



**CCNR**

CENTRAL COMMISSION  
FOR THE NAVIGATION OF THE RHINE





# **Introduction and background to the evaluation of the obligation of equipment with an Inland AIS and an Inland ECDIS device or a comparable electronic chart display device**



# **Introduction and background to the evaluation of the obligation of equipment with an Inland AIS and an electronic chart display system**



# General overview of the presentation

## I. Introduction and background of the evaluation

## II. Results of the questionnaire

- Overall picture of the survey
- Experiences of the several stakeholders
- Operational issues
- Installation on board
- Technical issues
- Privacy
- Enforcement
- The use of CCNR information documents

## III. Overview of the conclusions and Recommendations

## IV. What will be the further steps



# Introduction and Background of the evaluation





# **Decisions of the CCNR in December 2013 (1)**

**Resolution of the Central Commission for the Navigation of the Rhine (CCNR) of 5 December 2013:**

**“Formal introduction of Inland AIS and Inland ECDIS or a comparable device for displaying electronic charts for inland navigation”  
(Protocol 2013-II-16 )**

**The obligation of equipment and usage of an Inland AIS device is described in detail in article 4.07 of the Rhine Police Regulations (RPR).**

**The obligation came into force on 1<sup>th</sup> December 2014.**

**In order to introduce the obligation properly and with minimal problems, CCNR has also established a coordination group. This was a successful action. There were hardly no problems.**



# Decisions of the CCNR in December 2013 (2)

- Together with the decision to oblige Inland AIS as well as an electronic chart display system, it was decided that these measures should be evaluated after 2 years.
- The evaluation focuses initially on the experiences of Inland AIS and a electronic chart display system in practice, as defined in Article 4:07 of the RPR and the associated minimum requirements
- The purpose of the evaluation is to check;
  1. whether the obligation has contributed to a safe and smooth navigation on the Rhine,
  2. what are the experiences of the different target groups involved,
  3. which (technical) problems have occurred with the systems and
  4. to determine whether the regulations and the underlying communication documents should be amended or not.



# The target groups involved

- With respect to the introduction and use of Inland AIS and an electronic chart display system, 4 different target groups can be distinguished, each with another back ground.
1. The skippers are the ones who, in practice, should use Inland AIS and an electronic chart display system. But they also have to do with the installation of these systems on board their vessels.
  2. Based on the CCR regulations, the installation companies are for the proper installation and configuration of the Inland AIS systems on board.
  3. The waterway authorities are responsible for a smooth and safe navigation on their waterways. In addition, they may also have enforcement tasks.
  4. The enforcement and police services are in charge of supervision and enforcing the relevant regulations for a smooth and safe navigation.



# The method to execute the evaluation

- The fact that these four target groups have a different interests requires a separate approach of these groups
- After long discussions, it was decided to have a digital questionnaire which enabled a separately approach of the target groups.
- A small working group of experts was set up.
- They were responsible for the several lists of questions and in the next step for the translation of the questions in the 3 official languages of the CCNR .
- A majority of the questions were of type multiple choice, but in most questions there was also the possibility to give a written response and there was also one real open question.
- To conduct the survey, an online tool was made available by the VNF, namely LimeSurvey. This easiest to analyze most of the results afterwards. Unfortunately, this was not possible for the open questions .

# The questionnaire

- The survey itself took place in the autumn of 2016.
- The various groups were approached in their own country by CCNR respective representatives.
- The attention was also paid to the communication through press releases and to a personally contact to the skippers by letter.
- In the Netherlands, “Bureau Telematica Binnenvaart” was commissioned by the Dutch delegation to provide a communication campaign for the skippers under the name  
“can we blindly trust you”





# The important results of the Questionnaire





# Overall picture of the survey results





# The respondents

- The results exceeded our expectations considerably.
- In particular, the skippers have fully used the opportunity, to add where possible comments and to respond to the open questions, especially to question 40.
- After removing the unusable answers, the overall results were:

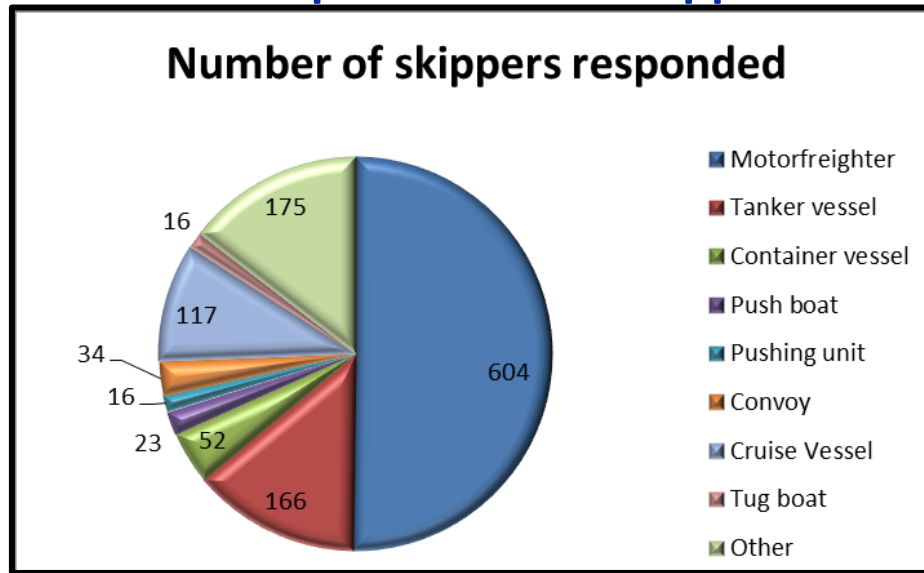
<u>Target Group</u>	<u>Number of respondents</u>
Skippers	1203
Waterway authorities	43
Enforcement and police services	19
Installation companies	50

- The free answers, being about 90 pages of text, were brought together and summarized in thematic paragraphs.



# General information

- In total 1203 usable responses of the skippers



- 4,7 % answered that they did not have Inland AIS installed on board, due to several acceptable reasons. In practice there will be only a few principal opponents.
- The results of these group was not taken into account any further.
- 5,1 % answered that they do not have a system for the electronic chart display installed on board, due to several acceptable reasons. In practice there will be only a few principal opponents.



# Working out the AIS evaluation

- The number of respondents exceeded all expectations (1200 skippers).
- Due to the many reactions, the elaboration has required quite some (more/extra) time.
- This has also led to the decision to elaborate this in two separate documents;
  - The results.
  - The conclusions and recommendations.
- .

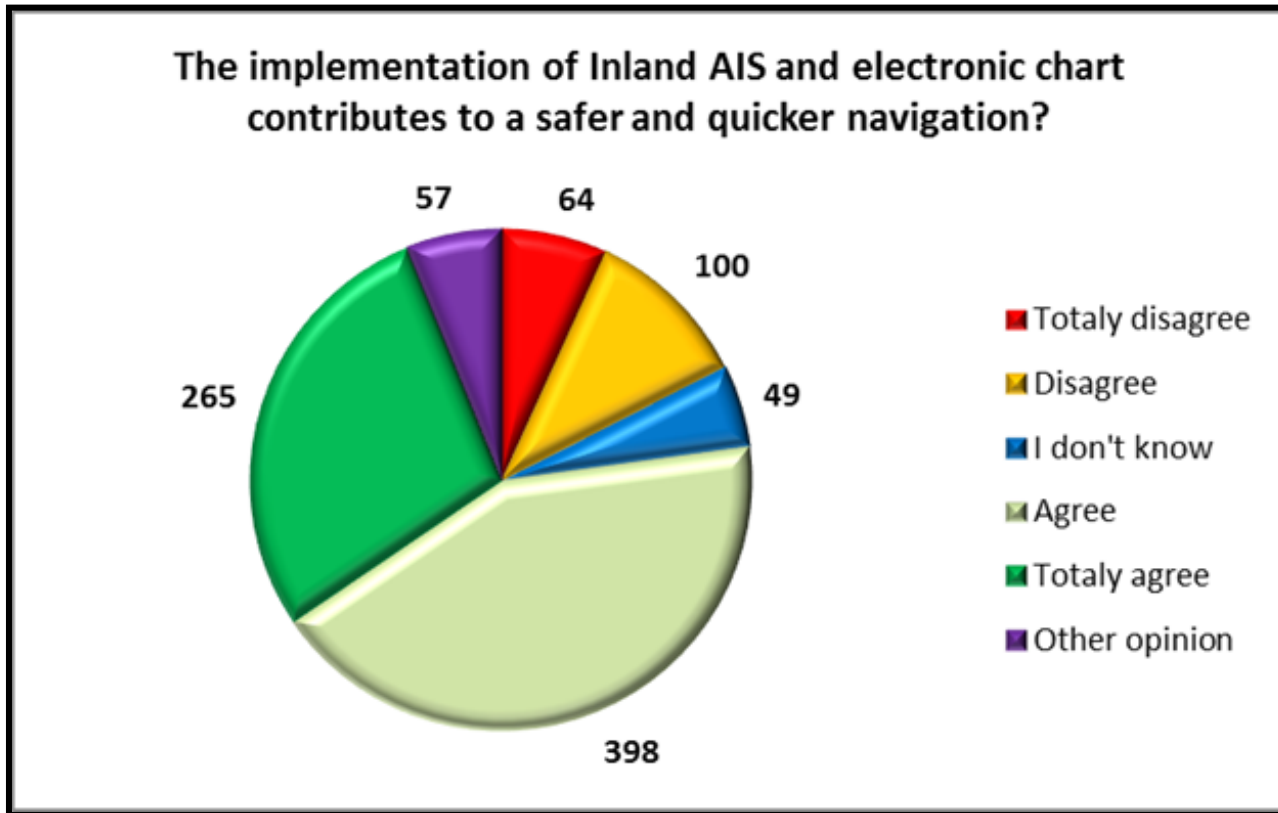


# Experiences of the several target groups



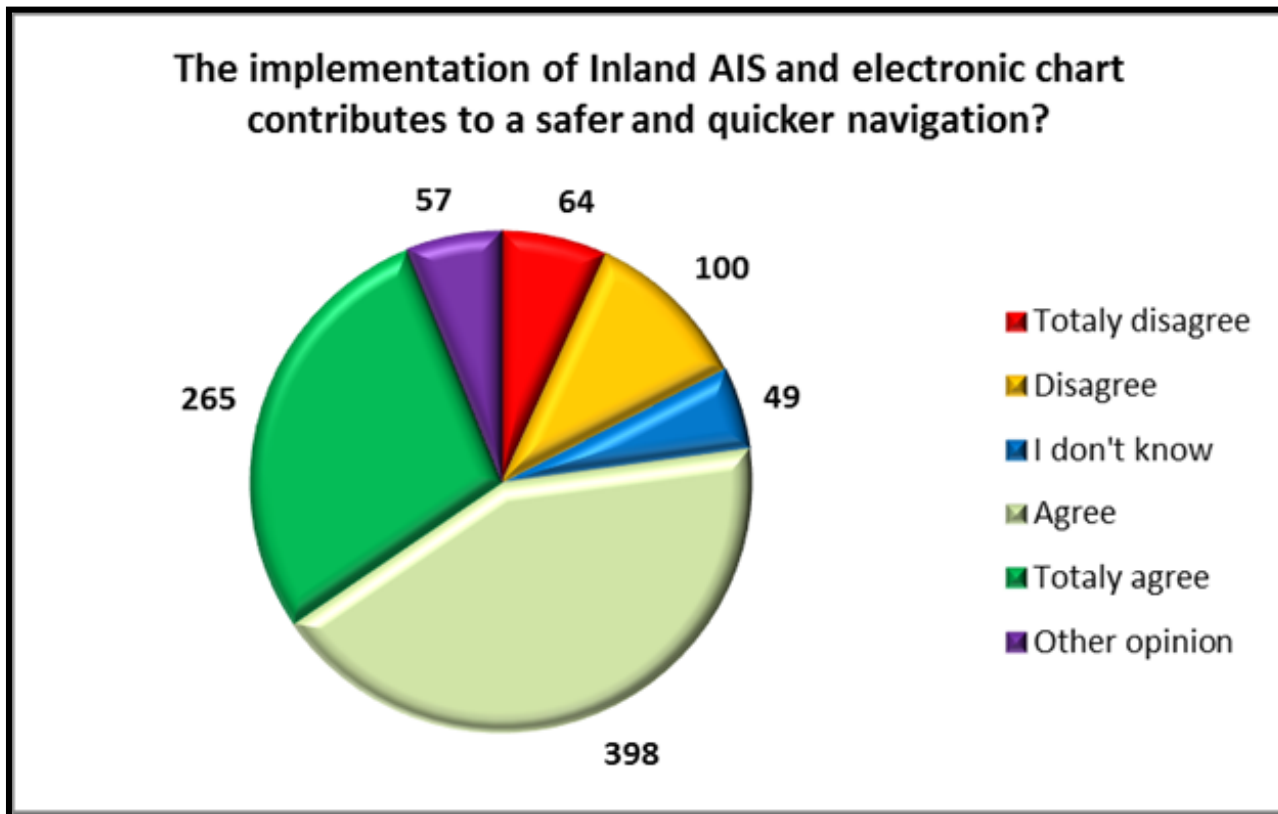
# The skippers

- It seems that Inland AIS is accepted by the significant majority of the skippers and that they see the benefits of it.



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- It seems that Inland AIS is accepted by the significant majority of the skippers and that they see the benefits of it.



- But that does not mean that no critical comments have been made!!**

# Positive remarks from the skippers

- A large group of skippers are of the opinion that the system provides an important contribution to safety because they are aware of the position, name and speed of other vessels.
- A large group of skippers are of the opinion that the use of Inland AIS is an excellent navigation aid as it allows the skipper to look further away, around a bend or behind an obstacle.





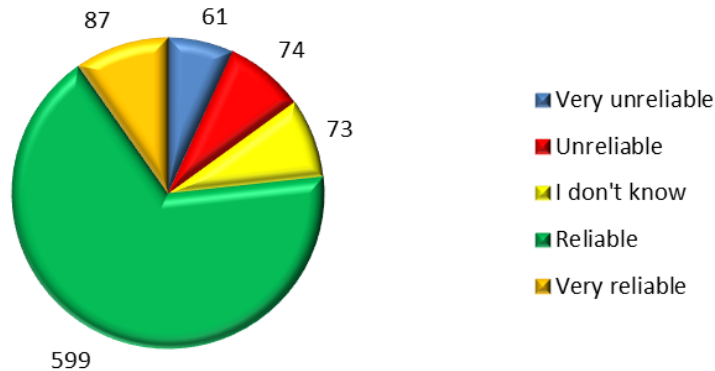
# Negative remarks from the skippers

- Many skippers pointed out that Inland AIS is not a **navigation system**, but only a tool intended for **navigation information**. For navigation one shall use radar, VHF-communication, and window to look outside.
- The system is not **100% reliable** and one should be continuously aware of that.
- It is noted that there are still a number of skippers that relies too much on Inland AIS with an electronic chart display system and use this almost as a primary navigation system as they seems to be unaware that some vessels are not visible.
- It is noted that it seems that the younger skippers in particular trust too much the electronic chart display system and that the (local) knowledge of the waterway becomes less.

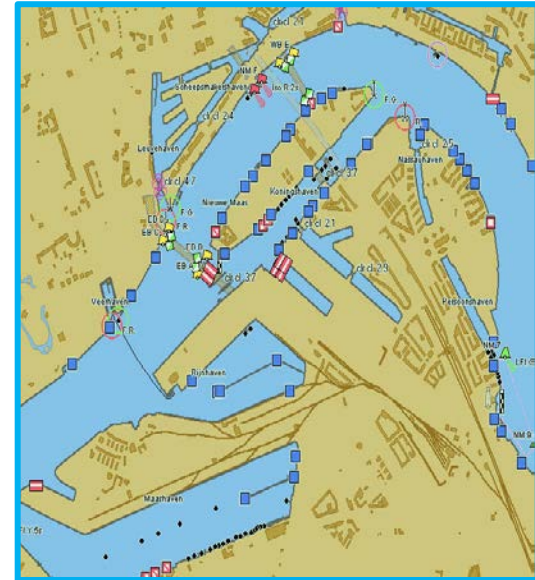
# The Skippers (2)

- The electronic chart display system

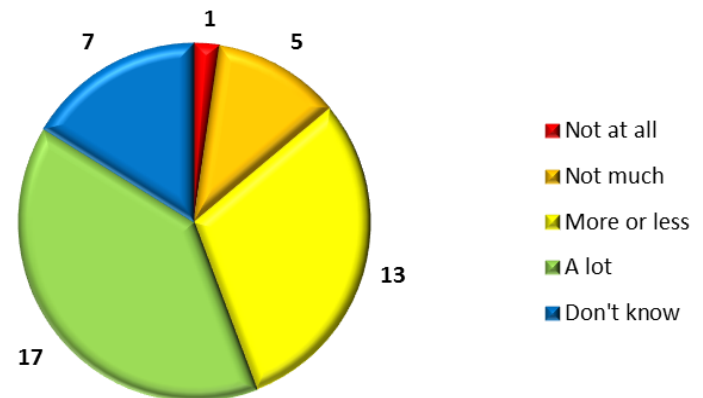
How reliable is the information in the electronic chart?



- This does not mean that there are no critical remarks about the electronic charts



Does the combination of AIS and an electronic chart contribute to a safer navigation?





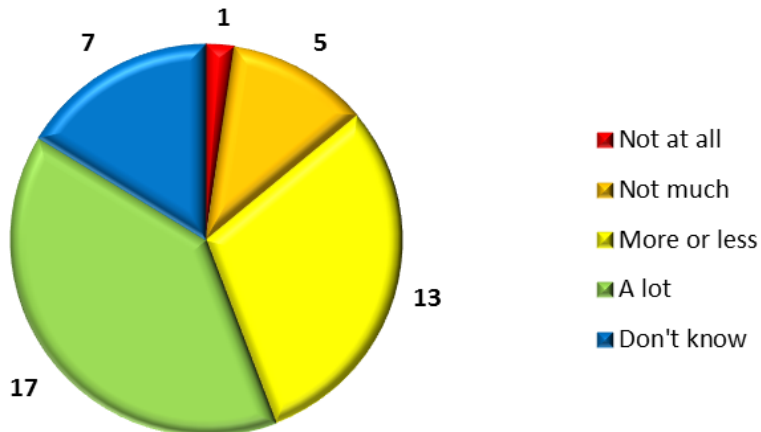
# The skippers and electronic charts

- There are complaints about the quality of the electronic charts.
- This concerns the waterway authorities, responsible for providing the actual basic information but also the suppliers of the ENCs.
- The skippers indicate that many charts are outdated, some even a very long time out of date, and the charts need to be replaced more often.
- Also, more incremental updates should be made available frequently.
- There are also many mistakes in the charts and sometimes essential information is missing, such as the depth or boundary of the fairway.

# The authorities with regard to safe navigation

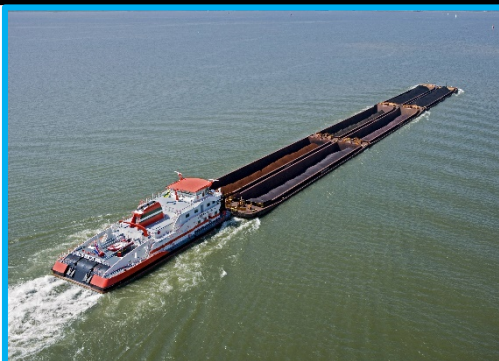
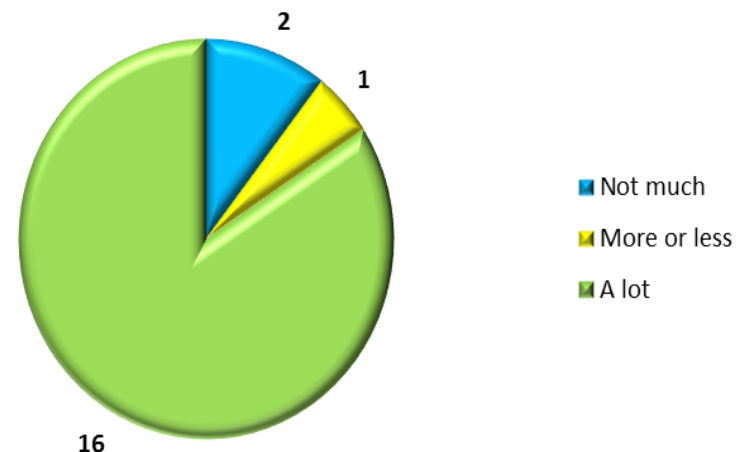
## \* Waterway Authorities

Does the combination of AIS and an electronic chart contribute to a safer navigation?



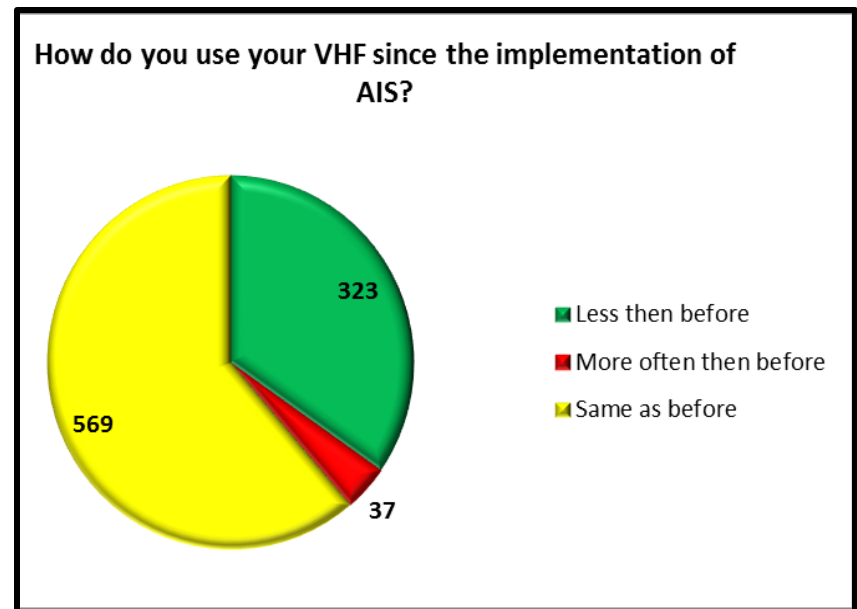
## \* Enforcement- and police services

Does the combination of AIS and an electronic chart contribute to a safer navigation?



# The skippers and communication

- A large group of skippers has indicated that the use of the VHF has decreased and that many skippers assume that other ships can see who is navigating where and how by only using their Inland AIS device and their electronic chart display system.
- In the past, it was common use to contact other ships by VHF and to agree on how to deal with situations during poor visibility or in bends. Now this is not always the case or it will only happen at the last moment, which may cause dangerous situations.





# Installation on board





# The experience of the skippers (1)

The skippers indicate that there have been hardly any problems during the installation of the Inland AIS device and the electronic chart display system.

However...

1. Based on the ROSR art. 7.06 it is obliged that after installation, implementation and control of the Inland AIS device, a “Certificate of installation” must be drawn up and handed over to the skipper. In addition, a “User manual” must be handed over to the skipper and this had to be recorded on the certificate.
2. **4.1%** of skippers responded that they have not received such a certificate, and 9.1% say they do not know whether they have received such a document.
3. **12.5%** of skippers responded that they have not received a user manual.



# The experience of the skippers (2)

It is officially not required to give an explanation about the installed Inland AIS device, but it should be a more or less self-evident activity as it is the case with purchase of other equipment. In fact this should also imply to the system for displaying electronic charts. However...

1. Nevertheless only 62,5% of the skippers appeared to have received an explanation about the use of the Inland AIS device ( so 37,5% not)
2. 62,8% of the skippers has received an explanation about the adjustment of the settings ( navigation status) of the het Inland AIS-device. (so 37,2% not)
3. 45,4% of the skippers has received an explanation about the use of the system for displaying electronic charts (so 54,6% not)
4. 8% van de installation firms has indicated not to give an explanation



# The experience of the installation firms (1)

Based on the survey results, it can be concluded that there have been hardly no problems with the installation of the Inland AIS equipment. In older ships it sometimes seems to be difficult to pull the cables and find a place for the equipment in the wheelhouse. This also applies to the electronic chart display system.

When configuring the devices on board, a number of installation firms have encountered problems. However, most of these issues do not differ from the usual problems while installing computers and associated software. However, there were comments on obsolete computers and software on board, but also Windows 10 sometimes seems to cause problems.



# Operational issues





# Adjusting the navigation status

- It turns out that adjusting the navigational status is not so self-evident. More than half of the skippers never do so.

Adjusting the navigation status	percentage
Always	13,2 %
I sometime forget to do	18,2 %
Sometimes	13,2 %
Never	55,4 %

- One finds it an unnecessary activity because one can see on the screen whether other ships are sailing or not.
- Adjusting the navigation status in the systems is often a difficult process and in principle, attention should be given to a safe navigation.



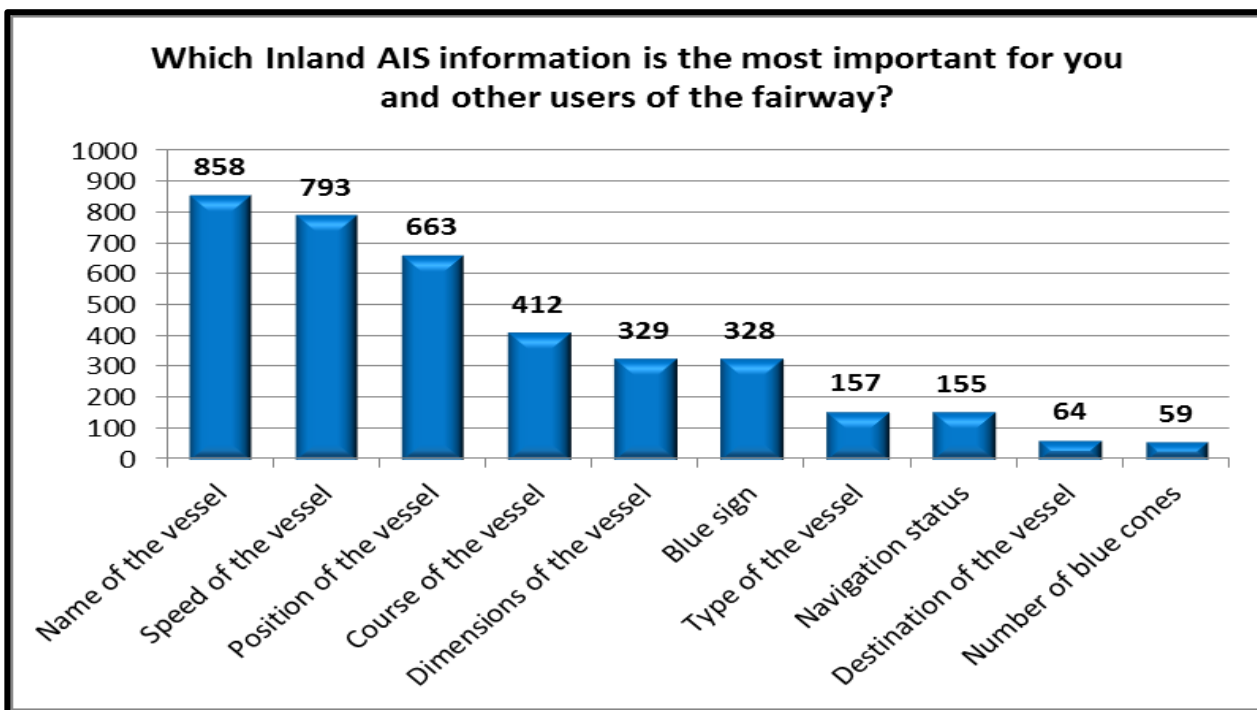
# Switching of the Inland AIS

- The Rhine Police Regulation (art. 4.07) states that on the Rhine the Inland AIS device must be on so it can transmit the obliged information continuously.
- The decision was not taken in vain. One can see who is sailing where, but also who is moored along the banks of the Rhine. This certainly contributes to safety.
- 71.4% of the skippers have no problem when the Inland AIS device is always switched on.
- 70.6% indicate that they do not have a problem that the Inland AIS device always sends a signal, even when the ship is moored.
- More than a quarter of the skippers have problems with it. The problems mainly concern privacy and power consumption (when the vessel is moored )



# Entering mandatory information

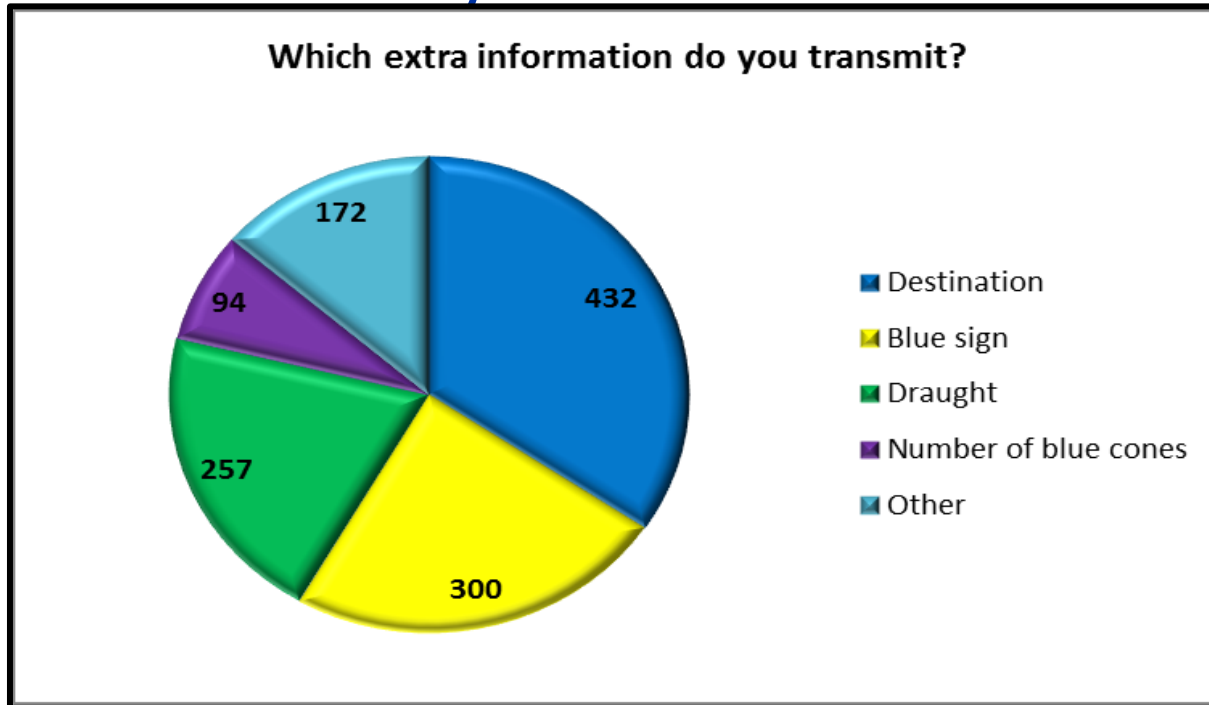
- The Rhine Police Regulation (art. 4.07) states that on the Rhine the Inland AIS device must transmit a minimum set of obliged information.
- It turns out that almost all skippers do not have problems to transmit the data mentioned in art. 4.07 of The Rhine Police Regulation .





# Entering voluntary information

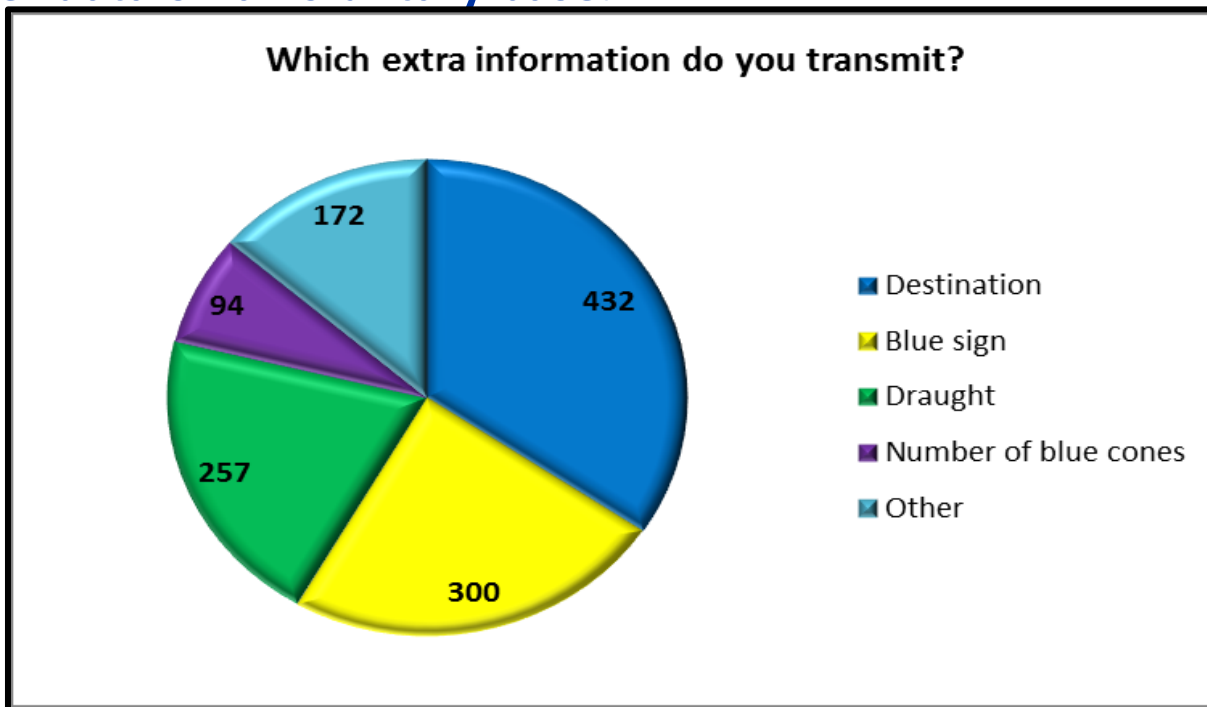
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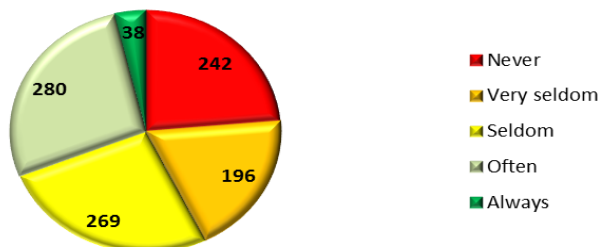


- One should be aware that if this information is not correct, one is in violation and enforcement can take place.

# Check if the correct information is transmitted

- Only a small group of skippers (3.7%) regularly checks if their Inland AIS device submits the correct information and even a quarter does it never.

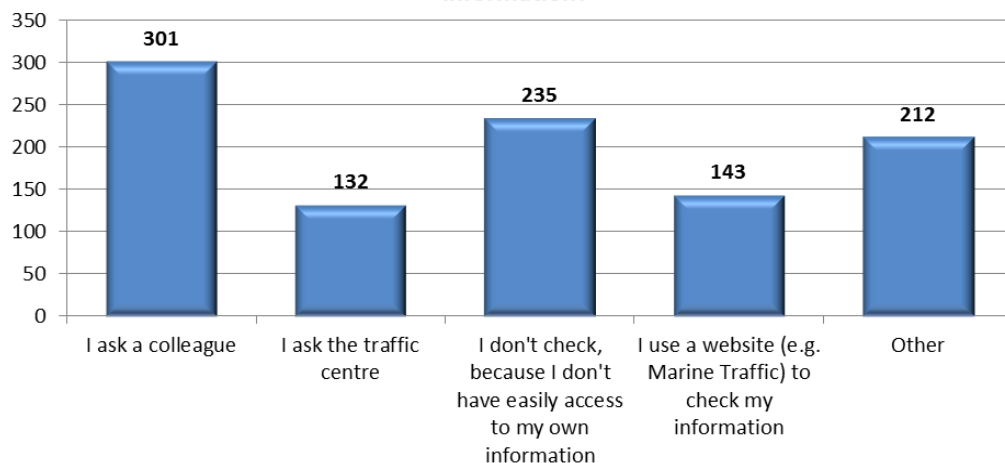
How often do you check the information that is transmitted by your Inland AIS device?



If the skipper does a check, he mostly asks his colleagues or a Traffic Centre.

But nearly 15 % say they use Websites like Marine Traffic.

How do you check if your Inland AIS device is transmitting the correct information?





# The use of chart display (1)

- 84.3% of the skippers indicates that they have an Inland ECDIS system installed .
- 15.7% indicates that they have a different electronic chart display system on board. (open source 3,4% and 12,3 other systems)

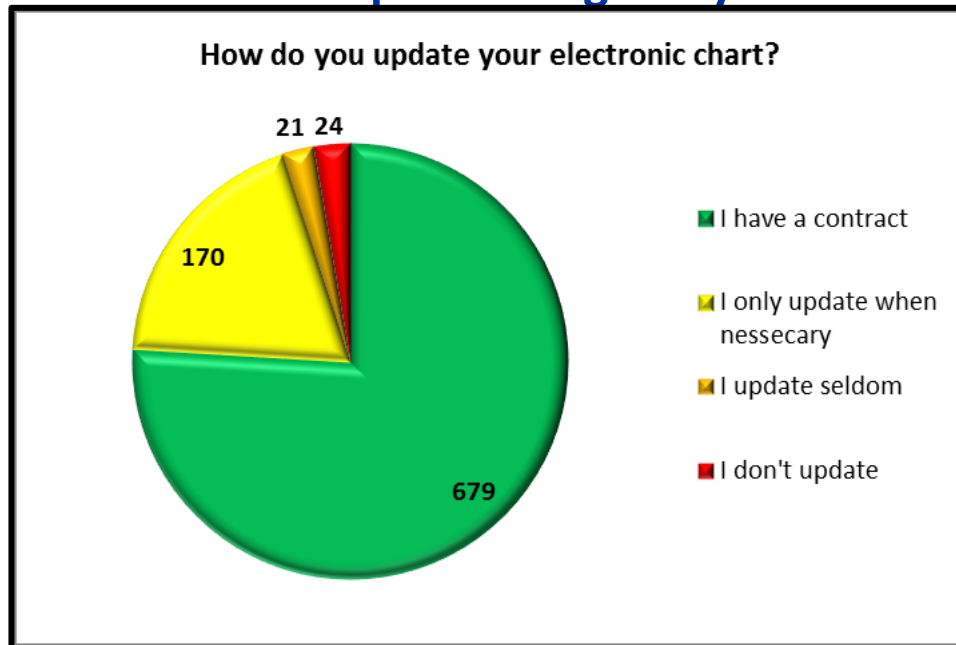
Usage	percentage
Information mode	85,3%
Navigation mode	4,1%
Both	10,6%

- This indicates that most of them use the electronic chart display system in information mode next to their radar system.



# The use of electronic chart display system (2)

- In order to use the electronic chart display system in an optimal way the charts have to be updated regularly.



- It appears that 74.6% of the skippers have a contract with the supplier and they receive on a regular base updates from the company.
- 81.6% of these skippers regularly receives a CD.
- The remaining 18.4% indicate that they download it from the website



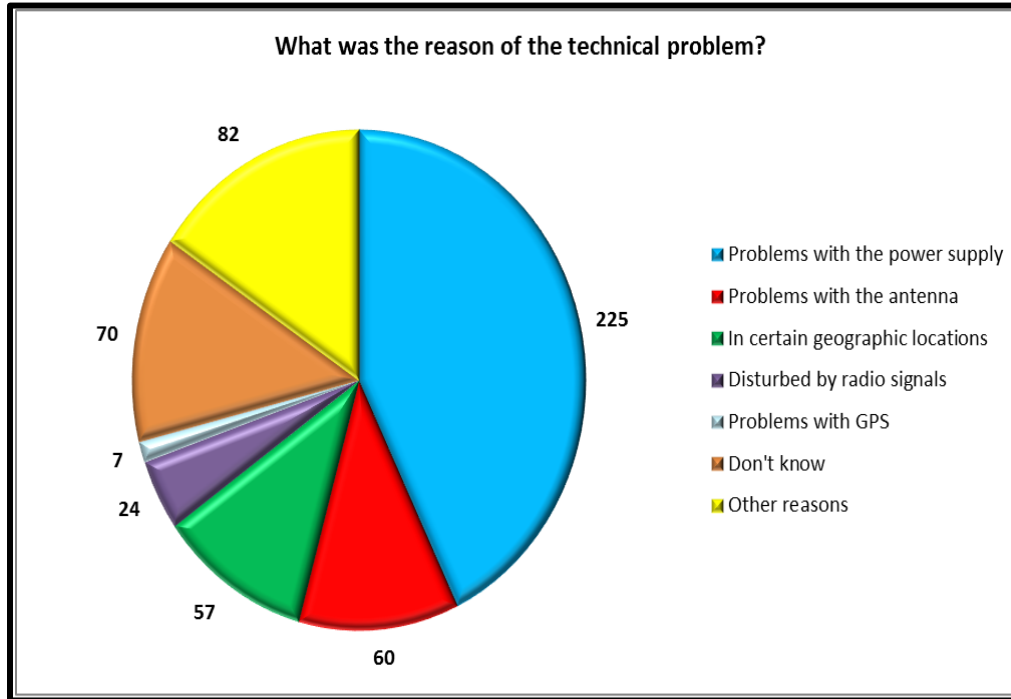
# Technical issues and time needed to repair





# Technical problems: a real problem (1)

- 54,2 % of the skippers reported that they have had technical problems with their Inland AIS system.



- This causes a lot of problems and the trust in the system does not get any better. Many of the failures could be solved by resetting the system, but if necessary while sailing it is an unpleasant situation.



## Technical problems: a real problem (2)

- It is not clear whether the problems only occurred in the first period after 1/12/2014 or that it still is the case.
- **30,6 %** of the skippers reported that their technical problems were such that the assistance of a repair company had to be invoked.
- A large group of skippers reported that they needed 2-5 times the repair company.
- A small group of skippers reports that they needed more than 5 times the repair company.



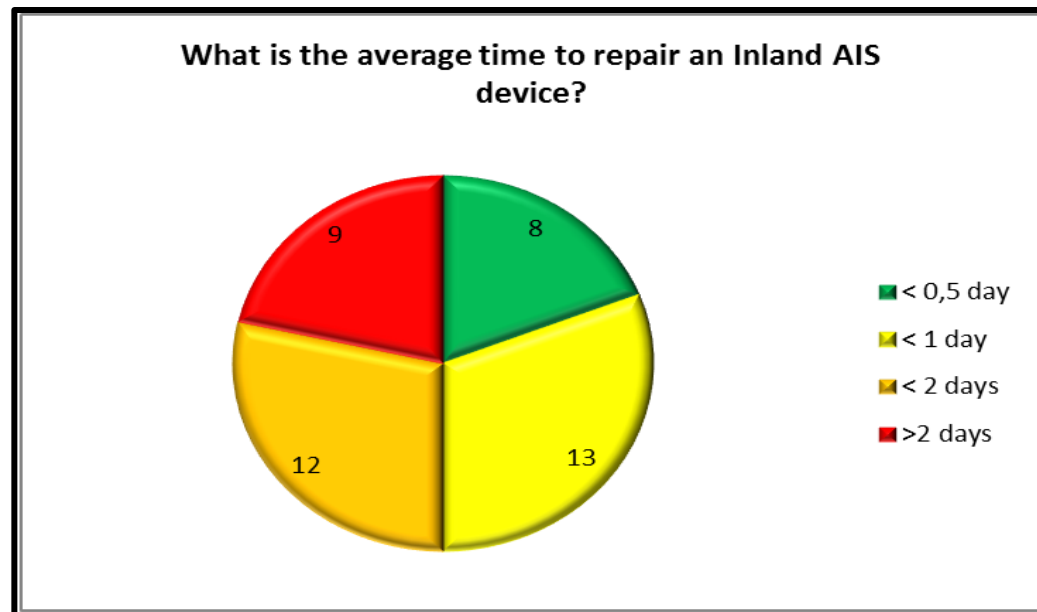
# Time needed to repair the Inland AIS (1)

- This rule has delivered a lot of comments
- a large group of skippers considers the 48-hour deadline as to be excessively short and it is particularly difficult during weekends when there are normally no technicians available.
- Some skippers report a waiting period of one week or longer.
- 48% of the skippers who needed the repair company reported that the problem was solved within 48 hours.
- For 33.3% of the skippers involved it took more than 96 hours before the problem was solved.
- Many waterway authorities, enforcement and police services have the same experience: 48 hours to repair is sometimes a problem.



# Time needed to repair the Inland AIS (2)

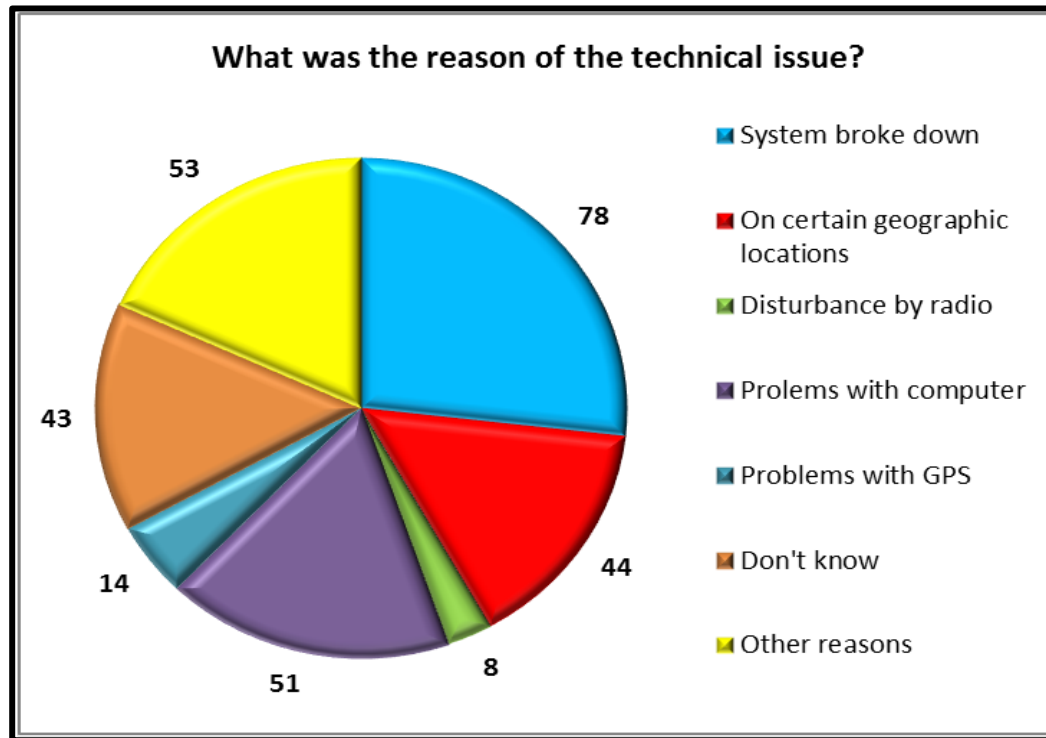
- The repair companies can not always guarantee that they will be on board of the vessel within 48 hours.
- 42% of the repair companies indicates that it is not always possible to respect the time of 48 hours to repair a defect.
- A number of companies has given an overview of the average time needed to repair.





## Technical problems: a real problem (3)

- 34 % of the skippers reported that they have had technical problems with their electronic chart display system .



- 24 % of the skippers reported that their technical problems were such that the assistance of a repair company had to be involved.



# Privacy aspects





# Privacy aspects





# Many reactions dealing with privacy

When Inland AIS was introduced, the authorities promised that privacy would be protected and guaranteed. However, there are many complaints at this point:

1. There is a lot of response to the "illegal websites" such as Marine Traffic, which makes a lot of privacy sensitive information more or less accessible to everybody who is interested and so also criminals.
2. A large part of the complaints concerns waterway authorities, port authorities and enforcement authorities using Inland AIS information for purposes for which it is not intended. (Harbor fees, [traffic] fines, resting times etc.)
3. Forwarders, shippers, terminals, agents, inland shipping companies use Inland AIS information, or information from sites like Marine Traffic to check skippers (berth, route, rest etc.) and from a competitive point of view.



# Enforcement



# Done by waterway authorities, enforcement and police services

The following information is available

- observations, warnings and fines dealing with:
  - No Inland AIS device on board or in use
  - Inland AIS device wrongly configured
  - Inland AIS device defect or not transmitting
  - Inland AIS device installed by an unauthorized installation company
  - No system
  - A defect





# Done by waterway authorities, enforcement and police services

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**In all this, no relationship was found with regard to nationality or type of ship. Also shows the overall picture no immediate cause for concern.**



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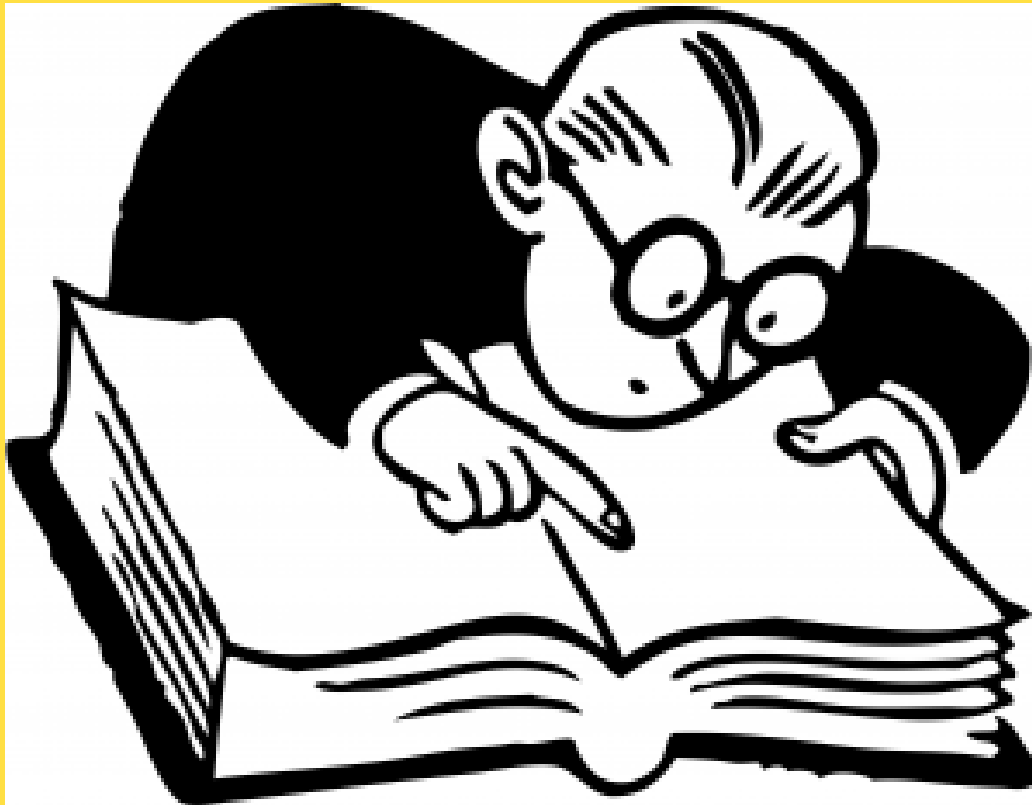
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In all this, no relationship was found with respect to nationality or type of ship. Also shows the overall picture no immediate cause for concern

**The skippers generally indicate that the authorities are too strict in their supervision. They are of the opinion that many fines are in no relation to the alleged offense and there are also fines for not mandatory aspects.**



# The use of CCNR information documents





# CCNR information documents (1)

CCNR has made available several information documents for Inland AIS.

1. **“Clarifications concerning the obligation of equipment with an Inland AIS and an Inland ECDIS device or a comparable electronic chart display device.”**

23,5 % of the skippers is aware of this document

88 % of the installation firms is aware of this document

2. **“Guidelines on the Installation of the Inland Automatic Identification System”.**

78 % of the installation firms is aware of this document

3. Leaflet **“operational use inland AIS”**

32 % of the installation firms made use of this document or parts of it.

26% of the installation firms is not aware of this document



**The results of the questionnaire were approved by the  
plenary CCNR meeting in December 2017.  
Now they are available in the 3 official CCNR languages  
and English  
on the CCNR website**



# Overview of the conclusions and recommendations





# General

- In total about 60 recommendations were formulated.
- in order to create some order, a subdivision in 3 themes was made.
  - safety and reliability
  - technical business
  - other aspects
- Subsequently, we examined which issues should be tackled in a short term.
- It is important that there is also support from all parties involved and that the recommendations are supported.
- To this end, a hearing was organized with representatives from the shipping industry, installation companies and government representatives.



# General Conclusions

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- In general it can be concluded that Inland AIS has been accepted and that the benefits are being recognized.
- This does not alter the fact that the necessary critical comments have been made about the use and that a multitude of technical problems have occurred.
- It is rightly pointed out that Inland AIS is not a navigation system but a tool for navigation. Better said a navigation information system.
- One must also be aware that the system is also not 100% reliable.
- Looking outside, using the radar and the VHF and local knowledge is still essential for a safe navigation.



# The important themes





# theme "Safety and reliability" (1)

- The theme "Safety and reliability" deals in particular with the experiences of the various stakeholders, the use on board the Inland AIS device and the system for the display of electronic charts and the behavior of the skippers.
1. Adjusting the navigation status is something that is not self-explanatory. More than half of the skippers never do it. It is found an unnecessary activity.
    - Recommendation.1 to investigate if it can be simpler and easier.
    - Recommendation.2 to investigate if it can be done automatically.



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- 1. Adjusting the navigation status is something that is not self-explanatory. More than half of the skippers never do it. It is found an unnecessary activity.
  - Recommendation.1 to investigate if it can be simpler and easier.
  - Recommendation.2 to investigate if it can be done automatically.
- 2. It appears that many skippers find it problematic that they can not see whether or not their own Inland AIS signal is being broadcasted.
  - Recommendation to investigate if there are possibilities to inform the skipper whether the Inland AIS signal from his vessel is being broadcasted or not.



## theme "Safety and reliability" (2)

3. A important conclusion is that there are a number of skippers who rely too much on their Inland AIS-device with a system for displaying electronic charts and use it almost as a primary navigation system, not being aware that other ships sometimes are not visible.
  - **Recommendation:** To contact the educational institutions and request them to pay more attention to the correct use of the Inland AIS device in relation to the other equipment on board during the training and further follow up.



# Technical issues and time needed to repair





# theme “Technical aspect” (1)

1. It appears that there are a number of installation companies that do not comply with the regulations of the CCNR by not giving the installation certificate and/or users manual to the skipper. An even greater number of installation companies do not leave these document with instructions for use on aboard.
  - **Recommendation:** CCNR will provide the national authorities with instructions to inform the installation companies that they are obliged to hand over these documents (according to the rules of the CCNR) to the skipper. Failure to comply with the obligations may lead to the withdrawal of their accreditation as a competent company by the national authority.



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2. It is officially not required to give an explanation about the installed Inland AIS device, but it should be a self-evident activity. Yet it appears that in many cases no explanation is given about the installed device or system.
  - **Recommendation:** It is recommended to investigate whether instructing by the installation companies should mandatory.



## theme “Technical aspect” (2)

3. Many shippers (50%) have had technical problems with their Inland AIS device and or the electronic map display system. This is worrying and does not contribute to confidence in the system.
  - Recommendation: experts should investigate what these problems are (installation errors, system errors in the device, configuration errors, connection errors, outdated software and hardware, unstable power supply, etc.)..



## theme “Technical aspect” (2)

3. Many shippers (50%) have had technical problems with their Inland AIS device and or the electronic map display system. This is worrying and does not contribute to confidence in the system.
  - **Recommendation:** experts should investigate what these problems are (installation errors, system errors in the device, configuration errors, connection errors, outdated software and hardware, unstable power supply, etc.)..
- 4) The maximum time limit for repairing defective devices leads to many reactions. A large number of skippers considers the **deadline of 48 hours** as extremely short and particularly difficult during the weekend, when there are usually no technicians available to carry out repairs.
  - **Recommendation:** Bring together a number of experts, representatives of branch organizations and installation companies and let them investigate what solutions there are. (on technical, business, regulatory and organizational level).



# Other aspects





# theme “Other aspects” (1)

1. When Inland AIS was introduced, it was promised that privacy would be protected and guaranteed. Yet there are many indications that this is not always true. These range from the use of AIS information by the various authorities and commercial parties for purposes for which it is not intended to websites such as "Marine Traffic" when acting in violation of European or national data protection laws. Problem is that the CCNR itself can not maintain this type of case, but that this is a task for the Member States.
  - **Recommendation 1:** CCNR should ask its Member States to inform the national bodies that they, in the performance of their duties, will use the Inland AIS information in a correct way. This information may only be used for what it is intended, such as traffic management, shipping safety and environmental protection.
  - **Recommendation:** CCNR should inform its member states that in such situations the commercial parties violate the privacy of the skippers and that an enforcement procedure can be started if a skipper reports to the justice department.



## theme “Other aspects” (2)

2. Many skippers are of the opinion that the authorities are too strict in compliance with the regulations. They believe that the excessive penalties are not always in accordance with the regulations.
  - **Recommendation 1:** CCCNR should inform the authorities which information is required and which information is not required.
  - **Recommendation 2:** CCNR should investigate whether it is possible to use the “CCNR Fine Catalog” by adding a chapter on Inland AIS.



## theme “Other aspects” (2)

2. Many skippers are of the opinion that the authorities are too strict in compliance with the regulations. They believe that the excessive penalties are not always in accordance with the regulations.
  - **Recommendation 1:** CCCNR should inform the authorities which information is required and which information is not required.
  - **Recommendation 2:** CCNR should investigate whether it is possible to use the CCNR fines catalog by adding a chapter on Inland AIS.
  
3. It can be concluded that the information material of the CCNR is not well known to the various parties involved and that a number of things need to be adjusted and updated.
  - **Recommendation:** CCNR and its member states must give more publicity to the information material towards the parties involved and also they should use social media as much as possible.



**The conclusions and recommendations  
are approved by the plenary CCNR meeting on June 5<sup>th</sup>  
They will be available in the 3 official CCNR languages  
and English on the CCNR website soon.**



# What are now the further steps



## Further steps

**The next step is to work out all recommendations in a working plan with priorities to be accepted by the Police Comity in autumn of this year.**



## Further steps for me



An aerial photograph of a wide river or canal system, likely the Mississippi River. Several large barges are visible, some moving in different directions. The water is a deep blue-grey color. The surrounding land is a mix of green grass and brown, sandy or silty banks. A large, stylized orange text overlay with a dashed line and a question mark is positioned diagonally across the center of the image. The text reads "Questions".

Questions.....?

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THANKS FOR YOUR PATIENCE AND ATTENTION