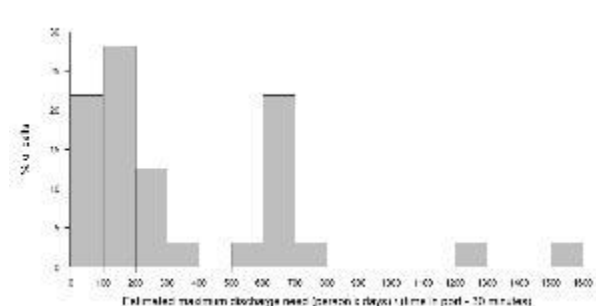
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)} \times \text{Time (hours spent at port - 30 minutes)}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>·h<sup>-1</sup>. More information is available in the Annex I.

# Klaipeda (Lithuania)

<http://www.portofklaipeda.lt/> UN LOCODE: LTKJL

Berth used by cruise ships according to AIS data during April - October 2014



## I. Sewage Port Reception Facilities

Port Administration has contract with operator which collects sewages from ships by trucks and barges.

No special fee for the use of the facilities. Sewage discharge is included in the sanitary dues.

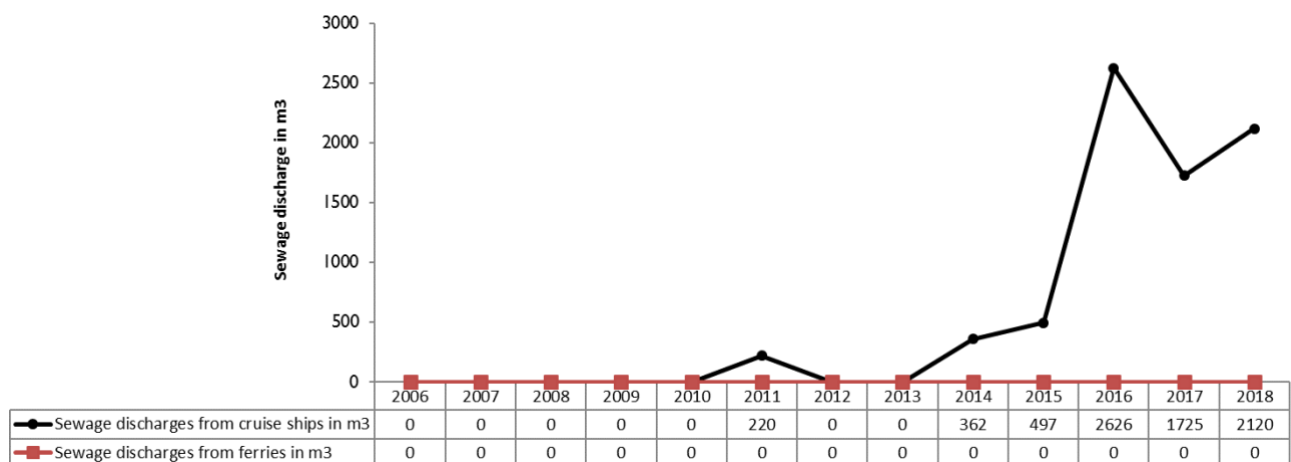
## Planned improvements

According to a study results on a waste reception facilities, the current waste reception facilities are sufficient to ensure arriving ship waste reception needs.

Currently sewage reception facilities at the Cruise Ship Terminal and the Fishing Marina are being designed. According to the project, sewage will be directly discharged to the municipal sewage system.

## Additional information

Klaipeda was listed as having adequate PRF for sewage in the 2010 HELCOM Roadmap for upgrading PRF for sewage in passenger ports of the Baltic Sea area.

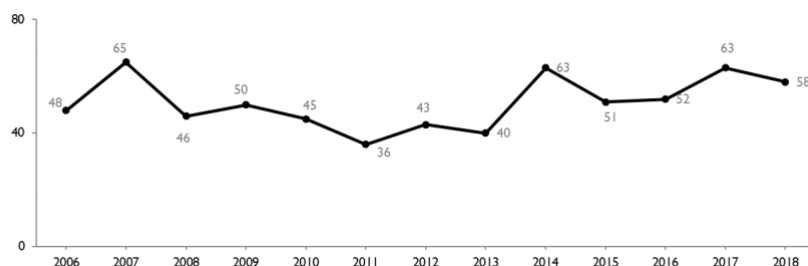




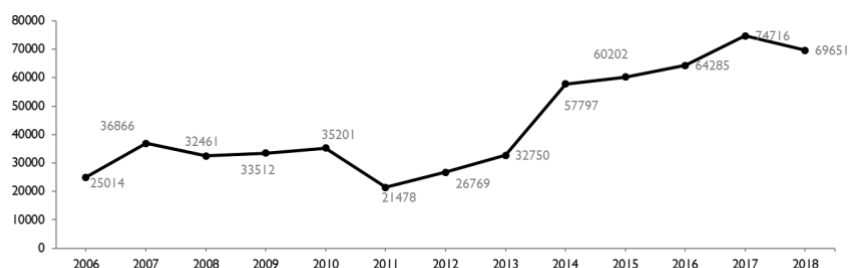
## 2. Passenger traffic trends in Klaipeda

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

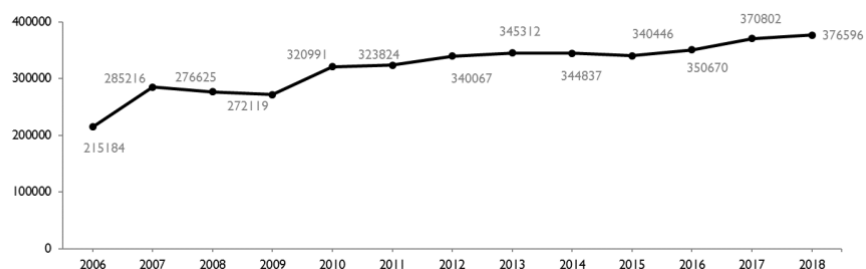
### Cruise ships calls



### Cruise ships passengers



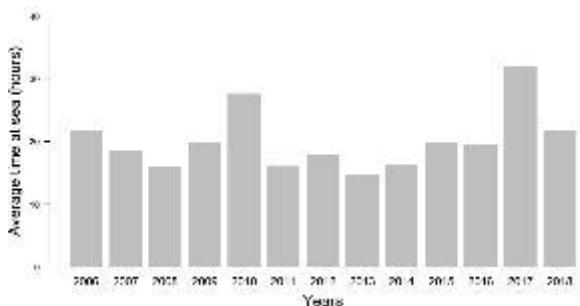
### International cruise and ferry passengers



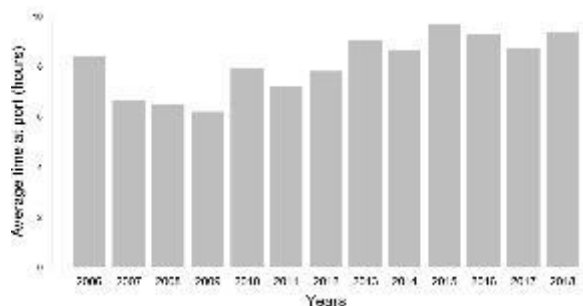
### 3. Cruise ship visits in Klaipeda

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port

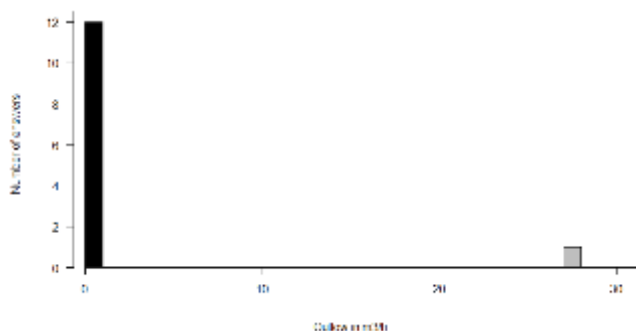


#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

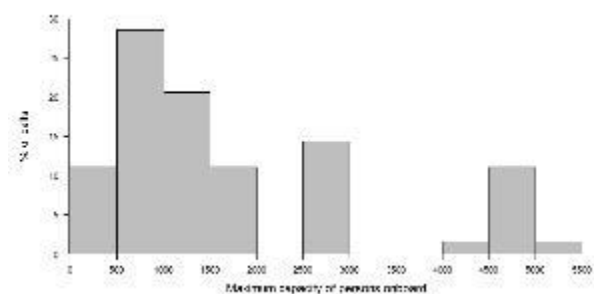


#### 3.4. Comments from cruise ships on port facilities (2014)

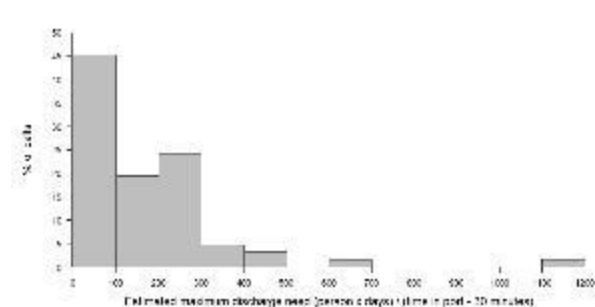
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



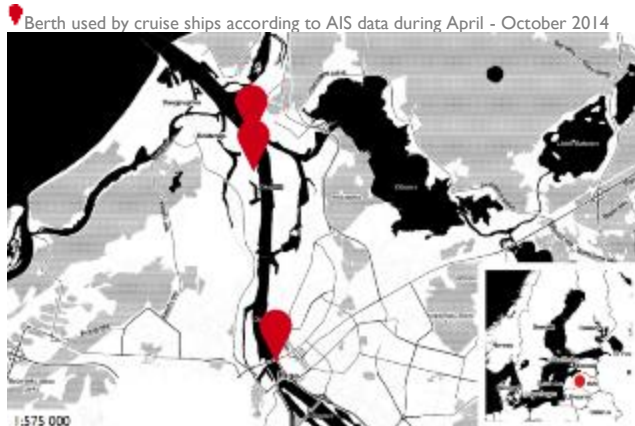
#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)} \times \text{Time (hours spent at port - 30 minutes)}$ . Multiplying this figure with a waste water production estimation in m³ sewage per person per day would give you the estimated total discharge need in m³h⁻¹. More information is available in the Annex I.

# Riga (Latvia)

<http://www.rop.lv/en> UN LOCODE: LVRIX



## I. Sewage Port Reception Facilities

The quays are served by mobile reception facilities – 3 tank trucks with capacity 30m<sup>3</sup> each and 1 barge with max capacity 450 m<sup>3</sup>.

No direct discharge to municipal sewage system available.

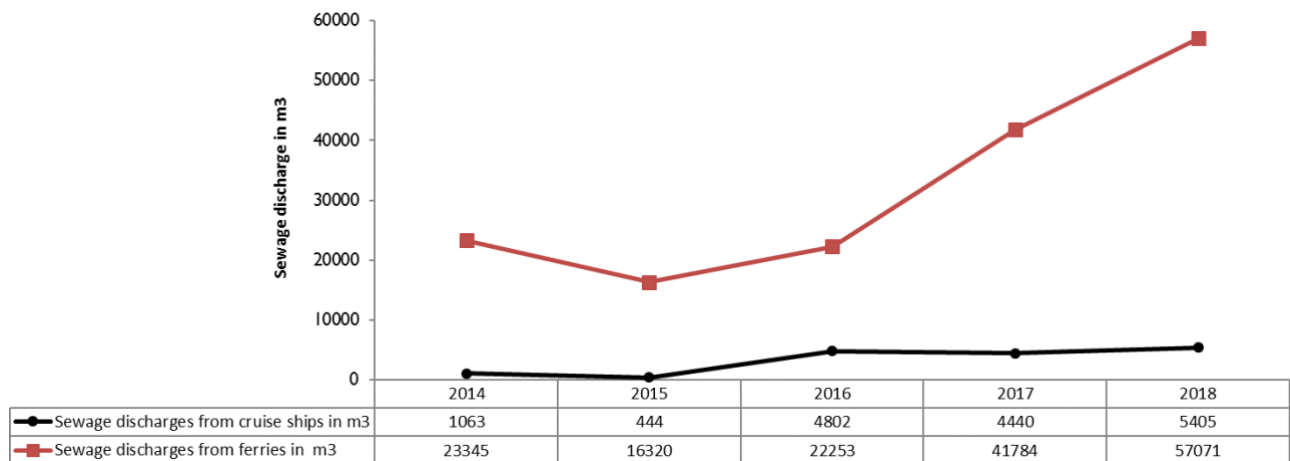
Sanitary fee charged from each ship includes delivery of sewage from passenger ships up to 200 m<sup>3</sup> per call. Sewage volumes exceeding 200 m<sup>3</sup> is charged at fixed rates per m<sup>3</sup>.

## Planned improvements

No information available.

## Additional information

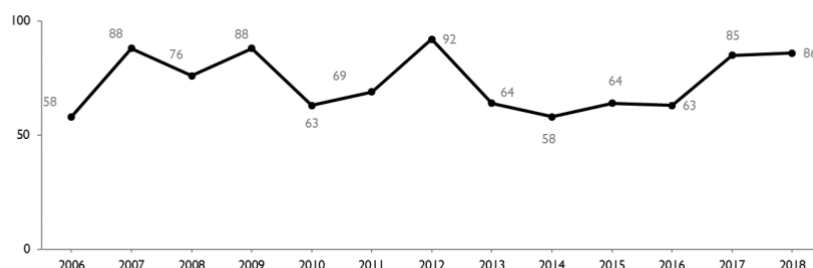
Riga is one of the eight ports listed as first priority ports in the 2010 HELCOM Roadmap for upgrading PRF for sewage in passenger ports of the Baltic Sea area.



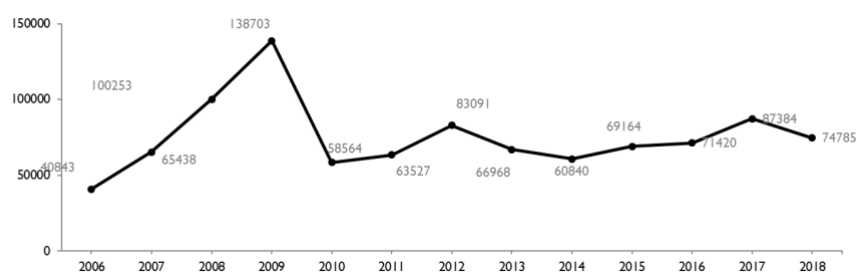
## 2. Passenger traffic trends in Riga

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

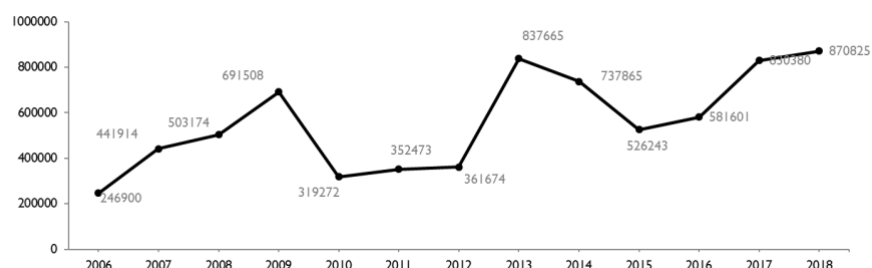
### Cruise ships calls



### Cruise ships passengers



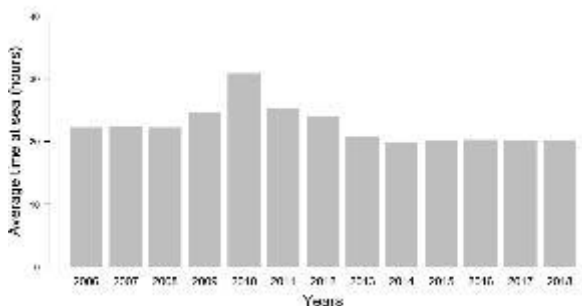
### International passengers



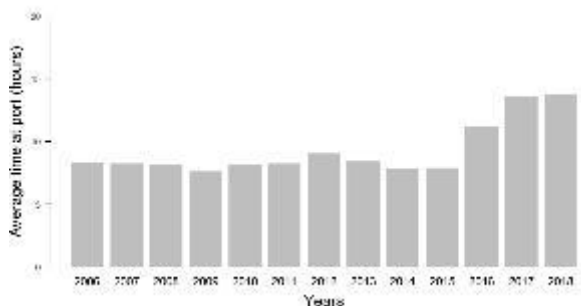
### 3. Cruise ship visits in Riga

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port

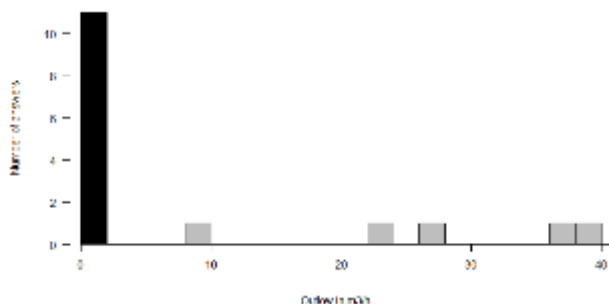


#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

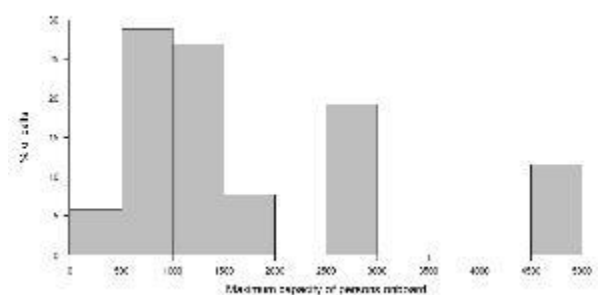


#### 3.4. Comments from cruise ships on port facilities (2014)

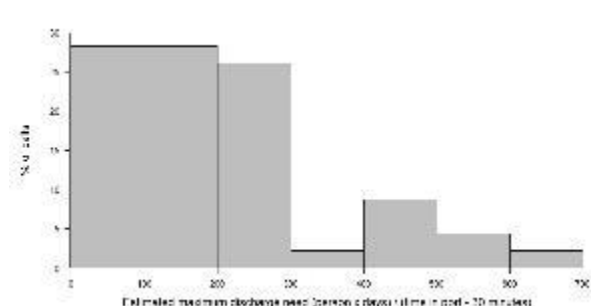
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)} \times \text{Time (hours spent at port - 30 minutes)}$ . Multiplying this figure with a waste water production estimation in m³ sewage per person per day would give you the estimated total discharge need in m³·h<sup>-1</sup>. More information is available in the Annex I.

# Gdynia (Poland)

<http://www.port.gdynia.pl/> UN LOCODE: PLGDY



## I. Sewage Port Reception Facilities

Tank trucks and barge are used for cruise ships. 2 tank trucks (5,2 m<sup>3</sup>, 10m<sup>3</sup>) 1 portable tanks 12 m<sup>3</sup>. Barge 650 m<sup>3</sup> (maximum capacity of 100 m<sup>3</sup>/h).

Two fixed PRFs for receiving sewage from Stena Line ferries on Helskie II quay (maximum capacity of 50 m<sup>3</sup>/h). Swedish and Danish quays 2-4 have a maximum capacity of 20 m<sup>3</sup>/h. Bulgarian and Closing quays have a maximum capacity of 35 m<sup>3</sup>/h. The Romanian quay has a maximum capacity of 40 m<sup>3</sup>/h.

Passenger ships entering Port of Gdynia are allowed to discharge 1/3 of sewage in accordance with the tonnage tariff. The rest of the sewage is charged at the fixed rates that can be found on the port's website: <https://www.port.gdynia.pl/en/for-the-ship/ship-waste>

## Planned improvements

1. French Quay - for cruises - to be finished by 31<sup>st</sup> December 2020. The maximum capacity will be 200 m<sup>3</sup>/h.

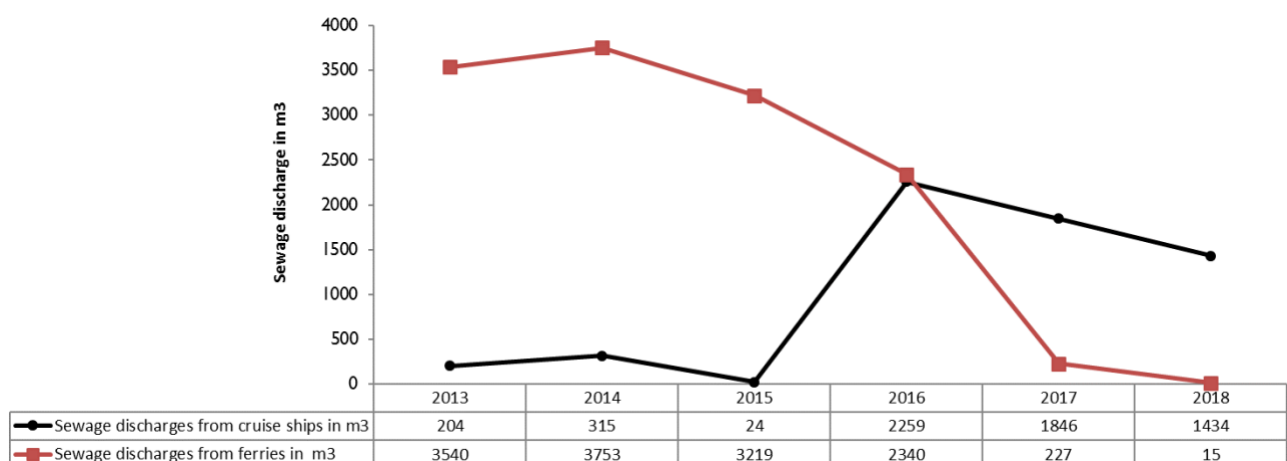
2. Polish Quay - for the new ferry terminal - to be finished by 1st June 2021. The maximum capacity will be 105 m<sup>3</sup>/h.

Upgrading works on other quays will be done gradually, according to Port of Gdynia implementation schedule.

## Additional information

Environmental impact assessment report: "Construction of port infrastructure for sanitary sewage collection" was completed in 2018. We received the environmental decision in 2018.

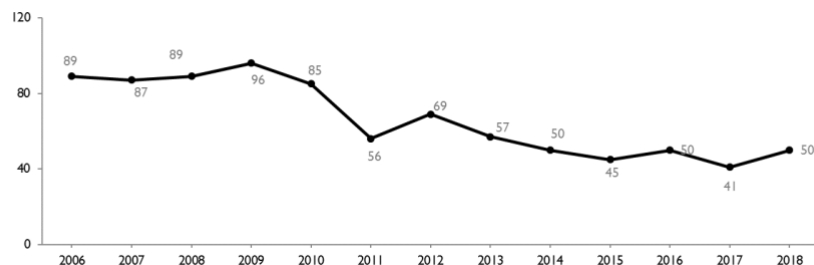
Gdynia is one of the eight ports listed as first priority ports in the 2010 HELCOM Roadmap for upgrading PRF for sewage in passenger ports of the Baltic Sea area.



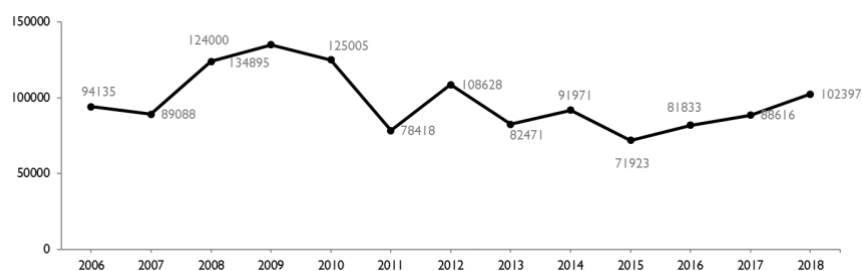
## 2. Passenger traffic trends in Gdynia

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

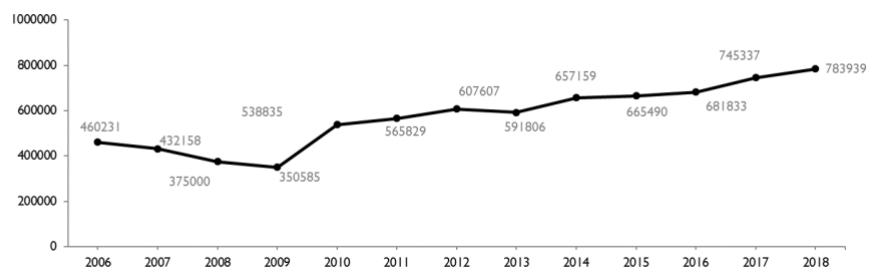
### Cruise ships calls



### Cruise ships passengers



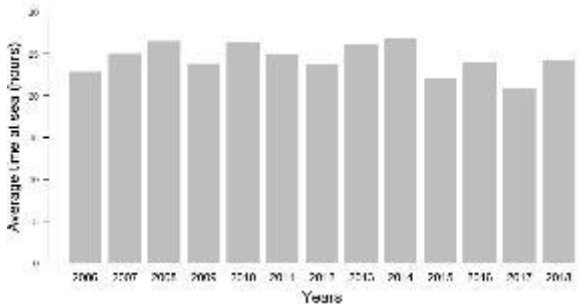
### International passengers



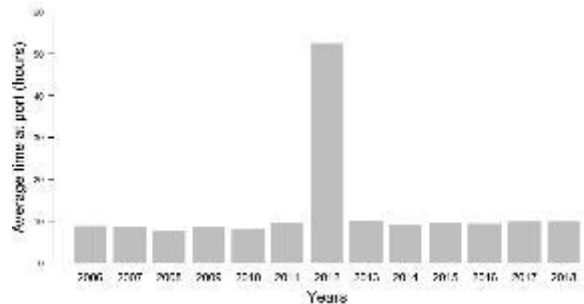
### 3. Cruise ship visits in Gdynia

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

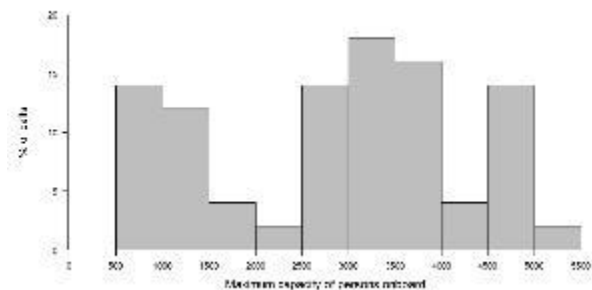
Total sewage discharges from passenger ships in m<sup>3</sup>: 2012 – 3488; 2013 – 4007; 2013 – 4803, 2014 – 4809; 2015 – 3636; 2016 – 5279.

#### 3.4. Comments from cruise ships on port facilities (2014)

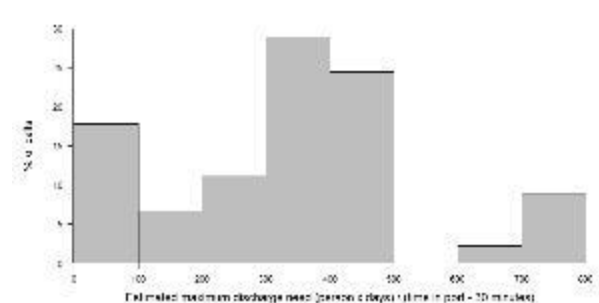
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>

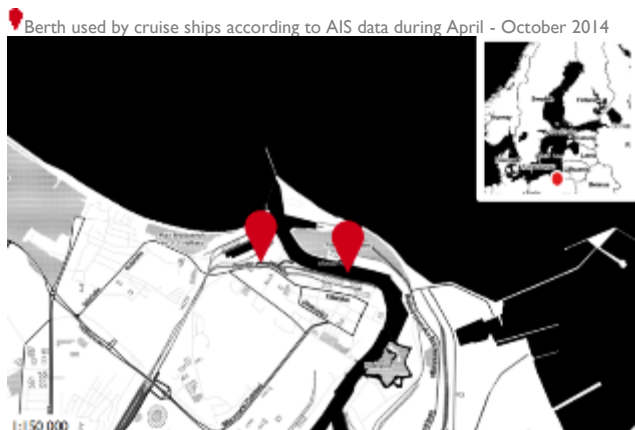


<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.



# Gdansk (Poland)

<http://www.portgdansk.pl/en> UN LOCODE: PLGDN



## I. Sewage Port Reception Facilities

Reception of sewage from passenger ships is conducted by 3 tank trucks of capacities 15 m<sup>3</sup>/h each, which are adequate for current needs.

Passenger ships entering Port of Gdansk are allowed to discharge 1/3 of sewage in accordance with the tonnage tariff. The rest of the sewage is charged at the fixed rates that can be found on the port's website: <http://www.portgdansk.pl/shipping/types-of-waste>.

### Planned improvements

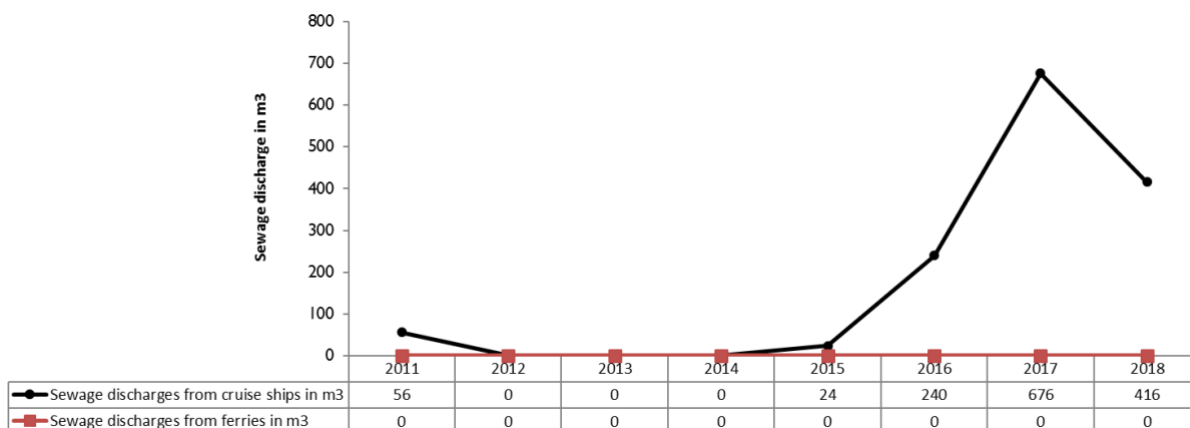
There are currently three quays: Ziółkowskiego, Westerplatte, and Północne that are being adjusted to receive sewage from passenger ship's via fixed connection. The works include construction of fixed PRF for direct discharge of sewage into port's wastewater collecting system. In the case of Północne and Westerplatte quays, the sewage will be treated at the port's mechanical-biological sewage treatment plant, however it is planned that all sewage will be discharged directly to municipal sewage system (currently only sewage from Ziółkowskiego quay is directed to municipal sewage system).

Planned infrastructure at N. Ziółkowskiego Quay: 2 fixed PRF directly connected to port's sewage system, and a reservoir. Planned capacity of PRF at each point 30 m<sup>3</sup>/h. The construction works will commence in 2019. Planned infrastructure at N. Westerplatte Pier: 5 fixed PRF directly connected to mechanical-biological sewage treatment plant. . Planned capacity of PRF at each point: 50 m<sup>3</sup>/h. The construction works will finish by May 2019.

New quay - Północne will also be constructed with the planned capacity of PRF for sewage: 50 m<sup>3</sup>/h. Initially, PRF will also be connected to port's mechanical-biological sewage treatment plant. The construction works will commence in 2020.

### Additional information

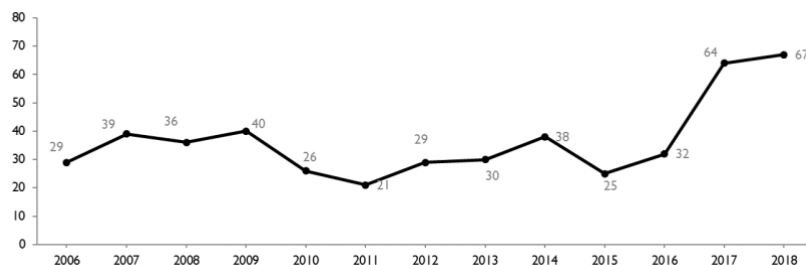
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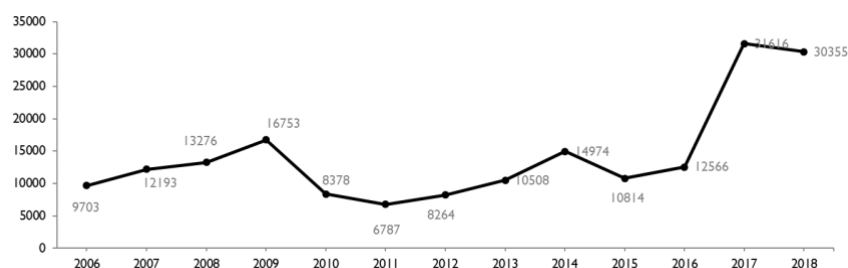
## 2. Passenger traffic trends in Gdansk

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

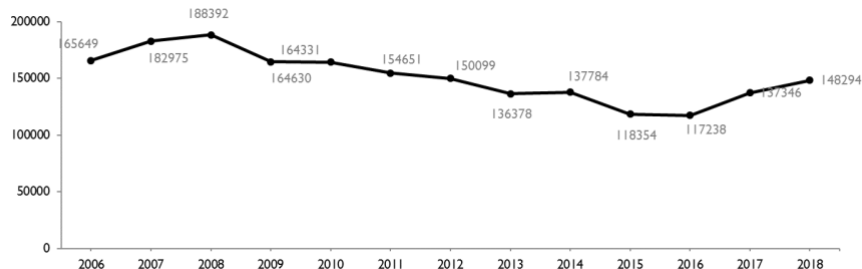
### Cruise ships calls



### Cruise ships passengers



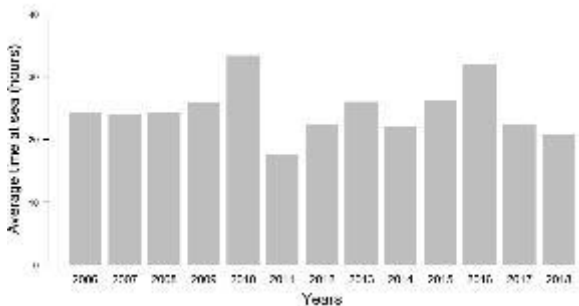
### International cruise and ferry passengers



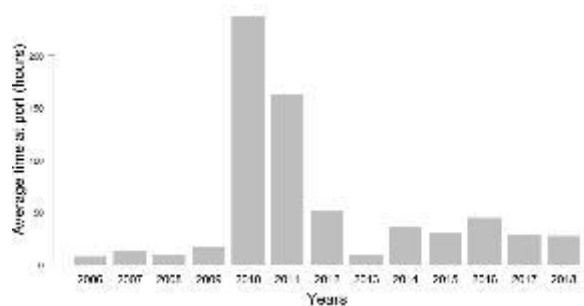
### 3. Cruise ship visits in Gdansk

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

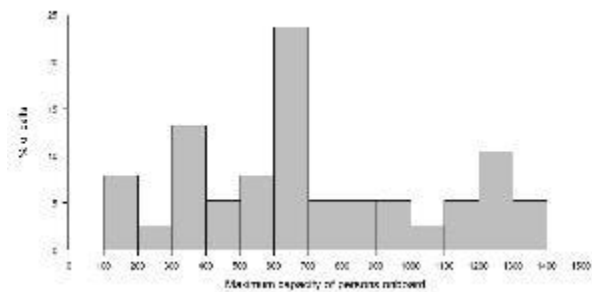
No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

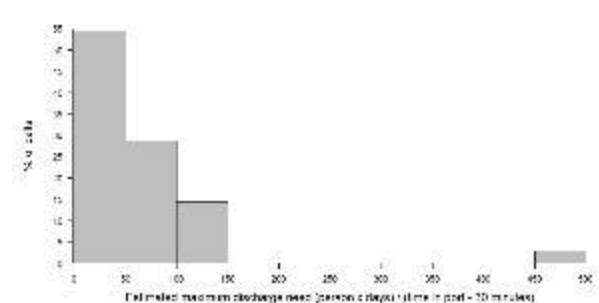
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m³ sewage per person per day would give you the estimated total discharge need in m³h<sup>-1</sup>. More information is available in the Annex I.

# Visby (Sweden)

<http://www.gotland.se/portofvisby> UN LOCODE: SEVBY



## I. Sewage Port Reception Facilities

At all the main berths (4, 5, 6, 7), PRF facilities connected to the municipal sewage system are available with a capacity of ca 16-20 m<sup>3</sup> per hour. The new quay for cruiseships (birth 14 & 15) have the capacity to receive 300 m<sup>3</sup> per hour.

General waste fee of 0,40 SEK/GT, included in the vessel fee.

There is no statistics on all international passengers but regular ferry traffic to Oskarshamn and Nynäshamn carries around 1 500 000 passengers/ year (they use berth 5 and 6, the cruise ships 4 and 7).

## Planned improvements

No planned improvements.

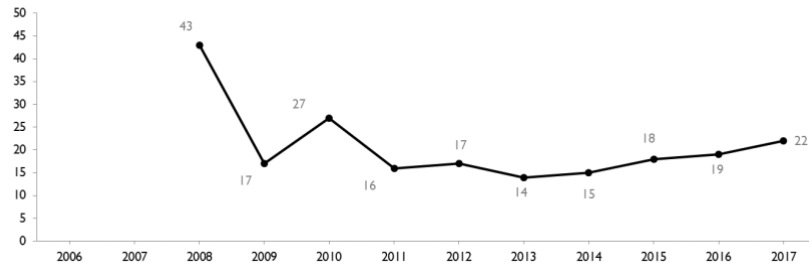
## Additional information

Visby was listed as having adequate PRF for sewage in the 2010 HELCOM Roadmap for upgrading PRF for sewage in passenger ports of the Baltic Sea area.

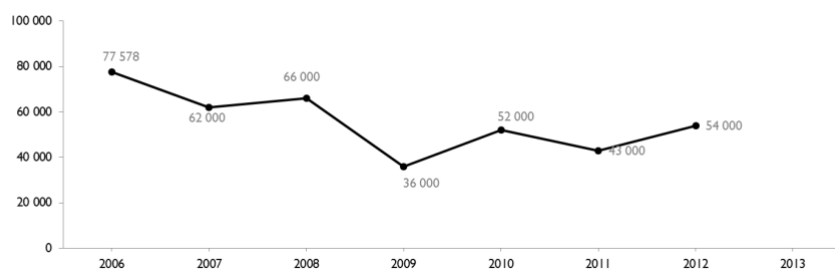
## 2. Passenger traffic trends in Visby

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

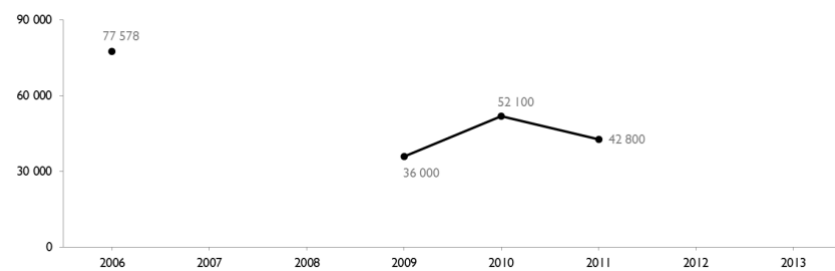
### Cruise ships calls



### Cruise ships passengers



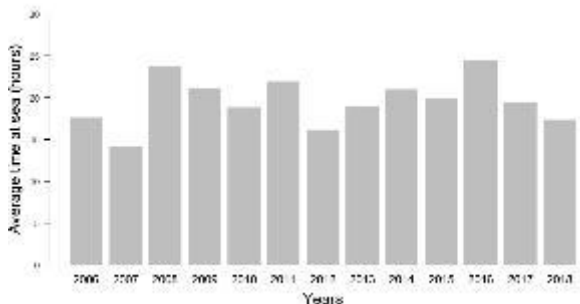
### International cruise and ferry passengers



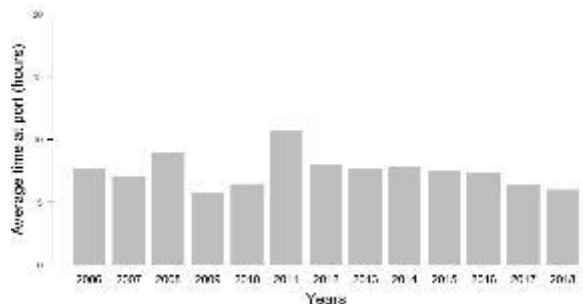
### 3. Cruise ship visits in Visby

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

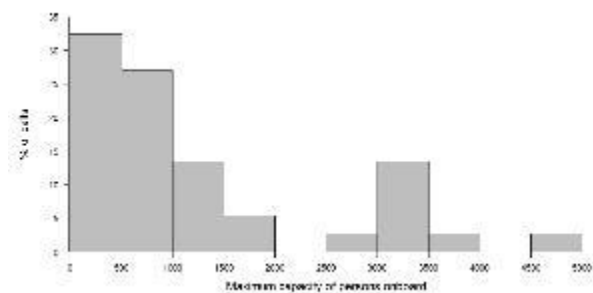
No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

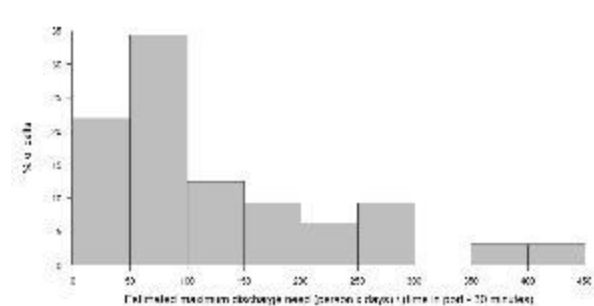
Several ships were at anchor when visiting Visby. None of them discharged sewage to the port.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need <sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Rønne - Bornholm (Denmark)

<http://www.roennehavn.dk/site/Frontsite/> UN LOCODE: DKRNN



## 1. Sewage Port Reception Facilities

No information available.

## Planned improvements

No information available.

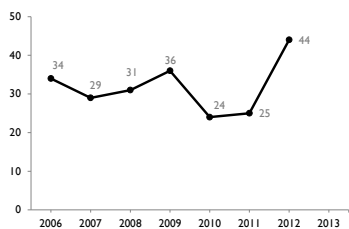
## Additional information

No information available.

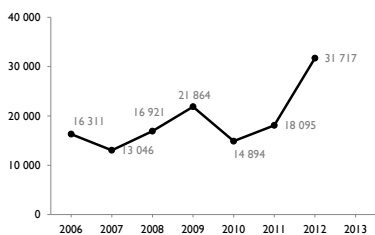
## 2. Passenger traffic trends in Rønne – Bornholm

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

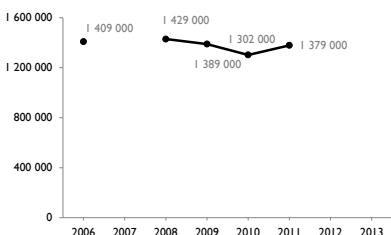
Cruise ships calls



Cruise ships passengers



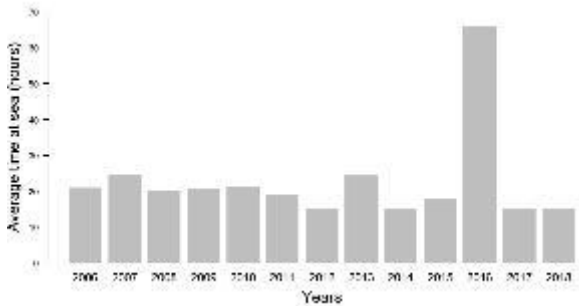
International passengers



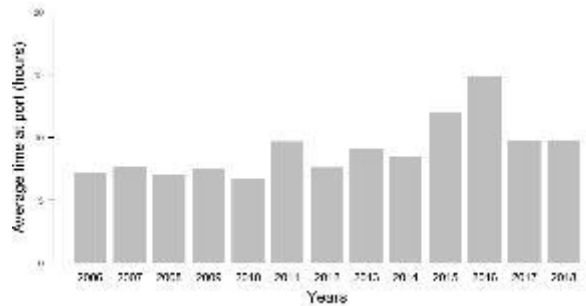
### 3. Cruise ship visits in Rönne - Bornholm

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

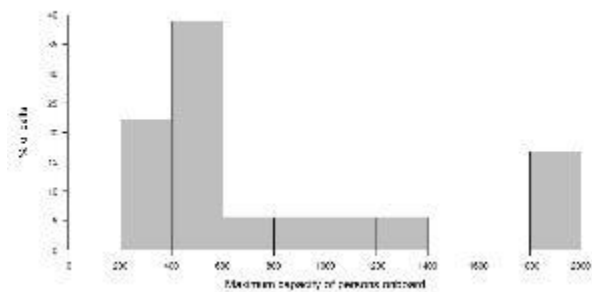
No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

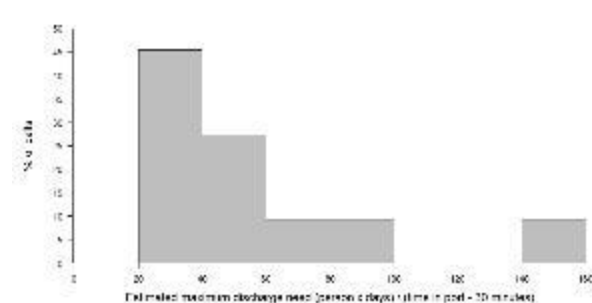
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.



# Mariehamn (Finland)

<http://www.mariehamnshamn.ax/> UN LOCODE: FIMHQ



## I. Sewage Port Reception Facilities

Sewage PRF facilities available and adequate with a pumping capacity of 30m<sup>3</sup>/h.

The use of the facilities is free.

## Planned improvements

Not in the near future.

## Additional information

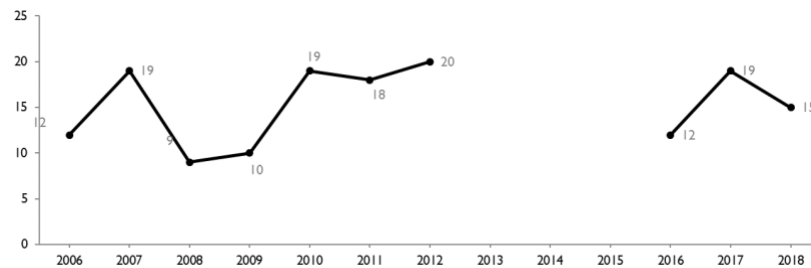
No information available.



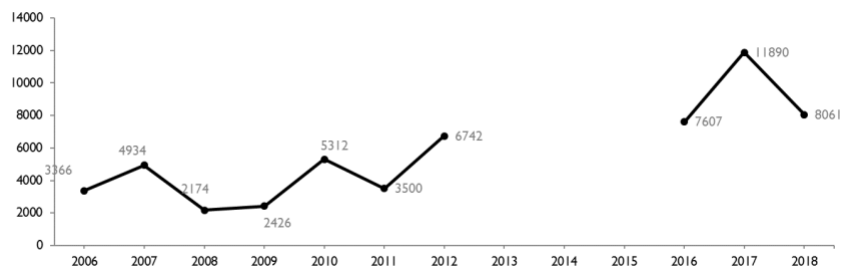
## 2. Passenger traffic trends in Mariehamn

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

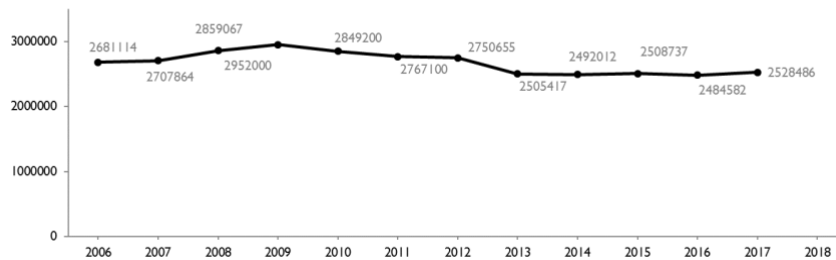
Cruise ships calls



Cruise ships passengers



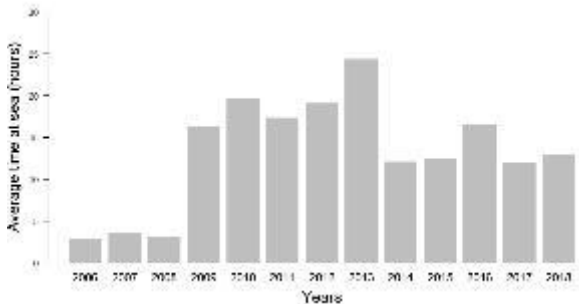
International cruise and ferry passengers



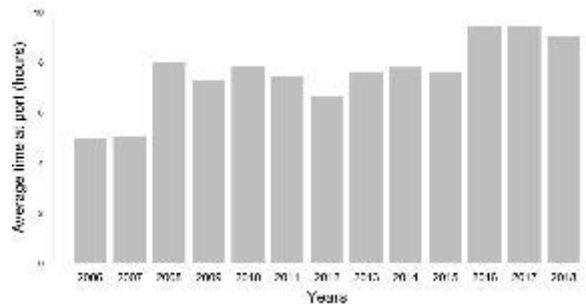
### 3. Cruise ship visits in Mariehamn

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

Cruise ships have so far not used Mariehamn sewage PRF facilities even if available according to port information reported to Nordic Council (Nordiska Rådet) in 2013.

#### 3.4. Comments from cruise ships on port facilities (2014)

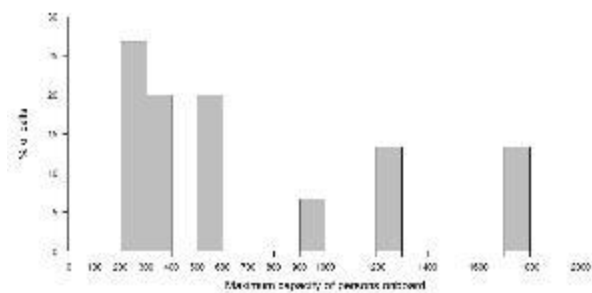
No information available.

#### Comments from ports on cruise ship visits (2018)

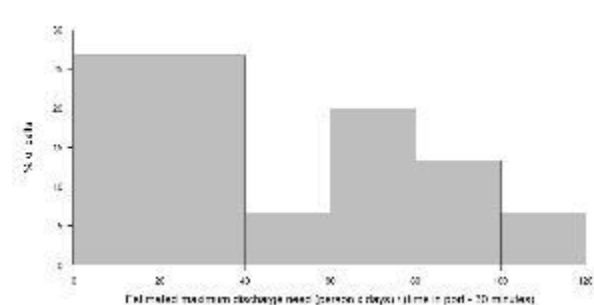
From 2015 the discharge of sewage has increased. At 2017 15 of 19 cruise vessels used the PRF. Most of the ships have short voyages before entering Mariehamn. Last port is often Stockholm or Helsinki.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need <sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}$ . Multiplying this figure with a waste water production estimation in m³ sewage per person per day would give you the estimated total discharge need in m³·h<sup>-1</sup>. More information is available in the Annex I.

# Lübeck, including Travemünde (Germany)

UN LOCODE: DELBC



## I. Sewage Port Reception Facilities

At the port of Lübeck sewage can be collected by tank trucks or barges (private operators) and discharged at the central sewage treatment plant. No direct discharge to sewer system.

The “no-special-fee” contains a part of 0,001€/GT for waste water (black water). On presentation of a receipt for disposal of waste water, this fee is paid back by the Port Operator.

## Planned improvements

A direct discharge-connection to the public sewer system is planned to be installed at the Ostpreussenkai in 2019 and be ready for operation in 2020. It will allow a flow rate of ~36 m<sup>3</sup>/h and a total amount of 400 m<sup>3</sup> per port call.

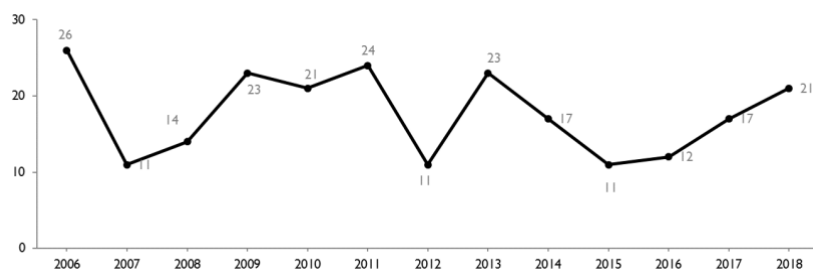
## Additional information

After operational experience at Ostpreußenkai new evaluation for Skandinavienkai in discussion.

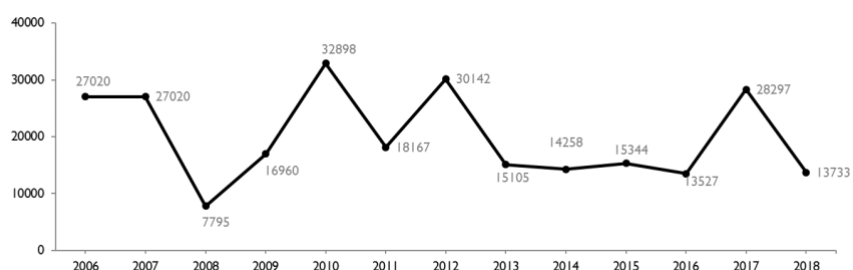
## 2. Passenger traffic trends in Lübeck (incl. Travemünde)

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

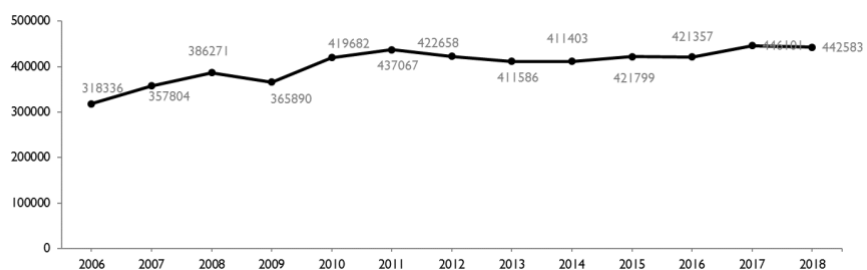
### Cruise ships calls



### Cruise ships passengers



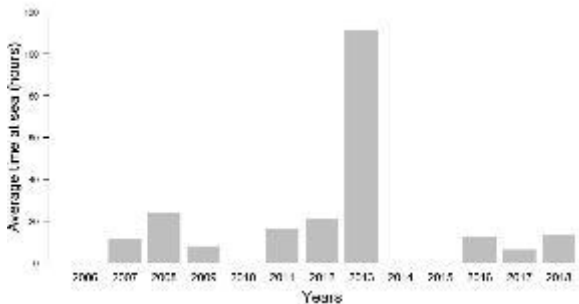
### International cruise and ferry passengers



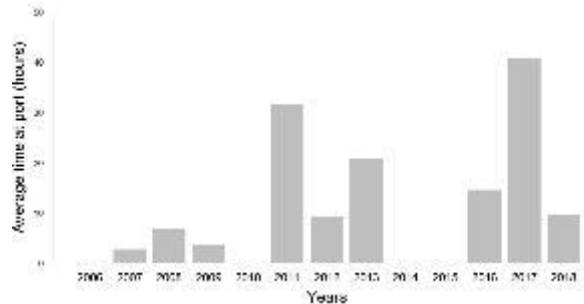
### 3. Cruise ship visits in Lübeck (including Travemünde)

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

The Lübeck port has not yet disposed of contaminated water from cruise ships by 2016.

#### 3.4. Comments from cruise ships on port facilities (2014)

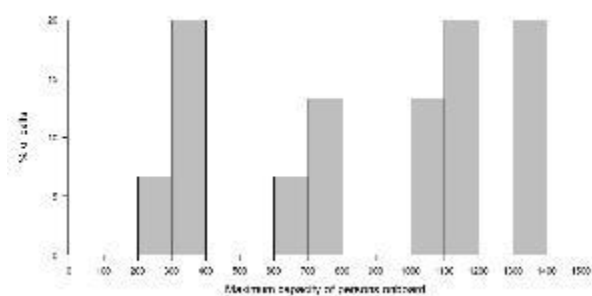
No information available.

#### Comments from ports on cruise ship visits (2014)

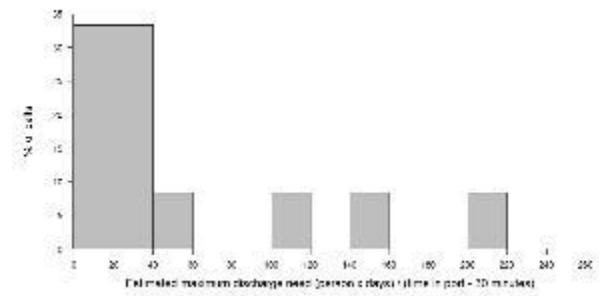
There is enough capacity, but little demand.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Malmö (Sweden)

<http://www.cmpport.com/> UN LOCODE: SEMMA



## I. Sewage Port Reception Facilities

Tank trucks are available.

No special fee for discharging sewage to the facilities.

## Planned improvements

No information available.

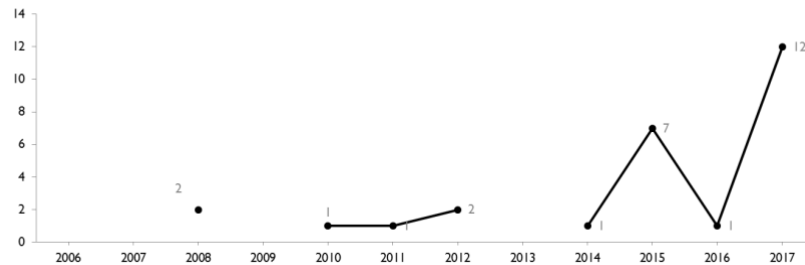
## Additional information

No information available.

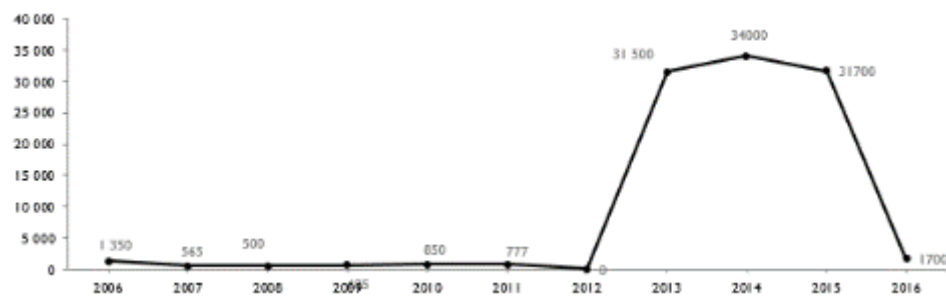
## 2. Passenger traffic trends in Malmö

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

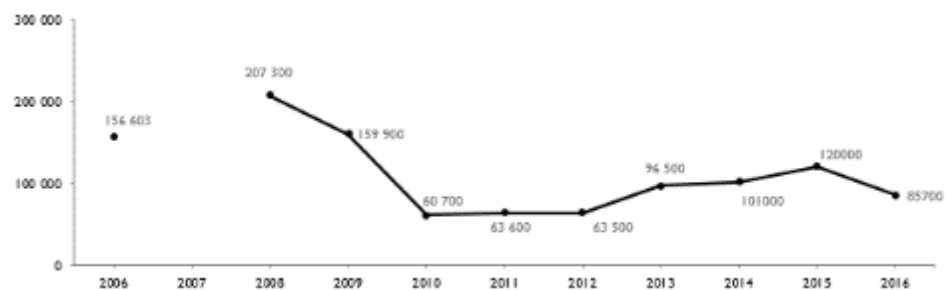
### Cruise ships calls



### Cruise ships passengers



### International cruise and ferry passengers

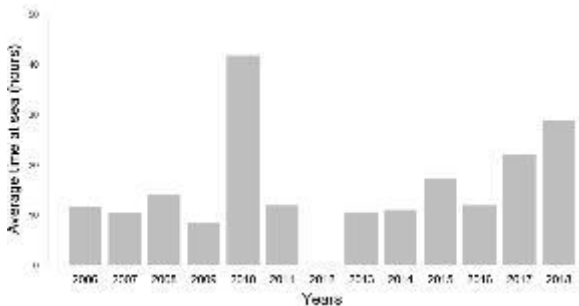




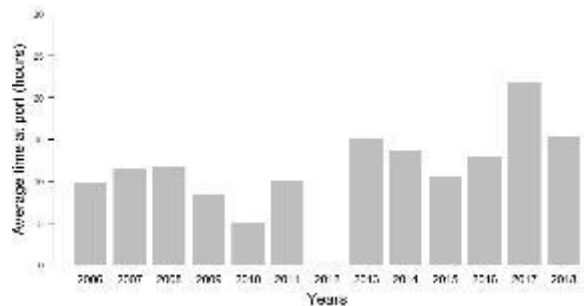
### 3. Cruise ship visits in Malmö

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

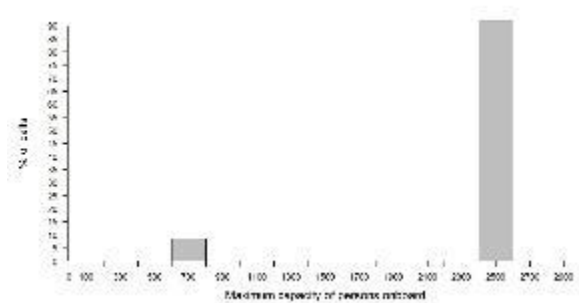
No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

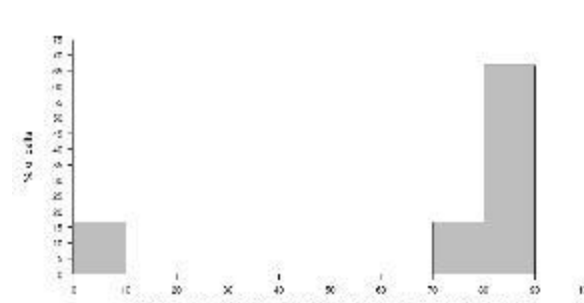
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



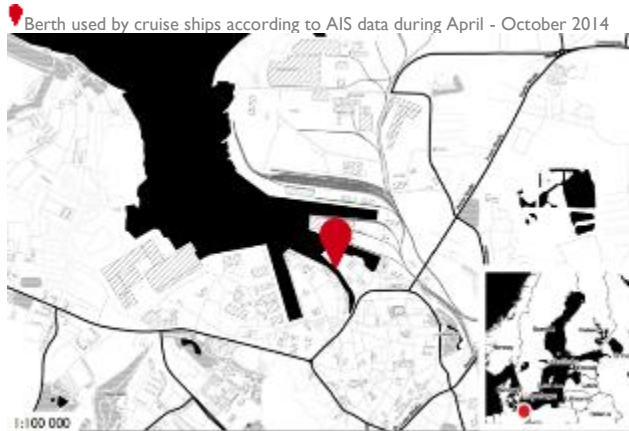
#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}$ . Multiplying this figure with a waste water production estimation in m³ sewage per person per day would give you the estimated total discharge need in m³h<sup>-1</sup>. More information is available in the Annex I.

# Wismar (Germany)

<http://www.hafen-wismar.de/> UN LOCODE: DEWIS



## I. Sewage Port Reception Facilities

At the port of Wismar sewage can be collected by tank and discharged at the central sewage treatment plant. For the moment no direct discharge to sewer system.

## Planned improvements

At the port of Wismar sewage can be collected by tank and discharged at the central sewage treatment plant. For the moment no direct discharge to sewer system.

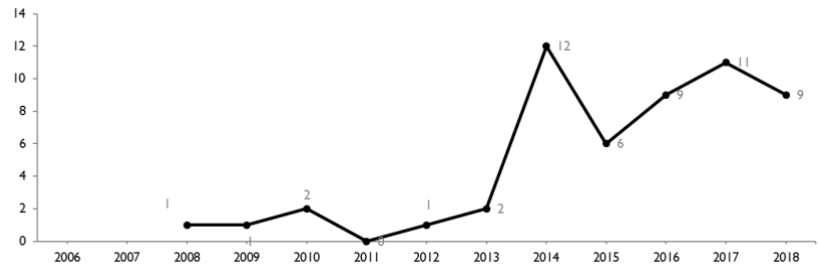
## Additional information

No information available.

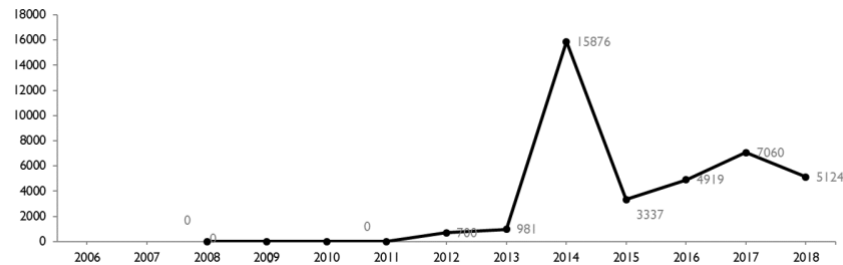
## 2. Passenger traffic trends in Wismar

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

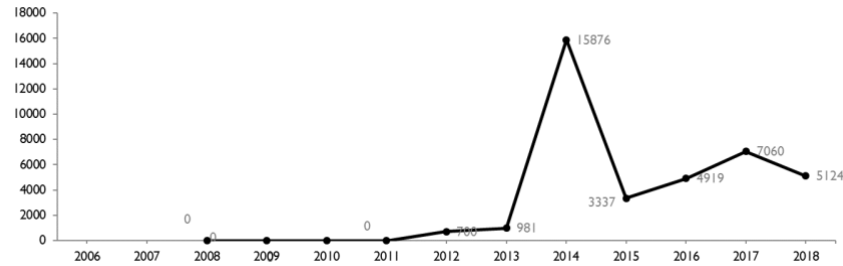
### Cruise ships calls



### Cruise ships passengers:



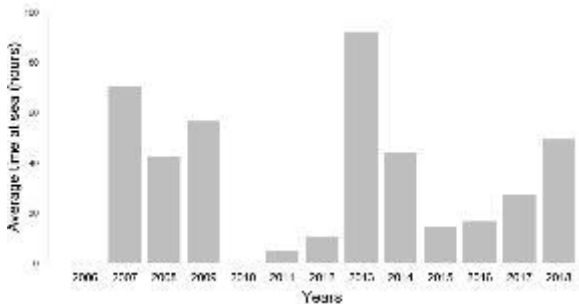
### International cruise and ferry passengers:



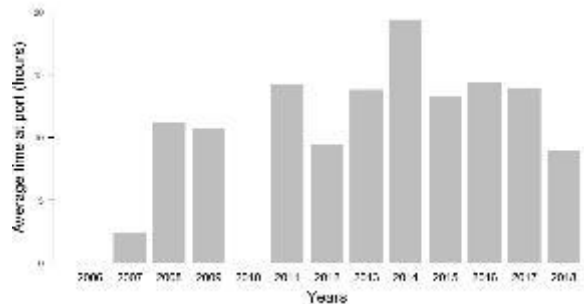
### 3. Cruise ship visits in Wismar

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

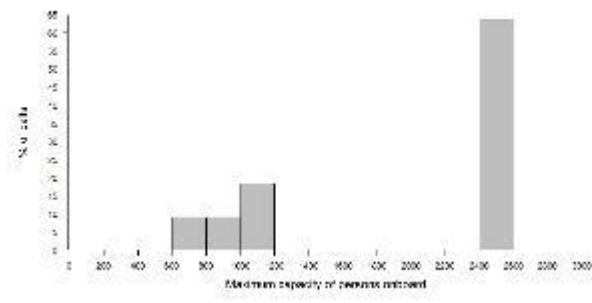
No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

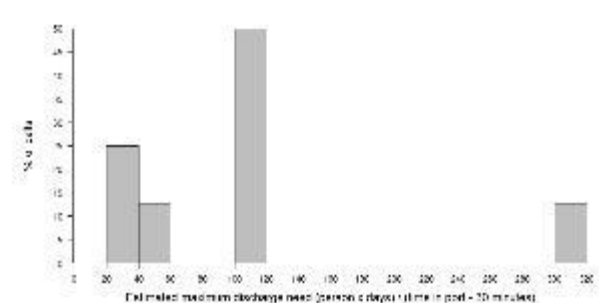
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m³ sewage per person per day would give you the estimated total discharge need in m³h⁻¹. More information is available in the Annex I.

# Aarhus (Denmark)

<http://www.aarhushavn.dk/> UN LOCODE: DKAAR



## I. Sewage Port Reception Facilities

No information available.

## Planned improvements

No information available.

## Additional information

No information available.

## 2. Passenger traffic trends in Aarhus

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

Cruise ships calls

No information available.

Cruise ships passengers

No information available.

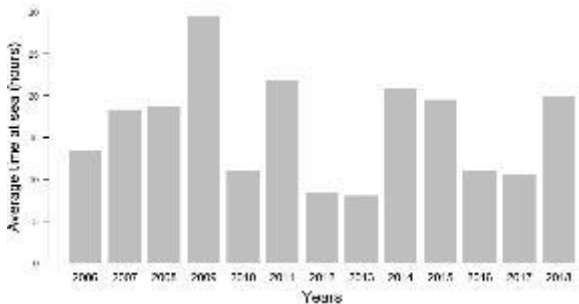
International cruise and ferry passengers

No information available.

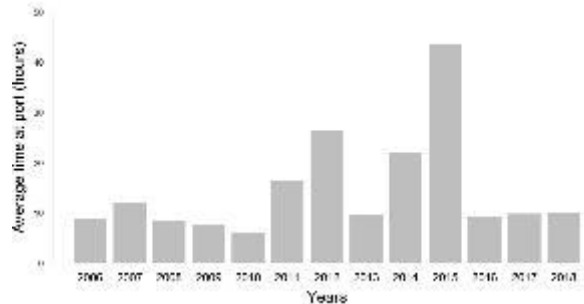
### 3. Cruise ship visits in Aarhus

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

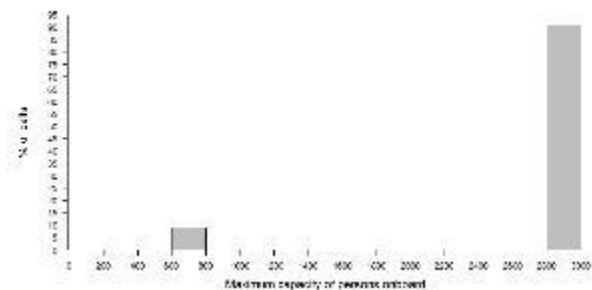
No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

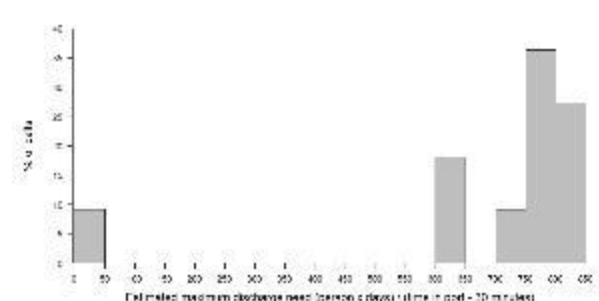
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

## Saaremaa (Estonia)

<http://www.portoftallinn.com/saaremaa-harbour> UN LOCODE: EESMA



A port on the North side of Saaremaa island (Küdema Bay).  
Operated by the Tallinn port authority.

### I. Sewage Port Reception Facilities

The only possible solution is to receive sewage by truck (up to 18m<sup>3</sup> per day), because there is no municipal sewage network available in the area. Saaremaa Harbour is in remote location (north-western coast of the island) and wastewater treatment plant is located approx. 45 km away from the port.

Waste fee charged on every ship. Sewage exceeding 7m<sup>3</sup> is subject to extra payment.

### Planned improvements

No information available.

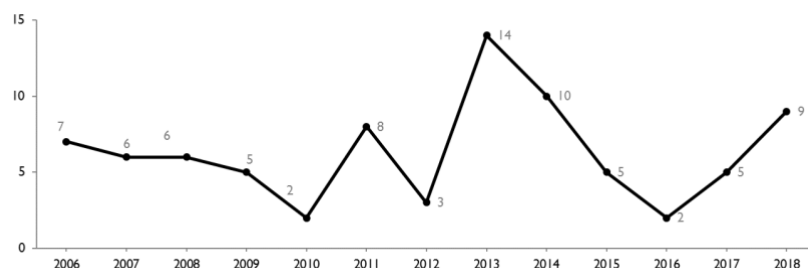
### Additional information

No information available.

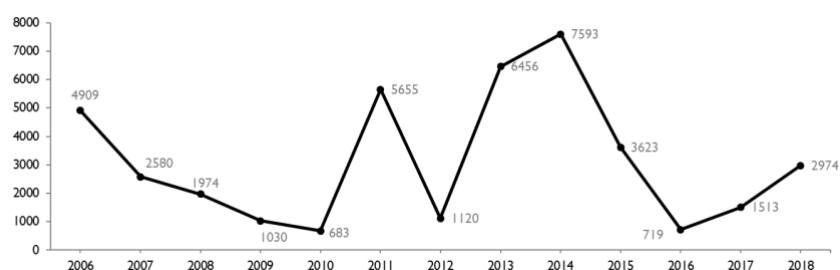
## 2. Passenger traffic trends in Saaremaa

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

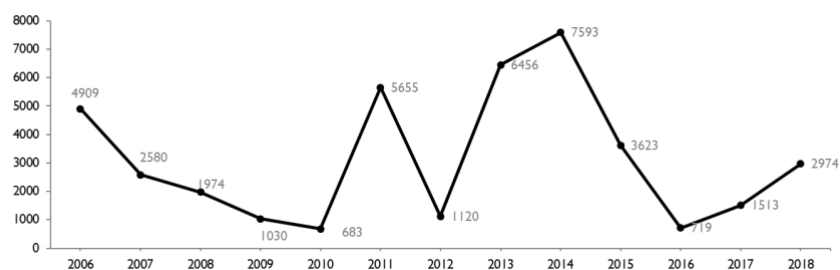
### Cruise ships calls



### Cruise ships passengers



### International cruise and ferry passengers

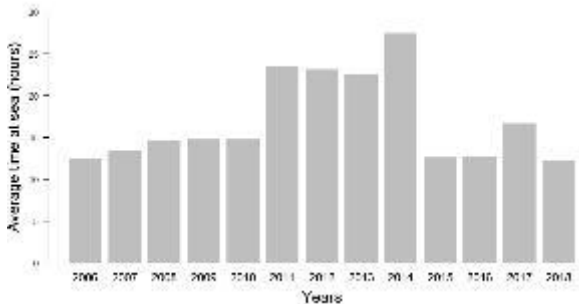




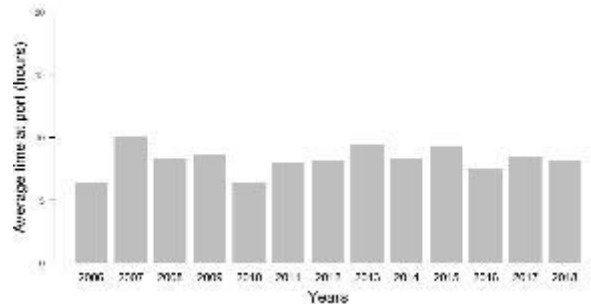
### 3. Cruise ship visits in Saaremaa

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port

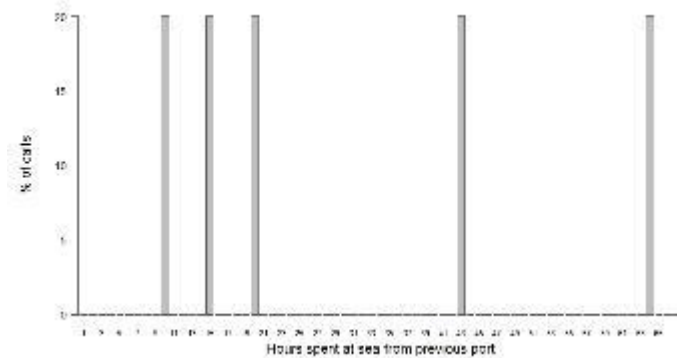


#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

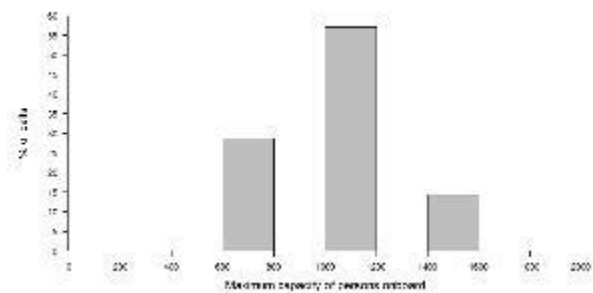


#### 3.4. Comments from cruise ships on port facilities (2014)

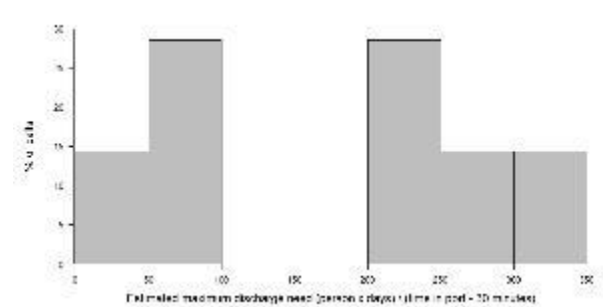
When the tank truck was not available, the ship had the authorization to off-load the sewage on the next day during the port of call in Tallinn with no extra cost. No ship delivered sewage to the port of Saaremaa.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>·h<sup>-1</sup>. More information is available in the Annex I.

# Sassnitz, including Mukran (Germany)

<http://www.fae rhafen-sassnitz.de/en/> UN LOCODE: DESAS



## I. Sewage Port Reception Facilities

In 2017 and 2018, no sewage from cruise ships has been / will be discharged in Mukran.

## Planned improvements

Sewage discharge and disposal facilities for future calls are currently being built.

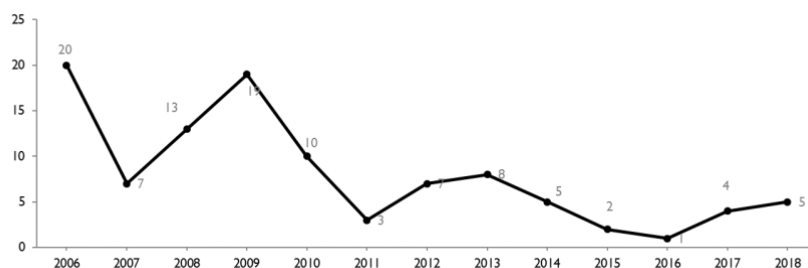
## Additional information

No information available.

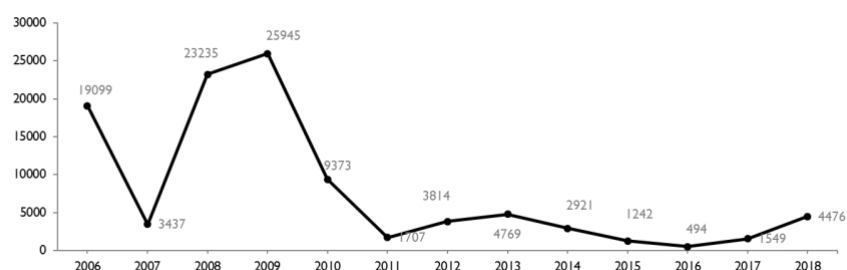
## 2. Passenger traffic trends in Sassnitz, including Mukran

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

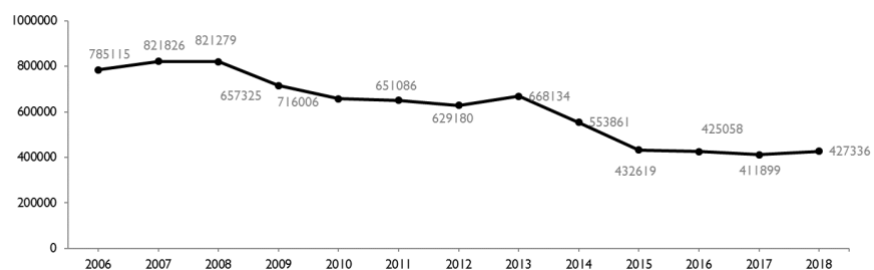
### Cruise ships calls



### Cruise ships passengers



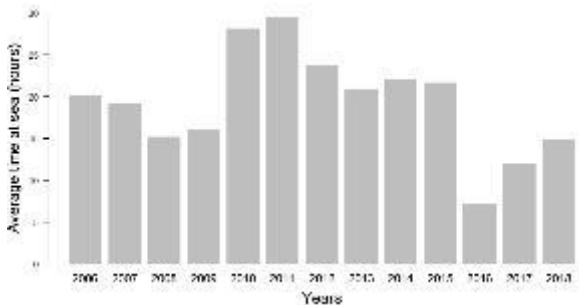
### International cruise and ferry passengers



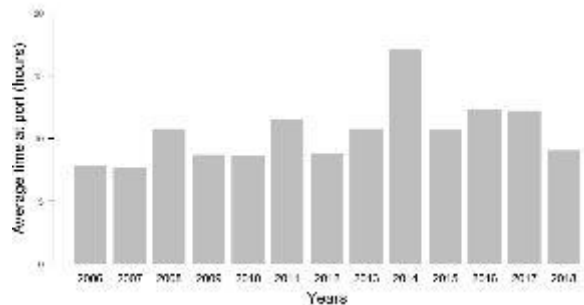
### 3. Cruise ship visits in Sassnitz, including Mukran

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

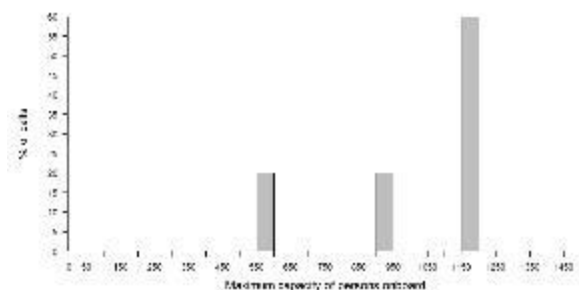
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#### 3.4. Comments from cruise ships on port facilities (2014)

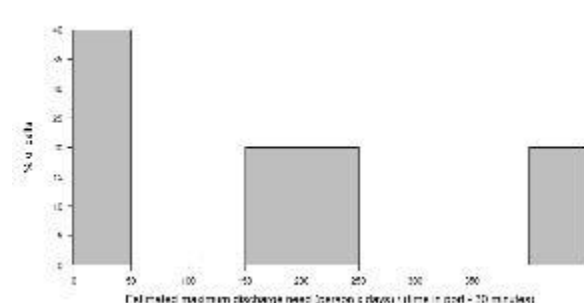
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew




#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>·h<sup>-1</sup>. More information is available in the Annex I.

# Kaliningrad (Russia)

UN LOCODE: RUKGD

 Berth used by cruise ships according to AIS data during April - October 2014



## I. Sewage Port Reception Facilities

In the Seaport of Kaliningrad, two organizations (licensed operators) regularly collect sewage from vessels, which can be ordered to remove sewage: Polex-Eko LLC, Kaliningrad Sea Fishing Port - Kaliningrad Branch of FSUE "Natsrybresurs".

The above organizations used special vessels for collection sewage. Then, the sewage is transferred to truck and transported to municipal sewage treatment plant of Kaliningrad.

Points of direct connection to municipal sewerage in the territory of the Seaport of Kaliningrad are absent.

There is the similar scheme of sewage water delivery to PRF in the Kaliningrad Sea Fishing Port.

## Planned improvements

The development associated with the expansion and modernization of PRF for the collection of sewage from ships entering the seaport of Kaliningrad is not planned.

## Additional information

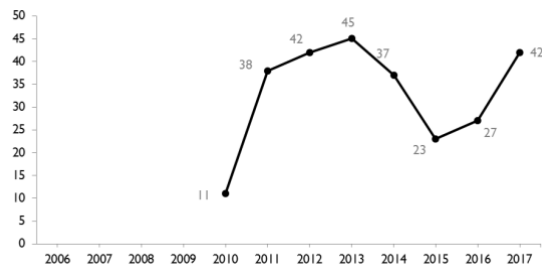
Based on the information provided by economic entities that collect ship waste, the discharge of sewage from passenger and cruise ships calling at the seaport of Kaliningrad in the period from 2006 to 2017 did not carried out.

Stationary reception facilities for collection and accumulation of sewage from ships in the territory of the seaport of Kaliningrad are absent.

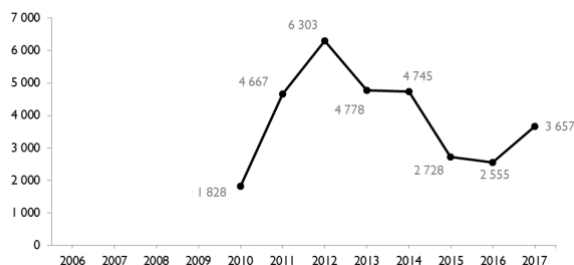
## 2. Passenger traffic trends in Kaliningrad

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

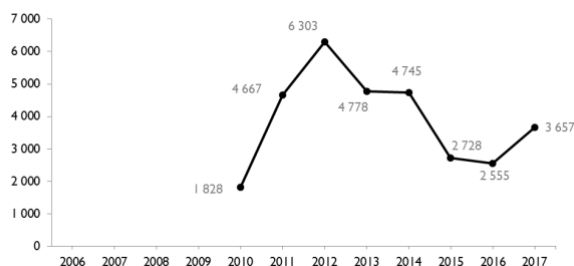
### Cruise ships calls



### Cruise ships passengers



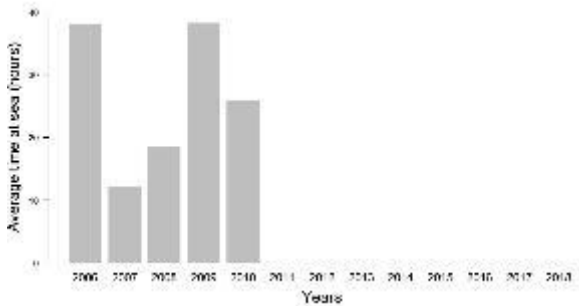
### International cruise and ferry passengers



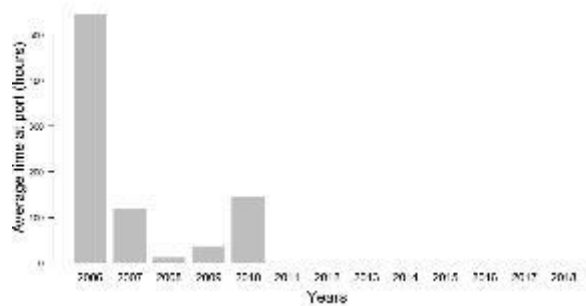
### 3. Cruise ship visits in Kaliningrad

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

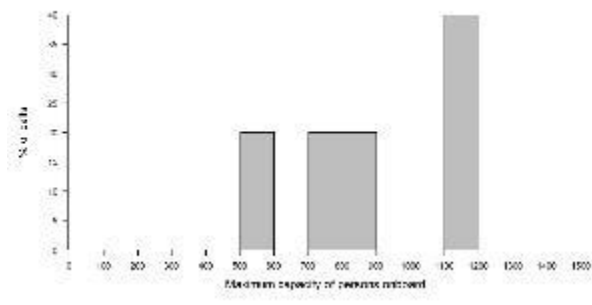
No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

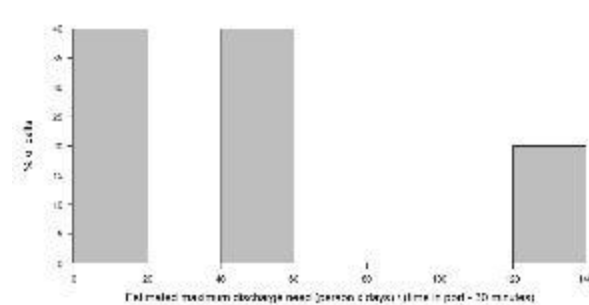
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



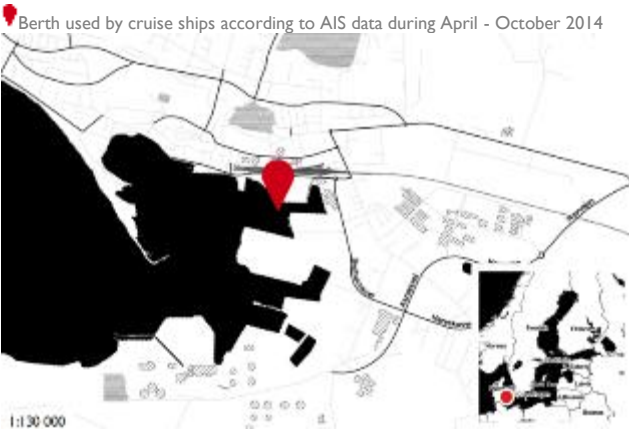
#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m³ sewage per person per day would give you the estimated total discharge need in m³h<sup>-1</sup>. More information is available in the Annex I.

# Kalundborg (Denmark)

<http://www.cruisekalundborg.dk/> UN LOCODE: DKKAL



## I. Sewage Port Reception Facilities

No information available.

## Planned improvements

No information available.

## Additional information

No information available.

## 2. Passenger traffic trends in Kalundborg

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

Cruise ships calls

No information available.

Cruise ships passengers

No information available.

International cruise and ferry passengers

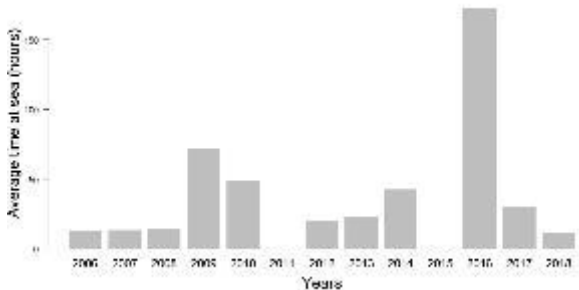
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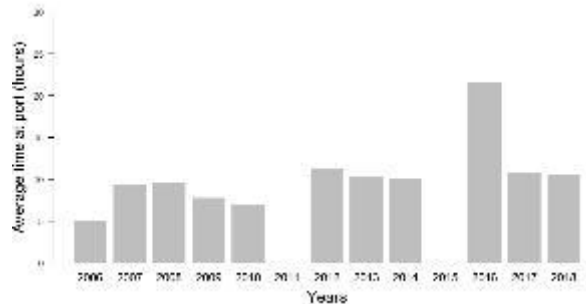
### 3. Cruise ship visits in Kalundborg

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

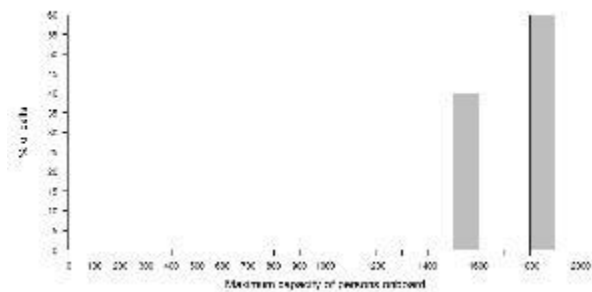
No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

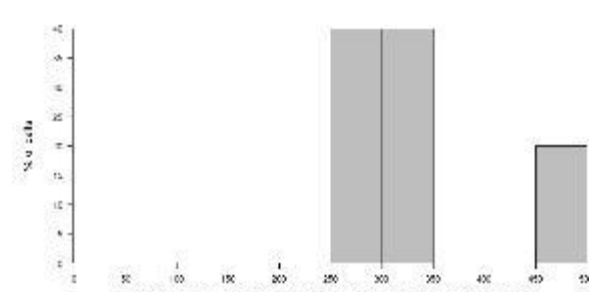
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Helsingborg (Sweden)

<http://www.port.helsingborg.se/> UN LOCODE: SEHEL



## I. Sewage Port Reception Facilities

Tank trucks are available for cruise ships with capacity to receive 30 m<sup>3</sup>/h.

Ferry companies arrange for their PRF for sewage at their own pier, which is a direct connection to municipal waste-water treatment plant.

The discharge of sewage to the port is included in the general waste fee.

## Planned improvements

No change in 2019

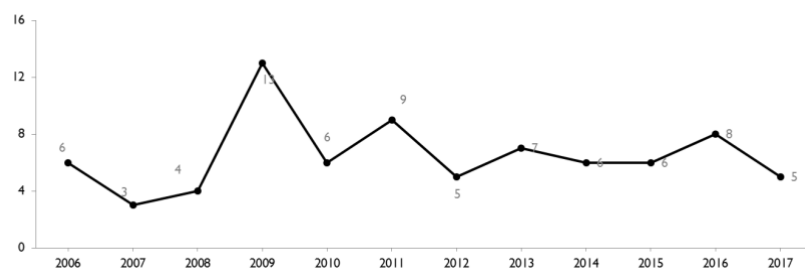
## Additional information

The port receives mostly ferry traffic. A few cruise ships per year, some of them anchor outside the port because they are too large to enter the port.

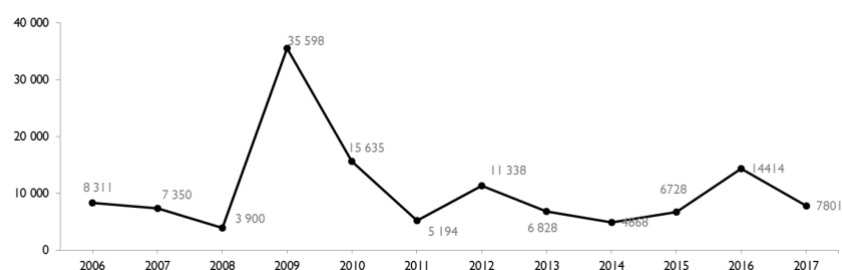
## 2. Passenger traffic trends in Helsingborg

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

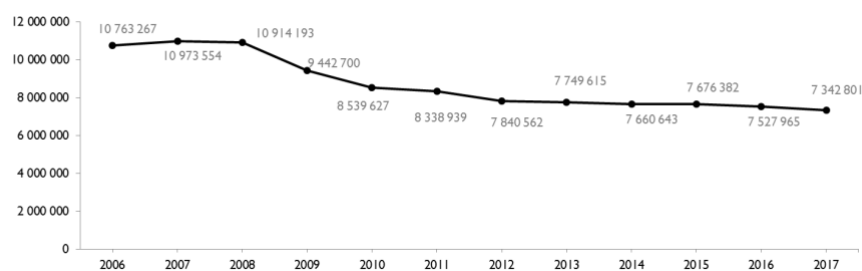
### Cruise ships calls



### Cruise ships passengers



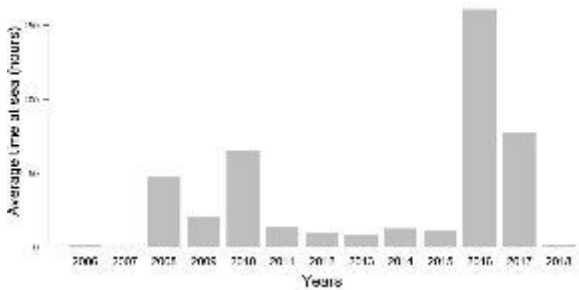
### International cruise and ferry passengers



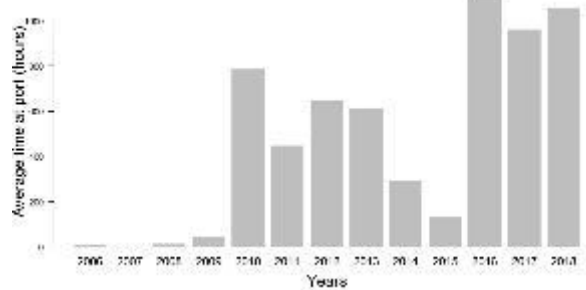
### 3. Cruise ship visits in Helsingborg

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

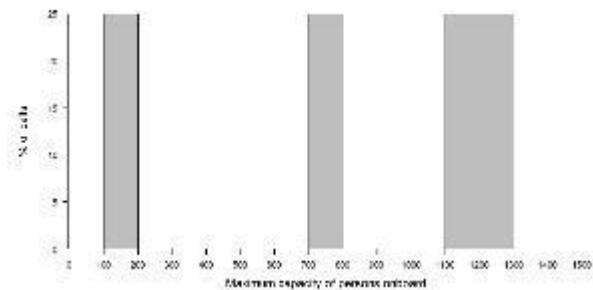
Cruise ships are normally not discharging sewage, due to only a couple of hours in port.

#### 3.4. Comments from cruise ships on port facilities (2014)

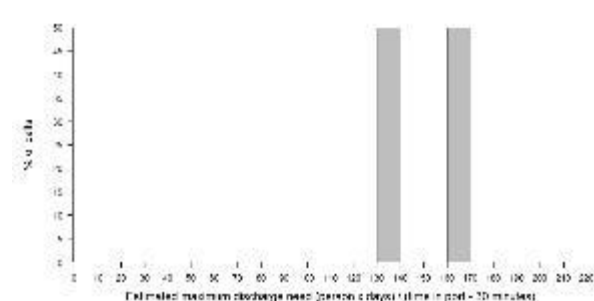
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m³ sewage per person per day would give you the estimated total discharge need in m³/h. More information is available in the Annex I.

# Szczecin (Poland)

<https://www.port.szczecin.pl> <http://www.sft.pl> UN LOCODE: PLSZZ



## I. Sewage Port Reception Facilities

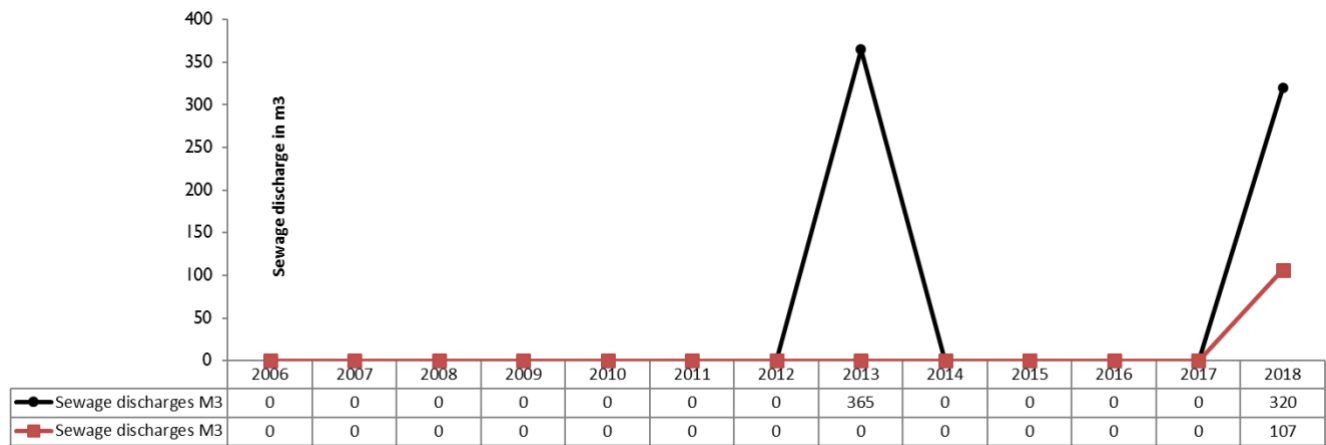
Reception of sewage from cruise ships or ferries is currently carried by the tank trucks which transport sewage to municipal WWTP (6 tank trucks with capacities: 32m<sup>3</sup>, 15,1m<sup>3</sup>, 15,2 m<sup>3</sup>, 14,56 m<sup>3</sup>, 6 m<sup>3</sup>, 6 m<sup>3</sup>). Sewage reception is also possible from the water side with 1 barge of capacity of 50 m<sup>3</sup>. More trucks or tanks for sewage as well as barges with larger capacities can also be arranged by the port if needed.

In 2018 one cruise ship delivered sewage at the Port of Szczecin.

## Planned improvements

## Additional information

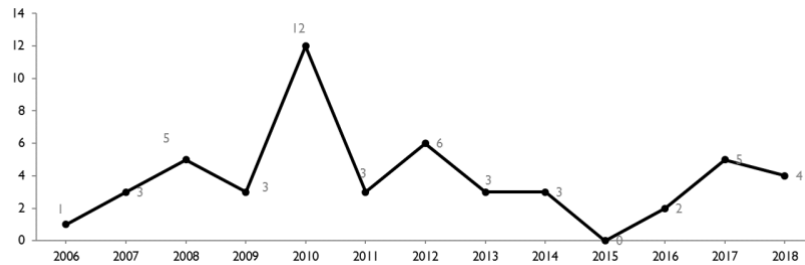
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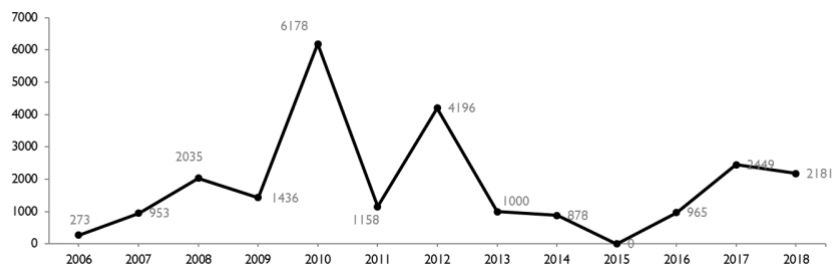
## I. Passenger traffic trends in Szczecin

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

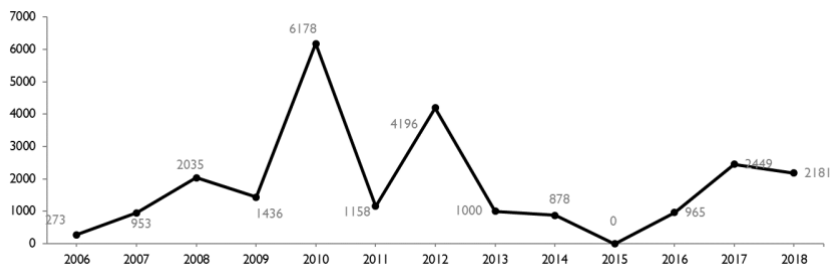
### Cruise ships calls



### Cruise ships passengers



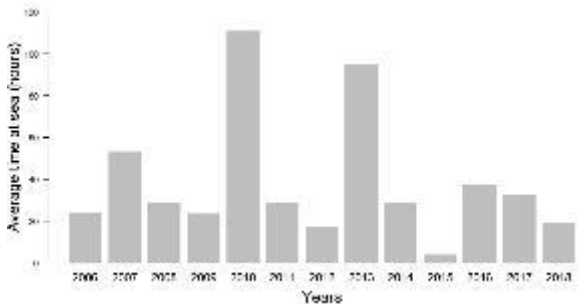
### International cruise and ferry passengers



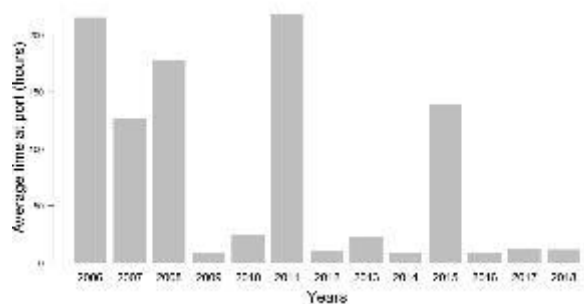
### 3. Cruise ship visits in Szczecin

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

#### 3.4. Comments from cruise ships on port facilities (2014)

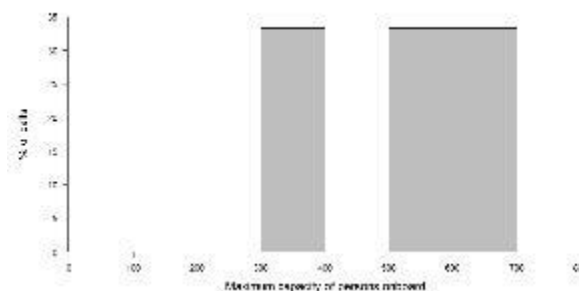
No information available.

#### Comments from ports on cruise ship visits (2017)

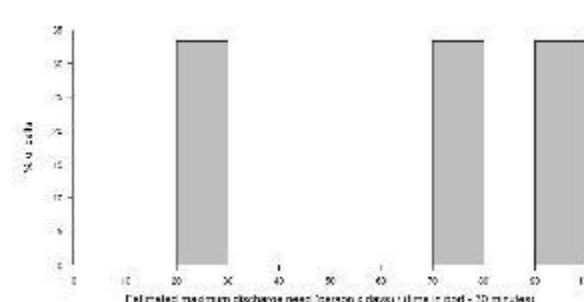
In 2017 there were 5 cruise ships calls in Port of Szczecin. The cruise ships have not delivered any sewage at the ports. Port of Świnoujście operates 12 fixed route ferry lines.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m³ sewage per person per day would give you the estimated total discharge need in m³·h<sup>-1</sup>. More information is available in the Annex I.

# Flensburg (Germany)

UN LOCODE: DEFL



## 1. Sewage Port Reception Facilities

No information available.

## Planned improvements

No information available.

## Additional information

No information available.

## 2. Passenger traffic trends in Flensburg

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

Cruise ships calls

No information available.

Cruise ships passengers

No information available.

International passengers

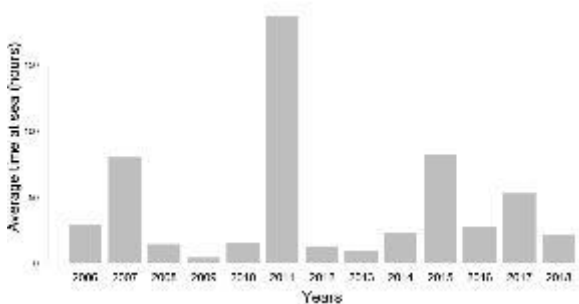
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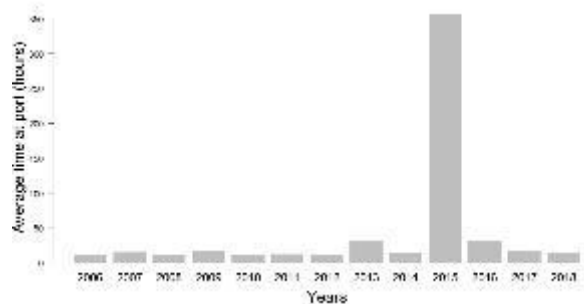
### 3. Cruise ship visits in Flensburg

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

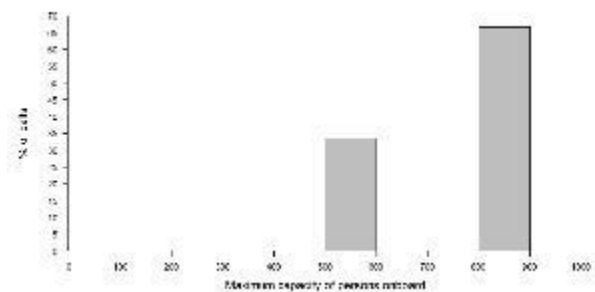
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#### 3.4. Comments from cruise ships on port facilities (2014)

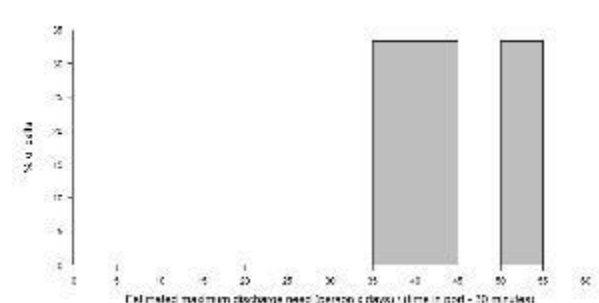
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Karlskrona (Sweden)

<http://www.karlskrona.se/> UN LOCODE: SEKAA



## I. Sewage Port Reception Facilities

Fixed reception points for black and grey water are available at the ferry terminal at KBP in Karlskrona. The capacity is 45 liters/sec. The sewage is transferred to the municipality treatment plant in Karlskrona.

The disposal of black- and greywater in port is included in the port fee.

All the ferries have exemptions from the delivery of sewage given by the Swedish Transport Agency.

## Planned improvements

Nothing planned now.

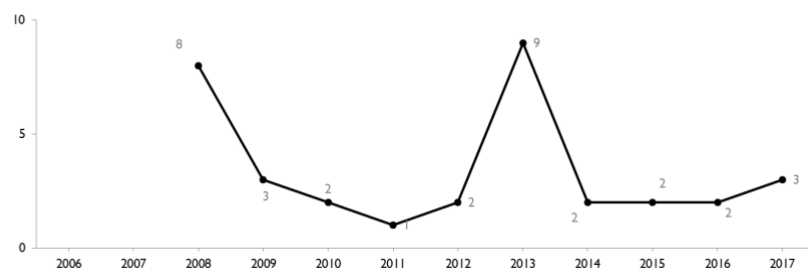
## Additional information

No information available.

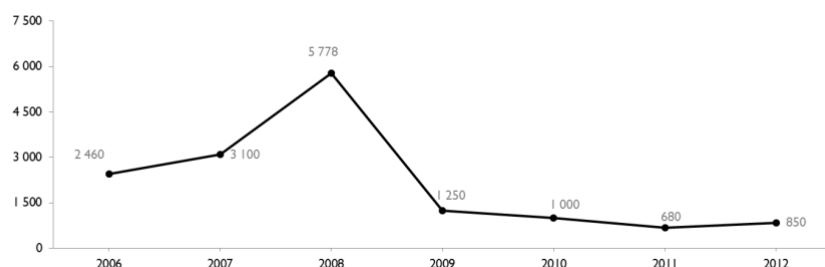
## 2. Passenger traffic trends in Karlskrona

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

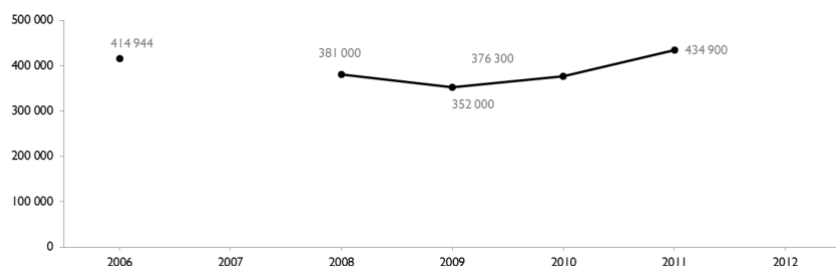
### Cruise ships calls



### Cruise ships passengers



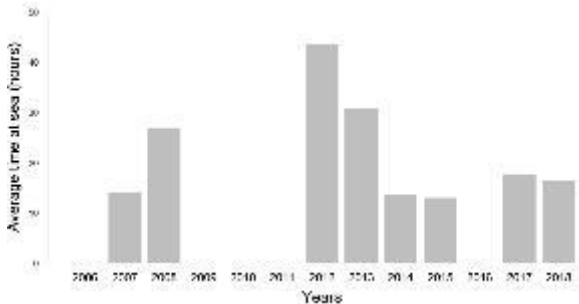
### International cruise and ferry passengers



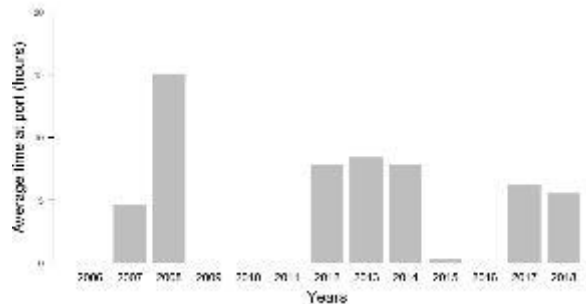
### 3. Cruise ship visits in Karlskrona

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

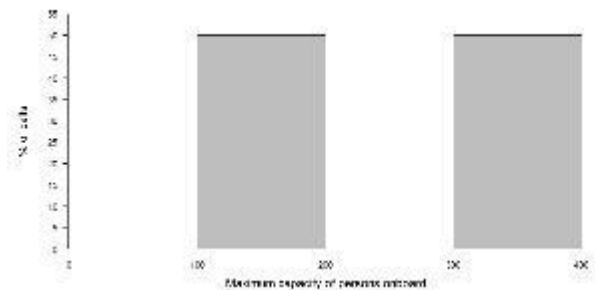
No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

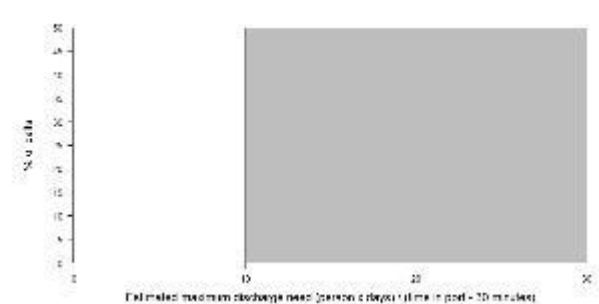
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m³ sewage per person per day would give you the estimated total discharge need in m³h<sup>-1</sup>. More information is available in the Annex I.

# Ventspils (Latvia)

<http://www.portofventspils.lv/> UN LOCODE: LVVNT



## I. Sewage Port Reception Facilities

One barge with a maximum discharge rate of 70 m<sup>3</sup>/h, maximum quantity of sewage that can be delivered by a ship – 86 m<sup>3</sup>. No direct sewage discharge connection available.

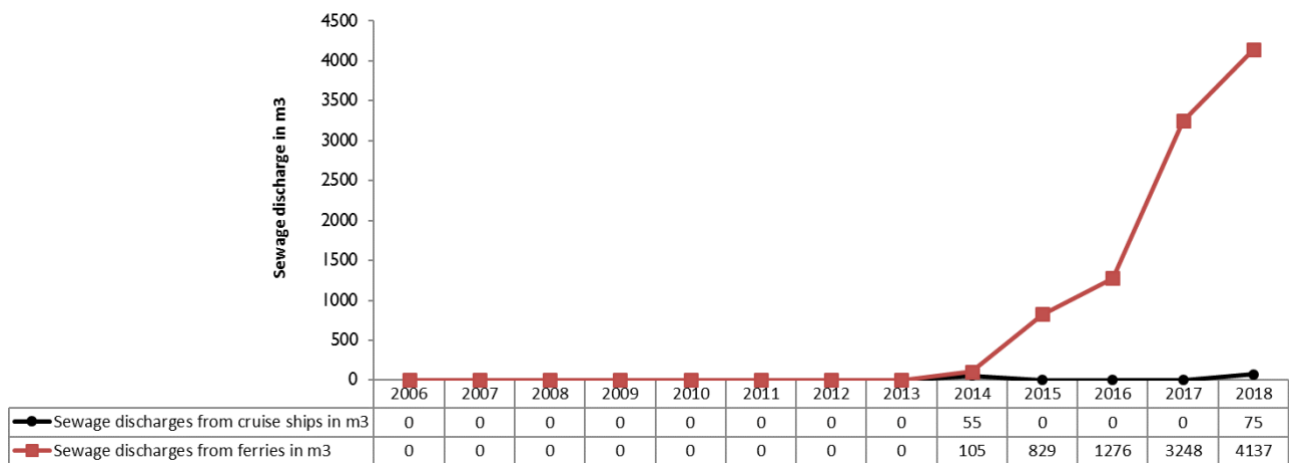
Sewage from ships is delivered and treated in Ventspils municipal-ity wastewater treatment plant. Sewage discharge time at port per call is 2 hours. The time spent at port per call: 4h and 12h.

## Planned improvements

No information available.

## Additional information

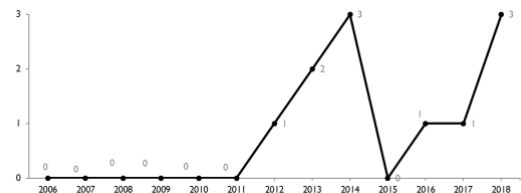
Tank trucks are used. One tank 30m<sup>3</sup>. Barge are also used. One tank 86m<sup>3</sup>. Capacity 20m<sup>3</sup>/h. From trucks and barges sewage are discharged to municipal treatment facilities.



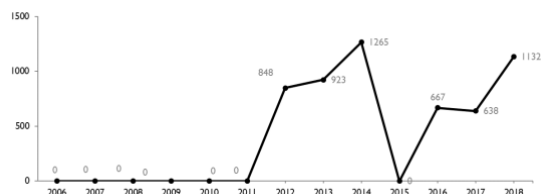
## 2. Passenger traffic trends in Ventspils

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

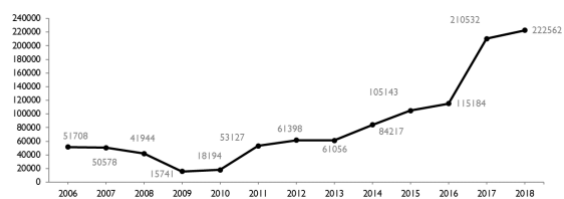
### Cruise ships calls



### Cruise ships passengers



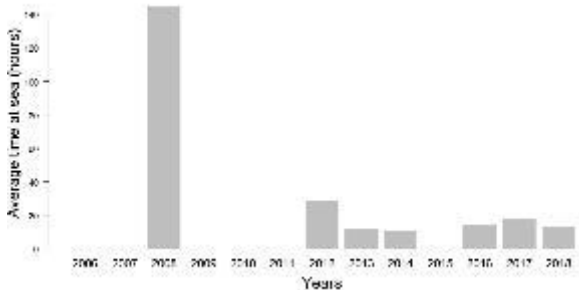
### International cruise and ferry passengers



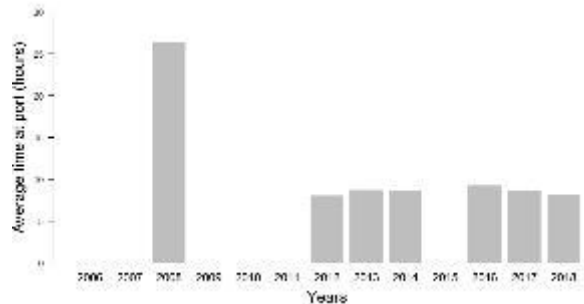
### 3. Cruise ship visits in Ventspils

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

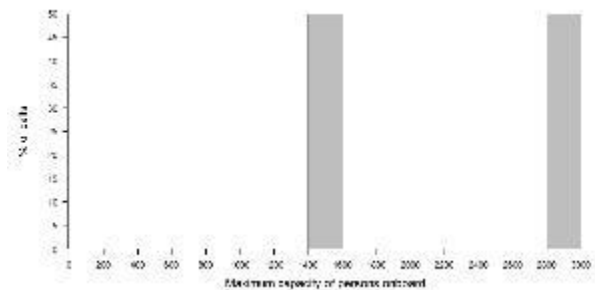
No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

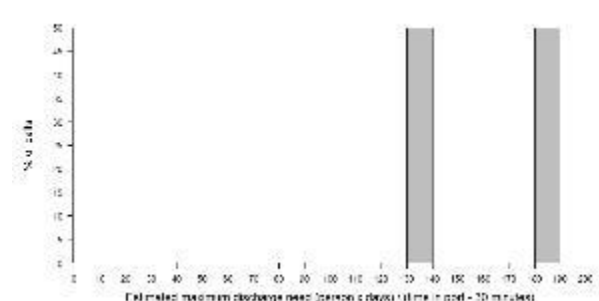
No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Stralsund (Germany)

<http://www.seehafen-stralsund.de/> UN LOCODE: DESTL



## I. Sewage Port Reception Facilities

Sewage disposal at the moment by mobile facilities operated by the regional sewage plant of the municipality.

Due to the access to Germany's inland waterway system the Port of Stralsund is the most frequented port on the German Baltic Coast regarding river cruise vessels coming from the metropolitan regions Berlin and Hamburg. Stralsund is the "turn-around-port" for river cruise lines every year from April to October which offer cruises also through the coastal waters of the Baltic around the island of Rügen. Deep-sea cruisers call at Stralsund occasionally, the total figures for passengers comprise the numbers of these calls.

Plans for the conversion and the renewal of the ports infrastructure which is used for the cruise business are in progress and are intended to contain fixed links/facilities for the sewage discharge.

## Planned improvements

It is planned to build a stationary facility on one special berth at the North Port (1) (see picture above)

## Additional information

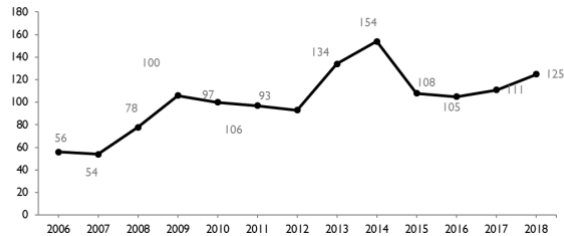
No information available.



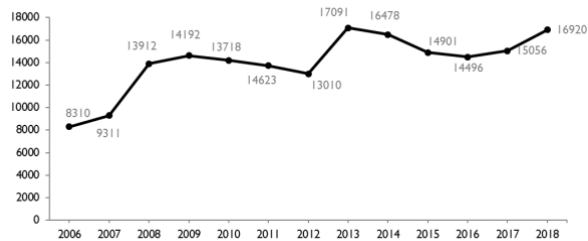
## 2. Passenger traffic trends in Stralsund

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

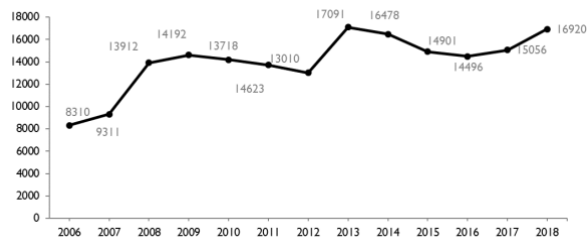
### Cruise ships calls



### Cruise ships passengers



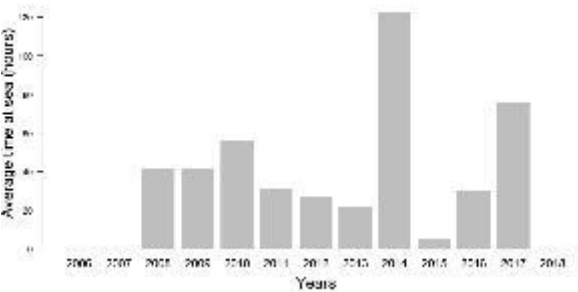
### International cruise and ferry passengers



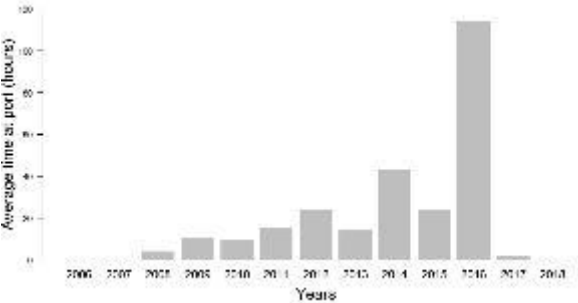
### 3. Cruise ship visits in Stralsund

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew

Time at sea from previous port 10

Time spent at port during the call 10

Maximum number of persons onboard 372

Only 1 call was reported during the joint HELCOM-CLIA survey.

#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>

Estimated theoretical maximum discharge need<sup>1</sup> 20,2

<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Kemi (Finland)

<http://www.keminsatama.fi/en/home.html> UN LOCODE: FIKEM



## I. Sewage Port Reception Facilities

No information available.

## Planned improvements

No information available.

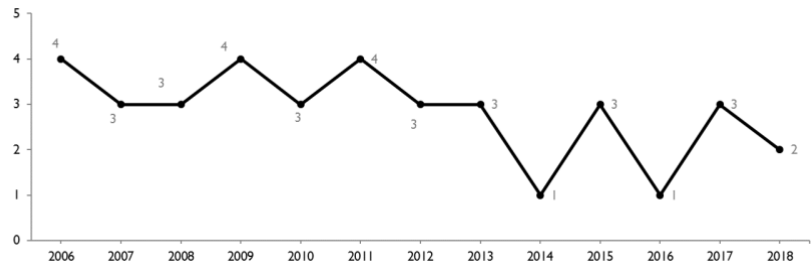
## Additional information

No information available.

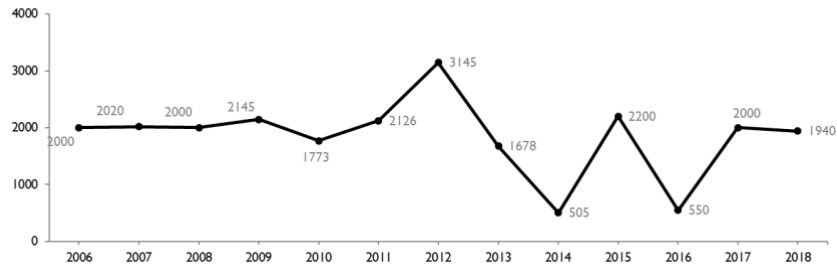
## 2. Passenger traffic trends in Kemi

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

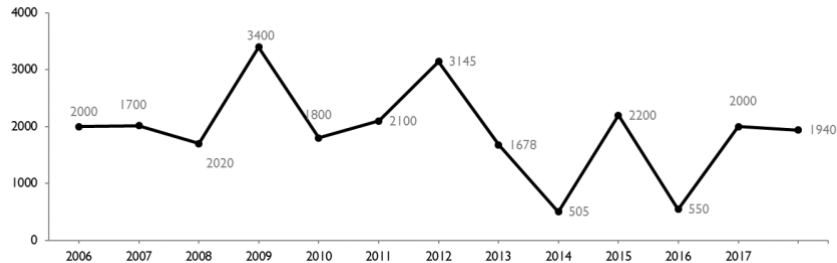
### Cruise ships calls



### Cruise ships passengers



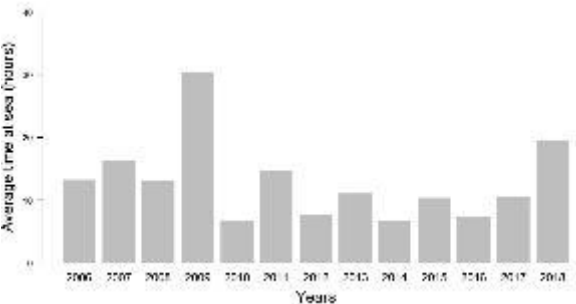
### International cruise and ferry passengers



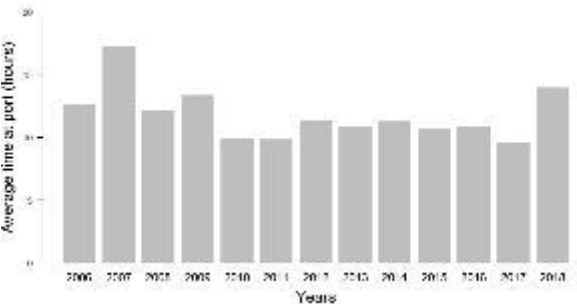
### 3. Cruise ship visits in Kemi

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew

Time at sea from previous port	7
Time spent at port during the call	11
Maximum number of persons onboard	916

Only 1 call was reported during the joint HELCOM-CLIA survey.

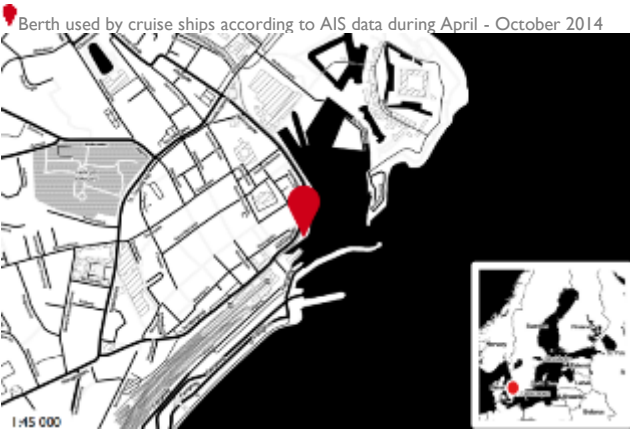
#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>

Estimated theoretical maximum discharge need<sup>1</sup> 24,3

<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Helsingör (Denmark)

UN LOCODE: DKHLS



## 1. Sewage Port Reception Facilities

No information available.

## Planned improvements

No information available.

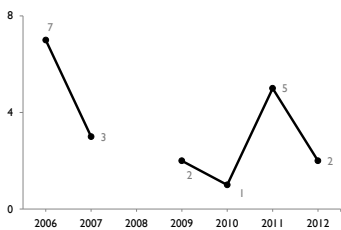
## Additional information

Helsingör is one of the eight ports listed as first priority ports in the 2010 HELCOM Roadmap for upgrading PRF for sewage in passenger ports of the Baltic Sea area.

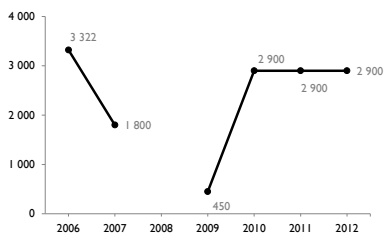
## 2. Passenger traffic trends in Helsingör

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

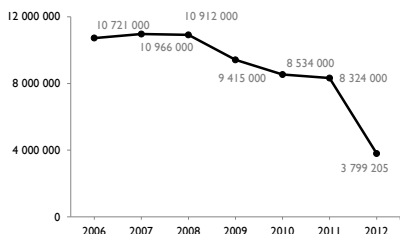
Cruise ships calls



Cruise ships passengers



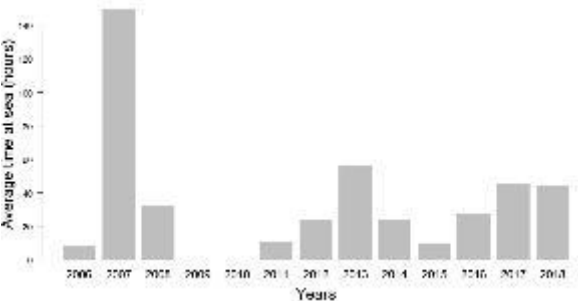
International passengers



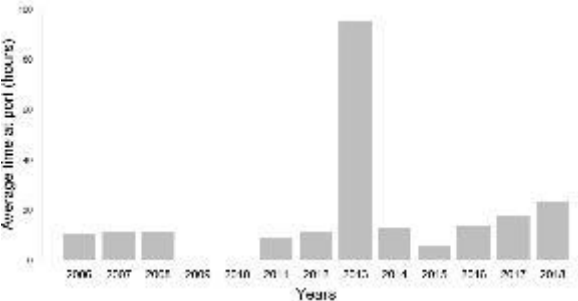
### 3. Cruise ship visits in Helsingör

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew

Time at sea from previous port	43
Time spent at port during the call	7
Maximum number of persons onboard	510

Only 1 call was reported during the joint HELCOM-CLIA survey.

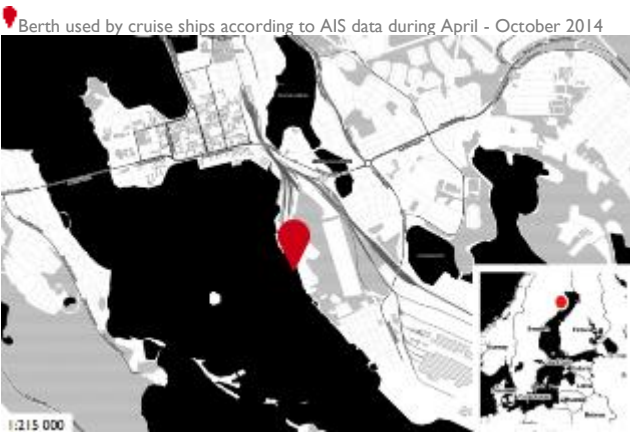
#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>

Estimated theoretical maximum discharge need<sup>1</sup> 130,5

<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Luleå (Sweden)

UN LOCODE: SELLA



## I. Sewage Port Reception Facilities

No information available.

## Planned improvements

No information available.

## Additional information

No information available.

## 2. Passenger traffic trends in Luleå

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

Cruise ships calls

No information available.

Cruise ships passengers

No information available.

International passengers

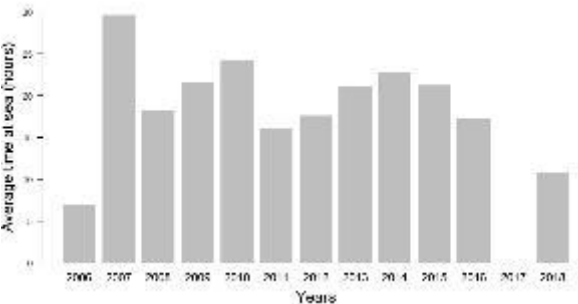
No information available.



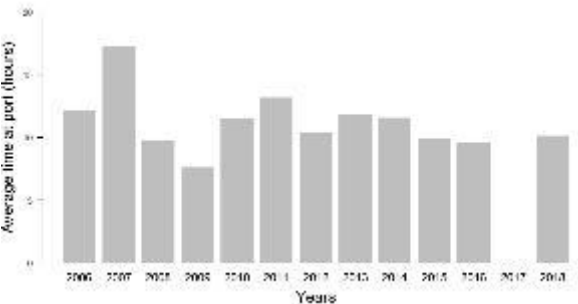
### 3. Cruise ship visits in Luleå

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew

Time at sea from previous port 24

Time spent at port during the call 12

Maximum number of persons onboard 916

Only 1 call was reported during the joint HELCOM-CLIA survey.

#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>

Estimated theoretical maximum discharge need<sup>1</sup> 76,3 m<sup>3</sup>h<sup>-1</sup>

<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Fredericia (Denmark)

UN LOCODE: DKFRC



## I. Sewage Port Reception Facilities

No information available.

## Planned improvements

No information available.

## Additional information

No information available.

## 2. Passenger traffic trends in Fredericia

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

Cruise ships calls

No information available.

Cruise ships passengers

No information available.

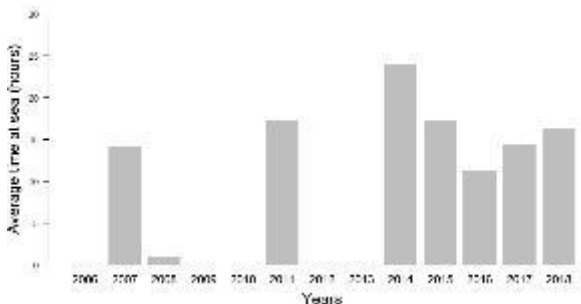
International passengers

No information available.

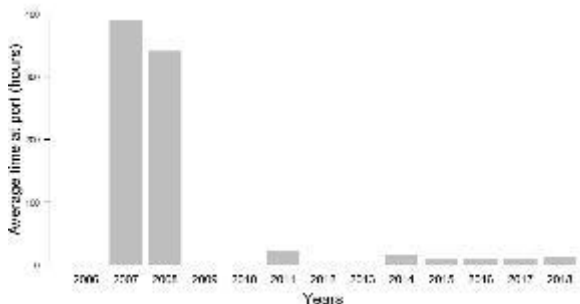
### 3. Cruise ship visits in Fredericia

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew

Time at sea from previous port 10

Time spent at port during the call 10

Maximum number of persons onboard 2796

Only 1 call was reported during the joint HELCOM-CLIA survey.

#### 3.6. Estimated theoretical max. discharge need<sup>1</sup>

Estimated theoretical maximum discharge need<sup>1</sup> 116,5 m<sup>3</sup>h<sup>-1</sup>

<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Trelleborg (Sweden)

<http://www.trelleborgshamn.se/> UN LOCODE: SETRG

## I. Sewage Port Reception Facilities

Fixed reception facilities for waste water are available at all RoRo/RoPax berths (calls as per timetable) in the port of Trelleborg.

At other quays (few and occasional calls), where there are no fixed reception points or in case the fixed reception facility can't be used tank trucks can be provided.

The fees for disposal of black- and greywater are agreed on in the overall terminal-/harbour agreements with each shipping line.

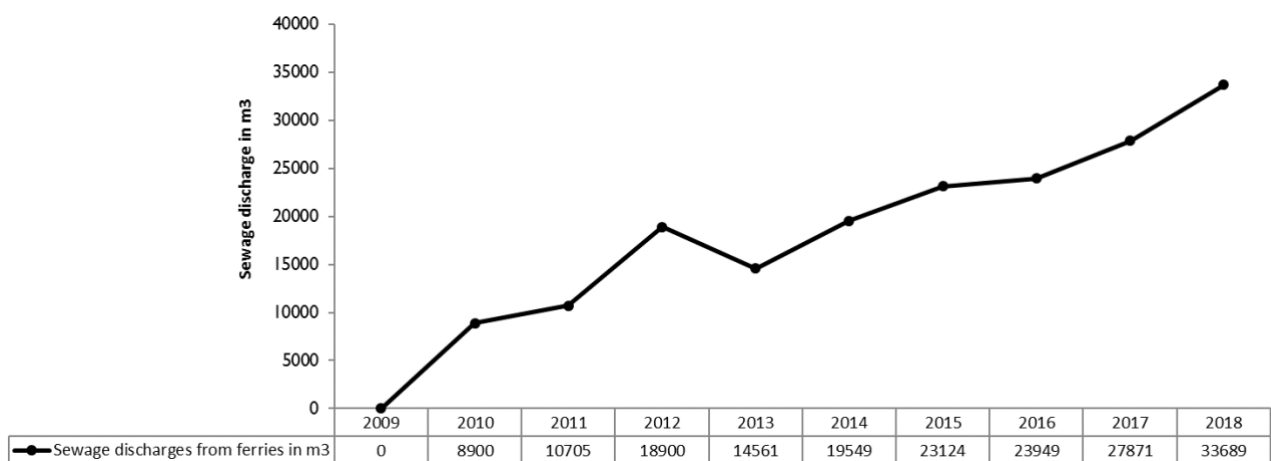
Direct discharge to municipal sewage system has been available at berths 8 and 9 since 2009 and all Roro berths in Trelleborg since 2012.

## Planned improvements

All new RoRo berths which are planned to be constructed the next years will have PRF's

## Additional information

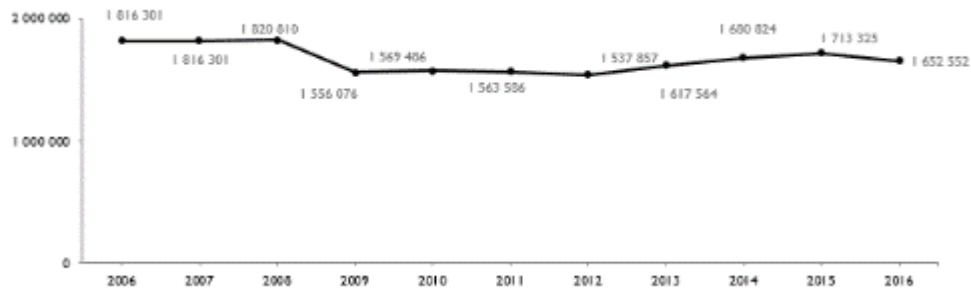
No information available



## 2. Passenger traffic trends in Trelleborg

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication “Baltic Port List” and the Nordic Council of Ministers.

International passengers



### 3. Cruise ship visits in Trelleborg

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew

No information available.

#### 3.6. Estimated theoretical max. discharge need <sup>1</sup>

No information available.

<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Liepaja (Latvia)

<http://www.liepaja-sez.lv/en> UN LOCODE: LVL PX

## I. Sewage Port Reception Facilities

The quays are served by mobile reception facilities – 3 tank trucks with capacity 30m<sup>3</sup> each and 1 barge with max capacity 250 m<sup>3</sup>.

No direct discharge to municipal sewage system available.

Sanitary fee charged from each ship includes delivery of sewage from passenger ships.

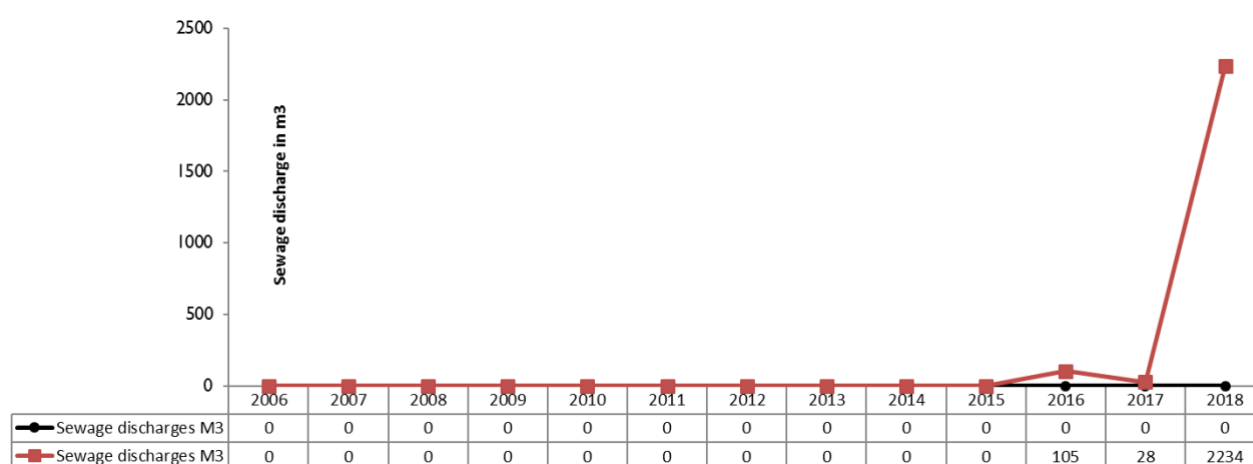
105 m<sup>3</sup> from ferries were discharged at port in 2016.

## Planned improvements

No plans for year of 2017.

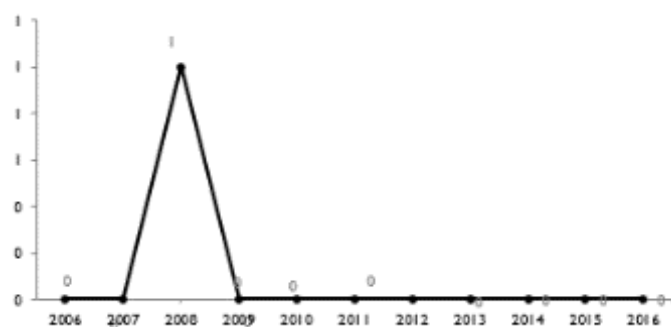
## Additional information

No information available.

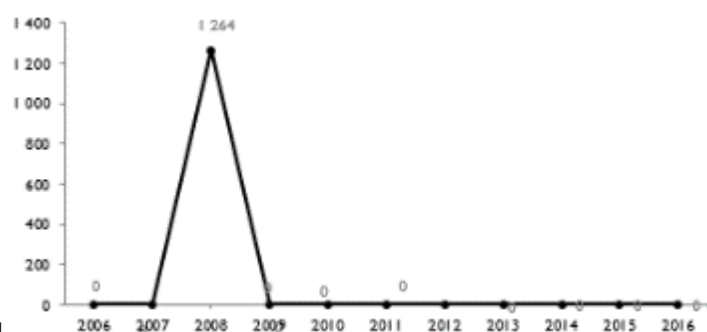


## 2. Passenger traffic trends in Liepaja

### Cruise ships calls

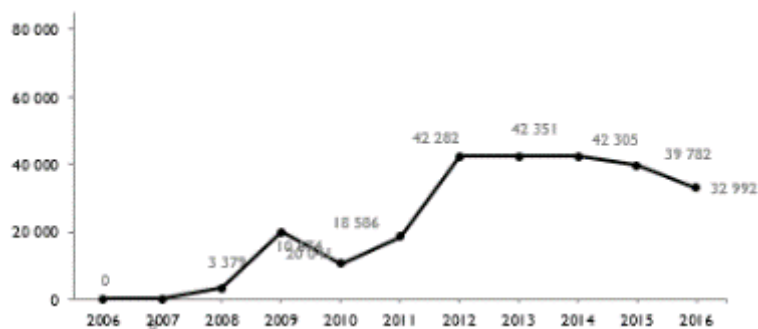


### Cruise ships passengers



4

### International passengers

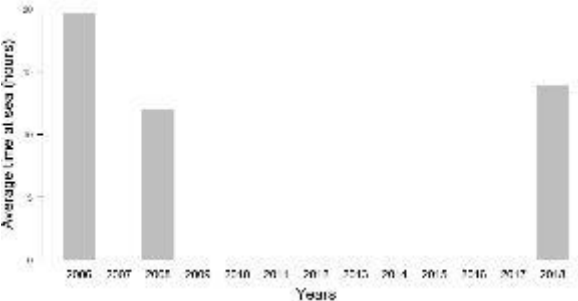




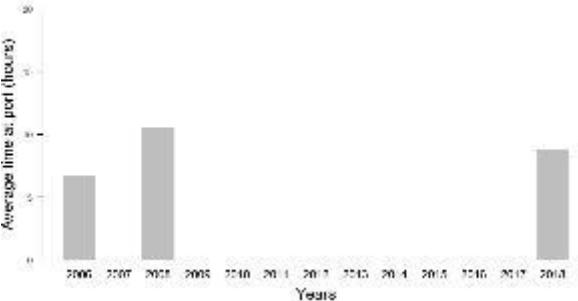
### 3. Cruise ship visits in Liepaja

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew

No information available.

#### 3.6. Estimated theoretical max. discharge need <sup>1</sup>

No information available.

<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Turku (Finland)

<http://www.portofturku.fi> UN LOCODE: FITKU



## I. Sewage Port Reception Facilities

Grey and black water can be discharged from the vessels directly to the fixed waste water reception facilities in Passenger Harbour, Linnanaukko and West Harbour areas. The vessel must use its own pump for discharging. Fixed reception points are connected to municipal sewer system.

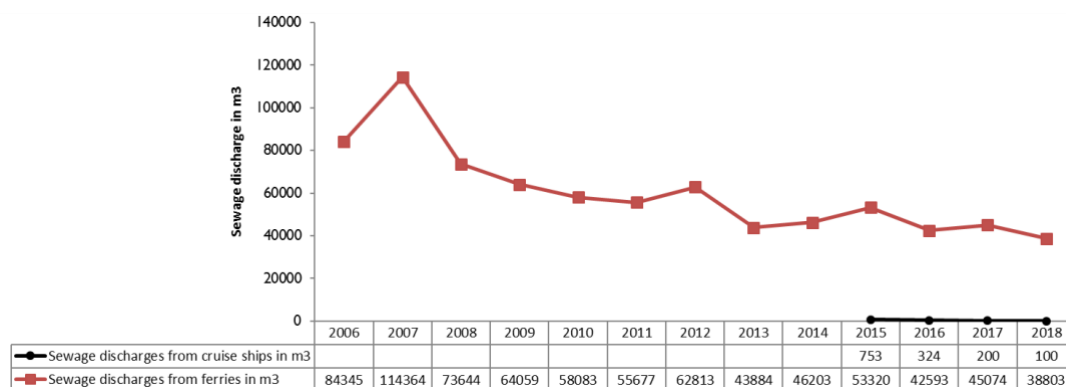
Passenger Harbour: Discharge points for fixed route ferry lines are located at berth number VI (used by Viking Line) and berth number S2 (used by Tallink Silja). Capacity is approx. 200 m<sup>3</sup>/h.

Linnanaukko: Discharge point is located at berth number 23. Planning capacity of the PRF is approx. 83 m<sup>3</sup>/h. PRF can be used by both cruise and cargo ships.

West Harbour: Discharge points are located at berth number 35 and 38. Planning capacity of the PRF is approx. 83 m<sup>3</sup>/h. PRF can be used by both cruise and cargo ships.

Where fixed waste water reception facilities are not available, the Port can provide tank trucks with a capacity of 24 m<sup>3</sup>/h to collect waste water if needed.

The disposal of sewage in port is included to the waste disposal charges (no-special-fee). Exceptions to cruise ships available.

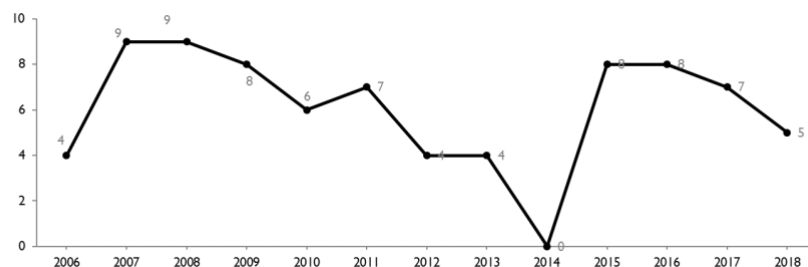


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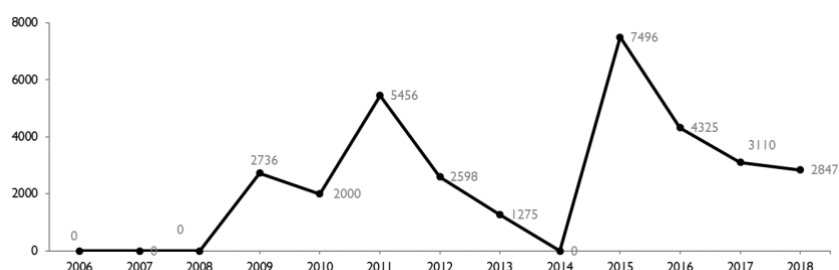
## 2. Passenger traffic trends in Turku

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

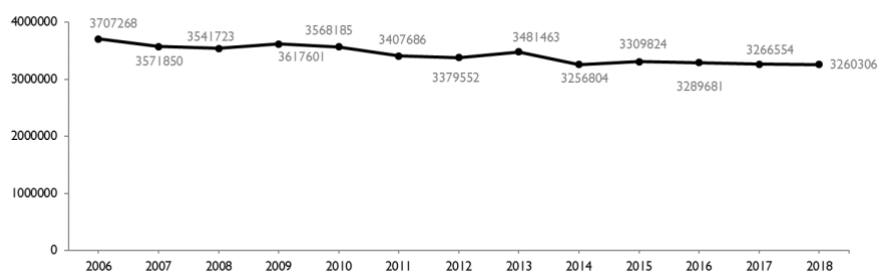
### Cruise ships calls



### Cruise ships passengers



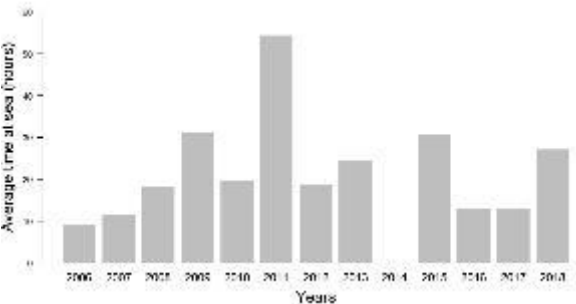
### International cruise and ferry passengers



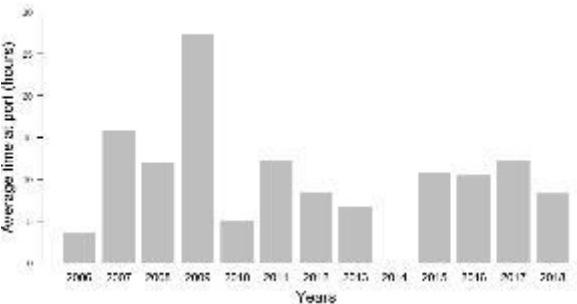
### 3. Cruise ship visits in Turku

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew

No information available.

#### 3.6. Estimated theoretical max. discharge need <sup>1</sup>

No information available.

<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Nynäshamn (Sweden)

UN LOCODE: SENYN



## I. Sewage Port Reception Facilities

In the Port of Nynäshamn there are no fixed links. The treatment plant owned by the municipality of Nynäshamn does not accept the sewage because of lack of capacity and the content of the sewage.

The Port can provide tank trucks or a barge with a capacity of 550 m<sup>3</sup> to collect waste water if needed.

The cruise vessels have for many years anchored outside the port area. From 2016 the Port can offer the cruise vessels to anchor in the port area using a pier known as a Seawalk, a retractable, manoeuvrable floating pier. The pier is prepared for pipes for sewage.

The disposal of black- and greywater in port is included in the port fee. It is thus a general fee, based on the number of passengers, regardless of if the vessel offloads black- and grey water or not.

All the ferries have exemptions from the delivery of sewage given by the Swedish Transport Agency.

## Planned improvements

The Port investigates different options for receiving sewage and is also discussing with the municipality.

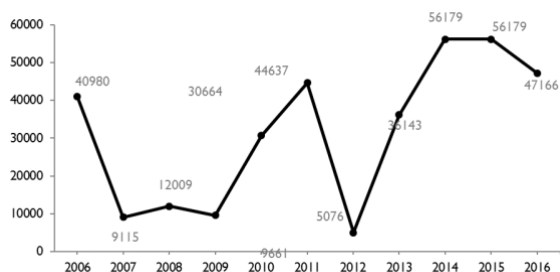
## Additional information

No information available.

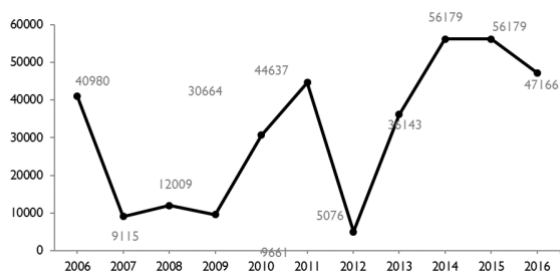
## 2. Passenger traffic trends in Nynäshamn

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

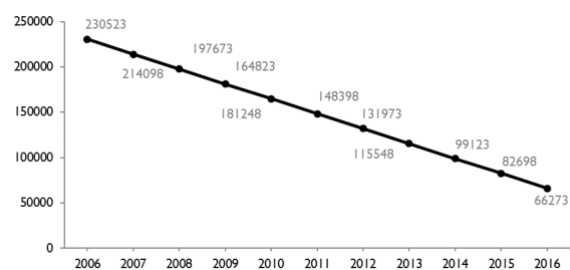
### Cruise ships calls (anchoring)



### Cruise ships passengers



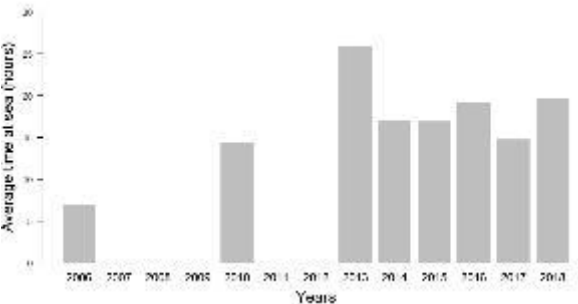
### International passengers



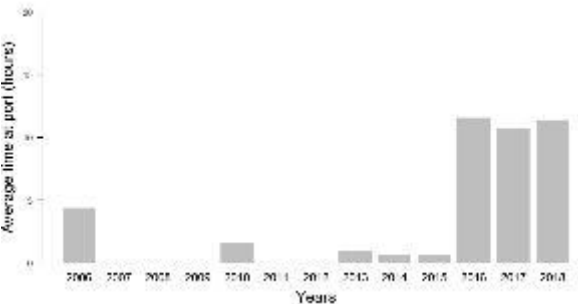
### 3. Cruise ship visits in Nynäshamn

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew

No information available.

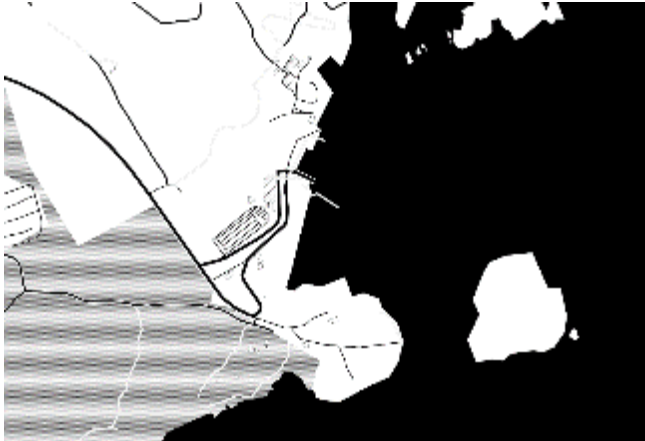
#### 3.6. Estimated theoretical max. discharge need <sup>1</sup>

No information available.

<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

## Kapellskär (Sweden)

UN LOCODE: SEKPS



### 1. Sewage Port Reception Facilities

The Port of Kapellskär has recently been modernized and rebuilt. In connection with this, the port has also built fixed links for sewage. The rebuilding was finalized in the beginning of 2017.

The disposal of black- and greywater in port is included in the port fee. It is thus a general fee, based on the number of passengers, regardless of if the vessel offloads black- and grey water or not.

All the ferries have exemptions from the delivery of sewage given by the Swedish Transport Agency

### Planned improvements

#### Additional information

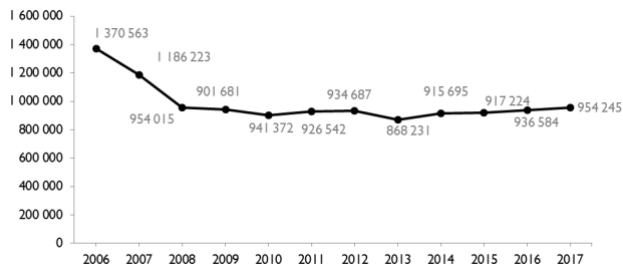
During 2008-2009 the Port built and funded a sewage treatment plant. The treatment plant was sold to the municipality of Norrtälje 2010.

### 2. Passenger traffic trends in Port of Kapellskär

Cruise ships calls : no calls.

Cruise ships passengers: no calls.

International passengers

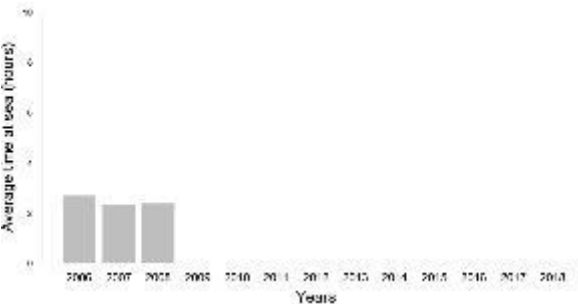




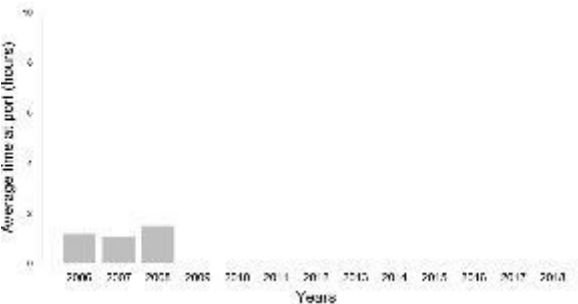
### 3. Cruise ship visits in Kapellskär

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew

No information available.

#### 3.6. Estimated theoretical max. discharge need <sup>1</sup>

No information available.

<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Rodby Faerghavn (Denmark)

UN LOCODE: DKROF

(map to be added)

## 1. Sewage Port Reception Facilities

## Planned improvements

## Additional information

## 2. Passenger traffic trends in Port of Rodby Faerghavn

## 3. Cruise ship visits in Rodby Faerghavn

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

### 3.1. Time at sea from previous port

### 3.2. Time spent at port per call

The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

### 3.3. Sewage discharges

No information available.

### 3.4. Comments from cruise ships on port facilities (2014)

No information available.

### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew

No information available.

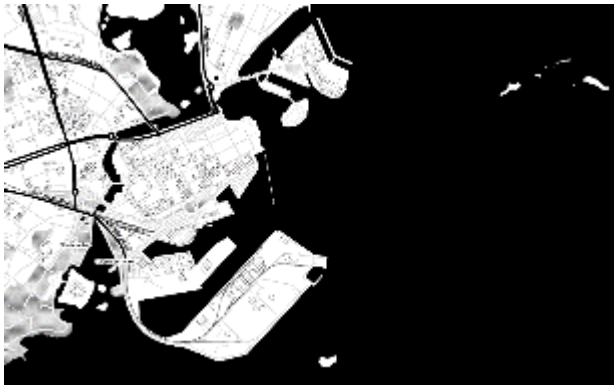
### 3.6. Estimated theoretical max. discharge need <sup>1</sup>

No information available.

<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Kalmar (Sweden)

UN LOCODE: SEKLR



## I. Sewage Port Reception Facilities

No information available.

## Planned improvements

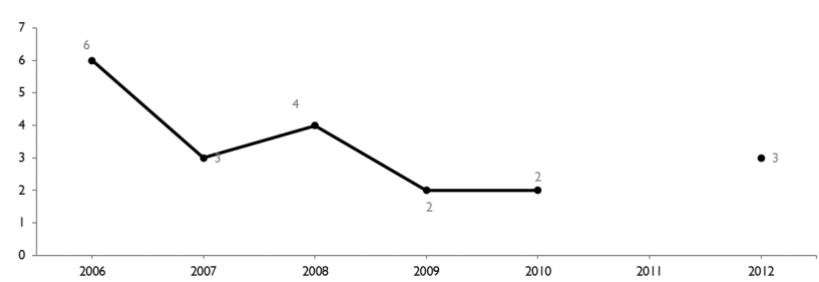
No information available.

## Additional information

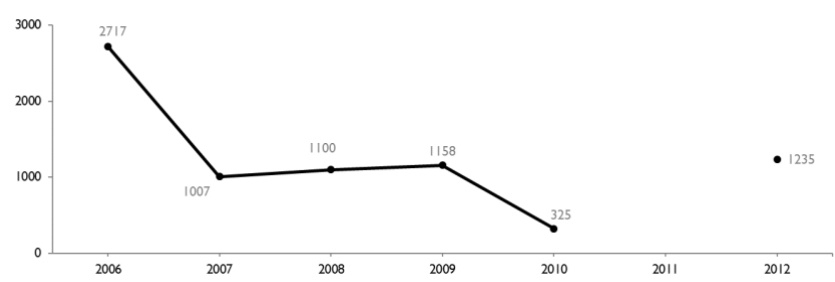
No information available.

## 2. Passenger traffic trends in Port of Kalmar

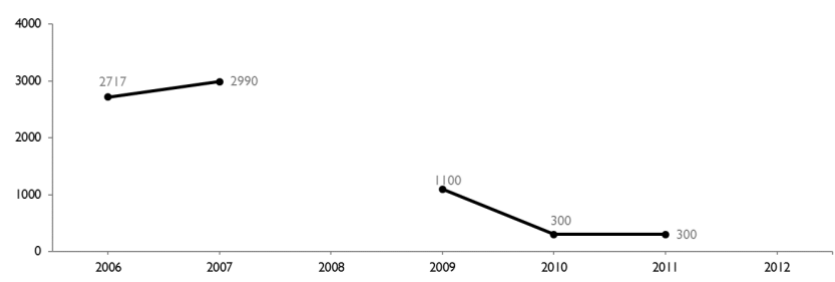
Cruise ships calls



Cruise ships passengers



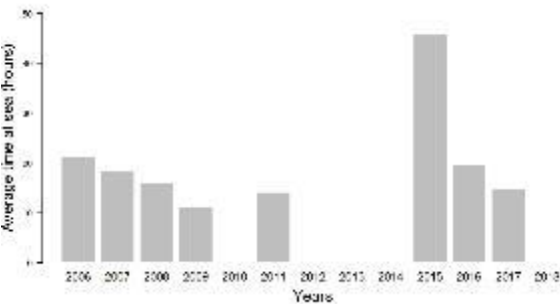
International passengers



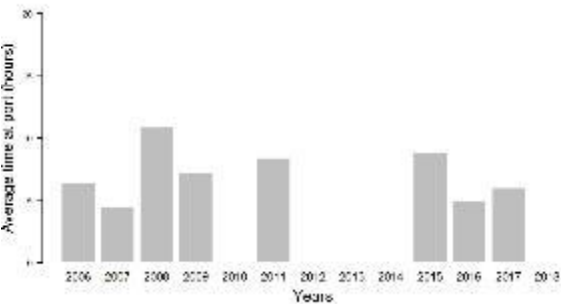
### 3. Cruise ship visits in Kalmar

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew

No information available.

#### 3.6. Estimated theoretical max. discharge need <sup>1</sup>

No information available.

<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

## Vaasa (Finland)

UN LOCODE: FIVAA



### Planned improvements

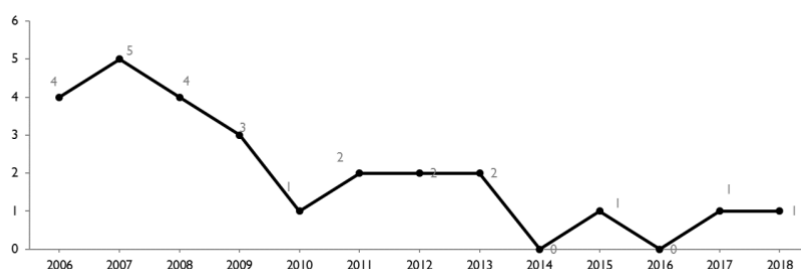
The plan is to evaluate different options in the near future for further develop the sewage reception facilities in Kvarken Ports Ltd and Port of Vaasa.

### Additional information

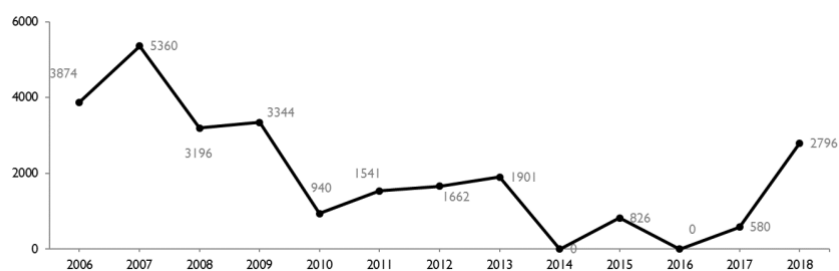
No information available.

## 2. Passenger traffic trends in Port of Vaasa

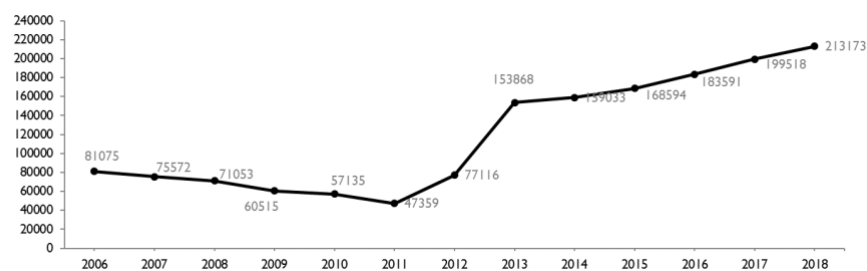
Cruise ships calls



Cruise ships passengers



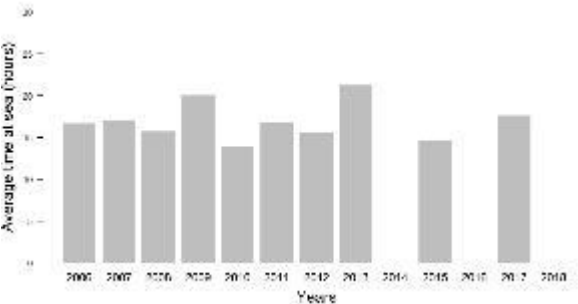
International passengers



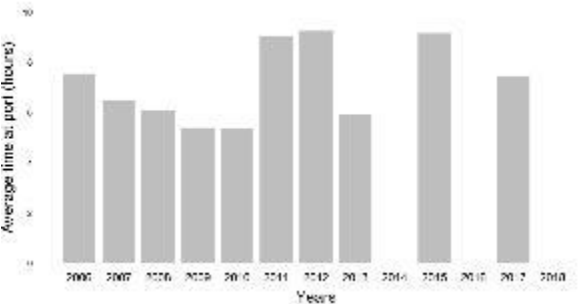
### 3. Cruise ship visits in Vaasa

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

No information available.

#### 3.4. Comments from cruise ships on port facilities (2014)

No information available.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew

No information available.

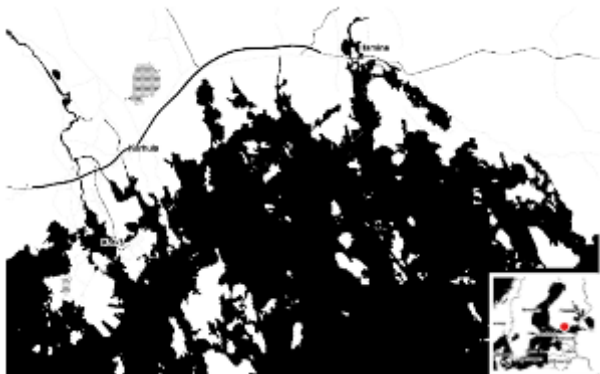
#### 3.6. Estimated theoretical max. discharge need <sup>1</sup>

No information available.

<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m<sup>3</sup> sewage per person per day would give you the estimated total discharge need in m<sup>3</sup>h<sup>-1</sup>. More information is available in the Annex I.

# Hamina, including Kotka (Finland)

UN LOCODE: FIHMN



I. Sewage Port Reception Facilities

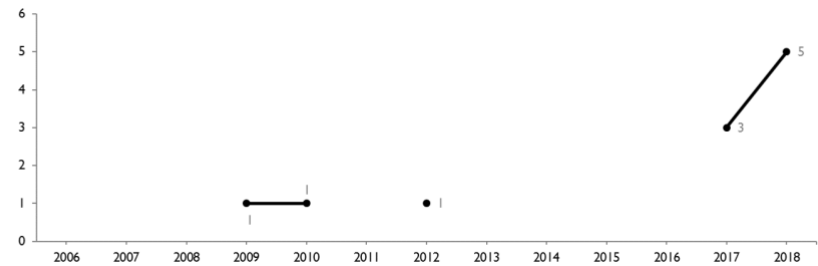
Planned improvements

Additional information

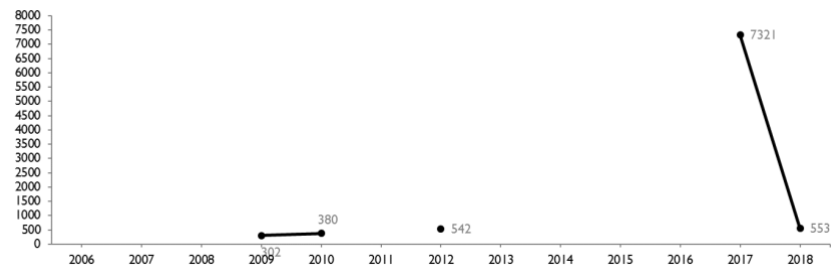


## 2. Passenger traffic trends in Ports of Hamina / Kotka

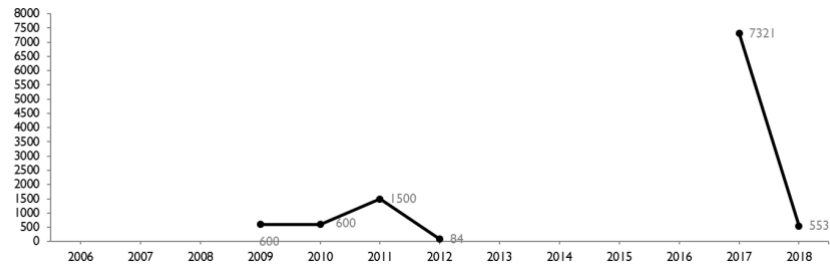
Cruise ships calls



Cruise ships passengers



International passengers



## 3. Cruise ship visits in Hamina / Kotka

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

### 3.1. Time at sea from previous port

No information available.

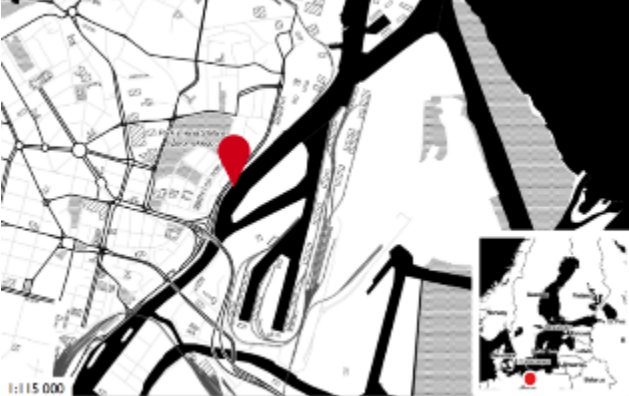
### 3.2. Time spent at port per call

No information available.

# Swinoujscie (Poland)

<https://www.port.szczecin.pl> <http://www.sft.pl> UN LOCODE: PLSWI

Berth used by cruise ships according to AIS data during April - October 2014



## I. Sewage Port Reception Facilities

Reception of sewage from cruise ships or ferries is currently carried by the tank trucks which transport sewage to municipal WWTP (5 trucks of capacities: 32 m<sup>3</sup>, 15 m<sup>3</sup>, 13 m<sup>3</sup>, 8 m<sup>3</sup>, 7,5 m<sup>3</sup>). Sewage reception is also possible from the water side with barge with capacity of 50 m<sup>3</sup>. More trucks or tanks for sewage as well as barges with larger capacities can also be arranged by the port if needed.

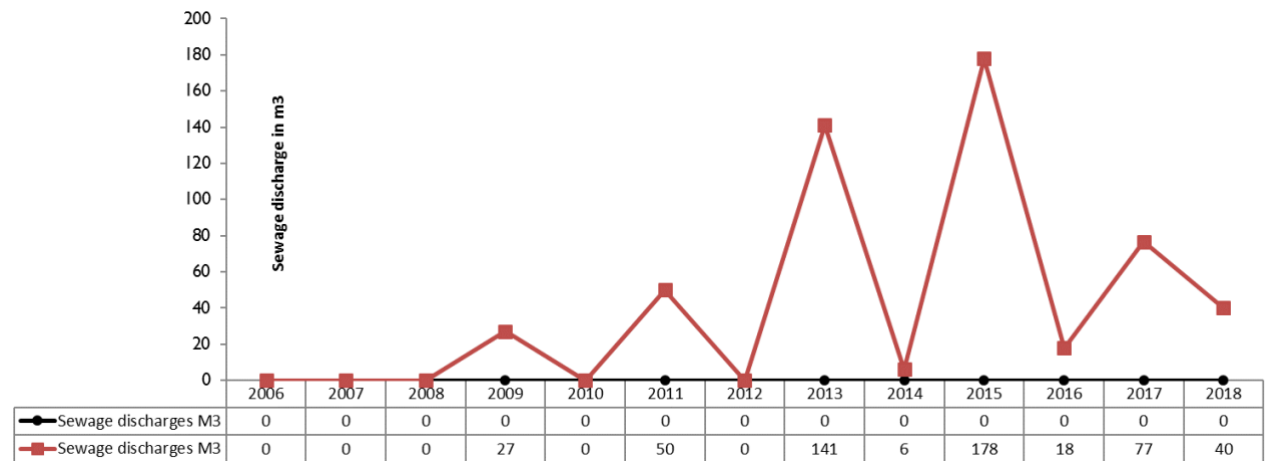
## Planned improvements

The construction works for the fixed PRF for sewage at the Ferry Terminal in Świnoujście are planned to commence in 2019 and will be completed in 2022.

Until then the reception of sewage from ferries in Port of Świnoujście will be ensured by the specialized barge and/or tank trucks adjusted to the ships demands.

## Additional information

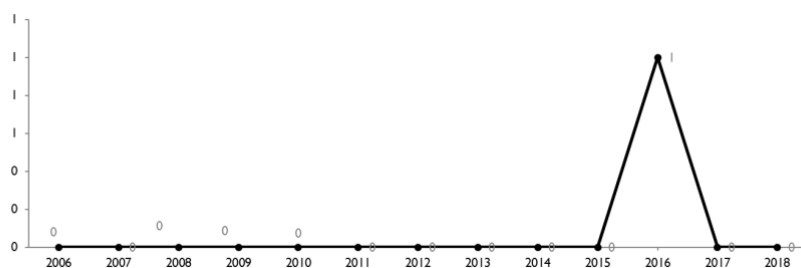
No information available.



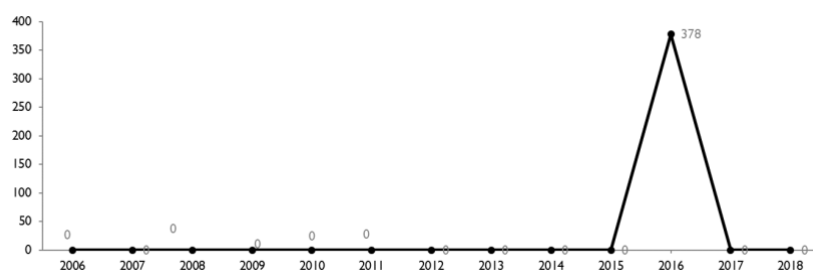
## I. Passenger traffic trends in Swinoujscie

A compilation based on statistics from the Baltic Sea coastal countries national Administrations, regional ports organizations (BPO, ESPO), the publication "Baltic Port List" and the Nordic Council of Ministers.

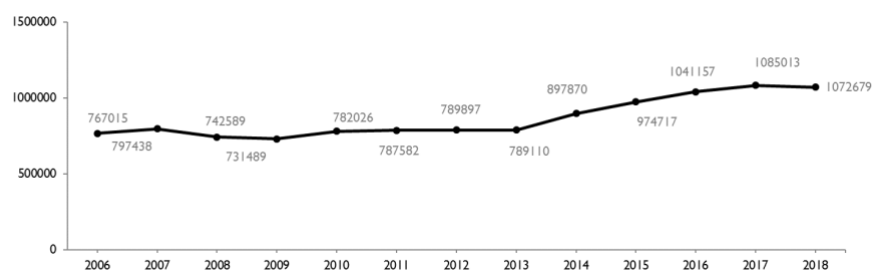
### Cruise ships calls



### Cruise ships passengers



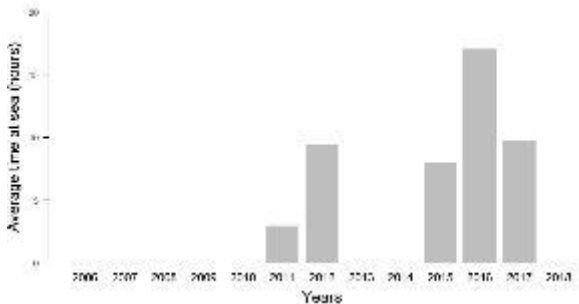
### International cruise and ferry passengers



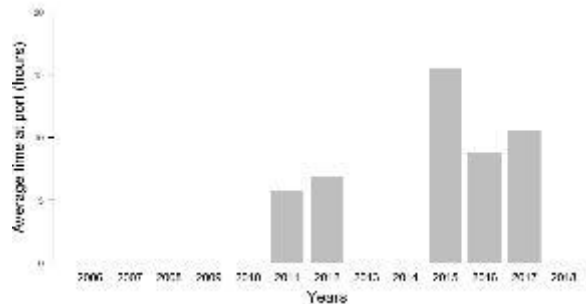
### 3. Cruise ship visits in Swinoujscie

The figures 3.1 and 3.2 are generated from the HELCOM AIS data. The dataset covers the period from 2006 to 2018.

#### 3.1. Time at sea from previous port



#### 3.2. Time spent at port per call



The figure 3.3 shows discharges reported by cruise industry. The black bar shows the number of ships that did not use the sewage PRF for sewage even if available. It is based on information from 29 CLIA-affiliated cruise ships, received by HELCOM Secretariat as a reply to a joint HELCOM –CLIA survey. The dataset covers the whole cruising season (April to October 2014).

#### 3.3. Sewage discharges

In 2017 fixed route ferry lines have delivered 76,6 m3 sewage at the port of Świnoujście

#### 3.4. Comments from cruise ships on port facilities (2014)

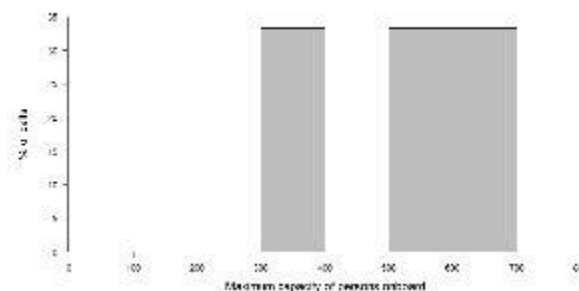
No information available.

#### Comments from ports on cruise ship visits (2017)

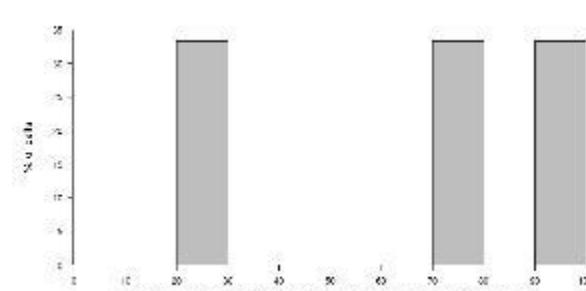
In 2017 there were 5 cruise ships calls in Port of Szczecin. The cruise ships have not delivered any sewage at the ports. Port of Świnoujście operates 12 fixed route ferry lines.

#### 3.5. Maximum number of persons on board per call

Maximum capacity of persons onboard including passengers and crew



#### 3.6. Estimated theoretical max. discharge need <sup>1</sup>



<sup>1</sup> Estimated total discharge capacity needs of cruise ship calls during summer 2014, assuming all wastewater generated after leaving last port of call will be discharged in the port. The presented figures are based the following calculation:  $\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port - 30 minutes)}}$ . Multiplying this figure with a waste water production estimation in m³ sewage per person per day would give you the estimated total discharge need in m³h⁻¹. More information is available in the Annex I.



## Annex I - Estimated maximum theoretical discharge need of cruise ships

### Estimated maximum theoretical discharge need of cruise ships

This report provides estimated port-wise maximum theoretical sewage discharge needs of cruise ship calls. This is useful to have an overview of the needs of cruise ships in terms of sewage PRFs when MARPOL Annex IV special area is enforced in the Baltic Sea region.

Such a theoretical discharge need of cruise ship calls can be estimated by calculating person x days from previous port in the Baltic Sea. This figure can be divided by time (in hours) at berth in current port to estimate the capacity need per hour at berth. For such estimates one needs to know the time from previous port, the maximum number of passengers and crew on board and time spent at berth:

$$\frac{\text{Days at sea (days from previous port)} \times \text{Persons (maximum capacity of ship)}}{\text{Time (hours spent at port – 30 minutes)}}$$

### Assumptions

It should be noted that the above estimation assumes:

#### *Completely full ships*

Cruise ships are always filled to 100% capacity both in terms of passengers and crew.

#### *Sewage discharge time = berth time – 30 minutes*

Thirty minutes were deducted from total berth time to give the available time for sewage PRF discharges, in order to account for arrival and departure preparations.

#### *100% sewage discharged to port*

The calculations assume the ships will discharge all their sewage, both black and grey, to the port.

#### *No route planning*

No route planning, such as doing more stops to avoid long legs or extending the time in port to accommodate for sewage discharge, is assumed.

#### *Short technical visits not included*

Port calls less than five hours were not used for sewage discharge need calculations. Short calls have been assumed to be technical stops (e.g. refueling), not regular cruise visits.

### Discharge needs in m<sup>3</sup>/h

In order to use the above calculated values to get estimations of theoretical discharge needs of cruise ships in volume per time unit, such as m<sup>3</sup> of sewage/hour, one needs to have an estimation of the generation of sewage per person per travelled day.

This is less straightforward as such estimates of sewage generation on board a ship depend on various factors including the technology used on board a given ship (e.g. vacuum or gravitation toilets or the waste water treatment system in use) (Huhta et al., 2007).

For instance, on board the overnight ferries between Helsinki and Stockholm in the Baltic Sea the total sewage generation has been observed as around 0,1 m<sup>3</sup> sewage per person per day.<sup>2</sup> The results of the HELCOM-CLIA survey results indicate an average calculated total production of sewage around 0,17 m<sup>3</sup> sewage per person per

day. The Port of Copenhagen considers sewage volumes exceeding 0,13 m<sup>3</sup> per person per travelled day from previous port as disproportionately large.

Due to the large variation of such sewage production estimations this report does not include ready calculated figures of discharge needs in m<sup>3</sup>/hour.

Instead, the estimations are presented as a value which gives the reader estimated total discharge need in volume per time unit, if multiplied with a sewage generation estimation of choice such as those listed above.

## References

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