Emission **S**tatus **M**onitoring service for EU-MRV

Service for MRV Regulations

ESM

ESM Seminar, Athens
27th April 2017

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eco WITH you!

1. EU-MRV

2. What are my concerns about EU-MRV?

3. Emission Status Monitoring service

4. Uniqueness

5. Installation Schedule

6. Additional advantages

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Aug/2017 — "Monitoring Plan" deadline

Jan/2018 — EU-MRV starts, Monitoring starts

2019 — "Emissions Report" and "Document of Compliance"

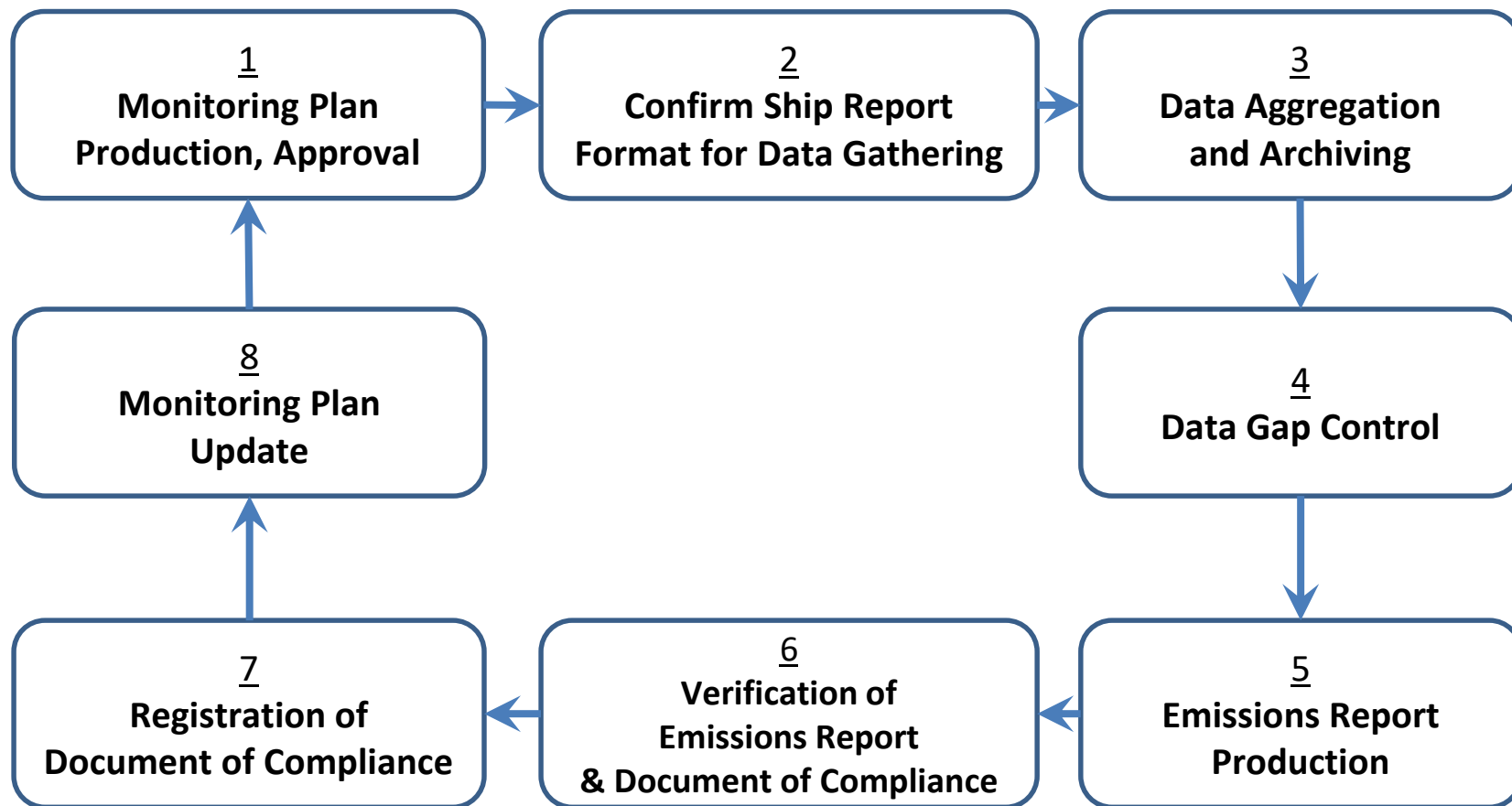| Relevant Vessels	Relevant Voyages
5,000GT and bigger	Voyages where cargo or passengers loaded or unloaded in EU ports.
	Loading or Discharging

*IMO-DCS expected to start from 2019

|		
1 **Monitoring Plan Production, Approval**	**2** **Confirm Ship Report Format for Data Gathering**	**3** **Data Aggregation and Archiving**
8 **Monitoring Plan Update**		**4** **Data Gap Control**
7 **Registration of Document of Compliance**	**6** **Verification of Emissions Report & Document of Compliance**	**5** **Emissions Report Production**

EMSA
European Maritime Safety Agency

Verifier

➢ "Monitoring Plan" generation requires Skilled Staff and Organization.

➢ New Costs and Workload to comply with MRV regulations

➢ Data Gap Control mechanism to minimize final verification process time.

➢ Data Reliability for proper documentation.

Weathernews'
Emission **S**tatus **M**onitoring
service to support ship owners

"Confidential"

Our ESM site will guide you in order to create your own Monitoring Plan.
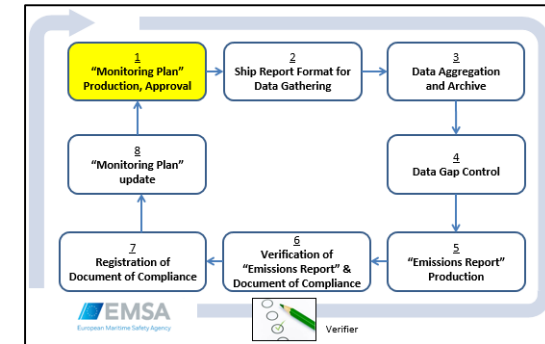
Data entry guidelines and samples

Ship Name	ACTIONS / STATUS					
	MP		Monitoring		ER	
TEST_TTTE	---	---	---	---	---	---
WATANABE MARU	Submit MP		---	---	---	---
xxxx	---	---	---	---	---	---
MIHAMA MARU	Make MP		---	---	---	---
koba-n go	---	---	---	---	---	---
koba-n go 2	Make MP		---	---	---	---
koba-n go 3	Make MP		---	---	---	---
3333 test	---	---	---	---	---	---

WNI weathernews *Always WITH you!*

Menu   Help

Monitoring Plan chapters

2. Basic Data
3. Activity Data
4. Quality and Availability
5. Control Activities
6. Further Information

This Chapter

Temporary save

Finish and save

All Chapters

Finish and save

Back to Monitoring Plan list

Table C.2.12 Procedures for determining and recording the fuel consumption for dynamic positioning (voluntary monitoring for oil tankers and other ship types)

(a) Include monitoring of the fuel consumption for dynamic positioning using WNI's procedures in the monitoring plan.
(b) Don't include monitoring of the fuel consumption for dynamic positioning.

Title of procedure	EU-MRV Monitoring and Reporting Manual
Reference to existing procedure	4. Reporting Procedures
Version of existing procedure	(auto apply on publish)
Description of EU MRV procedures if not already existing outside the MP	(SAMPLE) 1. In engine room, conduct periodic check of fuel consumption and electricity generated and figure out their relationship. 2. Calculate (the) average electricity consumption
Name of position responsible for this procedure	
Formulae and data sources	
Location where records are kept	WNI
Name of IT system used(where applicable)	ORT, WNI System

Table C.3. List of voyages

|	
Title of procedure	EU-MRV Monitoring and Reporting Manual
Reference to existing procedure	5.3.1 Recording and safeguarding completeness of
Version of existing procedure	(auto apply on publish)
Description of EU MRV procedures(including voyages, monitoring voyages etc.) if not already existing outside the MP	Please refer to existing procedure in the Manual
Name of position responsible for this procedure	Ship Master, Company
Formulae and data sources	MRV reports
Location where records are kept	WNI
Name of IT system used(where applicable)	WNI System

Table C.4. Distance travelled

Title of procedure	EU-MRV Monitoring and Reporting Manual
Reference to existing procedure	4. Reporting Procedures 5.3.2 Recording and
Version of existing procedure	(auto apply on publish)

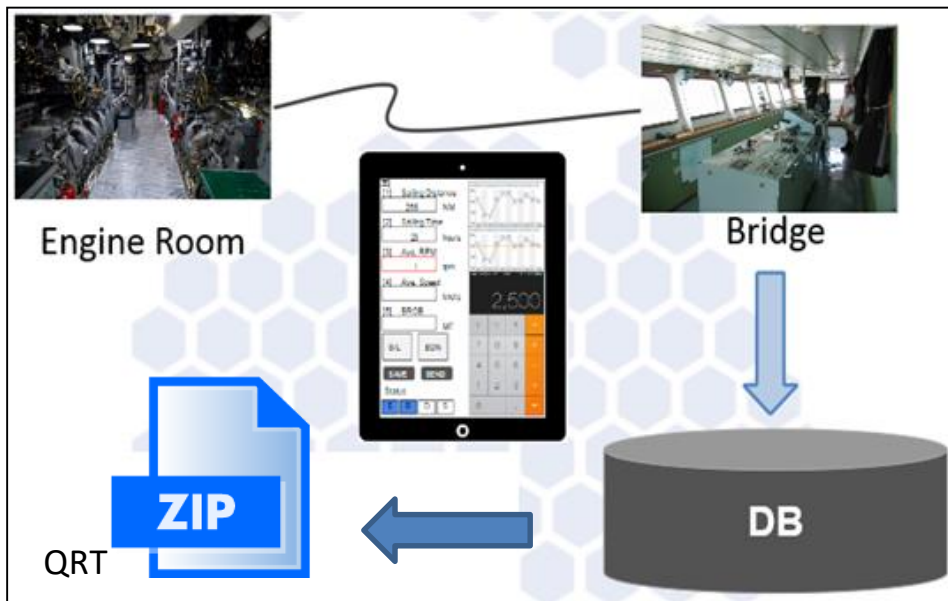ESM

A. Data gathering with WNI's QRT (Quick Report Template)
B. Compile additional documentation (BDN, B/L, LOG BOOK etc.) as needed.

* AIS, PPS, and Real-time data already available can be used to support (A) and (B)
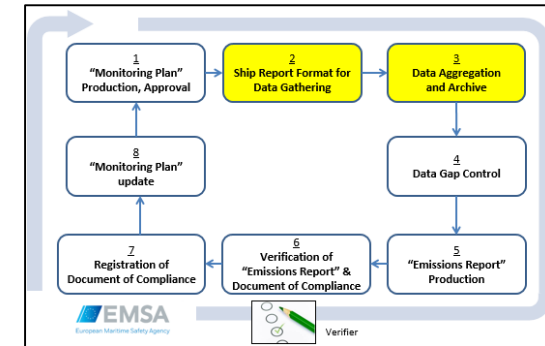
Work Flow Optimization in vessel

Data collection for Verification

Underlined items are being added to QRT now.

Departure Report

Vessel Name
IMO Number
Call Sign
Voyage Number
Load Condition
Departure Port Name / Country / Code
Time Difference from UTC at Departure Port
Time at Departure from Berth
Position at Departure from Berth
FO ROB (HS / LS)
DO ROB (HS / LS)
GO ROB (HS / LS)
ULS ROB
Cargo Weight on Departure
Departure Draft (Fore / Aft)
Payload (Cargo Quantity)
Destination Port Name / Country/ Code
Destination Pilot Station Name / Position

Noon Report

Vessel Name
IMO Number
Call Sign
Voyage Number
Load Condition
Destination Port Name / Country/ Code
Steaming Distance
Steaming Time
Average Speed
Average RPM
Consumption from Last Noon Report (Total Consumption, HSFO / LSFO / Total)
Consumption from Last Noon Report (Total Consumption, HSDO / LSDO / Total)
Consumption from Last Noon Report (Total Consumption, HSGO / LSGO / Total)
Consumption from Last Noon Report (Total Consumption, ULS)
Time at Noon
Position at Noon
FO ROB at Noon (HSFO / LSFO)
DO ROB at Noon (HSDO / LSDO)
GO ROB at Noon (HSGO / LSGO)
ULS ROB at Noon
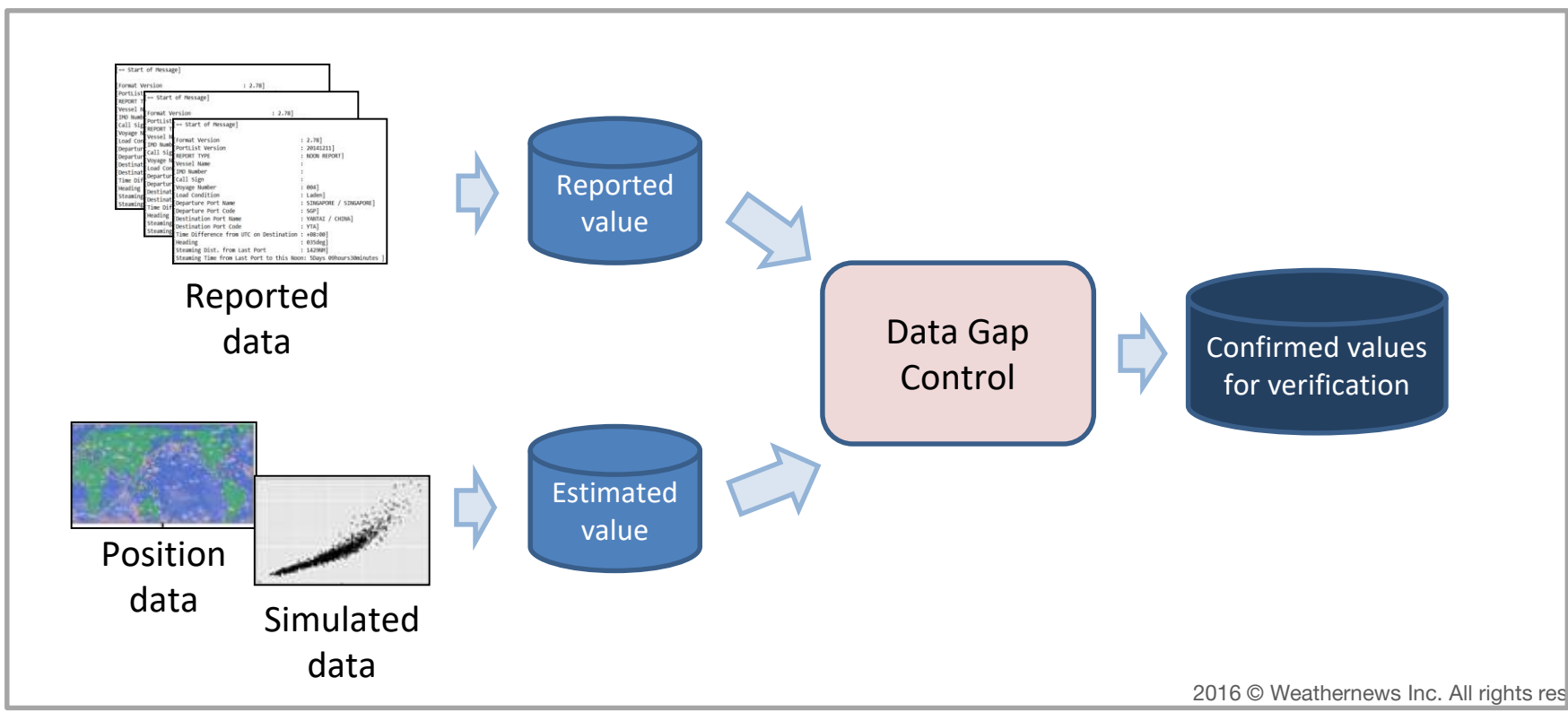Destination Pilot Station Name / Position

Arrival Report

Vessel Name
IMO Number
Call Sign
Voyage Number
Load Condition
Arrival (Destination) Port Name / Country/ Code
Time Difference from UTC at Arrival Port
Steaming Distance
Steaming Time
Average Speed
Average RPM
Total Distance
Total Time
Total Consumption from Departure Berth to Arrival Berth (HSFO / LSFO / Total)
Total Consumption from Departure Berth to Arrival Berth (HSDO / LSDO / Total)
Total Consumption from Departure Berth to Arrival Berth (HSGO / LSGO / Total)
Total Consumption from Departure Berth to Arrival Berth (ULS)
Arrival Draft (Fore / Aft)
Time of Arrival at Berth
Position at Arrival at Berth
FO ROB (HS / LS)
DO ROB (HS / LS)
GO ROB (HS / LS)
ULS ROB

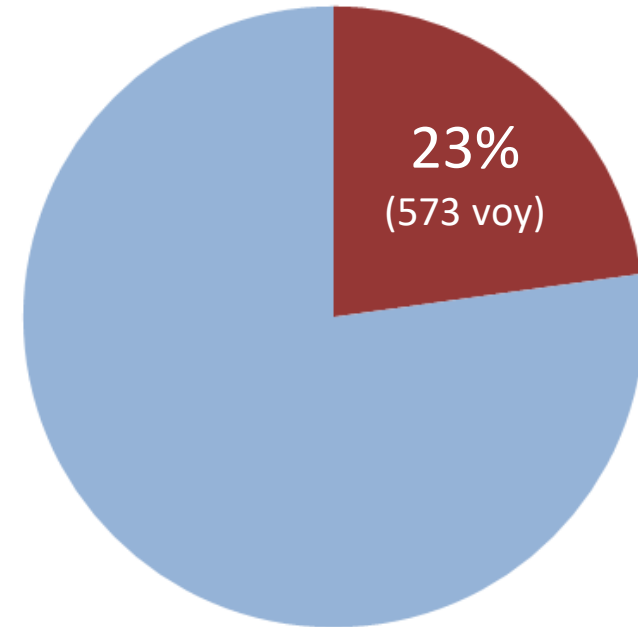Data Gap analysis to improve data reliability and reduce cost and workload down the road.
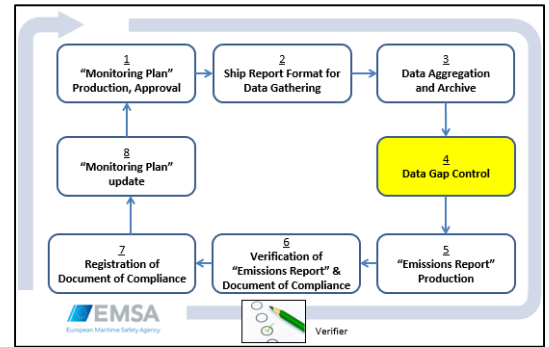
Data Gap Control Support

Reported data

Position data

Simulated data

Reported value

Estimated value

Data Gap Control

Confirmed values for verification

(a) Data Gap Control
  - ➢ Fuel Consumption
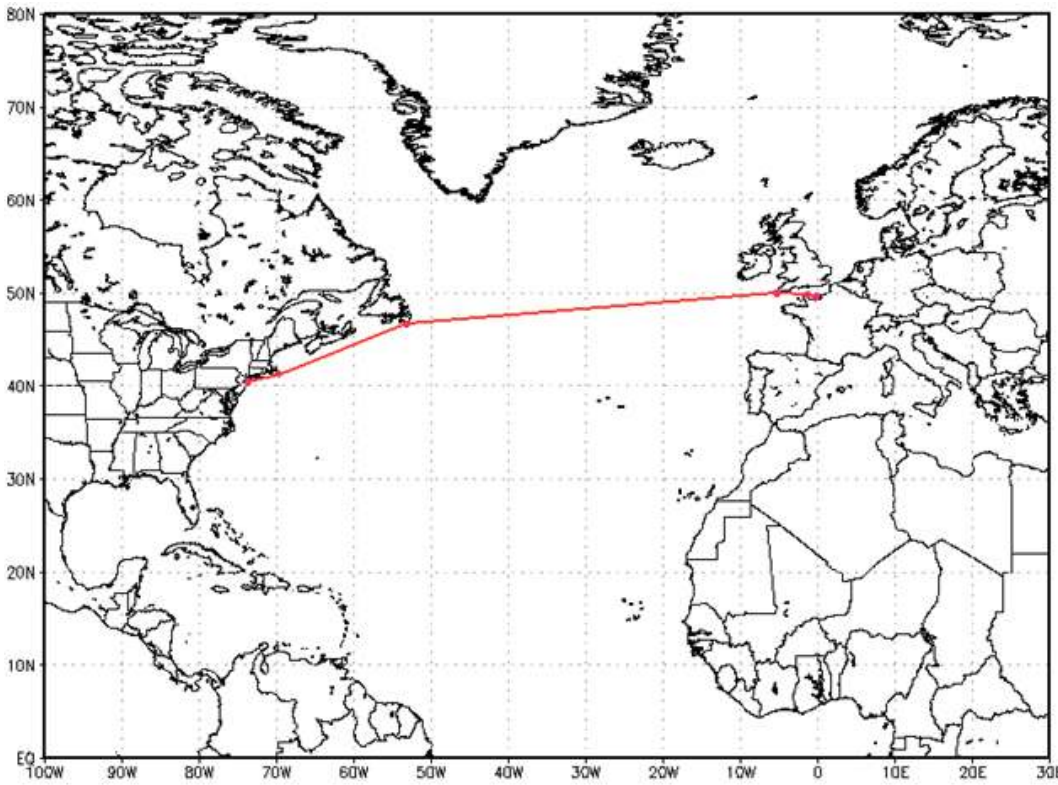 - ➢ Sailing time
  - ➢ Sailing distance

23%
(573 voy)

■ Data Missing/Suspicious   ■ Data Completed
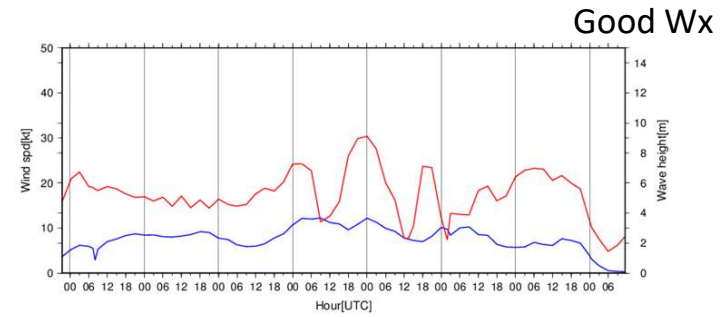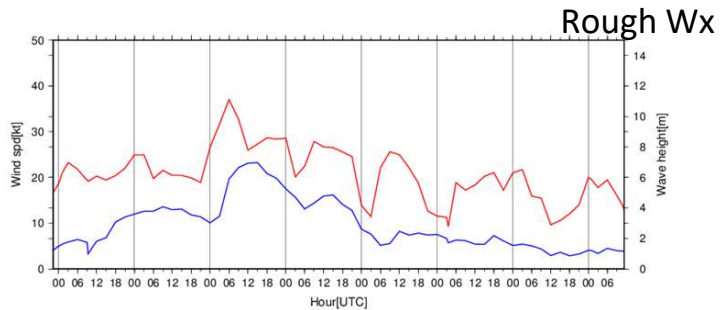Jan-2017

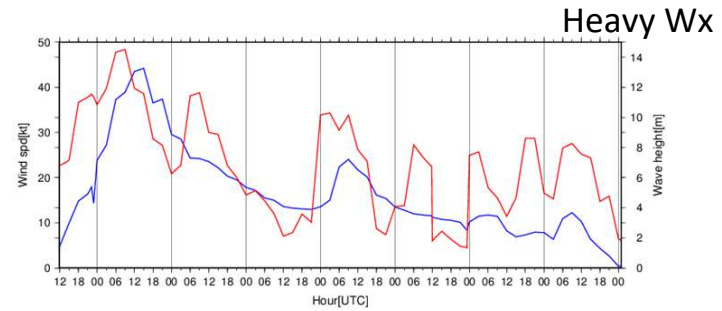## (b) Data scrutiny / error judgement / data estimation tools
  - ➢ Ship performance model + weather conditions
  - ➢ Voyage database over 1.5 million voyages
  - ➢ Correlation of multiple ship reports
  - ➢ Distance calculation tool

Ship performance model (OSR model)

Le Havre -New York

Wind Speed — Wave Height

Heavy Wx

Rough Wx

Good Wx

Weather	Max Wind [kt]	Max Wave HT [m]	FOC [MT]
Heavy Wx	48.4	13.3	915
Rough Wx	37.0	7.0	649
Good Wx	30.0	3.7	631

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Alerting for missing reports and out of range data is set up by users.

input ship name   **Search**   Select Group ▾

Vessel Name : **TEST VESSEL**   **Threshold** | **Download** | **Chart** | ⚙ **Setting**

Type	Date	UTC		Distance Reported (nm)	Time Reported (hrs)	Speed Reported (kts)	Instructed Speed (kts)	[Diff] Report - Instructed (kts)	Daily Perf. Spd (kts)	[Diff] Perf. Spd - Inst (kts)	Ship Heading	
NOON	2016-10-12	1700	n	201	24.0	8.4	12.5	-4.1	9.2	-3.3	200	
NOON	2016-10-13	1600	n	149	23.0	6.5	12.5	-6.0	8.5	-4.0	195	
NOON	2016-10-14	1600	n	191	23.0	8.3	12.5	-4.2	8.3	-4.2	175	
NOON	2016-10-15	1500	n	225	24.0	9.4	12.5	-3.1			129	
NOON	2016-10-16	1500	n	277	24.0	11.5	12.5	-1.0			005	
NOON	2016-10-17	1500	n	312	24.0	13.0	12.5	0.5	9.7	-2.8	031	

WNI contacts vessel to collect required data (Bunker Delivery Note, B/L, Log Book, etc.) and confirm values when data looks inadequate or suspicious.
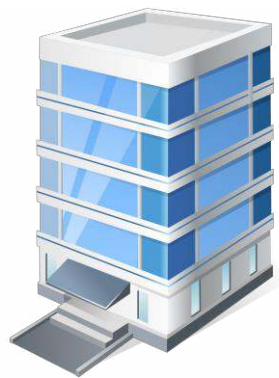
Customer
(Owner)

ESM Documentation
Handling Agreement

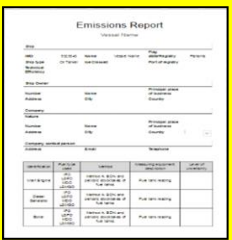- BDN (Bunker Delivery Note)
- B/L
- LOG BOOK

Ship
(Captain)

➢ Reliable data by Data Gap Control
➢ Low cost by group verification

(Owner)

QRT

Data Gathering & Data Gapping Control

Individual Verification

Corp. A   Corp. B   Corp. C

Verifier

Monitoring Plan / Emissions Report

Corp. A   Corp. B   Corp. C

Group Verification
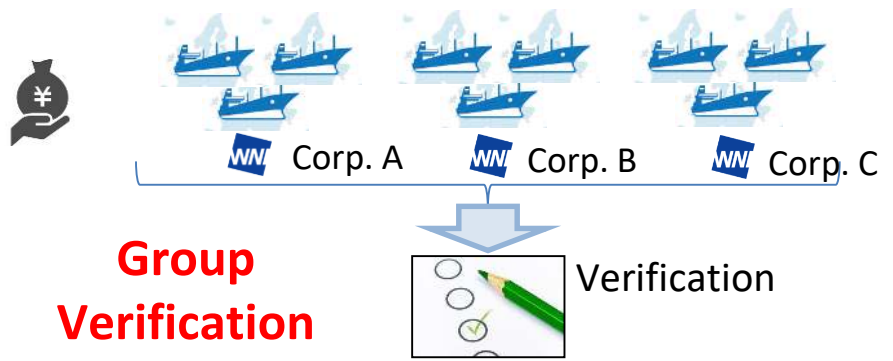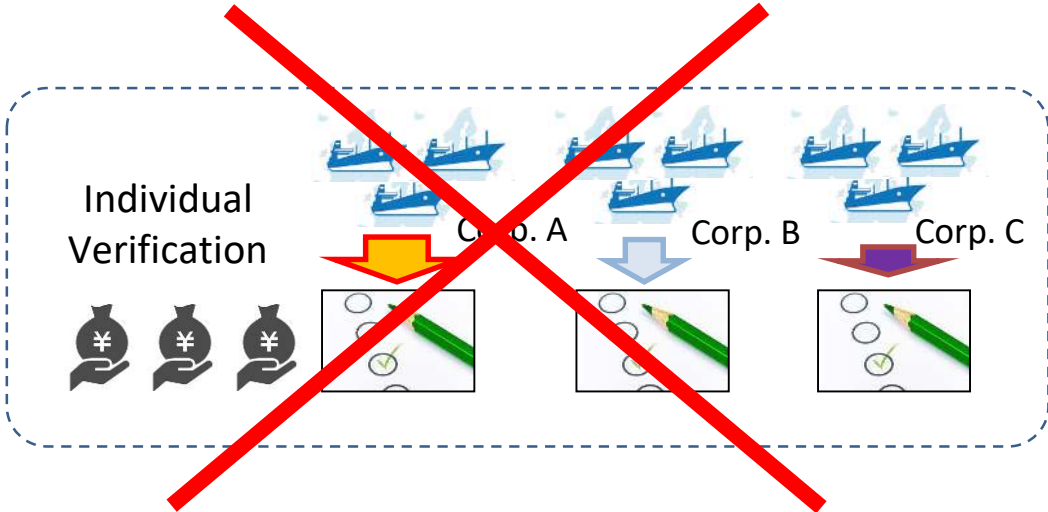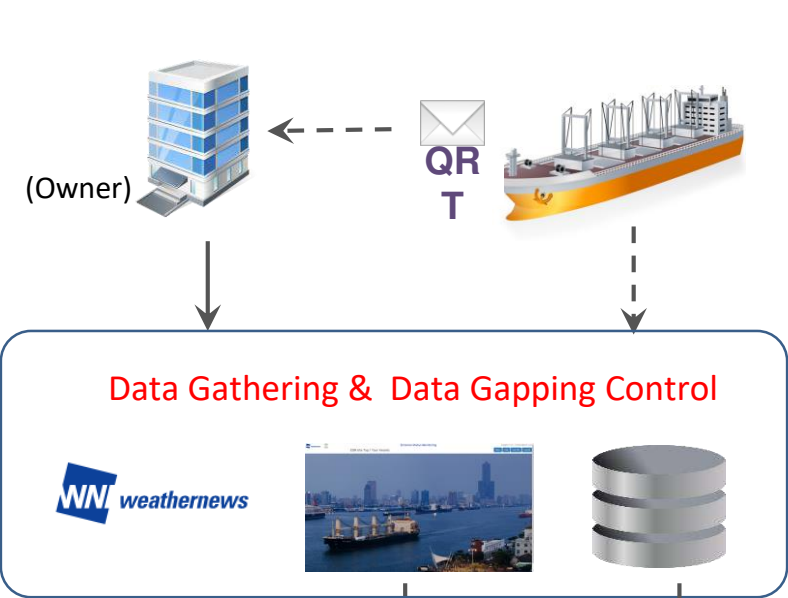
Verification

(a) QRT (Quick Report Template, WNI conventional report format) can be used for EU-MRV.

(a) Fuel and CO2 estimate mechanism available for ESM Data Gap Control.

(a) Group verification method for low cost.

(a) "Optimum Ship Routing service" for CO2 reduction, useful for future Emissions trading.

2017
April

1. ESM site account (Including Monitoring Plan template)

Summer

1. ESM Data Gathering

Summer

1. ESM Data Gap Control

2018
January

1. Emissions Report Verification Support
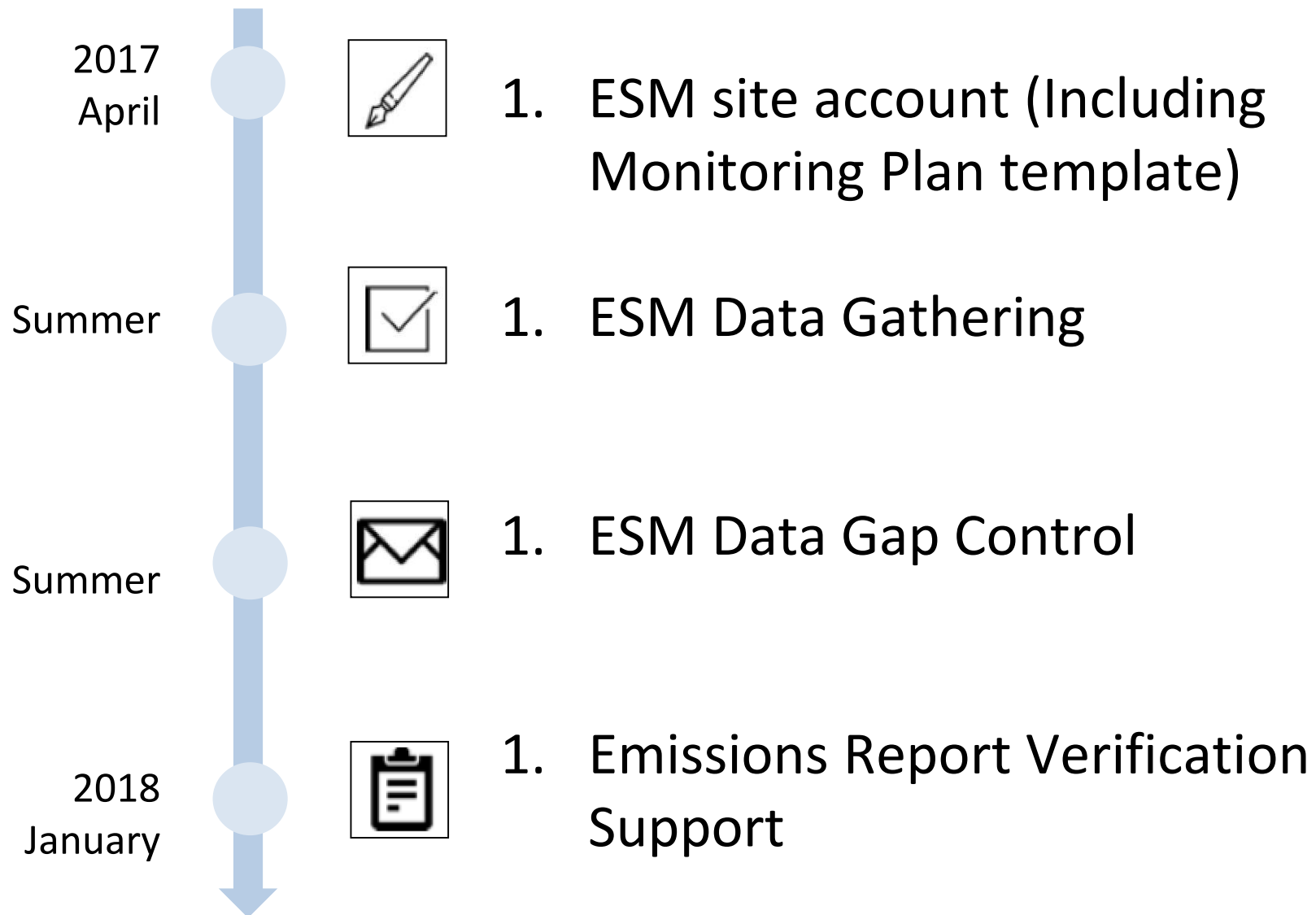
1. Is Log Book, Bill of Lading, and Bunker Delivery Note needed by all verification agencies or just ClassNK?
2. I have another verifier I would like to use instead of ClassNK. Is ESM possible?
3. How does ClassNK interact with me as a customer?
4. I think I am able to do this process myself. Why should I pay for ESM?
5. What do you know about the Monitoring Plan verification fee?\
6. What is the window of time where Monitoring Plan applications are accepted?
7. Which data source is considered most accurate if figures are not agreeing?
8. Is there any cooperation planned between WNI and DNV-GL?
9. What are the challenges in data cap control?
10. Data gathering: What is the value apart of QRT provision, bearing in mind that many companies have their reporting system
11. How will WNI find erroneous data and correct it?
12. Is there an alert available to inform me when my vessel is sailing to an EU port?
13. Will owner have the possibility to "approve" raw data from QRT before use for ER creation?
14. Can reports be edited by a third party (for example, by operators shore-side)?

15. Can a vessel sail into an EU port if she doesn't have a Monitoring Plan (MP) yet?

16. Can the Monitoring Plan be accepted at any time?

17. How long does it take to get a monitoring plan verified?

18. Does WNI get permission from ship owner before submitting ship information to ClassNK?