7.12.2017

Inland AIS devices and electronic chart display systems on the river Rhine

CCNR

Analysis of the online survey conducted in the context of evaluating the implementation of the mandatory installation

Content

Introduction

To improve the safe navigation of the Rhine and in an effort to provide skippers with additional information, the CCNR introduced mandatory installation of Inland AIS and Inland ECDIS devices or comparable electronic chart display devices with effect from 1 December 2014. Once this decision had been in force for almost two years, in 2016 the CCNR decided to conduct an online survey to find out about the various stakeholders' experiences and to be better able to assess users' difficulties and problems, as well as giving the individuals affected by these requirements the ability to suggest improvements of their own. This enabled more than 1000 fully completed questionnaires and more than 400 partially completed, but eminently useful, questionnaires to be captured within a two month period. More than 90 % of the responses came from skippers. But firms installing the equipment on vessels, waterway authorities as well as enforcement and police authorities also took part. The CCNR would expressly like to thank all those who took the time to answer the questions.

This document evaluates and summarises the survey findings. Based on more than 100 questions and answers in three languages it provides a wealth of information! The information will provide an important foundation for the CCNR's future work on RIS and other topics besides. At the same time the CCNR offers the information for use by national authorities, other international organisations, the inland navigation industry, application developers and equipment manufacturers. The CCNR also hopes that the European RIS expert groups will benefit from this information. In particular, the CCNR hopes that the European Commission will be able to avail itself of this information in its future work on developing RIS in the certainty that the participants in this survey represent a large proportion of the European inland navigation industry.

It is anticipated that a second document containing the conclusions and recommendations based on the CCNR's evaluation of the mandatory installation of Inland AIS will be published in the first half of 2018.

1 Context, target groups and methodology of the evaluation

1.1 Context of the evaluation

As a result of the resolution 2013-II-16, the "*Mandatory introduction of the Inland AIS and Inland ECDIS or comparable display systems*" (Articles 1.10, 4.07 and Annex 11) entered into force on 1.12.2014. The regulations are set out in Article 4.07 of the Rhine Police Regulations (RPR).

Later, resolution 2014-I-12 set out the "Minimum requirements and recommendations for Inland ECDIS equipment in the information mode and comparable display systems for the use of Inland AIS data on board vessels (Article 4.07(3))".

Resolutions 2014-I-13 and 2015-I-16 set out a number of adjustments and additions to the decision of 2013.

Together with the resolution to introduce Inland AIS and Inland ECDIS or comparable chart display devices it was decided to evaluate these measures after 2 years.

This was included in the 2016-2017 work plan of the Police Regulations Committee of the CCNR. It was then developed into a plan of action that was put to the Police Regulations Committee in April 2016 for approval.

In accordance with the task included in the work programme, the evaluation focuses initially on the use of AIS and a system for electronic chart display in practice, as set out in Article 4.07 of the RPR and the above-mentioned minimum requirements.

The aim of the evaluation is to examine the experiences of the various target groups involved as to whether Inland AIS and a system for electronic chart display contribute to a better and safer use of the fairway, as well as to determine whether the regulations and supporting communication documents need to be amended.

1.2   Target groups

With regard to the introduction and use of Inland AIS and a system for electronic chart display, 4 distinct target groups can be identified, each of which is involved from a different perspective. These groups are examined in greater detail below:

1.   The skippers

The skippers are the ones who have to make use of the Inland AIS and system for electronic chart display when navigating. However, they are also affected by the installation of these systems on board their vessels.

2.   The installation firms

In accordance with the CCNR regulations, the installation firms are responsible for the correct installation, fitting, and configuration of the Inland AIS systems on board the vessels.

3.   The waterway authorities

They are responsible for an efficient and safe passage through their waterways, whereby Inland AIS and a system for electronic chart display play an important role. They may also have enforcement tasks.

4.   The enforcement and police authorities

Their task is the monitoring and enforcement of the appropriate regulations in order to ensure that traffic proceeds safely and efficiently.

Because the 4 target groups see certain aspects from a different perspective, it was important to address each group separately in the evaluation.

It was finally decided to carry out a digital survey, whereby the questionnaires for each group varied accordingly. This methodology is discussed in detail in section 1.3.

1.3　Methodology

All the questionnaires were conducted through an online tool called LimeSurvey. This tool was hosted by the French delegation (VNF), and encapsulated in a webpage hosted by the CCNR website. The LimeSurvey tool was configured so that the questionnaire could be answered in several shots, as the number of questions was relatively large. It was also not possible to answer twice from the same computer (based on local Cookies functionality of the internet browser).

In preparation for the survey every Member State had access to the administrator's part of this tool in order to ensure that all questions where available in the different national languages (German, French and Dutch). Every participant had the chance to read the questions and answers in his own language.

The invitations to the target groups to participate to the survey where sent out per target group. The Secretariat of the CCNR contacted all installation firms that are on the list of 'approved firms'. The authorities (waterway authorities as well as enforcement and police authorities) were directly contacted by the RIS/G representative of the Member State in their own country.

For the skippers the Dutch delegation contracted Bureau Telematica Binnenvaart to start a communication campaign. They launched the communication under the name *"Kunnen we blind op u varen"* and sent a postcard to every individual (Dutch) skipper to inform them about the survey and kindly ask for their participation. Furthermore, the German delegation told around 1600 shipowners or inland navigation skippers about the CCNR survey in a GDWS circular, requesting them to take part.

The link to the survey was communicated via different platforms, like the BTB website, the CCNR website and the various websites of the Member States.

After closure of the survey, all the results were exported from the LimeSurvey tool into Excel sheets, and a small working group translated all results from the three different languages into English to make it possible to group them. After the translation the spreadsheet with all the results was used to visualize the results in order to create the possibility to analyse the results. Afterwards all results were translated back into the CCNR languages.

2 Results of the Questionnaire

2.1 Number of respondents

There was a good response to the questionnaire. It exceeded expectations, but at the same time it has created a lot of work. The skippers in particular made a lot of effort to add a remark where the opportunity existed, and also to respond to the open questions, especially question 40. Once the unusable responses[1] had been eliminated, the overall results were as follows:

Target group	Number of usable reactions
Skippers	1203
Waterway authorities	43
Enforcement and police authorities	19
Installation firms	50

Table 1

For the target groups "Skippers" and "Installation firms" a calculation was made to ascertain whether the number of responses could be considered as representative for the target group. In both cases, the number of responses was high enough to provide a representative response. These calculations and an explanation thereof are available in Annex 1.

For the target groups "Waterways authorities" as well as "Enforcement and police authorities" several respondents indicated that the answers of the various members of the service had been collected[2] together and submitted jointly. It is therefore not possible to calculate whether the responses were truly representative, but it does provide a good overall picture of the relevant waterway authorities.

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[1] These included a number of responses from other waterways, which were not relevant to this study.
[2] In some cases these respondents represented the various local/regional waterway authorities, but in one case the collected response came from a complete national service.

2.2   Processing the results

The approach adopted for processing the results was as follows:

- For each question the number of respondents was counted. Not all questions were answered by every respondent, either because answers to previous questions meant that the question could be skipped, or because the respondent opted not to answer the question. This summary will indicate as clearly as possible how each question was answered by the respondents.

- For each question a decision was made as whether the answers should be presented as a graph, as numbers/percentages or as Yes/No answers.

- For some questions, there was the option to give an additional comment. Depending on the responses, these were presented as a graph or as text, which in some cases was combined with relevant responses given to other questions. The skippers in particular took the time to give a whole range of responses to question 41. Obviously, it was not possible to include all the individual responses, so they have been collected together and summarised in different small sections in order to do justice as far as possible to the particular efforts made by so many skippers.

- In order to give an indication of the number of respondents who made an additional comment, particularly in the case of the skippers, the following subdivision has been agreed:

  Fewer than 5 responses: a few
  6-10 responses: a limited number
  11-25 responses: a small group
  26-50 responses: a sizeable group
  51-100 responses   a large group
  more than 101 responses: a very large group

- For reasons of clarity the term "a system for electronic chart display" will be used instead of the term "an Inland ECDIS device in the information mode and comparable display systems".

In the following sections the results are presented, partly broken down according to target group, and partly according to key subject area.

3   Information documents issued by the CCNR

The CCNR has brought out several communication documents relating to the introduction of the obligation of equipment and use of Inland AIS and electronic chart display systems. On the one hand, these are intended for the skippers and, on the other hand, they are intended for the installation firms and the relevant authorities.

This concerns the following documents:

- Clarifications concerning the obligation of equipment with Inland AIS devices and Inland ECDIS devices or comparable electronic chart display devices,
- Guidelines on the Installation of the Inland Automatic Identification System (Inland AIS),
- Leaflet Operational use of Inland AIS,
- Leaflet Inland AIS 2015.

Clarifications concerning the obligation of equipment with Inland AIS devices and Inland ECDIS devices or comparable electronic chart display devices

- 23,5 % of the skippers indicated that they were familiar with this document,
- 76,5 % of the skippers did not know the document,
- 88 % of the installation firms indicated that they were familiar with this document,
- 12 % of the installation firms did not know the document.

None of the four groups of stakeholders had suggestions to improve this document.

Guidelines on the Installation of the Inland Automatic Identification System (Inland AIS Guidelines)

- 78 % of the installation firms indicated that they were familiar with this document,
- 22 % of the installation firms did not know the document.

Leaflet "Operational use of Inland AIS"

- 32 % of the installation firms indicate that they used (parts of) this document when instructing the usage of the Inland AIS device,
- 64 % reported doing this in a different way or not at all.

Figure 1 shows which other sources the installation firms use.

We do not use the "Operational use of Inland AIS" document because:

5

13

4

4

6

- We do not know such a document/ no need/ not familiar
- It is better to explain orally how the device is working
- We use the operation manual
- We have our own instruction material
- Other
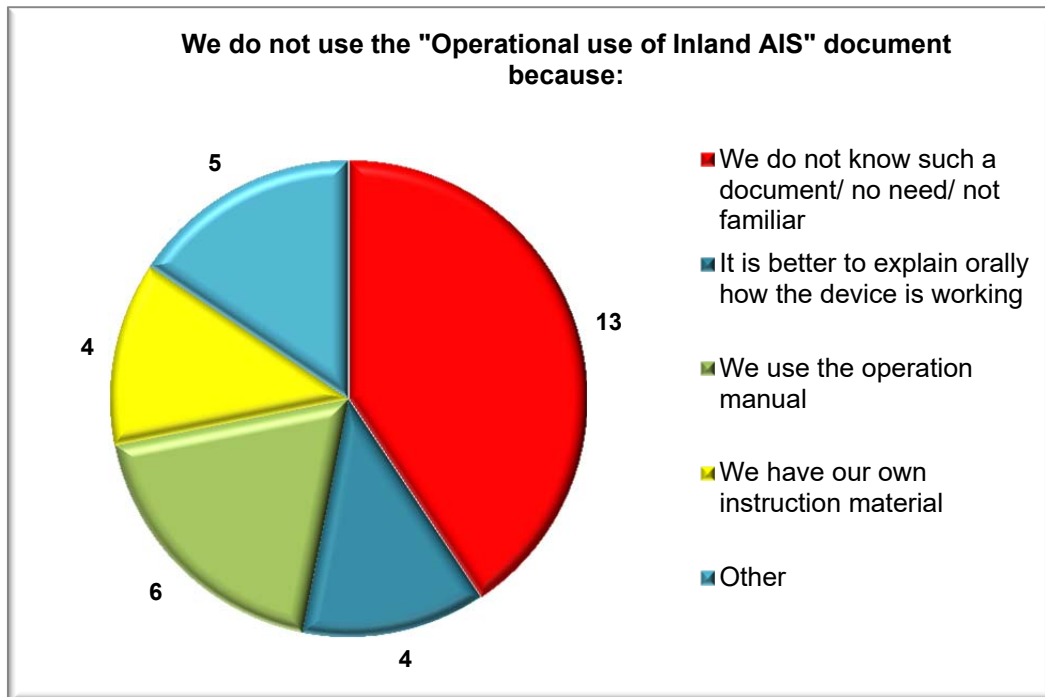
Figure 1

26 % of respondents say they do not know the CCNR document at all.

The 50 installation firms indicate they use various resources with respect to the CCNR regulations regarding Inland AIS and the installation. Most of them actually use the CCNR website. Figure 2 gives an overview of the information sources used.

What is your source of information about the regulations of the CCNR, especially referring to Inland AIS devices and electronic chart display systems and their installation?

1   2

8

28

11

- I read the website of the CCNR
- The authorities contact me or I contact them
- Different source
- CCNR? Never heard about it
- I don't have information
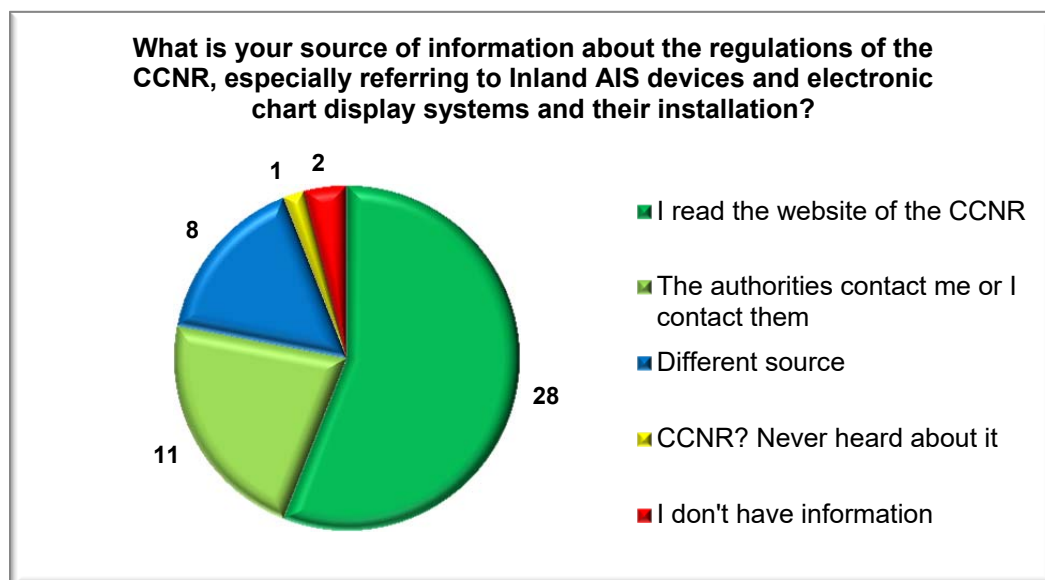
Figure 2

4 Contributions by the Skippers

4.1 General reactions

4.1.1 General information

As mentioned above, 1203 skippers responded. Figure 3 shows the types of vessels these skippers are sailing. Annex 3 gives further information about the vessel types.

Number of skippers that have responded

- Motorfreighter
- Tanker vessel
- Container vessel
- Push boat
- Pushing unit
- Convoy
- Cruise Vessel
- Tugboat
- Other

175, 16, 117, 34, 16, 23, 52, 166, 604
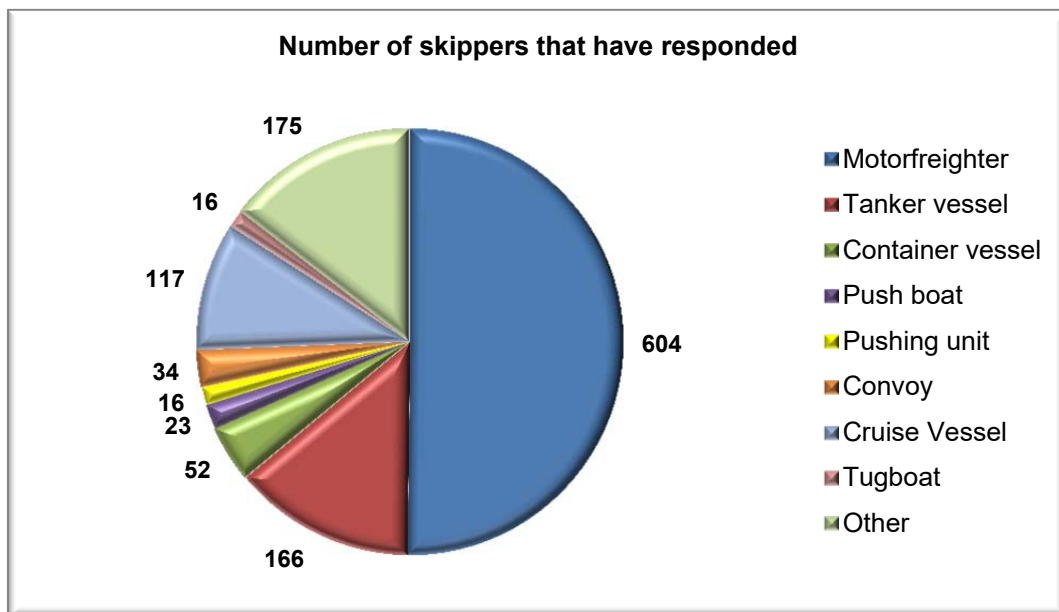
Figure 3

Figure 4 shows in which area the 1203 skippers are sailing. The skippers who responded that they are using other waterways, as mentioned below, are not included in the overview. In this way, the results are applicable to the waterways and/or countries where the RPR is in force.

Do you sail in these areas? (multiple answers are possible)

Area	Yes	No
Rhine	647	556
Netherlands	1045	158
Germany	628	575
France	354	849
Switzerland	176	1027
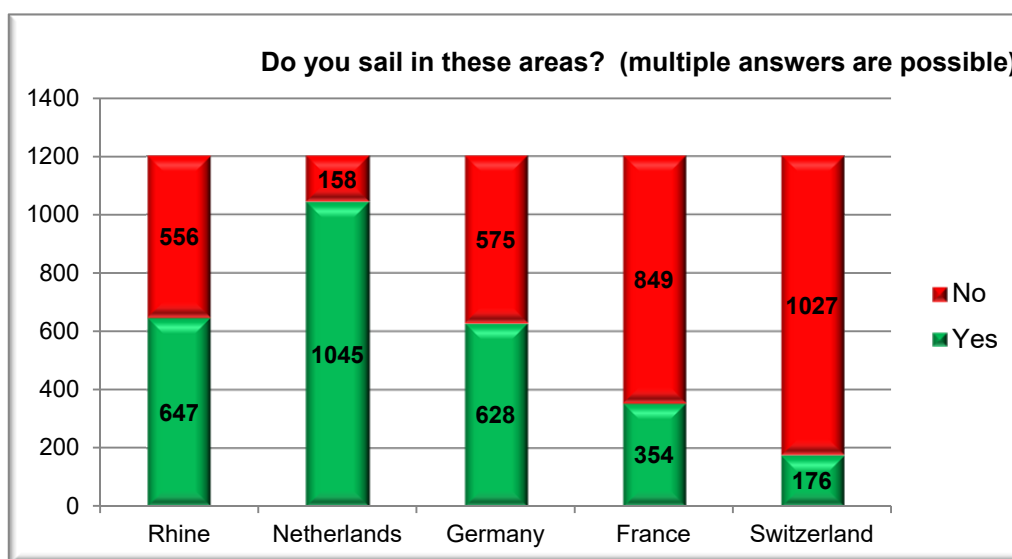
Figure 4

4.1.2 General comments concerning the obligation

Extension of the obligation to use Inland AIS

A small group of skippers – mostly Germans – indicated that it would be desirable to extend the obligation to use Inland AIS to cover:

* all vessels, perhaps also including recreational craft,
* all other navigable waterways.

Opposed because Inland AIS is not yet suitable/reliable enough to justify an obligation

Although they are more or less satisfied with Inland AIS device and an electronic chart display system, a small group of skippers believes that for a number of reasons, (including the level of reliability) 1 December 2014 was still too early to make Inland AIS mandatory. Some of them also think it was not really necessary to introduce such a requirement.

Opposed because it is seen as yet another obligation

A small group of skippers are simply opposed, either because it is just yet another additional obligation or because the skippers don't see the need for Inland AIS at all. It seems to them as though it is no longer possible to navigate without Inland AIS. A few skippers mentioned that it is strange that radar is not obligatory, whereas Inland AIS is.

4.2 Installation on board

4.2.1 Inland AIS devices installed on board

From the total of 1203 respondents, 57 (4,7 %) stated that they didn't have an Inland AIS device on board.

The main reason for not having an Inland AIS device on board was:
- skippers didn't sail on waters where Inland AIS is an obligation,
- it was not obligatory for their vessel type,
- it was considered unnecessary,
- it was considered far too expensive,
- some skippers were still in the process of buying an Inland AIS device.

The remaining results were filtered in such a way that they reflect the answers given by skippers that do carry an Inland AIS device on board.

Thus, these 57 without an Inland AIS device on board were excluded from the rest of the analysis, which is therefore based on a total of 1146 respondents.

41 (3,6 %) of the remaining 1146 respondents have a second Inland AIS device installed on board.

86,9 % of the 1075 skippers who responded to the relevant question received a certificate on the installation of the Inland AIS device. 4,1 % of them did not receive a certificate. 9 % of the respondents indicated that they do not know whether they ever received such a certificate.

Installation of Inland AIS equipment

There were not many comments relating to problems encountered by skippers in installing the system. However, there was a question as to whether the software should be updated regularly.

4.2.2 Instructions about the use of the Inland AIS device

4.2.2.1 Use of the Inland AIS device

62,5 % of the 1061 skippers who responded to the relevant question indicated that they had been given instruction or explanation by the installation firm about the use of the Inland AIS device.

4,8 % reported that they were informed in a different way, such as:
- by their company/fleet owner,
- by colleagues,
- by studying the manual.

33,3 % received no instruction or explanation about the use of the Inland AIS device.

4.2.2.2   Manual on board

87,5 % of the 1051 respondents who responded to the relevant question indicated that they have a manual on board, but 12,5 % do not have such a manual on board.

4.2.2.3   Explanation about the settings of the Inland AIS device

656 (62,8 %) of the 1044 skippers who responded to the relevant question indicated that their installation firm has shown how the settings of the Inland AIS device can be configured and adjusted.

3,9 % reported that they were informed in a different way, such as:
- by their company/fleet owner,
- by colleagues,
- by studying the manual.

33,4 % of the skippers concerned received no instruction or explanation about configuring or adjusting the settings of the Inland AIS device.

4.2.3   Electronic chart display system installed on board

From the total of 976 who responded to the question, 52 (5,3 %) stated that they do not have an electronic chart display system on board.

The main reasons given for not having an electronic chart display system on board were:
- about 25 respondents found it unnecessary,
- others didn't sail on waters where Inland AIS is an obligation,
- some considered it far too expensive,
- not practical when the steering position is in the open air,
- some were still in the process of buying an electronic chart display system.

Most of the electronic chart display systems used are
- Inland ECDIS systems (84,3 %),
- open sources (3,4 %),
- other systems (12,3 %).

4.2.4   Instruction on the use of an electronic chart display system

410 (45,4 %) of the 902 skippers who responded to the relevant question indicated that they had been given instruction or explanation by the installation firm about the use of the electronic chart display system.

10,3 % reported that they were informed in a different way, such as:

- by their firm/fleet owner,
- by colleagues,
- by studying the manual.

44,2 % received no instruction or explanation about the use of the system.

4.3 The use on board

4.3.1 The use of the Inland AIS device on board

4.3.1.1 The navigation status

Setting the navigation status

The survey shows that adjusting the navigation status of the Inland AIS device is not a self-evident activity. Table 2 gives an overview of how often it is done.

Changing the status	Respondents	Percentage
Always	138	13,2 %
I sometimes forget it	190	18,2 %
Sometimes	139	13,2 %
Never	579	55,4 %
Total	1046	100,0 %

Table 2

General comments on the status

A large group of skippers thinks that the obligation to notify the status is unnecessary and pointless. It is surely quite obvious from the speed, amongst other things, whether a vessel is sailing or at anchor.

If there has to be a status report, then it should be generated automatically, with no need for manual input. Having to continuously update the status is often a nuisance and time-consuming activity, and distracts from the actual navigation.

Changing the navigation status

463 skippers also responded to the question that asked when they change the setting of the navigation status. The responses are detailed in Figure 5.
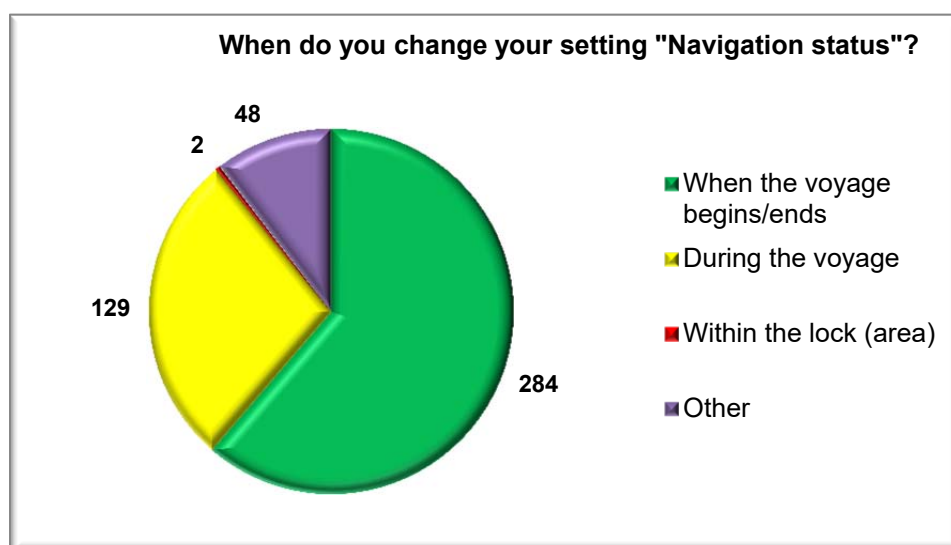
Figure 5

With regard to the category "Other", most reactions relate to mooring and anchoring. In addition, a small group of skippers indicated that it is done automatically.

As shown in Figure 6, the 463 skippers who indicated that they change the status, 56 % do this by using the electronic chart display system.
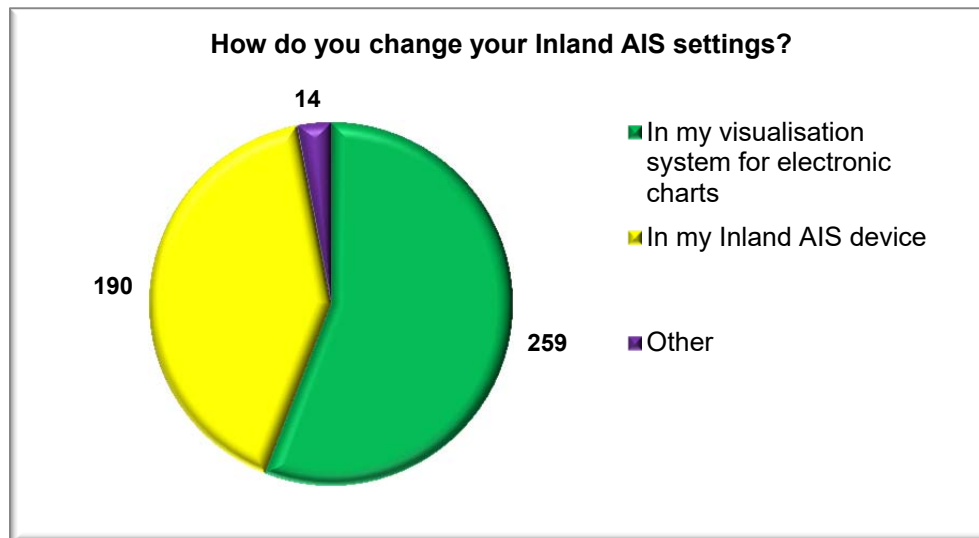
Figure 6

4.3.1.2 Switching off the Inland AIS device

71,4 % of the 1043 skippers who responded to the relevant question indicated that they never switch off the Inland AIS device.

28,6 % do sometimes switch off the Inland AIS device; a limited number of skippers gave reasons for doing this:
- Malfunction of the digital television and radio reception on board and on nearby vessels,
- use of (unnecessary) electrical power,
- when moored for a long time,
- because of holidays.

Problems caused by switching off the Inland AIS device

70,6 % of the 1019 skippers who responded to the relevant question stated that it is not a problem for them to have the Inland AIS device constantly transmitting a signal, even when the vessel is moored.

For 29,4 % it is a problem, and given the many reactions and comments it is even a serious problem.

Opposed to leaving the Inland AIS device on when moored

A sizeable group of skippers really does not see the point of leaving the Inland AIS device on when they are moored. It has no added value.

A few also had critical comments about enforcement authorities who can then come on board.

A few skippers further pointed out that in this case, according to the rules, there always should be a person on board certified to operate the marine radio (VHF).

In favour of leaving the Inland AIS device on when moored

A few skippers advocated keeping the Inland AIS device switched on when moored, so that it is possible to see whether there are any free berths.

Arguments for switching off the Inland AIS device

A very large group of skippers gave reasons why the Inland AIS device can be switched off. These reasons are shown in Figure 7.
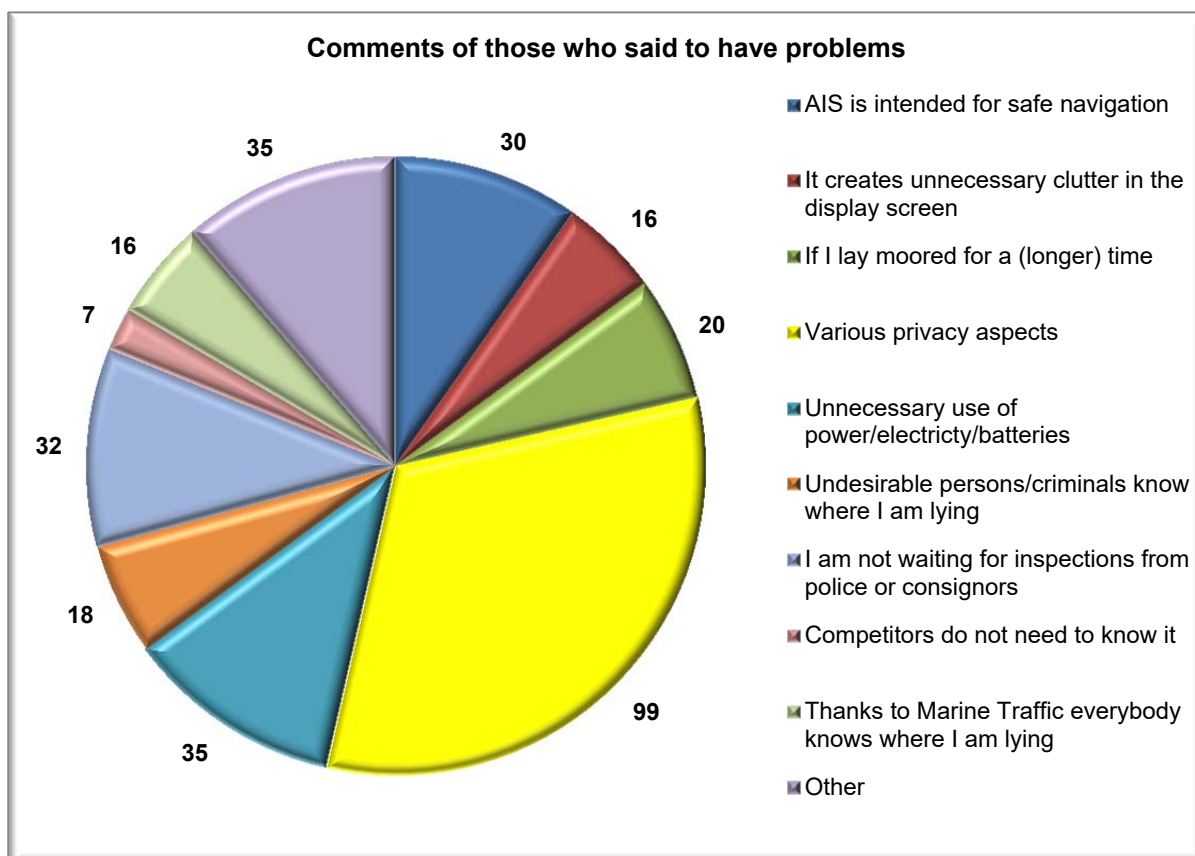
Figure 7

Clutter on the chart display

A small group of skippers commented that if all stationary vessels kept their Inland AIS switched on, the electronic chart display system would be overloaded with superfluous information. This would lead to unnecessary confusion, especially in the harbours, without any useful information being provided. It leads to a cluttered screen, interference problems and the chart display freezing.

Opposed because of electricity consumption

A sizeable group of skippers indicated that keeping the Inland AIS device switched on when moored for a prolonged period it uses unnecessary electrical power. Inland AIS devices use a lot of electricity, which means that when the vessel is moored, batteries run down quite quickly, and have to be recharged by the generators which cause unnecessary environmental pollution.

Opposed for privacy reasons

A small group comments that if the Inland AIS device remains switched on while the vessel is moored for a prolonged period, everyone can see where that vessel is. This is perceived as an invasion of privacy, as many skippers and their families live on board. The skippers also mention that charterers, shippers and freight companies can follow and check up on their vessels.

4.3.1.3 Information transmitted by the Inland AIS device

Checking whether the Inland AIS device information is transmitted

Of the 1027 skippers who responded to the relevant question, a small group (3,7 %) indicated that they check regularly, and 23,6 % stated that they never check.

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

- 38
- 242
- 280
- 196
- 269

Legend:
- Never
- Very seldom
- Seldom
- Often
- Always

Figure 8

How do you check if your Inland AIS device is transmitting the correct information?
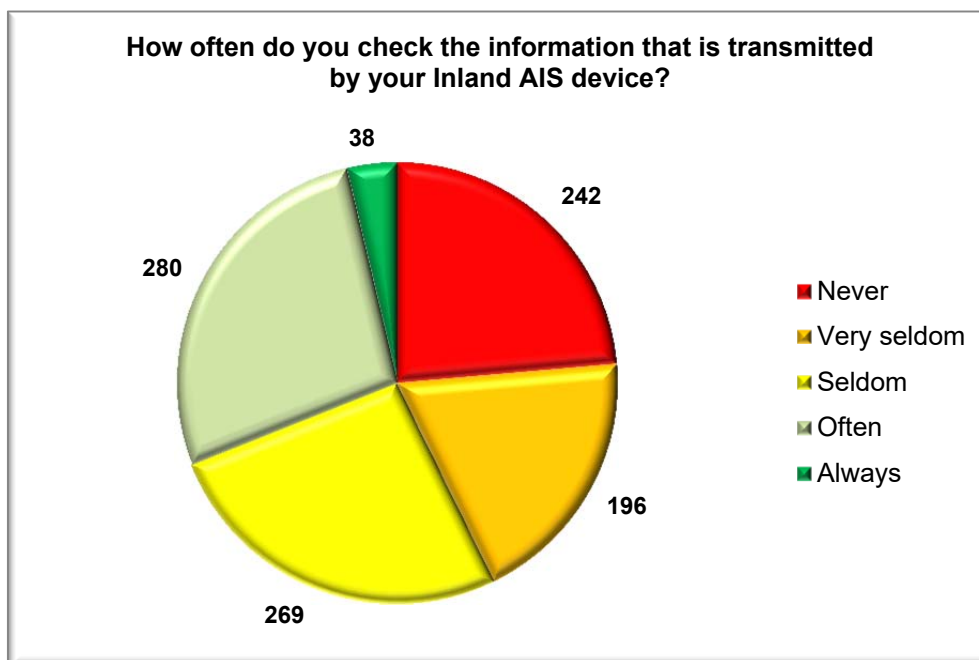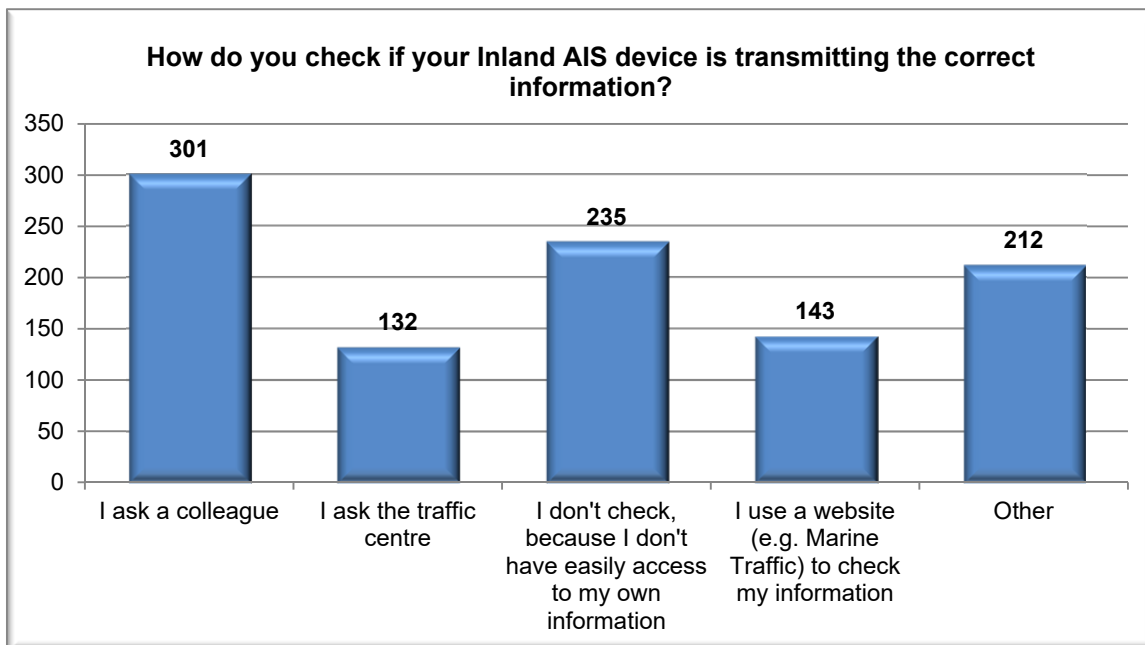
Figure 9

Figure 9 shows that 14,0 % of the skippers are using websites such as Marine Traffic to check whether their data is being transmitted correctly.

There is also a very large group of skippers that indicated that they check it in another way.

This is shown in Figure 10.

How do you check if your Inland AIS is transmitting the correct data (group Other from figure 9)
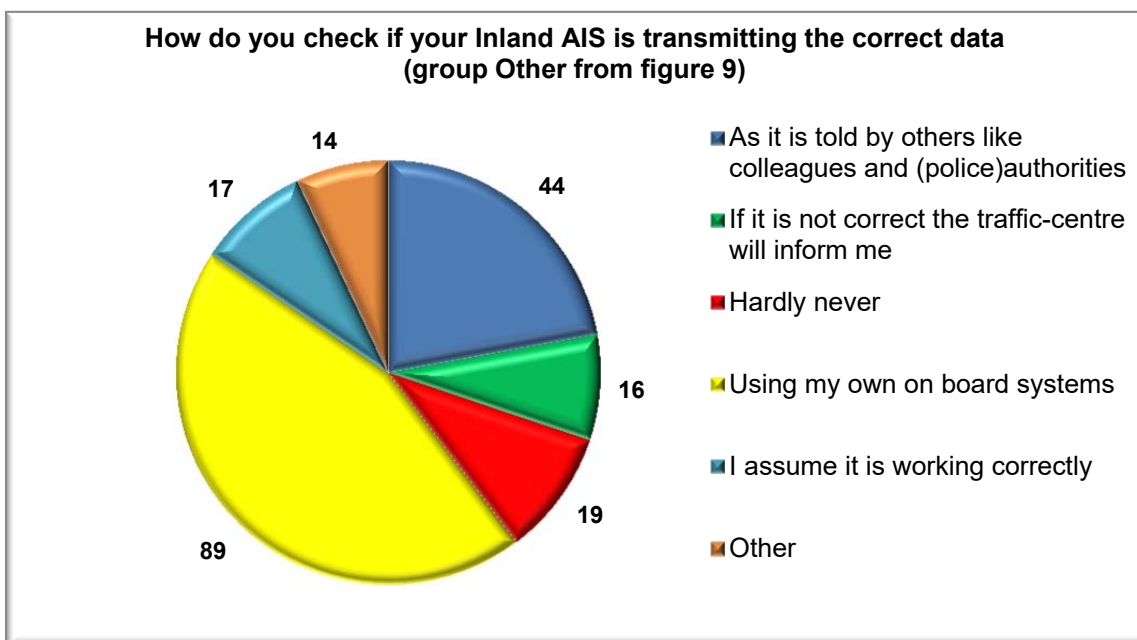
Figure 10

It is apparent from the data shown in Figure 10 that almost half the skippers involved check if the Inland AIS device is transmitting the correct data via their own on-board systems.

4.3.1.4 Information whether the Inland AIS-signal is transmitted and received

1021 skippers responded to the relevant question. Half said they warn other skippers if they do not send (correct) Inland AIS information.

Of the other half, a few indicated that they only warn if it is really disturbing.

The main reasons for not informing other skippers are:

- It is very annoying if everyone tries to contact vessels transmitting either incorrect or no information via their Inland AIS device. Many skippers therefore don't contact such vessels. It can lead to congestion in the Marine Radio (VHF) system.

- Contacting vessels transmitting either incorrect or no information by the Inland AIS device is often not appreciated. A large group of skippers do not do so, partly because a report and can provoke an unpleasant reaction, sometimes even very unpleasant.

- Waterways authorities as well as enforcement and police authorities are also listening. A limited number of skippers avoid doing this because of previous bad experiences where these services were listening and immediately took action.
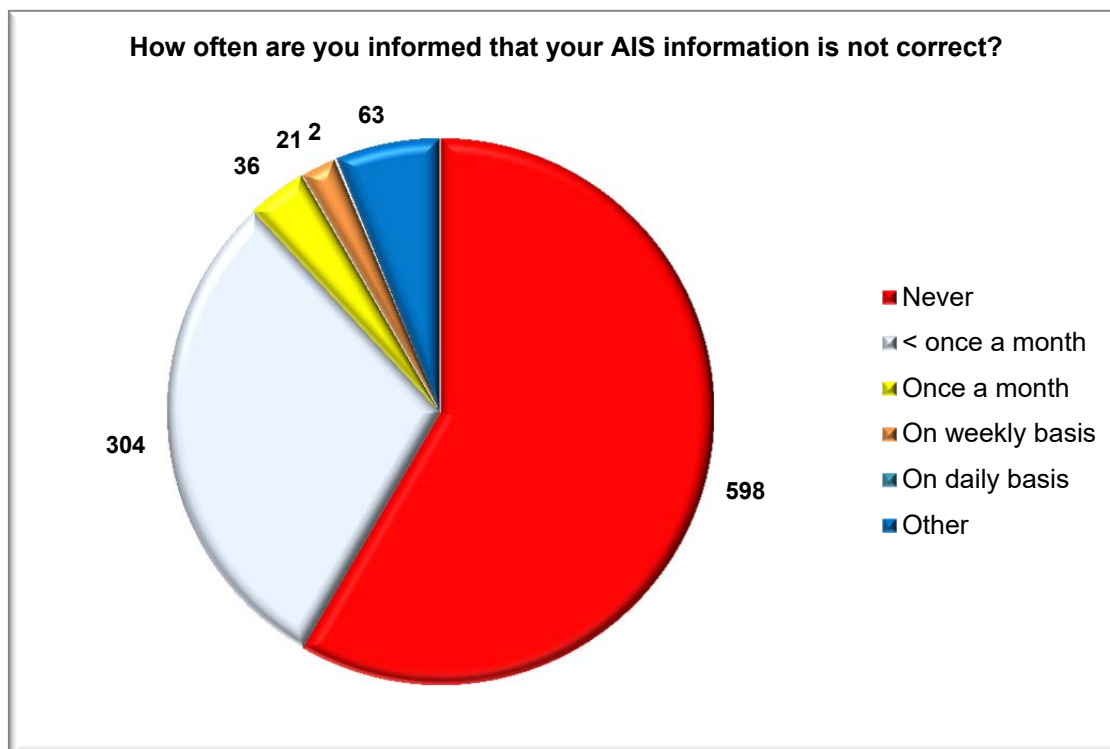
Figure 11

Figure 11 shows that 604 (59,0 %) of the 1024 skippers who responded to this question indicated that they had never been warned by other vessels or posts that their Inland AIS signal was not being transmitted or received.

Table 3 shows who warned the skippers (41,0 %) that had been warned.

Warned by	Respondents	Percentage
Traffic control centre	123	29,3 %
Colleagues	205	48,8 %
Someone else	17	4,0 %
Others	75	17,9 %
Total	420	100,0 %

Table 3

The "Others" are lock keepers, harbour masters, Telecom Agencies etc.

Some skippers find it annoying that it is not possible to see directly if their information is no longer transmitted.
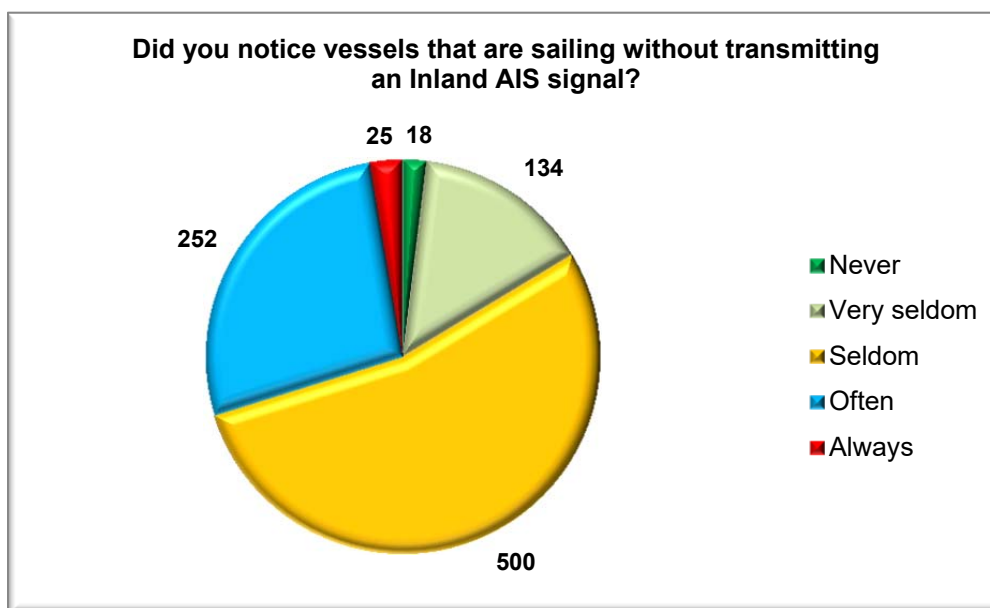
Figure 12

A total of 929 skippers responded to the question whether they encountered vessels sailing without transmitting an Inland AIS signal. Their responses are shown in Figure 12.

Inland AIS signal is not being transmitted

A small group of skippers indicate that they regularly encounter vessels that are not displayed on the screen. Sometimes a vessel is visible for one skipper, but not for another. Or vessels are not visible to the traffic control centre, but can be seen by other vessels. A few skippers also reported that the signal from a vessel can disappear, only to reappear very shortly after (approx. 300/500 metres further on).

Suggestions for improving transmission of the Inland AIS signal

A limited number of skippers suggested that it would be desirable to have an (acoustic) alarm on the system. The skipper would then be aware that the Inland AIS device is no longer transmitting and could take appropriate measures.

4.3.1.5 Data to be transmitted on the basis of the RPR, Article 4.07(4)

General remarks on entering the mandatory information

It seems that most skippers do not have problems with this type of information. A few mentioned that, depending on how the system is installed/integrated, it can be difficult to change the mandatory information.

Critical remarks regarding the entry of mandatory information

A limited group of skippers suggested that perhaps the mandatory information transmitted should be re-examined. In busy areas, the electronic chart display can become very crowded, especially when the moored vessels are included also.

Suggestions regarding entering the mandatory information

A limited group of skippers made additional suggestions. The most important of these were that providing speed, heading and name is sufficient. The name, in a form without prefixes (such as MV), was considered particularly important because that makes it possible to contact the other vessels directly.
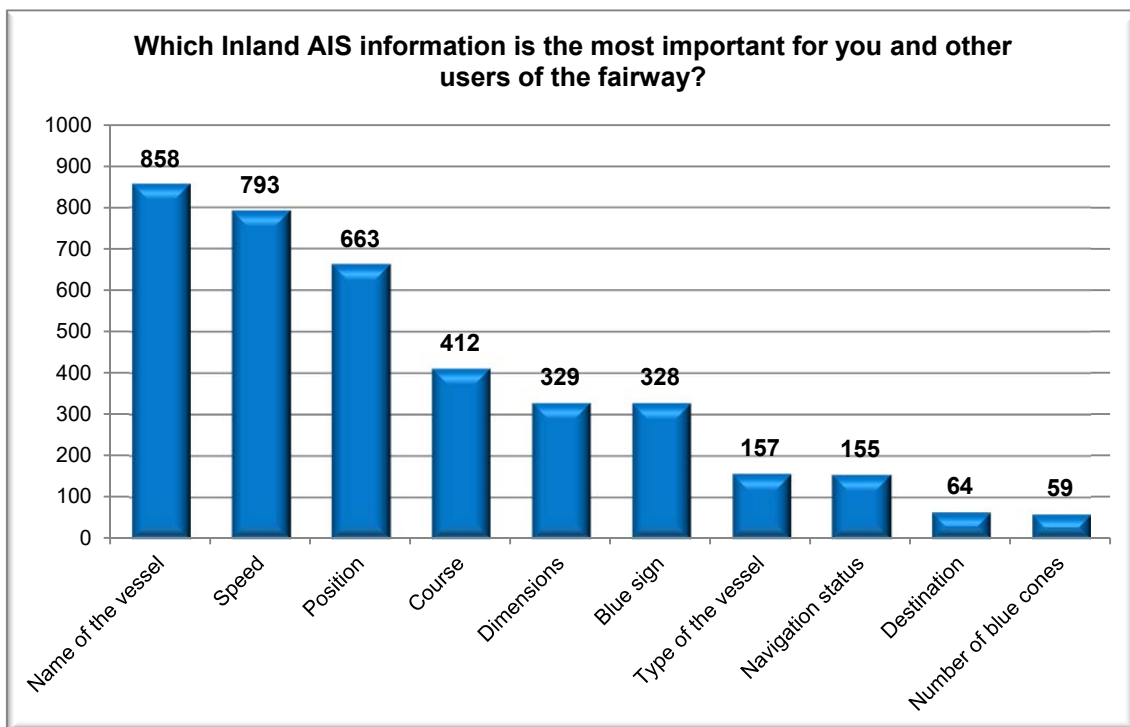
Figure 13

Looking at the required information, name, speed and position are considered the most important. Especially with larger units such as pushing convoys, it would be desirable to indicate the dimensions correctly.

Incorrect and inaccurate entry of mandatory information

A small group of skippers comment that some skippers still do not enter all the information, or enter it incorrectly. However, there are now almost no cases of "false names".

4.3.1.6   Transmitting non-mandatory information

A very large group of skippers indicated that, in addition to mandatory information, they often provide additional non-mandatory information.

Which extra information do you transmit with your Inland AIS device?

- Destination
- Blue sign
- Draught
- Number of blue cones
- Other
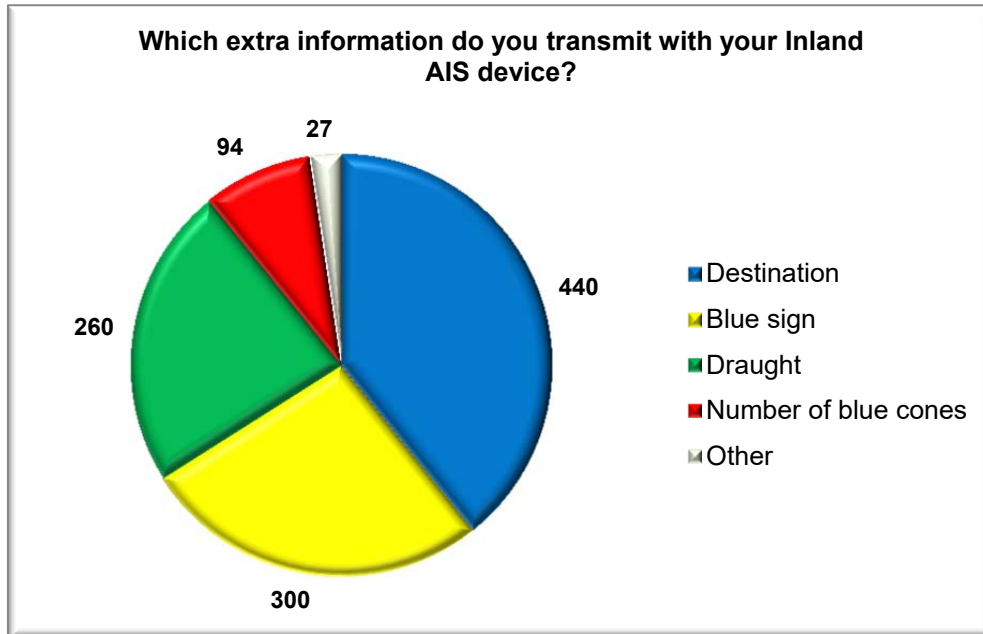
Figure 14

The category "Other" concerns mainly the number of persons on board.

General remarks on non-mandatory information

A small group of skippers believe that destination, draft, number of blue cones and cargo (quantity and type) are not relevant for the purpose for which Inland AIS is intended. Information about the cargo could even be dangerous, in connection with theft and terrorism.

4.3.2   The use of an electronic chart display system on board

The table 4 shows how the 897 skippers who responded to the relevant question use their electronic chart display system.

Use	Respondents	Percentage
Information mode	765	85,3 %
Navigation mode	37	4,1 %
Both modes	95	10,6 %
Total	897	100,0 %

Table 4

It thus appears that the majority uses the electronic chart display system alongside the radar system.

909 skippers indicated that they have either an Inland ECDIS system or a different system on board. 780 (85,8 %) skippers stated that they have an Inland ECDIS system on board, and 129 (14,2 %) indicated that they have a different chart system.

On the basis of the responses relating to the area in which the vessels operate, as shown in Figure 4, in section 4.1 the use of the various electronic chart display systems in the various areas was examined.[3] This is set out in table 5.

Area	Number of respondents	Inland ECDIS	Percentage	Other chart systems	Percentage
Rhine	531	491	91,9 %	40	8,1 %
Netherlands	829	688	81,0 %	131	19,0 %
Germany	503	460	90,7 %	43	9,3 %
France	281	259	91,5 %	22	8,5 %
Switzerland	153	146	95,2 %	7	4,8 %

Table 5

Use of electronic chart systems

A limited number of skippers believes that too much attention is paid to this type of chart systems, and that some skippers, notably the younger ones, are now incapable of managing without them. Local familiarity, i.e. knowledge of the waterways, is decreasing. It would be good to pay more attention to the correct use of chart systems during training and education.

4.3.3   Updating the electronic chart display system

In order to make good use of the electronic chart display system, the charts have to be updated regularly. Figure 15 shows how the 894 skippers who responded to the relevant question deal with this.
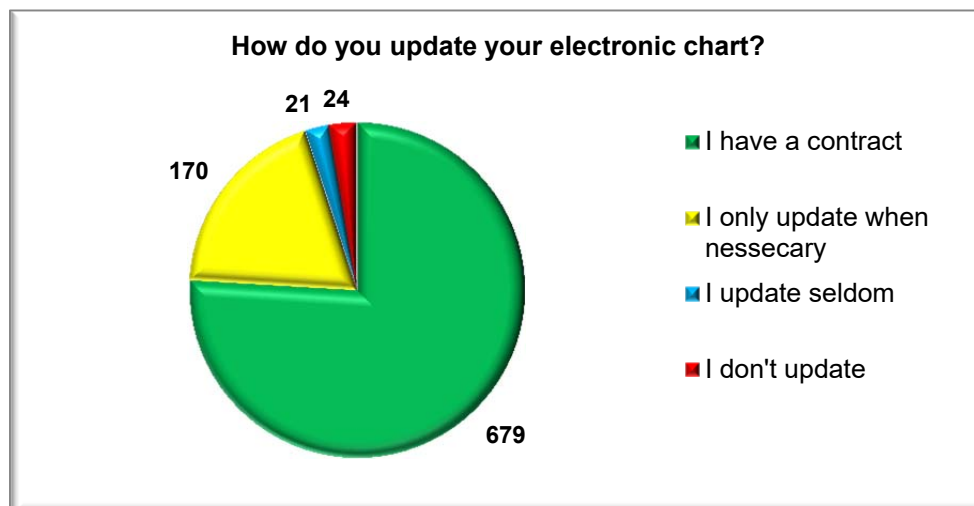
Figure 15

It appears that 74,6 % of the skippers have a contract with the supplier and receives regular updates from that supplier on the basis of that contract.

81,6 % of these skippers receive a CD on a regular basis.

The remaining 18,4 % indicated that they download it from the website.

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3   It is important to remember that skippers were able to indicate more than one area, so the totals per area cannot be combined to give a total overview.

Those who rarely or never perform an update gave the following reasons:

- too expensive,
- no need,
- almost nothing has changed.

4.3.4 Quality of the electronic charts

General comments about the use of electronic charts

A large group of skippers made quite a lot of critical comments regarding the electronic charts. These are directed both to the waterway authorities and the companies that produce the charts.

The skippers indicated that many charts are out-of-date, some very severely so, and that the charts should be renewed more quickly. There should also be more frequent interim updates available.

The charts also contain a lot of errors, and certain information is missing, such as the depth of the water or the demarcation of the navigation channel.

The skippers would like to have a greater degree of uniformity in the display of symbols and, in particular, of types of vessel.

There should also be a clear distinction between commercial vessels and recreational craft.

4.3.5 The use of the VHF

With the help of Inland AIS, a skipper knows in advance what vessels he will encounter and so he can contact these vessels via the VHF to make any arrangements for overtaking or how to pass when they are on an opposite course.

Figure 16 shows that the use of VHF remains more or less the same.

How do you use your VHF since the implementation of Inland AIS?

323

569

37

- Less then before
- More often then before
- Same as before
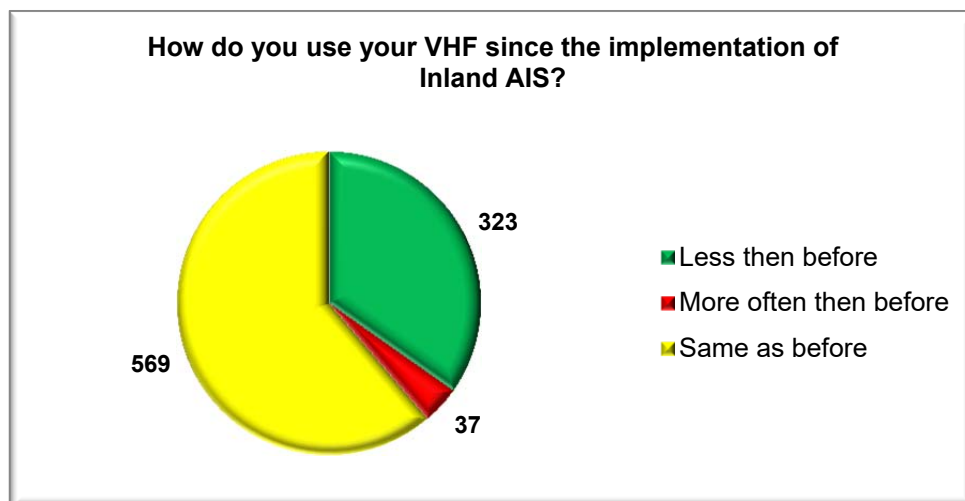
Figure 16

There is some criticism about communication between vessels since the introduction of the Inland AIS obligation.

Communication between vessels

A sizeable group of skippers observed that there has been a decrease in the use of VHF, and that many skippers assume that other vessels will be able to see who is sailing by using their Inland AIS device and electronic chart display systems. They also assume that their own vessel will also be seen by the other users of the waterway. However, that is not always the case.

In the past, it was common practice to notify other vessels and agree how to proceed in situations with poor visibility or in bends. That is no longer always the case, or it happens at the last minute, which may lead to dangerous situations.

4.4   Privacy aspects

Although no direct questions were asked about this, many skippers took advantage of the open question 41 to express their concerns regarding what they consider a violation of their privacy. The following sections set out a summary of the subjects covered by these reactions.

Websites such as Marine Traffic

A large group of skippers is not happy about the fact that on websites such as Marine Traffic and other similar websites, all the information is openly available to everyone, without them having given permission. They hope that the competent authorities will intervene to prohibit this, and that the administrators of such websites will be prosecuted for the violation of privacy legislation.

General comments on privacy and abuse by third parties

A sizeable group of skippers complained about the fact that the Inland AIS information, obtained in some cases from websites, is being used by all kinds of agencies, parties and individuals for a wide variety of objectives and controls that are in no way linked to the purpose for which Inland AIS is intended (i.e. safe sailing and reliable navigation).

Violation of privacy and control by authorities

There were complaints from a large number of skippers about the fact that a range of government authorities are using the Inland AIS information for a variety of purposes, ranging from inspections and checks on board to the collection of harbour fees.

Criminal abuse such as burglary

A sizeable group of skippers reported their fear that criminals may make use of the Inland AIS information and pay an unwelcome visit to the vessel.

Misuse by shippers and freight companies

A small group of skippers complained about the fact that freight companies, shippers, terminals and agents control them continuously via the Inland AIS information (websites) and contact them to ask why they are taking that particular route/waterway, or why they are moored etc.

Competition clause

A small group of skippers observed that freight companies, as well as competing shipping companies and skippers, can use the Inland AIS information to see who is where, and thus influence the freight price on the free market.

Privacy

When Inland AIS was introduced, the governmental organisations gave the assurance that privacy would be protected and guaranteed. A sizeable group of skippers has experience that this is not the case. A very few indicated that this is just the way things are these days.

4.5   Other remarks

This section contains various points that do not belong in the previous chapters, but which still require attention.

Reporting obligation when passing reporting points etc.

A limited number of skippers indicated that a reporting obligation when passing reporting points is no longer necessary as the relevant information is already available in electronic form, and that with Inland AIS the position of the vessel is also known.
In the meantime, there has been a proposal to amend RPR, Article 12.01 on this point and to more or less abolish the reporting obligation when passing reporting points etc.

Electricity consumption

A sizeable group of skippers has problems with the electricity consumption, particularly when moored. When a vessel is stationary the generator is often switched off, or put on a timer to recharge the batteries. It is also not always easy to get access to shore power.

Working craft operating in a restricted area

A limited number of skippers from small tugboats/utility vessels, which operate in a restricted area and which continually change their composition, wondered whether they have to change the status every time, which can be up to 10 or 15 times a day.

In addition, they want to know what the procedures are if a particular object/special transport needs to be moved with a tug.

Recreational craft

A limited number of skippers expressed their opinion or concern as to whether it is wise to let recreational craft use Inland AIS, either voluntarily or on a mandatory basis. This could sometimes lead to a very confused traffic image. In that case, would it be possible to have some sort of filter, allowing recreational craft to be filtered out in certain situations.

It also appears that many recreational craft keep their Inland AIS device switched on even when moored in a marina, which can cause problems.

The skippers think it would be a good idea to allocate a different coloured symbol to recreational craft in order to be able to distinguish them more easily.

Transmission capacity

A limited number of skippers believes that the transmission capacity of the Inland AIS device is too high, and that reducing it to a range of 5 to 10 km would have a beneficial effect on privacy.

Cost of the equipment

A small group of skippers indicated that they find the costs of the mandatory equipment, with everything that comes with it, to be relatively high. For most of the Inland AIS systems there was a one-time subsidy, but repairs and replacement have to be paid by the owner of the vessel.

5 Installation firms

5.1 Installation of Inland AIS devices

5.1.1 Installation of Inland AIS devices on board

49 of the 50 installation firms answered that they were registered in the "CCNR-List of approved specialised firms for the installation or replacement of Inland AIS equipment". 1 is not registered in that list.

Figure 17 gives an overview of the number of Inland AIS devices that were installed by the various installation firms.
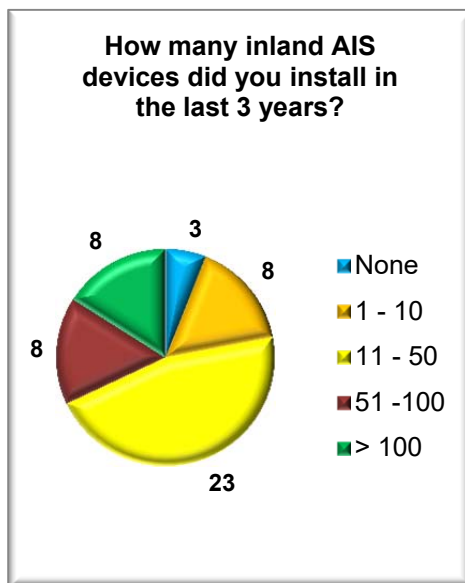
Figure 17
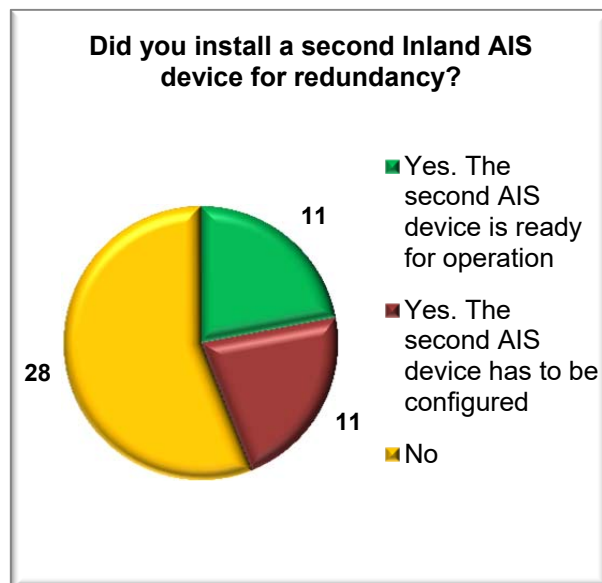
Figure 18

In the meantime there are already installation firms that have installed a second Inland AIS device on board a vessel, as shown in Figure 18.

5.1.2 The use of the Guidelines on the Installation of the Inland Automatic Identification System (Inland AIS Guidelines)

As mentioned earlier in section 3, 39 of the 50 installation firms (78 %) are familiar with these Guidelines.

Of these 39 installation firms, 36 indicated that the Guidelines are sufficient and 3 installation firms were not fully satisfied. The following is a summary of their reactions.

Regulations for installation

A limited number of installation firms commented that the installation regulations should be stricter, and should focus more on the implementation in practice. In their current form, the regulations are such that every firm can install and connect a system in a different way. In addition, no attention is paid to the VHF system, even though that can certainly be affected by the Inland AIS device.

The checklist included in the Guidelines

34 installation firms (68 %) indicated that they use the checklist (or parts thereof) included in the installation guidelines to check the settings/configuration of the installation.

16 installation firms (32 %) are not using the checklist and use other methods. The other methods are shown in Figure 19.
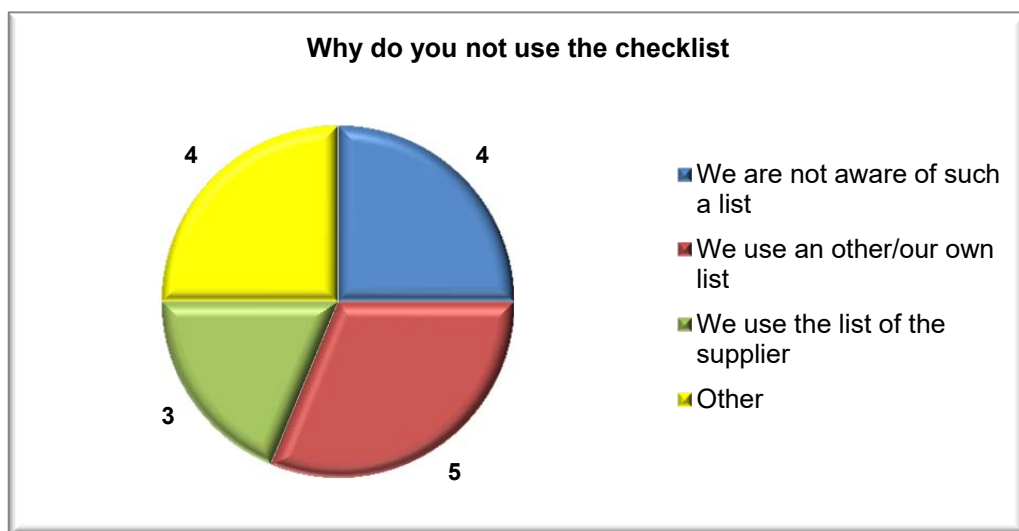
Figure 19

Some of the installation firms that indicated that they didn't know that such a list existed have indicated that, now they are aware of this list, they will also use it.

21 installation firms (42 %) do not leave a copy of the checklist for the skipper. They give a range of reasons for this, as shown in Figure 20.

Figure 20

The reactions that fall under "Other" include:

- "the skipper will not be interested",
- "why does it need to be done?",
- "it costs me too much time and effort".

5.1.3   Instruction in the use of Inland AIS

A few installation firms state quite clearly that they are not providing a training course, but rather instruction allowing the users to familiarise themselves with the system. This can be either in the form of a manual or a dialogue.
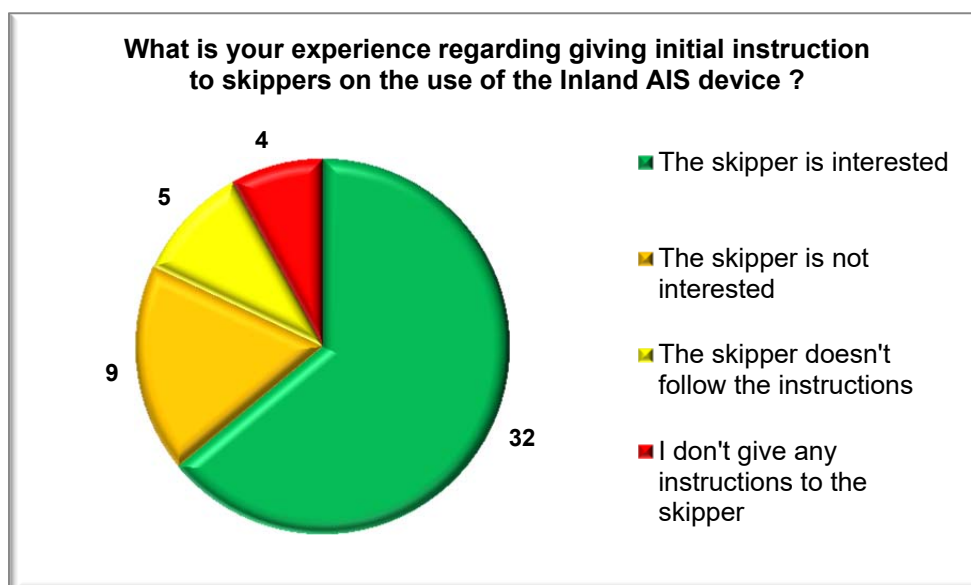
Figure 21

Not all skippers are interested in receiving instruction. This is partly because of the fact that it is an obligation to have an Inland AIS device linked to electronic chart display system systems on board.

Do other members of the staff/crew take part on the training?
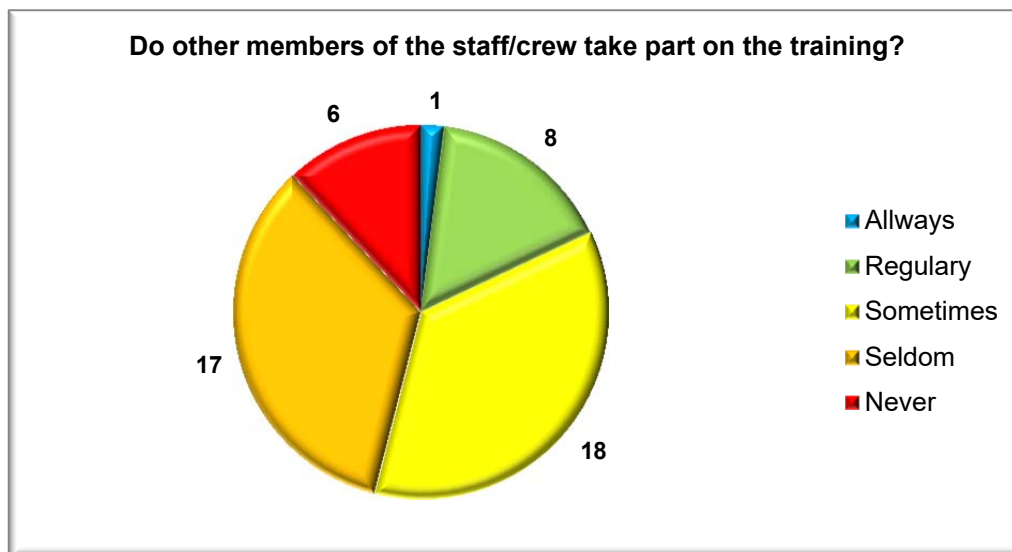
Figure 22

- 16 installation firms (32 %) stated that they use parts of the "Operational use of Inland AIS" document for the instruction.
- 32 installation firms (64 %) do not use this document. Their reasons are shown in Figure 23.
- 2 installation firms did not answer this question.

We do not use the "Operational use of Inland AIS" document because:
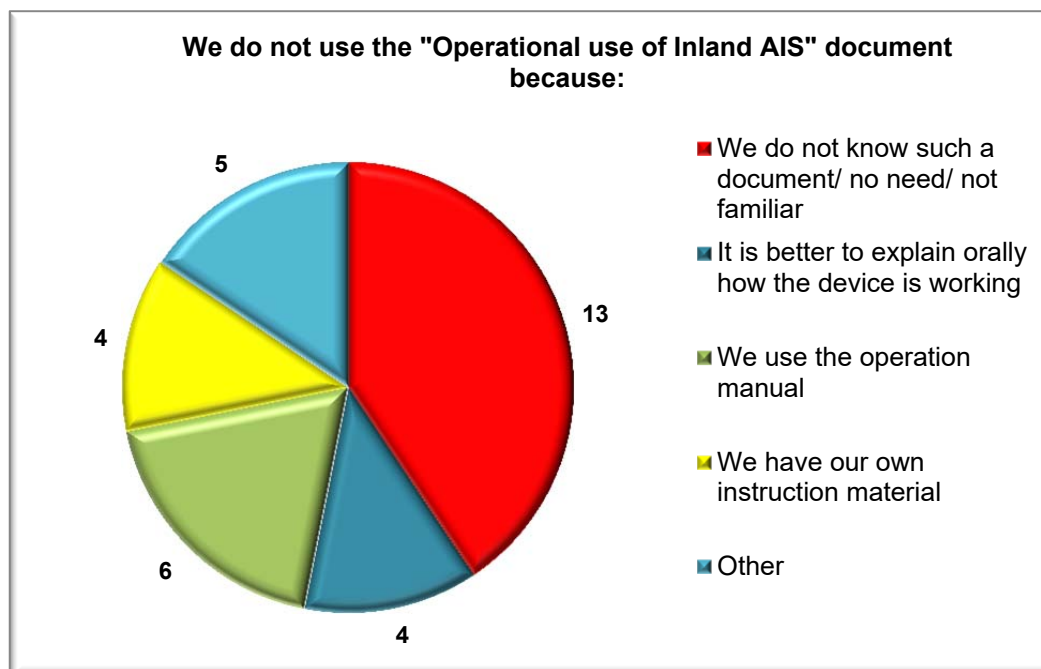
Figure 23

5.1.4   Possible problems during the installation and configuration of the Inland AIS device

Installation

8 installation firms (16 %) of the total number of 50 respondents indicated that there have been some problems here and there. The comments are summarised below.

Installation problems

When installing the Inland AIS device, particularly in older vessels, there may be practical problems, such as where to pull the cables or fit the system in the wheelhouse. In the current situation, it is not always easy to build in an Inland AIS device in accordance with the applicable regulations. It can also be difficult to find a suitable place if the vessel has no wheelhouse.

Configuration

5 (10 %) of the 50 respondents indicated that there have been some problems here and there. The comments are summarised below.

Configuration problems

In some cases, no MMSI number was requested and the device could not be configured. There were also problems with the firmware.

5.2   Installation of electronic chart display systems

5.2.1   Installation of electronic chart display systems on board

43 (86 %) of the 50 installation firms also install electronic chart display systems as shown in Figure 24. It is possible that multiple types of systems were installed by the same installation firm.
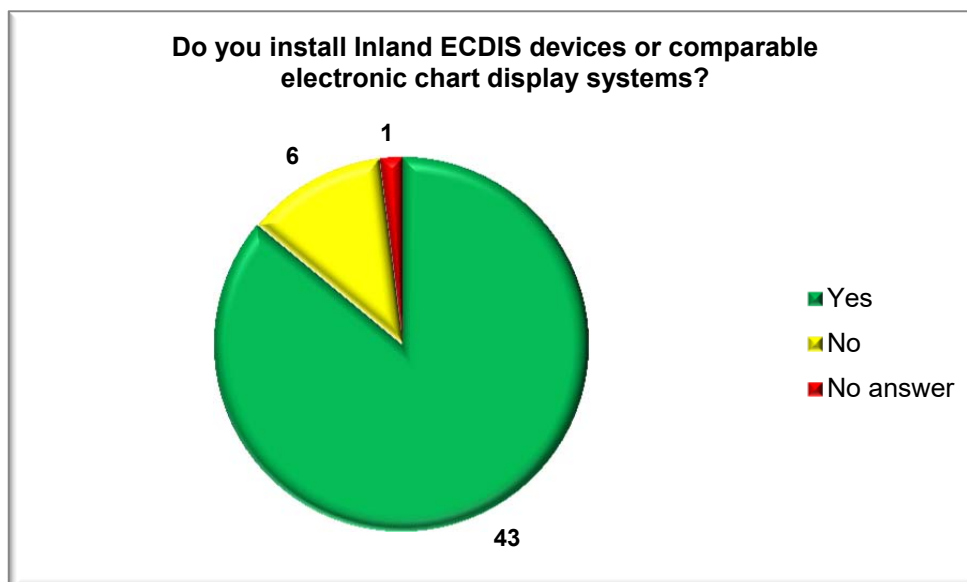
Figure 24

There are 33 installation firms that install Inland ECDIS devices in Information Mode. That is 66 % of the total number of 50 respondents.

Figure 25 shows how many of these systems have been installed by these 33 installation firms over the last 3 years.

How many Inland ECDIS devices in information mode only did you install during the last 3 years?
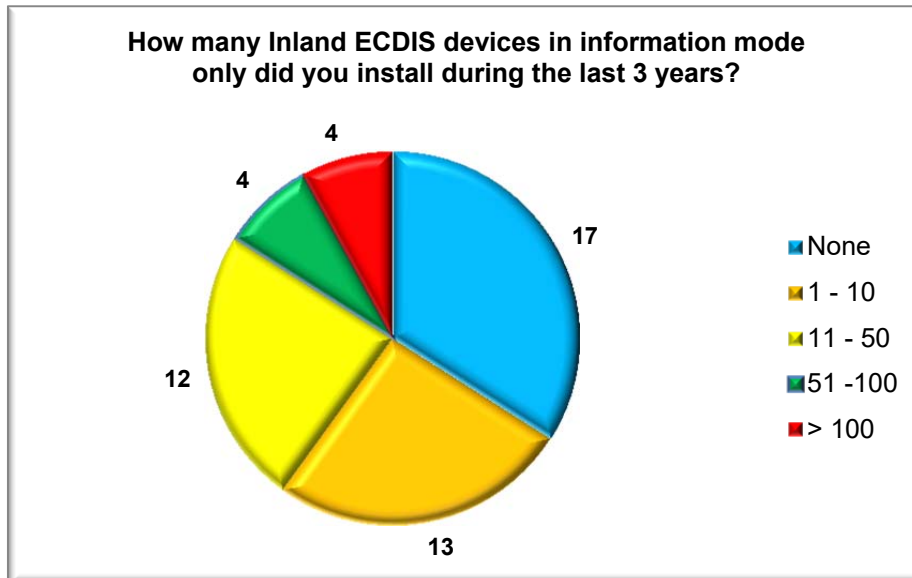
Figure 25

33 installation firms install Inland ECDIS in Navigation Mode. That is 66 % of the total of 50 respondents. Figure 26 shows how many of these systems have been installed by these 33 installation firms over the last 3 years.

How many inland ECDIS devices in navigation mode did you install during the last 3 years?
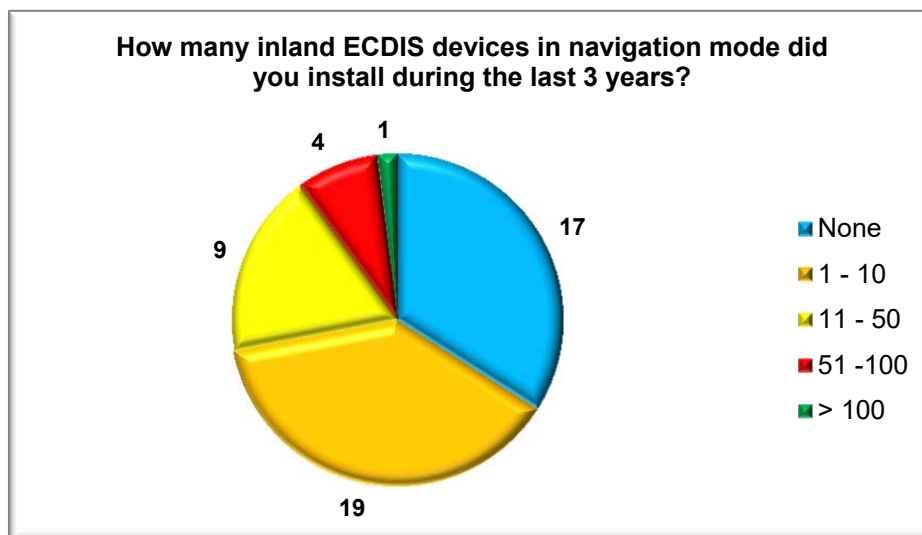
Figure 26

There are 31 installation firms that install comparable electronic chart display systems. That is 62 % of the total of 50 respondents.

Figure 27 shows how many of these systems have been installed by these 31 firms over the last 3 years.
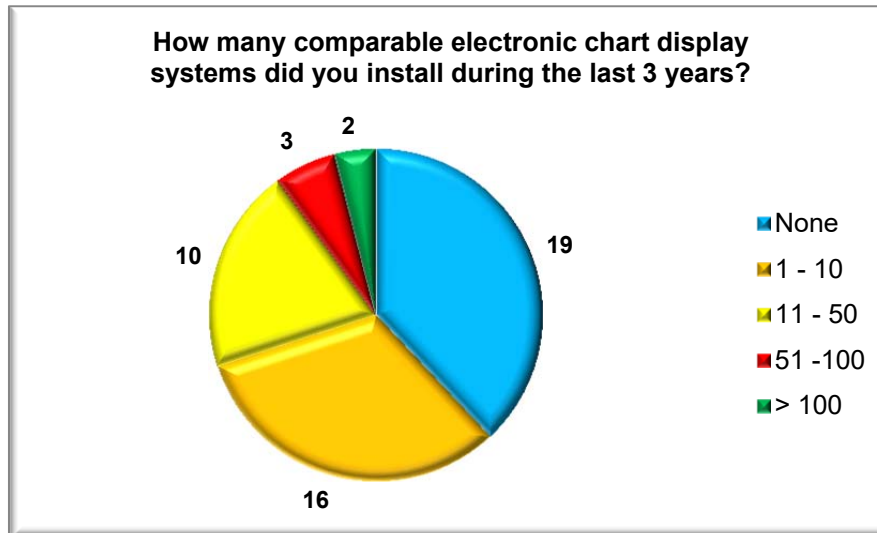
Figure 27

40 (80 %) of all 50 respondents indicated that they can also install electronic charts (IENCs) on various electronic display systems.

5.2.2 Possible problems during installation, configuration and testing

- 7 (14 %) of the 50 installation firms indicated that there have been some problems during the installation. These comments are summarised at the end of this section.
- 16 (32 %) of the 50 installation firms indicated that there have been some problems during the configuration and testing of the system. These comments are summarised below.

Problems during installation, configuration and testing

- Connecting and programming the link between the Inland AIS device and the electronic chart display system can be difficult. There were a number of reasons given for this.
- In some cases, it is due to outdated software (e.g. Window XP), but there are sometimes also problems with Windows 10.
- Sometimes it can be the age of the computer and problems with the memory.
- The firmware of the Inland AIS devices can also cause problems as the various types are not always compatible.
- Programming the Inland AIS device via the electronic chart display system can be a problem.
- However, the problem can also be that the skipper has only a limited amount of time available for the installation of the system because he needs to set off on his next trip.

6 The waterway authorities

6.1 Observations regarding the use on board

6.1.1 Vessels observed sailing with their Inland AIS device switched off

Since 1 January 2015, 20 waterway authorities have noted vessels sailing with their Inland AIS device switched off.

Table 6 gives an overview of those vessels.

Waterways authorities	Vessels noted
1	1
3	2
1	5
3	10
2	20
1	23
1	40
3	50
1	100
1	200

Table 6

- 12 waterway authorities indicated that they noted no vessels with the Inland AIS device switched off.
- 7 waterway authorities indicated that this is not relevant to their service.
- 4 waterway authorities did not respond to the question.

The waterway authorities didn't notice a relation between a switched off Inland AIS device and the flag state or the type of the vessel.

6.1.2 Inland AIS device was configured incorrectly

Since 1 January 2015, 15 waterway authorities have observed that some vessels are navigating with an incorrectly configured Inland AIS device.

Table 7 gives an overview of those vessels.

Waterways authorities	Vessels noted
2	3
1	5
1	15
3	20
3	30
1	100
1	140
1	150
2	200

Table 7

- 17 waterway authorities indicated that they noted no vessels with an incorrectly configured Inland AIS device.
- 11 waterway authorities indicated that this is not relevant to their service.

The waterway authorities didn't notice a relation between an incorrectly configured Inland AIS device and the flag state or the type of the vessel.

This gives rise to an important question.

If the device is incorrectly configured, are the skippers then able to correct it quickly?

Figure 28 gives an overview of the situation, based on the observations of 15 waterway authorities.

The remaining 28 waterway authorities did not respond to this question.
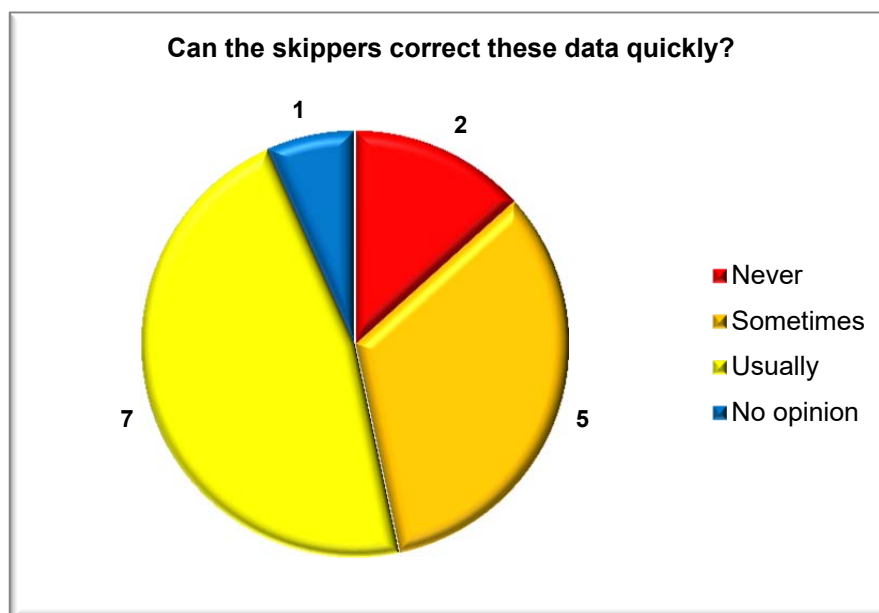
Figure 28
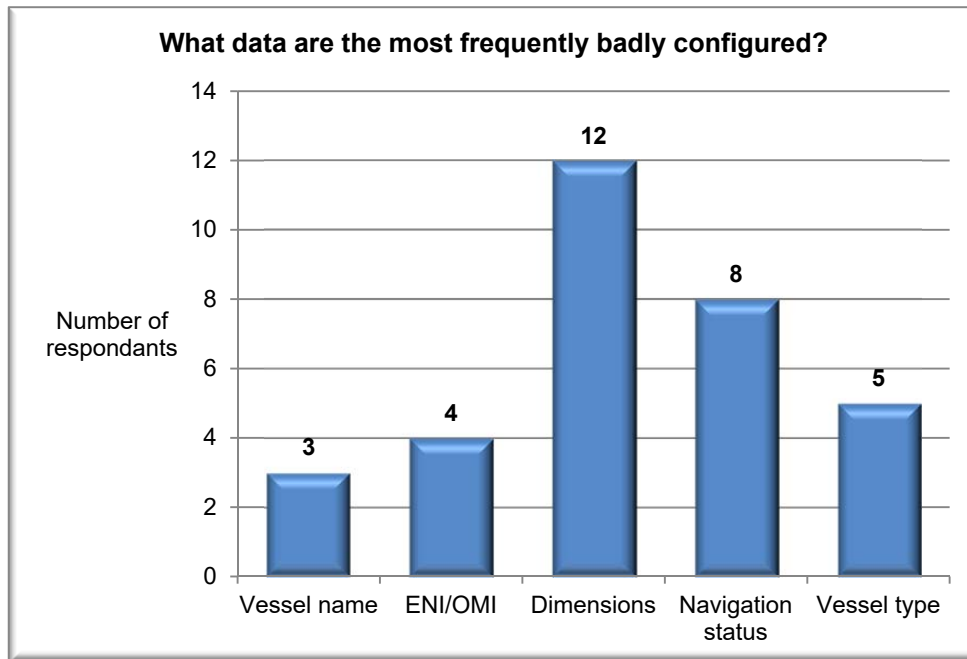
Figure 29

The dimensions of vessels / convoys and the navigation status are the data most subject to change/adjustment.

Figures 30 and 31 give further additional information from 17 waterway authorities regarding the configuration of the Inland AIS device. The remaining 26 waterway authorities did not respond.
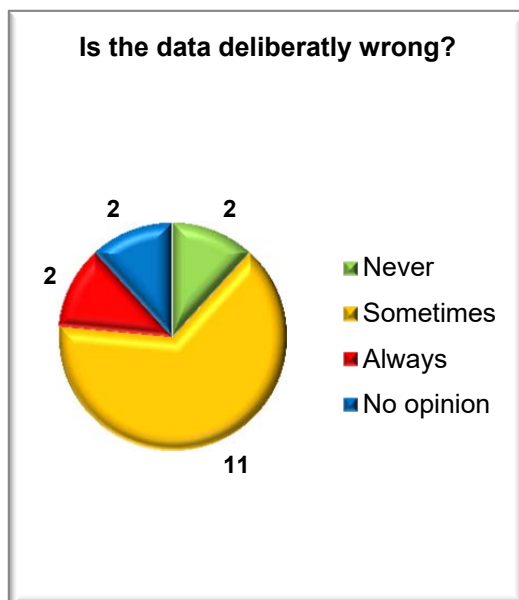
Figure 30
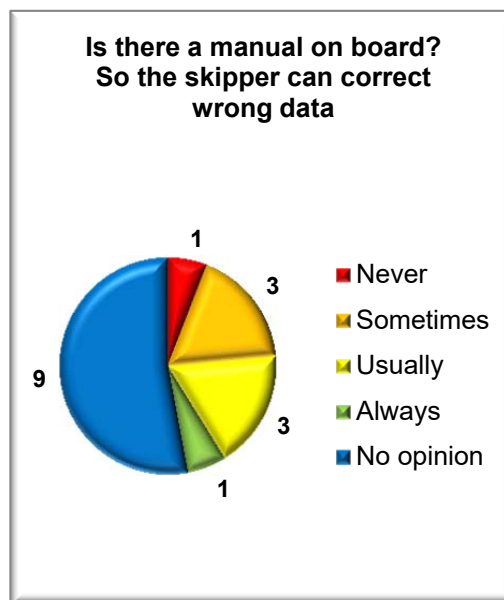
Figure 31

Although it is not obligatory, there are vessels that transmit extra data.

- 6 waterway authorities have observed vessels doing this.
- 21 waterway authorities did not notice vessels transmitting extra data

The vessels in question, that have come to the waterway authorities' attention for having submitted non-mandatory data, are to be found in Table 8.

Extra data transmitted Type of data	Waterways authorities responding
Destination	4
Draft	0
Blue cones	0
Blue sign	2

Table 8

6.1.3   Vessels with a defective Inland AIS device

Since 1 January 2015, 12 waterway authorities have noted vessels sailing with a defective Inland AIS device.

Table 9 gives an overview of the reports.

Waterways authorities	Vessels noted
5	5
1	10
1	15
4	20
1	50

Table 9

- 17 waterway authorities indicated that they noted no vessels with a defective Inland AIS device.
- 11 waterway authorities indicated that this is not relevant to their service.
- 3 waterway authorities did not respond.

The waterway authorities didn't notice a relation between a defective Inland AIS device and the flag state or the type of the vessel.

6.2 Other observations and remarks

6.2.1 Sectors where AIS signals cannot be received

Sectors where AIS signals cannot be received by the waterway authorities

- 9 waterway authorities stated that there are such sectors.
- 23 waterway authorities are not aware of any such sectors.
- 9 waterway authorities indicated that this is not relevant to them.
- 2 waterway authorities did not respond.

It was not possible to indicate any specific sectors, but sometimes the problem is caused by the shore based infrastructure and/or the support systems ashore not working properly. There are also places where the equipment ashore is switched off at certain times/days.

Sectors where AIS signals are not received by other vessels

- 3 waterway authorities stated that there are such sectors.
- 27 waterway authorities are not aware of any such sectors.
- 11 waterway authorities indicated that this is not relevant to them.
- 2 waterway authorities did not respond.

It was not possible to indicate any specific sectors where this type of problem occurs. It is just something that happens occasionally.

6.2.2 Vessels whose Inland AIS device does not transmit properly

7 waterway authorities stated that they have seen such vessels.
- 21 waterway authorities are not aware of any such problems.
- 12 waterway authorities indicated that this is not relevant to them.
- 3 waterway authorities did not respond.

It was not possible to indicate any specific sectors where this type of problem occurs. It is just something that happens occasionally.

The problems are caused, for example, by the antenna not working properly or not in the correct position (folded down).

Sometimes the vessels apparently simply disappear for a while from the screen.

6.2.3   Use of Inland AIS by the authorities

It was remarked on one single occasion, that the Inland AIS used by the waterway authorities do not always function correctly and that many locks are not equipped with Inland AIS devices, or at least not yet. The traffic control centres and the waterway authorities cannot always see all the vessels, even though they are visible to other vessels. In some cases, the Inland AIS device is not in use at weekends, as mentioned by a number of skippers.

A single response stated that it sometimes seems as though the private vessels are better equipped than the vessels of the authorities.

6.2.4   Awareness of complaints regarding AIS

The waterway authorities are aware of the various concerns the skippers have about Inland AIS. These include keeping the Inland AIS device switched on when at anchor or in the harbours, as well as the misuse for enforcement purposes and incorrect enforcement.

7 The enforcement and police authorities

7.1 Observations on the use on board

7.1.1 Vessels noted sailing without an Inland AIS device

Since 1 January 2015, 6 services have observed vessels sailing without an Inland AIS device on board, despite being subject to the CCNR requirement to have such a device on board.

Table 10 gives a more detailed overview.

Services	Vessels noted
1	1
1	3
1	5
1	12
1	50
1	75

Table 10

13 services indicated that they had noted no vessels sailing with their Inland AIS device switched off.

The enforcement and police authorities didn't notice a relation between a switched off Inland AIS device and the flag state or the type of the vessel.

7.1.2 Inland AIS device was installed by a non-approved installation firm

Since 1 January 2015, 2 services have observed vessels sailing with an Inland AIS device on board installed by an installation firm that does not figure on the list of CCNR approved specialised firms

Table 11 gives a more detailed overview.

Services	Vessels noted
1	1
1	30

Table 11

- 16 services indicated that they had seen no vessels with an Inland AIS device on board that had been installed by an installation firm that does not figure on the CCNR list.
- 1 service indicated that this is not relevant to their service.

The enforcement and police authorities didn't notice a relation between an Inland AIS device installed by a non-approved installation firm and the flag state or the type of the vessel.

7.1.3   Vessels noted with their Inland AIS device switched off

Since 1 January 2015, 11 services have observed vessels sailing without transmitting an Inland AIS signal.

Table 12 gives an overview of these vessels.

Services	Vessels noted
1	1
3	2
1	5
1	10
1	15
2	20
1	100
1	150

Table 12

- 7 services indicated that they had not observed vessels sailing with their Inland AIS device switched off.
- 1 service indicated that this is not relevant to their service.

The enforcement and police authorities didn't notice a relation between a switched off Inland AIS device and the flag state or the type of vessel.

7.1.4   Inland AIS device configured incorrectly

Since 1 January 2015, 15 services have noted that some vessels are sailing using an incorrectly configured Inland AIS device.

Table 13 gives an overview of those vessels.

Services	Vessels noted
2	1
1	5
1	10
3	15
1	65
1	75
1	300
1	500

Table 12

- 2 services indicated that they had noted no vessels sailing with an incorrectly configured Inland AIS device.
- 2 services did not respond.

The enforcement and police authorities didn't notice a relation between an incorrectly configured Inland AIS device and the flag state or the type of vessel.

This gives rise to an important question.

If the device is incorrectly configured, are the skippers then able to correct it quickly?

Figure 32 gives an overview of the situation, based on the observations of 16 enforcement and police authorities.

3 services did not respond to this question.
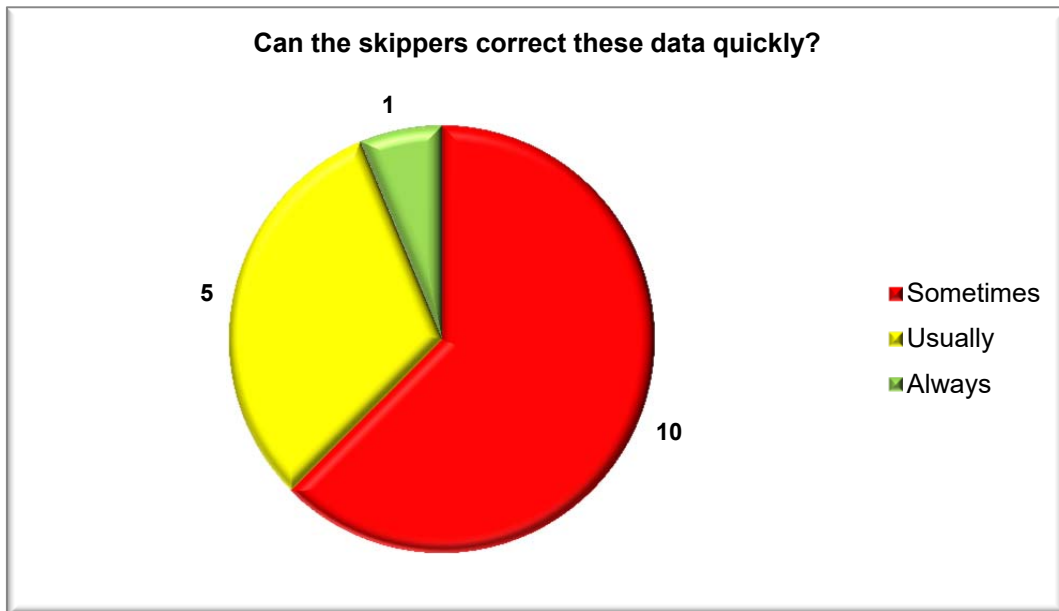
Figure 32
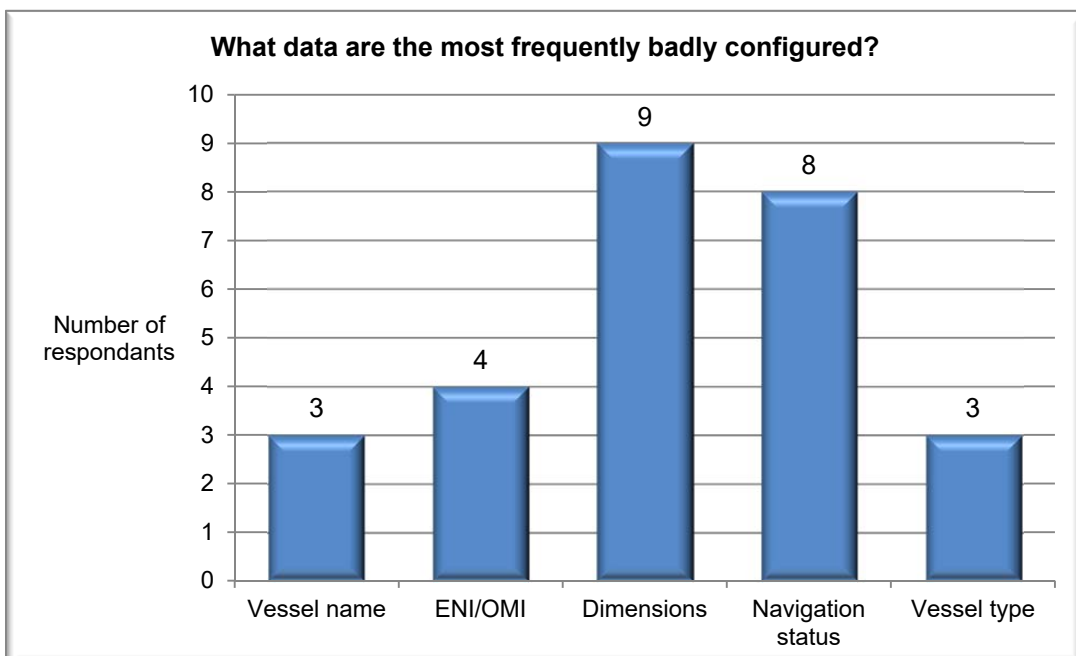
Figure 33

The dimensions of vessels / convoys and the navigation status are the data most subject to change/adjustment.

Figures 34 and 35 depict a few additional observations by the 16 services on the configuration of the Inland AIS device.

3 services did not respond to this question.

Is the data deliberatly wrong?	Is there a manual of the Inland AIS device on board so the skipper can correct the wrong data?
4 5 7 ■ Never ■ Sometimes ■ No opinion	4 3 9 ■ Sometimes ■ Usually ■ No opinion
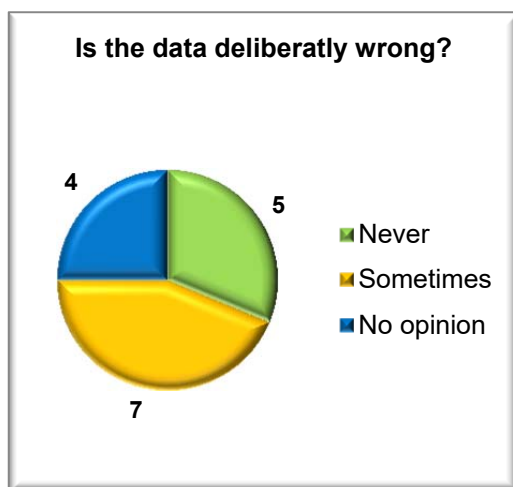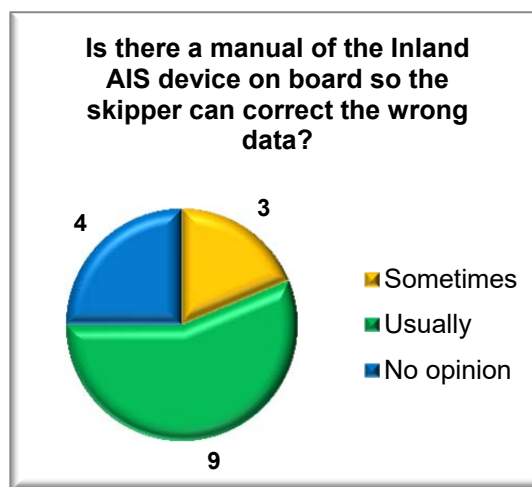
Figure 34

Figure 35

Although it is not obligatory there are vessels that transmit extra data.

4 services have observed vessels doing this.

Table 14 gives an overview.

Extra data transmitted	Services responding	
Type of data	Yes	No
Destination	2	1
Draft	0	4
Blue cones	2	2
Blue sign	2	2

Table 14

7.1.5   Vessels with a defective Inland AIS device

Since 1 January 2015, 12 services have noted vessels sailing with a defective Inland AIS device.

Table 15 gives an overview of those vessels.

Services	Vessels noted
5	5
1	10
1	15
4	20
1	50

Table 15

- 4 services indicated that they had noted no vessels with a defective Inland AIS device.
- 6 services did not respond.

The enforcement and police authorities didn't notice a relation between a defective Inland AIS device and the flag state or the type of vessel.

7.1.6 Vessels without an electronic chart display system

Since 1 January 2015, 3 services have noted some vessels are sailing without an electronic chart display system on board.

Table 16 gives an overview of those vessels.

Services	Vessels noted
1	1
1	5
1	10

Table 16

- 12 services indicated that they had not noted any vessels without an electronic chart display system.
- 1 service indicated that this is not relevant to their service.
- 3 services did not respond.

The enforcement and police authorities didn't notice a relation between vessels without an electronic chart display system device and the flag state or the type of vessel.

7.1.7 Vessels with a defective electronic chart display system

- Since 1 January 2015, 1 service noted 2 vessels sailing with a defective electronic chart system.
- 14 services indicated that they had not noted any vessels sailing with a defective electronic chart display system.
- 1 service indicated that this is not relevant to their service.
- 3 services did not respond.

7.1.8 Vessels with out-of-date electronic charts

There were no reports of vessels sailing with out-of-date charts.

7.2 Other relevant remarks and observations

7.2.1 Sectors where AIS signals do not get through

Sectors where AIS signals do not get through to the enforcement and police authorities
- 7 services stated that there are such sectors.
- 6 services are not aware of any such sectors.
- 6 services indicated that this falls outside their remit.

It was not possible to indicate any specific sectors where this type of problem occurs. It is just something that happens occasionally.

Sectors where AIS signals are not received by other vessels

- 4 services stated that there are such sectors.
- 12 services are not aware of any such sectors.
- 3 services indicated that this falls outside their remit.

It was not possible to indicate any specific sectors where this type of problem occurs. It is just something that happens occasionally.

7.2.2 Vessels whose Inland AIS device does not transmit properly

This may be due to a break in transmission, including a temporary break, or also a problem such as a weak/poor signal.

- 2 services stated that they have seen such vessels.
- 9 services are not aware of any such problems.
- 2 services stated that this falls outside their remit.
- 6 services did not respond.

It was not possible to indicate any specific sectors where this type of problem occurs. It is just something that happens occasionally.

The problems are caused, for example, by the antenna not working properly or not in the correct position (folded down).
But sometimes the ships just disappear for a while from the screen.

It was not possible to indicate any specific sectors where this occurs, but sometimes it is due to the shore based infrastructure and/or the support systems not working properly. There are also places where the equipment ashore is switched off on certain days/times.

7.2.3 Awareness of complaints regarding Inland AIS

The enforcement and police authorities stated that they are aware of complaints concerning privacy, as well as the alleged misuse of Inland AIS and the well-known websites hosted by various parties.

8 Technical problems with the systems

8.1 Technical problems with the Inland AIS device

There are quite a few big and small technical issues with the Inland AIS device.
1036 skippers responded to the relevant question.

- 562 skippers (54,2 %) reported that they have encountered some form of technical problem.

- 474 skippers (45,8 %) reported no technical problems.

The technical problems vary widely in nature and cause, as set out in Figure 36.

What was the reason for the technical problems with the Inland AIS device?

- AIS device broke down — 225
- Because of problems with the antenna — 60
- Certain geographic areas — 57
- Radio interferences — 24
- GPS problems — 7
- I do not know why — 70
- Others — 82

Figure 36

On this subject, the skippers made a lot of (critical) comments. These have been grouped together by subject in the following sections.

General remarks on problems and breakdowns

A very large group of skippers reported regularly having issues with the Inland AIS device, which is a problem when navigating and is definitely not good in terms of reliability and confidence in the equipment. In most cases the problem can be solved by resetting the Inland AIS device. It is also not always immediately obvious that there is a problem with the equipment and that the vessel is not visible to others because the skipper himself does not receive any report.

Resetting

As a consequence of the frequent problems, the system needs to be reset quite often. If the equipment fails while the vessel is sailing, resetting is difficult and distracts from navigation. For that reason, a sizeable group of skippers take preventive measures and reset the equipment on a regular basis, ranging from every day before setting off to once a month. However, most of the responses on this subject were fairly relaxed.

Interference with television / digital terrestrial radio and television reception

A small group of skippers reports that the Inland AIS device and GPS frequently cause interference with the digital television and radio reception on board, not only on their own vessels but also on nearby vessels.

Problems with antennas

A large group of skippers reports problems with the antennas. The antennas seem to be a vulnerable element of the Inland AIS device. In addition, they are easily damaged by not being folded down in time before passing under bridges. When the antenna is folded down, there is a marked effect on the operation of the Inland AIS device.

Areas (Black spots) where no AIS signal is visible

It has been reported by a limited group of skippers that there are regularly so-called black spots where no signal is received. On the basis of the responses to the questionnaire it is not possible to indicate any specific locations. In some cases, the problem can be explained, for example where there are high buildings or steep cliffs near the water.

So-called ghost ships

A limited group of skippers reported the existence of so-called "ghost ships". These are vessels that do not exist but which nevertheless show up on the screen. In conditions of poor visibility, this can sometimes lead to dangerous and awkward situations.

Vessels "frozen" on the chart

There was a small number of reports of symbols "frozen" on the chart for a short, or even long, period and then suddenly jumping to a new position, sometimes several kilometres further. Occasionally vessels are seen in locations where they are not actually present.

Other problems

Other problems reported frequently are:
- Power supply problems,
- Software problems,
- Cables problems.

Breakdown of the Inland AIS device

Most skippers reported having only one breakdown of the Inland AIS device, but there are also skippers who have had repeatedly a breakdown. Table 17 gives an overview of the 201 responses to this question.

Respondents	Number of breakdowns
101	1
82	2-5
11	6-10
9	> 10

Table 17

The problem has to be solved by the installation firm

Of the 562 skippers who reported having had problems with the Inland AIS device, 321 skippers (57,1 %) have had problems that had to be fixed by the installation firm of the Inland AIS device.

8.2 Technical problems with the electronic chart display systems

There were also numerous big and small technical problems reported with the electronic chart display systems.
887 skippers responded to this question.

- 302 skippers (34,0 %) reported that they have encountered some form of technical problem.
- 585 skippers (66,0 %) reported no technical problems.

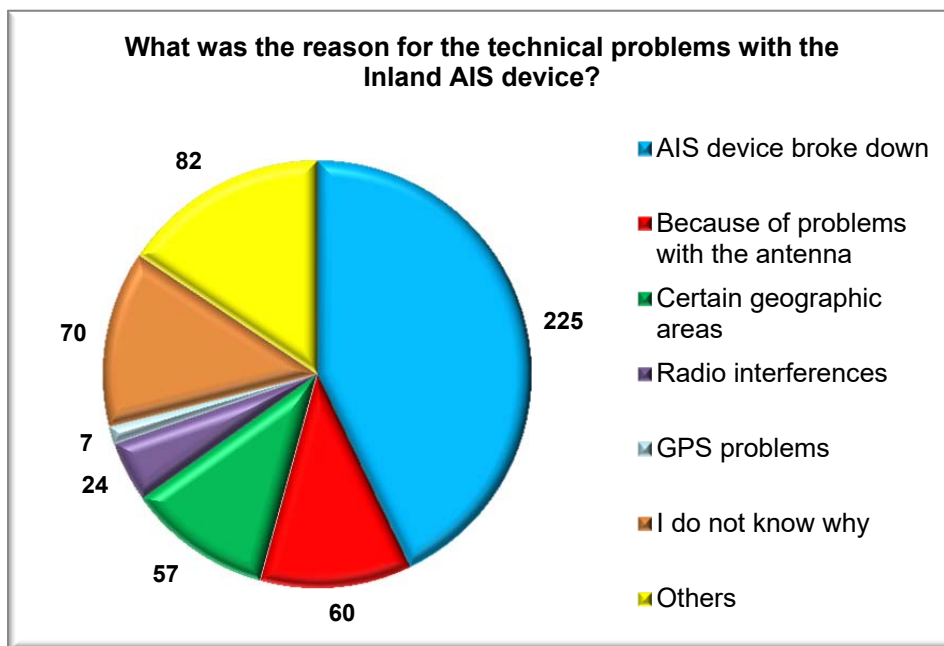The technical problems vary widely in nature and cause, as set out in Figure 37.

What was the reason for the technical problem?

- System broke down — 78
- Certain geographic areas — 44
- Radio inferences — 8
- Computer problems — 51
- GPS problems — 14
- Don't know — 43
- Other — 53
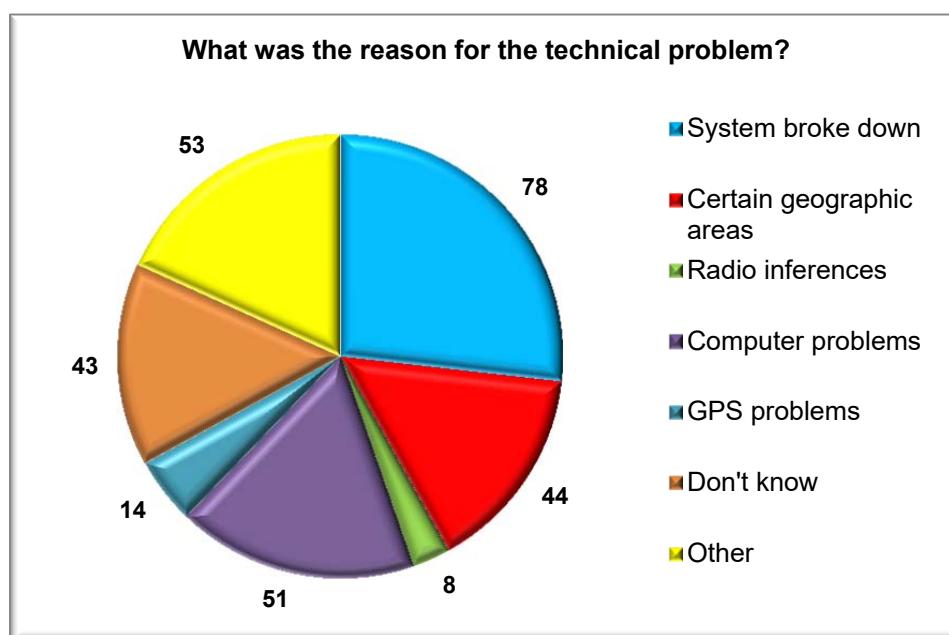
Figure 37

Common problems

In particular, issues with outdated software (e.g. Windows XP, but also Windows 10) and outdated computers give rise to a lot of problems. However, there are also connection problems between the different systems (computer - Inland AIS device – antenna - GPS system) Other problems are:

- computers crash frequently,
- cables are often a problem,
- programming is not always adequate.

Areas (Black spots) where no AIS signal is visible

It has been reported by a limited group of skippers that there are regularly so-called "black spots" where no signal is received. On the basis of the responses to the questionnaire it is not possible to indicate any specific locations. In some cases, the problem can be explained, for example where there are high buildings or steep cliffs near the water.

Breakdown of the electronic chart display system

883 skippers responded to this question.

- 302 skippers (34,2 %) reported having had a breakdown of their electronic chart display system,
- 581 skippers (65,8 %) had no such breakdown.

Many skippers (82,7 %) have had repeatedly a breakdown.

Table 18 gives an overview.

Respondents	Number of breakdowns
59	1
152	2-5
37	6-10
17	11-20
35	> 20

Table 18

The problem has to be solved by the installation firm

- 212 skippers (24,0 %) have experienced a problem with their electronic chart display system that had to be solved by the installation firm.
- 671 (76,0 %) did not need the support of the repair firm.

8.3   The involvement of installation firms

If there are technical problems or breakdowns with the Inland AIS device, the installation firms were often involved in repair and/or replacement.

25 installation firms gave an indication of how many of the devices they had installed did break down after installation.

Table 19 sets out the number of defects reported by these 25 installation firms.

Installation firms	Number of breakdowns
4	0
6	1
2	2
5	3
1	5
1	6
1	7
2	10
1	18
1	20
1	25

Table 19

49 installation firms gave an indication of the number of Inland AIS devices they had repaired or replaced.

Table 20 sets out the number of repairs/replacements reported by these installation firms.

Installation firms	Number of repairs/replacements
8	0
4	1
6	2
4	3
1	4
2	5
1	6
4	10
1	18
1	20
4	25
1	30
1	35
3	50
1	55
1	96

Table 20

9   The time needed for repair

9.1   The skippers

9.1.1   Time needed to repair the Inland AIS device

As mentioned above in section 8.2, 321 skippers had problems that had to be fixed by the installation firm of the Inland AIS device. 306 of them indicated the time needed for the repair.

Table 21 gives an overview of the time needed to repair the Inland AIS device.

Time needed for repair	Respondents	Percentage
≤ 48 hrs	147	48,0 %
48 – 72 hrs	36	11,8 %
72 – 96 hrs	21	6,9 %
≥ 96 hrs	102	33,3 %
Total	306	100,0 %

Table 21

9.1.2   Comments by the skippers relating to the repair time

Deadline for repairing the Inland AIS devices

This provoked a lot of reactions from a large group of skippers. The deadline of 48 hours is considered to be far too short in many cases and particularly difficult at the weekend, when there are usually no technicians available to carry out repairs. A skipper has a contractual obligation to be at the loading/unloading terminal by a specific time. If the water level is falling, the vessel might also be unable to sail because of problems with the draft, which would mean waiting even longer.

The repair firms cannot always guarantee to get to a location within 48 hours. Some skippers reported waiting times of a week or more. In addition, the technicians often have to travel a long way to reach the vessel. All this means that repair costs can be extremely high.

A few skippers also had the impression that some repair firms have a tendency to exploit the situation.

A small group of skippers find the situation extremely infuriating and are very displeased that the impression is created that since 1 December 2014, they are no longer capable of navigating their vessel without this equipment. Of course, they can, just as they did before the Inland AIS was introduced. They feel that their craftsmanship is being called into question.

A sizeable group of skippers indicated that it is not that they are unwilling to get the device repaired. But, as mentioned above, there are so many external factors affecting the situation that they feel it would be better to extend the deadline. It would then be possible to make better provisions, to plan ahead and to have greater control over the costs.

Mooring up if the Inland AIS device is not working

A limited group of skippers absolutely do not agree that a vessel should be unable to sail if the Inland AIS device stops working. Although not stated explicitly, it seems that vessels sometimes have to moor up because the Inland AIS device is not working, while no account has been taken of the 48-hour deadline. There was also talk of fines being imposed.[4]

9.1.3 Time needed to repair the electronic chart display system

As mentioned above in section 8.2, 212 skippers have had problems with their electronic chart display system that had to be solved by the installation firm. They also indicated how long it took for the repair to be carried out.

Table 22 gives an overview of the time needed to repair the electronic chart display system.

Time needed for repair	Respondents	Percentage
≤ 48 hrs	152	71,7 %
48 – 72 hrs	17	8,0 %
72 – 96 hrs	13	6,1 %
≥ 96 hrs	30	14,2 %
Total	212	100,0 %

Table 22

9.2 The installation firms

9.2.1 Time needed for repair

- 42 installation firms gave an overview of the average time needed to repair an Inland AIS device.
- 8 installation firms gave no indication.

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[4] It was not made clear in which situations these fines were imposed.

Figure 38 sets out the overview.
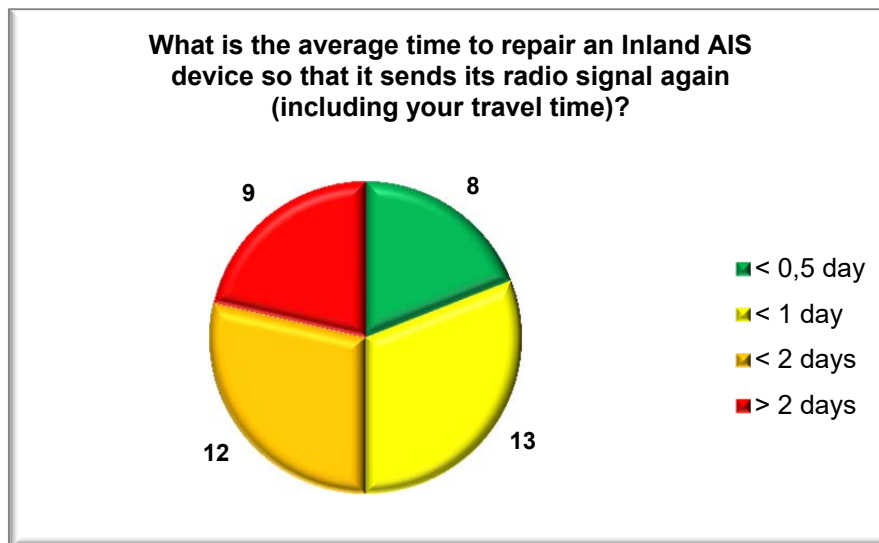
Figure 38

- 42 % of the installation firms indicated that it was not always possible to meet the deadline for repair (48 hours).
- 58 % of the installation firms indicated that they had no problems and that the time limit could be met.
- 21 installation firms gave an indication of the maximum time needed for repair.

Table 23 gives an overview of the maximum time needed for a repair, as indicated by the firms.

Maximum time for repair	Respondents
50 – 60 hrs	2
60 - 70 hrs	3
70 – 80 hrs	5
80 – 90 hrs	1
90 - 100 hrs	4
100 – 200 hrs	3
≥ 200 hrs	3
Total	21

Table 23

29 firms gave no indication of the maximum time needed for repair.

9.3 The waterway authorities

9.3.1 Observations about the time needed to repair the Inland AIS device

- 8 waterway authorities indicated that in their experience the 48-hour time limit causes problems for the skippers.
- 18 waterway authorities indicated that in their experience the 48-hour time limit does not cause problems for the skippers.
- 17 waterway authorities indicated that this issue was outside their field of work.

Why it is a problem

Instances in which the 48-hour deadline caused the skipper problems were frequently associated with the following circumstances:

- The deadline is relatively short, which means that it is not always possible to repair in time.
- The economic importance of reaching the terminal on time is greater.
- The repair firms are not available everywhere and at any time.

9.3.2 Is 48 hours a reasonable time?

- 22 waterway authorities indicated that they find 48 hours a reasonable time.
- 7 waterway authorities indicated that they do not find 48 hours reasonable.
- 14 waterway authorities indicated that this issue was outside their field of work.

Why it is a problem

- The failure of the Inland AIS device should not lead to waiting times for the vessels.
- The 48-hour period is not always feasible.
- It depends on the location of the vessel.
- More time is better (4 to 14 days).

9.3.3 Time needed to repair the electronic chart display system

- 4 waterway authorities indicated that in their experience the 48-hour time limit causes problems for the skippers.
- 15 waterway authorities indicated that in their experience the 48-hour time limit does not cause problems for the skippers.
- 18 waterway authorities indicated that this issue was outside their field of work.

Why it is a problem

Instances in which the 48-hour deadline caused the skipper problems were frequently associated with the following circumstances:

- The deadline is relatively short, which means that it is not always possible to repair in time.
- The repair firms are not available everywhere.

9.4 The enforcement and police authorities

9.4.1 Observations about the time needed to repair Inland AIS devices

- 6 services indicated that in their experience the 48-hour time limit causes problems for the skippers.
- 11 services indicated that in their experience the 48-hour time limit does not cause problems for the skippers.
- 1 service indicated that this issue was outside their field of work.

Why it is a problem

Where it was a problem for the skipper, it was often the following:

- The deadline is relatively short, which means that it is not always possible to repair in time e.g. weekend.
- The economic importance of reaching the terminal on time is greater.
- The repair firms are not available everywhere.

9.4.2 48 hours is a reasonable time

- 14 services indicated that they find 48 hours a reasonable time.
- 4 services indicated that they do not find 48 hours reasonable.

Why it is a problem

- A longer time is better (4 to 14 days).

9.4.3 Time needed to repair the electronic chart display system

- 1 service indicated that in their experience the 48-hour time limit causes problems for the skippers.
- 8 services indicated that in their experience the 48-hour time limit does not cause problems for the skippers
- 3 services indicated that this issue was outside their field of work.
- 7 services gave no answer.

Why it is a problem

- A voyage mostly takes more than 48 hours.

10 Enforcement

10.1 Enforcement of regulations relating to Inland AIS

10.1.1 The skippers

A large group of skippers made comments regarding the enforcement of the obligation to have an Inland AIS system. The general feeling is that the authorities are far too rigorous in their enforcement, imposing fines that bear no relation to the potential infringement. For example, fines for minor breaches such as the status or incorrect dimensions. There were also critical remarks about fines for non-mandatory information such as the blue cones via Inland AIS.

Only a few skippers are in favour of stricter monitoring of areas such as dimensions.

A few skippers also report being fined in relation to things that they are not obliged to report, such as destination, number of cones, cargo and people on board.

A sizeable group of skippers indicated that it would be desirable if, when enforcers detect that a vessel is not transmitting they would first check if that is indeed the case. A number of skippers reported that they were visible to other vessels, but not to the police vessel, which resulted in a fine.

A sizeable group of skippers also believe that the police should also be more flexible with vessels that are not transmitting, as the crew on board the vessel may be unaware of the problem. Very often a reset is all that is needed to get the system back up and running. Requiring a vessel to anchor in such a case is seen as far too strict.

10.1.2 The installation firms

A few firms observed that while the authorities concerned with enforcement do carry out checks on board, these tend to be limited to the presence of the equipment, and sometimes also the settings and the programming. The technical installation and its compliance with the rules is largely ignored.

10.1.3   The waterway authorities

Vessels not transmitting or Inland AIS device is switched off.

Not all the waterway authorities replied to the questions dealing with this item.

Tables 24 and 25 give an overview of the warnings and fines.

Waterways authorities	Warnings given
6	0
1	1
2	2
1	3
3	10
2	20
1	23
1	40
2	50
1	≥ 100

Table 24

Waterways authorities	Fines imposed
1	1
1	2
2	6

Table 25

The Inland AIS device is configured incorrectly

Not all the waterway authorities replied to the questions dealing with this item.

Table 26 gives an overview of the warnings.

Waterways authorities	Warnings given
6	0
2	10
1	20
1	30
1	80
1	140
1	150
2	200

Table 26

Only 1 waterway authority indicated having imposed 1 fine.

The Inland AIS device is defective

Not all the waterway authorities replied to the questions dealing with this item.

Table 27 gives an overview of the warnings.

Waterways authorities	Warnings given
5	0
1	5
1	15
3	20
1	30

Table 27

Only 1 waterway authority indicated having imposed 20 fines.

Monitoring whether the repair has been carried out

- 7 waterway authorities indicated that they require a proof that the device has been repaired within 48 hours, in the form of a statement by the repair firm that the repair has been carried out. This can be a proof of the repair firm that the repair is carried out.
- 21 waterway authorities indicated that they do not carry out such checks.
- 12 waterway authorities indicated that this is not applicable to the activities of their service.

10.1.4   The enforcement and police authorities

General remark

Many enforcement services did not answer the questions relating to enforcement, warnings and fines. One of the services gave the following response:

"The statistics related to penalties for violating the RPR are not intended to be communicated to others. For this reason, the answer to those questions was "0"."

Vessels without an Inland AIS device on board

Not all services replied to the questions dealing with this item.
Tables 28 and 29 give an overview of the warnings and fines.

Services	Warnings given
1	0
2	3
1	8
1	20
1	75

Table 28

Services	Fines imposed
4	0
1	5
1	6

Table 29

The Inland AIS device was installed by a non-approved installation firm

Not all services answered the questions relating to this subject.
Tables 30 and 31 give an overview of the warnings and fines

Services	Warnings given
1	1
1	1

Table 30

Services	Fines imposed
1	0
1	50

Table 31

Vessels not transmitting an Inland AIS signal

Not all services answered the questions relating to this subject.
Tables 32 and 33 give an overview of the warnings and fines

Services	Warnings given
2	0
4	2
1	5
1	13
1	100
1	≥ 100

Table 32

Services	Fines imposed
3	1
1	10
1	20

Table 33

The Inland AIS device is configured incorrectly

Not all services answered the questions relating to this subject.
Tables 34 and 35 give an overview of the warnings and fines

Services	Warnings given
1	1
1	2
3	5
1	10
2	15
1	30
1	40
1	50
1	75
1	≥ 100

Table 34

Services	Fines imposed
4	15
1	25
1	30

Table 35

The Inland AIS device is defective

Not all services answered the questions relating to this subject.
Tables 36 and 37 give an overview of the warnings and fines.

Services	Warnings given
1	1
2	10
1	20

Table 36

Services	Fines imposed
1	1
1	2
1	10

Table 37

Monitoring whether the repair has been carried out

4 services indicated that they require a proof that the device has been repaired within 48 hours, in the form of a repair certificate or a statement that a further check will be carried out.

In some cases, the traffic control centre is asked to check.

5 services indicated that they do not carry out such checks.

The electronic chart display system is defective

Only 1 fine was reported by one service.

10.2 Other enforcement activities

10.2.1 Incorrect use of Inland AIS by enforcement authorities

A sizeable group of skippers reported that, contrary to what has been agreed, the enforcement authorities are using Inland AIS for checks, enforcement and the investigation of matters that are totally unrelated to Inland AIS, such as sailing times, how quickly fines are paid, etc. It also seems that Marine Traffic is sometimes used by the enforcement services for such purposes.

10.2.2 Vessels of enforcement and police authorities sailing with Inland AIS device switched off

10.2.2.1 The reactions of the skippers

A small group of skippers reported being unhappy about the fact that many police vessels keep their Inland AIS device switched off most of the time, but still take action against breaches of the RPR, Article 4.07, and other matters. In conditions of poor visibility or dense traffic it can also create dangerous situations.

10.2.2.2 The reactions of the enforcement and police authorities

A few services stated that in order to carry out their tasks it is not desirable to have an Inland AIS device switched on/installed on police vessels.

11 Blue sign

11.1 Introduction

Questions about the use of the blue sign were submitted in approximately equal form to skippers, waterway authorities as well as the enforcement and police authorities. That is summarised in this chapter.
The reactions for each target group will be discussed in separate sections.

11.2 Skippers and the blue sign

- 347 (38,8 %) of the 894 skippers who responded to this question indicated that they have the blue sign connected to the Inland AIS device.
- 547 (61,2 %) do not have a connection.

There were a lot of reactions to this item. These can be divided into two categories: in favour and opposed.

In favour of the blue sign

A small group of skippers declared themselves in favour of connecting the blue sign to the Inland AIS device. However, in that case everyone has to do it.
They believe it contributes to safety and timely recognition. The current situation, where some do it and some don't, is confusing.

Opposed to the blue sign

A limited group of skippers declared themselves to be opposed to the mandatory connection of the blue sign to the Inland AIS device for various reasons. In practice, it often doesn't work properly: there are technical problems, it is slow and is very susceptible to breakdown.

Incorrect use of the blue sign

A few skippers noted that in practice the blue sign is often not displayed properly, leading to incorrect interpretation.

11.3 Waterways authorities

17 (41,5 %) of the 41 waterway authorities who responded to this question think that the use of the blue sign in connection with the Inland AIS device is necessary for safer navigation.

24 waterway authorities (58,5 %) do not believe this contributes to safer navigation

There were a few reactions to this point. These are summarised below.

In favour of the blue sign

Among the waterway authorities, a small group was in favour of making it mandatory to connect the blue sign to the Inland AIS device. It is considered to be primarily a means of improving safety as it allows the skipper to anticipate a situation well in advance. It also makes the situation clearer in poor visibility.

Critical responses to the blue sign

There is also some criticism. The main worry expressed by a small group is that making the connection of the blue sign to the Inland AIS device mandatory will mean that skippers will concentrate even more on the screen of the electronic chart display system and radar, and thus will look outside less frequently. In addition, there are concerns about the reliability of such a connection, given that there are already problems with the technical aspects of the connection.

11.4   Enforcement and police authorities

- 13 (68,4 %) of the 21 enforcement and police authorities who responded to this question think that the use of the blue sign in connection with the Inland AIS device is necessary for safer navigation.
- 9 (31,6 %) do not believe this contributes to safer navigation

There were a few reactions to this item. These are summarised below.

In favour of the blue sign

Among the enforcement and police authorities there is a majority in favour of making it mandatory to connect the blue sign to the Inland AIS device. This is seen primarily as a means of improving safety as it allows the skipper to anticipate a situation well in advance.

Critical responses to the blue sign

There is also some criticism. The main concern is that making the connection of the blue sign to the Inland AIS device mandatory will mean that skippers will concentrate even more on the screen of the chart system and radar, and thus will look outside less frequently.

12   Opinions

12.1   Introduction

In the last part of the questionnaire the various participants were asked to give their opinions on a number of aspects of the Inland AIS and the electronic chart display systems. Each aspect is covered in a separate section. In the target groups waterway authorities as well as enforcement and police authorities, all participants answered the relevant questions, thus in this section there are no figures given for the numbers of respondents in these target groups.

12.2   Various views given by the skippers

General comments about operation

Most skippers have become familiar with the equipment and most teething problems have been resolved. Most skippers are also pleased with the system and many would not want to manage without it any more. However, that does not mean that there are no more critical comments. It is intended for navigational information and that is how it should remain. It should not be used for all sorts of other types of information. It is important to be aware of the limitations, both electronic and other. Misuse of the Inland AIS information must be prevented.

Inland AIS is an aid, not a navigation system

A large group of skippers believes that Inland AIS is a good and useful aid, but nothing more than that. It has limitations, such as its lack of reliability. It should continue to be seen as an aid, and is definitely not a primary navigation system.

General comments on reliability

A sizeable group of skippers agreed that you cannot rely on the Inland AIS information alone. The system is definitely not 100% reliable, and is absolutely not intended for use as a navigation system. Nevertheless, many skippers do place too much faith in it.
There is also a number of skippers that indicates that they themselves can make a "misinterpretation".

Use of visual observation, radar and marine radio

A limited group of skippers indicated that, when navigating, you can only rely on the radar (true picture) and VHF. Those are the systems that should be used for navigation, in combination with visual observation and local knowledge.

Criticism of the way skippers use of Inland AIS

A sizeable group of skippers is critical of the use of Inland AIS by other skippers. They believe that many of their fellow skippers rely too much on the information provided by the Inland AIS device and the on-board electronic chart display systems, for example when they enter or leave a harbour.

It sometimes seems as if the Inland AIS is being used as a primary navigation system, with skippers relying on the fact that everyone is visible, that every vessel has a functioning Inland AIS device, and that their own vessel is also always visible.

They seem to spend less time looking outside the window and there has also been a decline in the level of knowledge of the waterways (local knowledge). This can lead to unsafe situations. Several skippers have reported encountering dangerous situations because of this and/or having almost had an accident.

Several skippers were also honest enough to admit that they themselves sometimes also rely too much on the Inland AIS device.

A small group of skippers recommended that this sort of issue should be covered in the training, and that there should be a warning against relying too much on the Inland AIS device and the electronic chart display system.

12.3 The implementation of Inland AIS and electronic chart display systems contributes to safer and quicker navigation

12.3.1 The opinion of the skippers

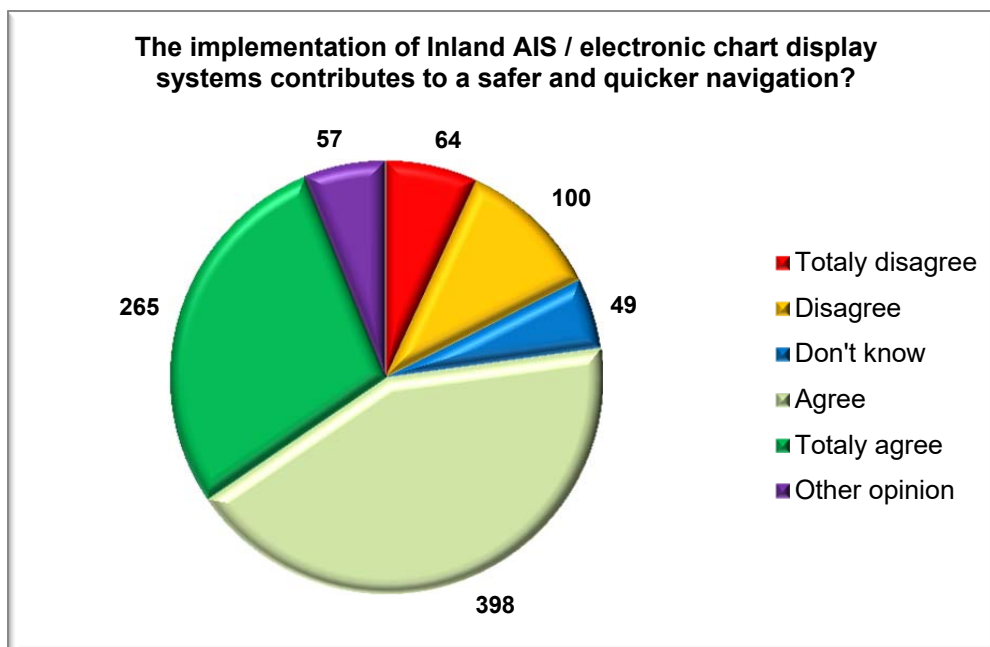933 skippers responded to the question below.

Figure 39

General comments on the contribution to safety

A sizeable group of skippers agreed that the system makes a significant contribution to improved safety, particularly because of the electronic chart display system, which gives a clear image of the location of vessels, together with their name and speed. However, it is important to remain aware of the limitations of the system.
Inland AIS does not contribute to safety,

A small group of skippers believes that the use of Inland AIS does not enhance safety, and can in fact create a false sense of security. People tend to rely too much on the equipment, using it almost like a kind of radar, and hardly look outside the window. They assume that they will be seen and also that if they don't see anything, then there is nothing outside to be seen.

General comments on sailing/navigating

A sizeable group of skippers indicated that Inland AIS is an excellent aid to navigation, as it enables one to see far ahead, or round a bend or behind an obstacle. Knowing the name of a vessel is also very useful. A number of skippers also mentioned the advantages for lock planning, particularly in terms of environmental considerations and fuel saving.
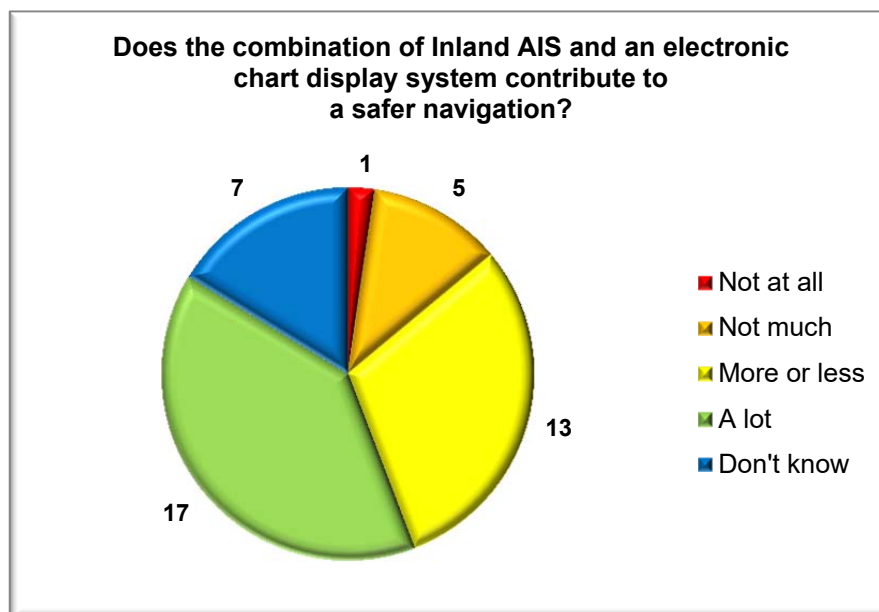
12.3.2 The opinion of the waterway authorities

Figure 40

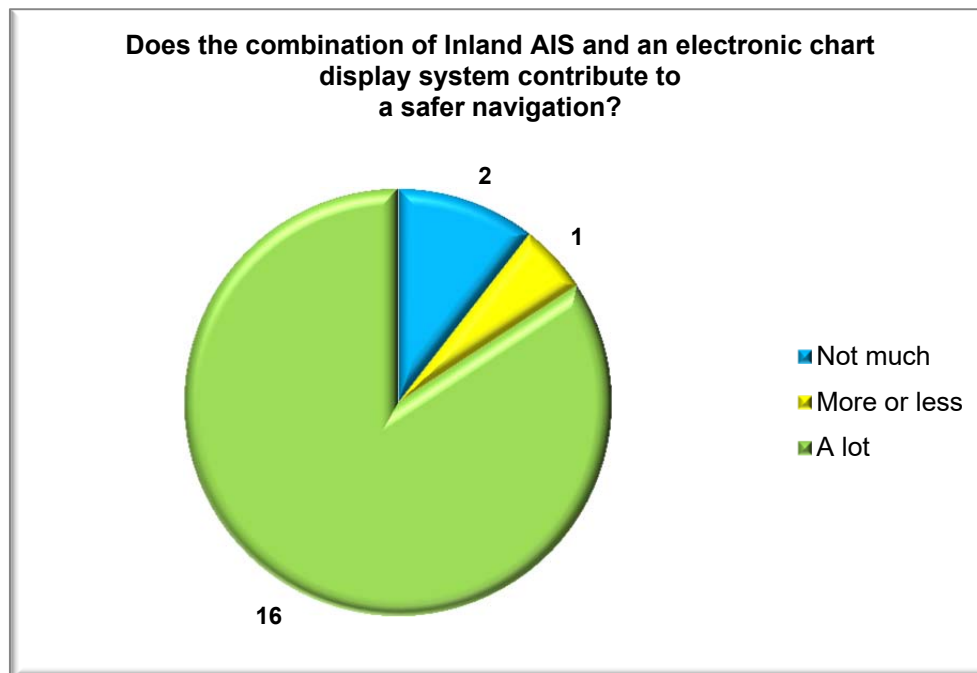### 12.3.3   Opinion of the enforcement and police authorities

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

2

1

- Not much
- More or less
- A lot

16

Figure 41

12.4   What Inland AIS information is the most important for the users of the waterway?

12.4.1   The opinion of the skippers

Which Inland AIS information is the most important for you and other users of the fairway?

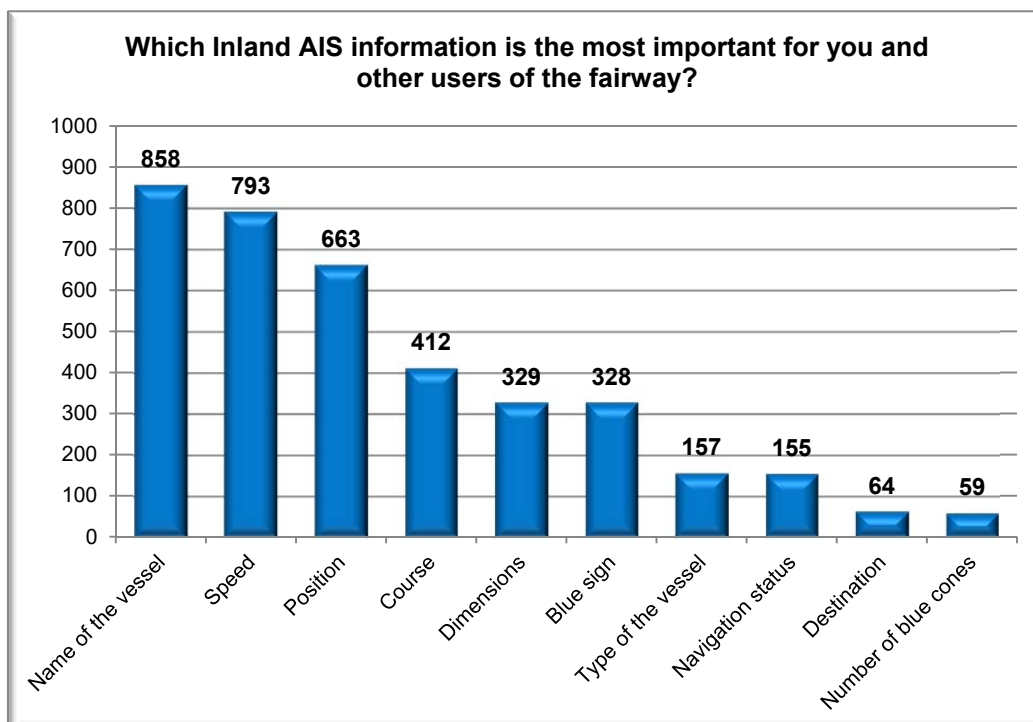| Category	Value
Name of the vessel	858
Speed	793
Position	663
Course	412
Dimensions	329
Blue sign	328
Type of the vessel	157
Navigation status	155
Destination	64
Number of blue cones	59

Figure 42

General remarks on non-mandatory information

The response of a limited number of skippers to the provision of non-mandatory information is quite clear. They believe that destination, draft, number of cones and load (quantity and type) are not relevant for the purpose for which Inland AIS is intended. Information about the load could even be dangerous, in connection with theft and terrorism.

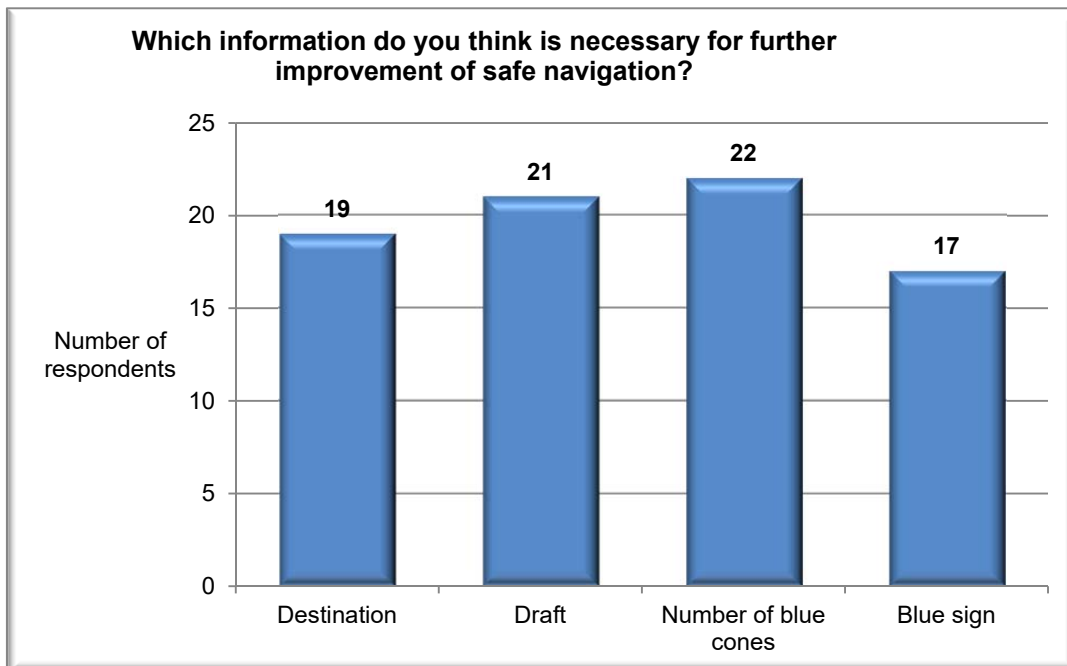### 12.4.2 The opinion of the Waterways Authorities

Which information do you think is necessary for further improvement of safe navigation?

Figure 43

12.4.3 The opinion of the enforcement and police authorities

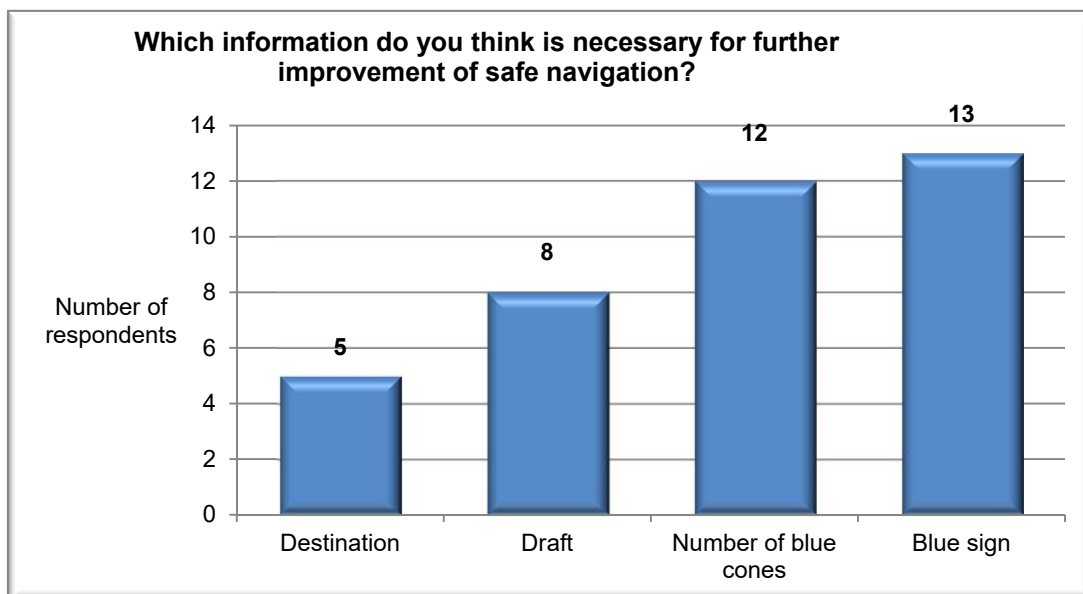Which information do you think is necessary for further improvement of safe navigation?

Figure 44

12.5 What is your experience of the quality of information

12.5.1 The opinion of the skippers
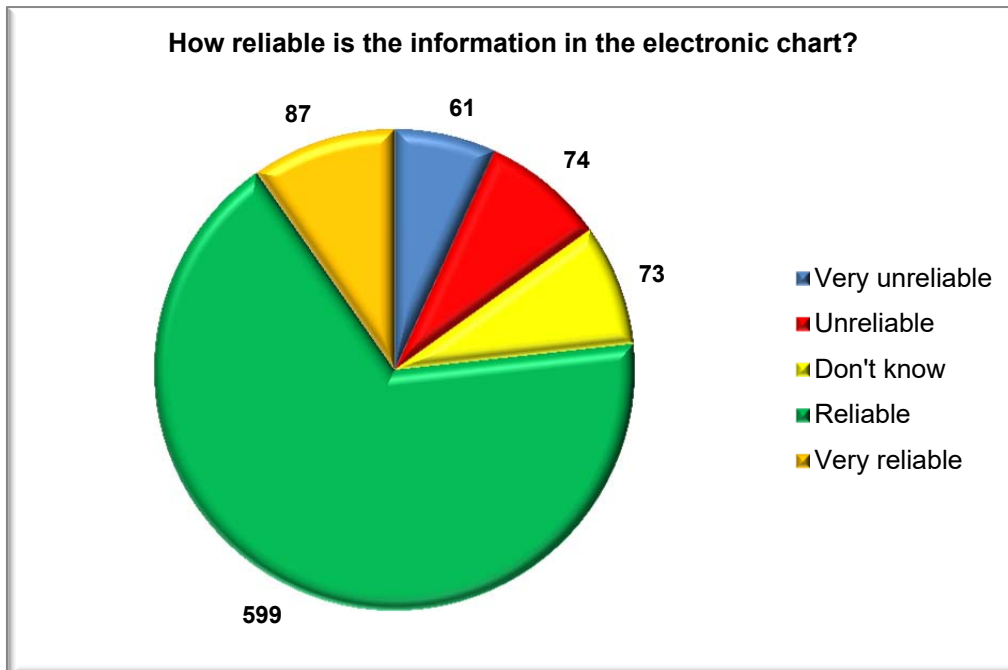
894 skippers responded to the question below.

How reliable is the information in the electronic chart?

- Very unreliable
- Unreliable
- Don't know
- Reliable
- Very reliable

61, 74, 73, 599, 87

Figure 45

879 skippers responded to the question below.

What is your experience with the quality of position information?

- Never reliable
- Mostly unreliable
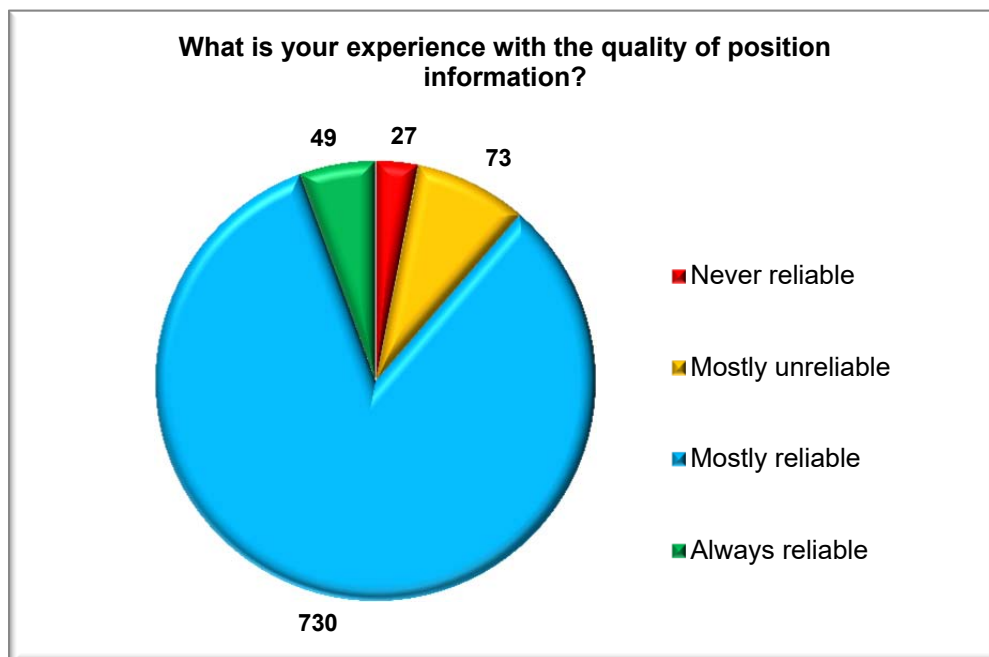- Mostly reliable
- Always reliable

49, 27, 73, 730

Figure 46

12.6 Does an Inland AIS device connected to an electronic chart display system contribute to better traffic management?

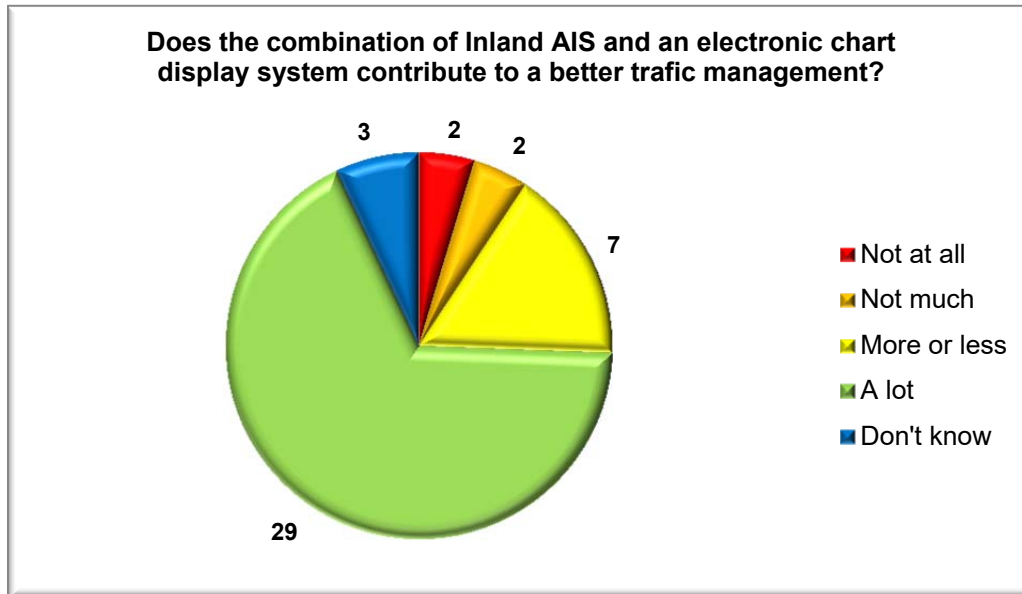### 12.6.1 The opinion of the waterway authorities

Figure 47

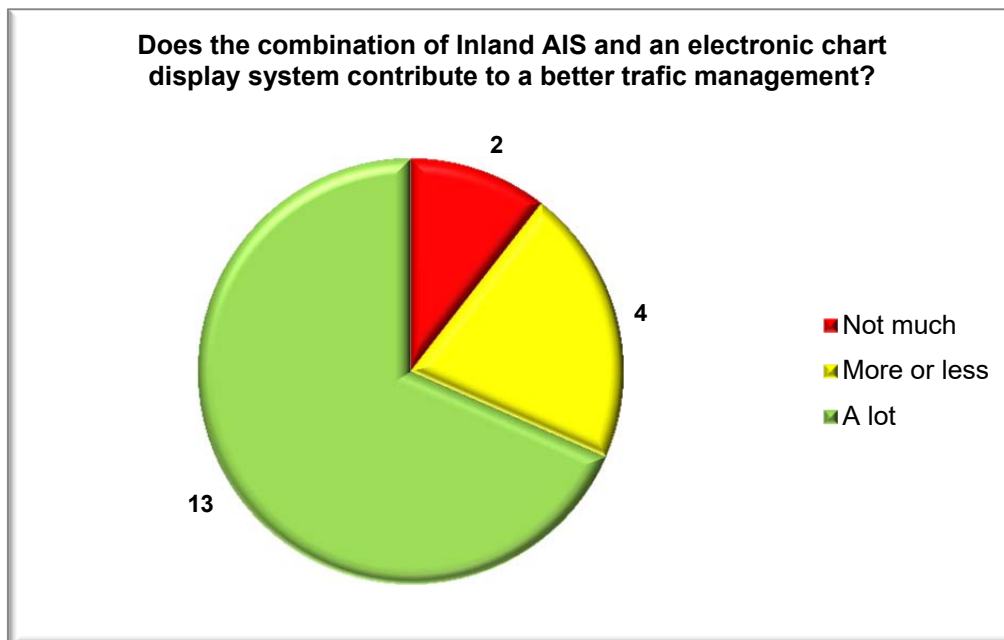### 12.6.2 The opinion of the enforcement and police authorities

Figure 48

12.7 Does an Inland AIS device connected to an electronic chart display system contribute to a better relationship between skippers?

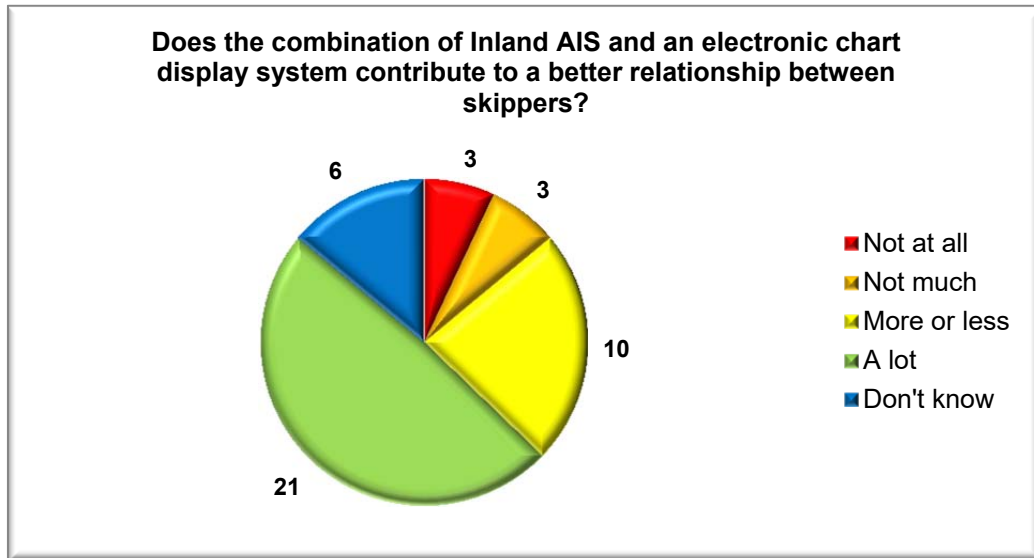### 12.7.1 The opinion of the waterway authorities

Figure 49

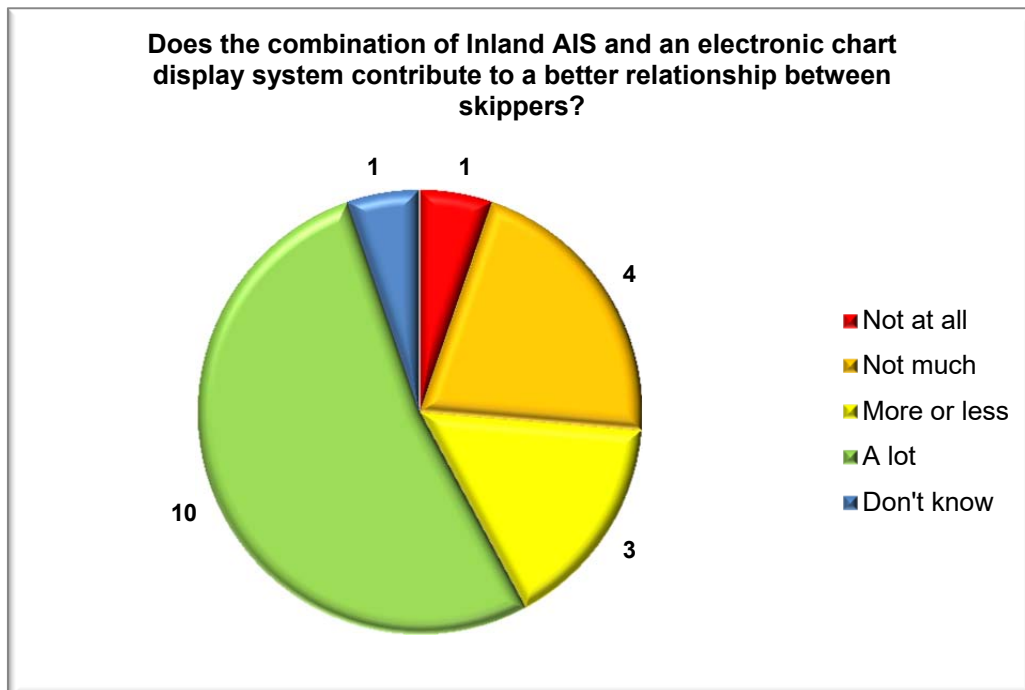### 12.7.2 The opinion of the enforcement and police authorities

Figure 50

12.8 Does an Inland AIS device contribute to a better compliance with the instructions issued by traffic control centres?

12.8.1 The opinion of the waterway authorities

Does the combination of Inland AIS and an electronic chart display system contribute to a better understanding of the information given by traffic centers?

- Not at all
- Not much
- More or less
- A lot
- Don't know
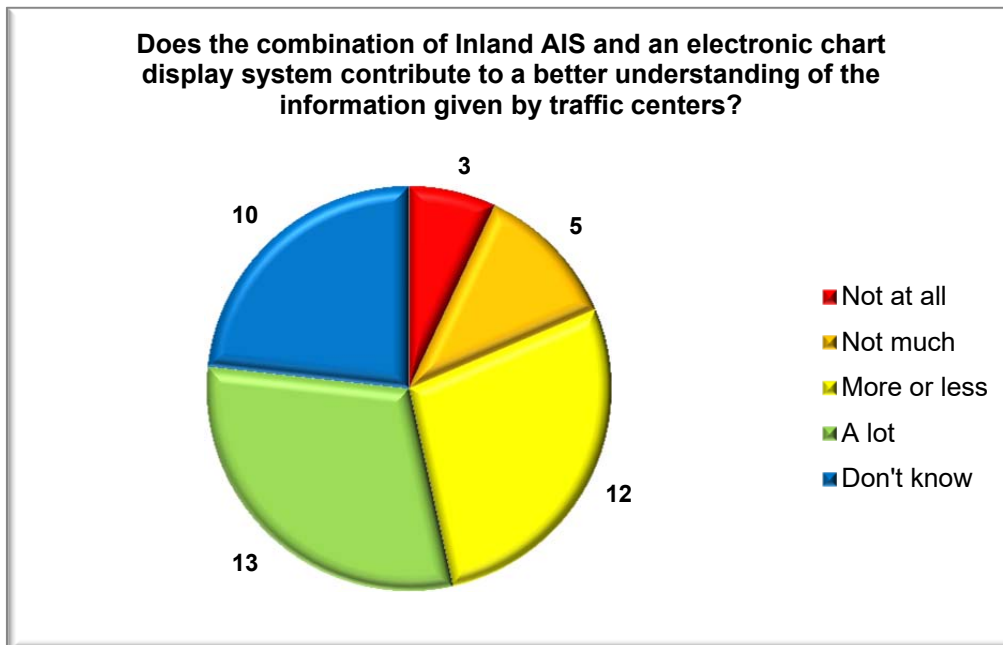
Figure 51

12.8.2 The opinion of the enforcement and police authorities

Does the combination of Inland AIS and an electronic chart display system contribute to a better understanding of the information given by traffic centers?

- Not at all
- Not much
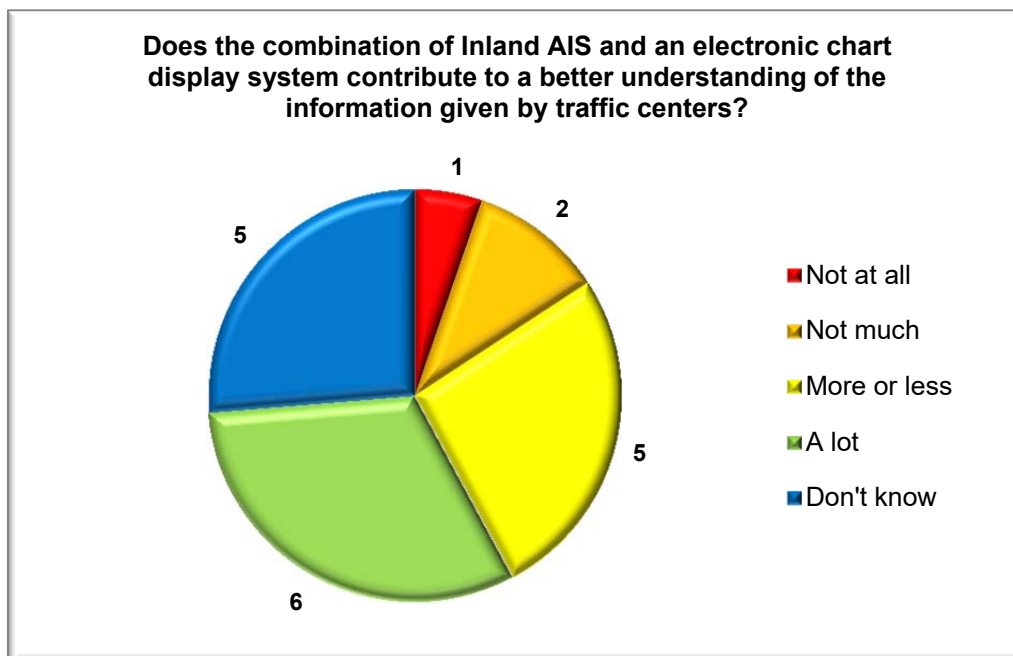- More or less
- A lot
- Don't know

Figure 52

12.9 The use of VHF

12.9.1 The opinion of the skippers

A sizeable group of skippers observed that there has been a drop in the use of VHF and that many skippers assume that other skippers can see who is sailing, by using their Inland AIS device and electronic chart display systems, and also that they themselves will be seen by the other vessels/skippers. However, that is not always the case.

12.9.2 The opinion of the waterway authorities

Does the combination of Inland AIS and an electronic chart display system contribute to a reduced usage of VHF?

- Not at all
- Not much
- More or less
- A lot
- Don't know

Figure 53

Does the combination of Inland AIS and an electronic chart display system contribute to a better usage of VHF?

- Not at all
- Not much
- More or less
- A lot
- Don't know

Figure 54

12.9.3   The opinion of the enforcement and police authorities

Figure 55

Figure 56

12.10 Is a combination of Inland AIS and an electronic chart display system essential?

12.10.1 The opinions of the waterway authorities
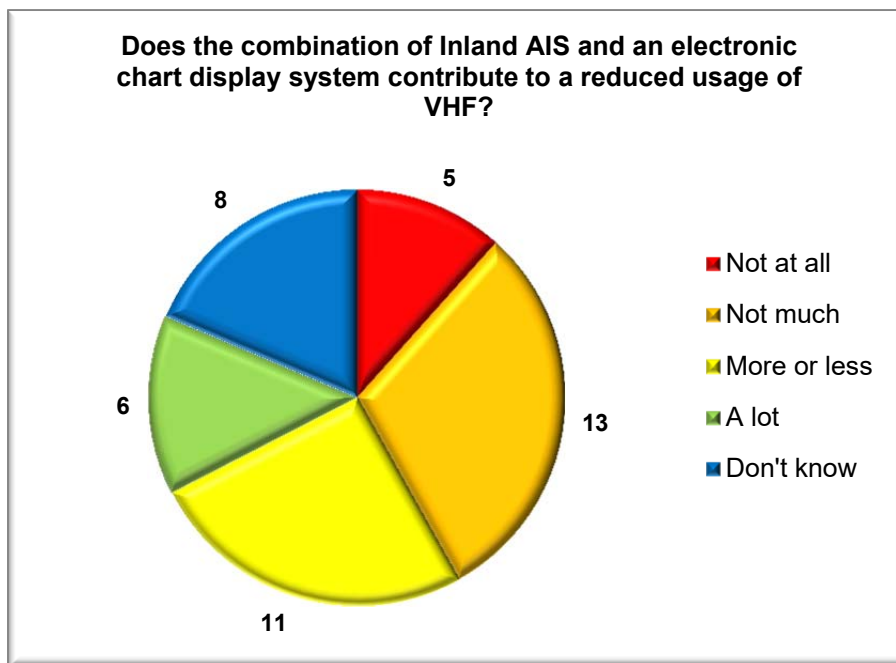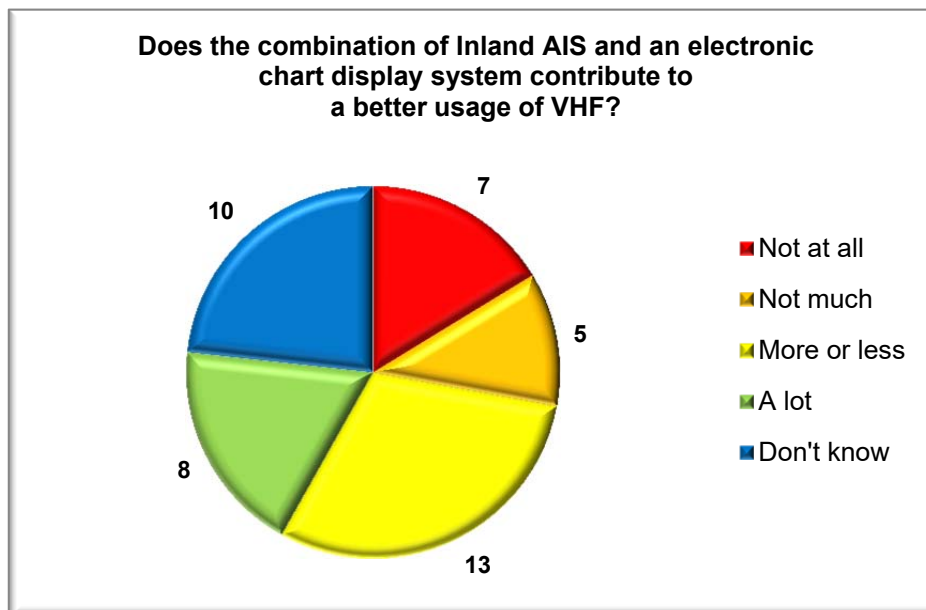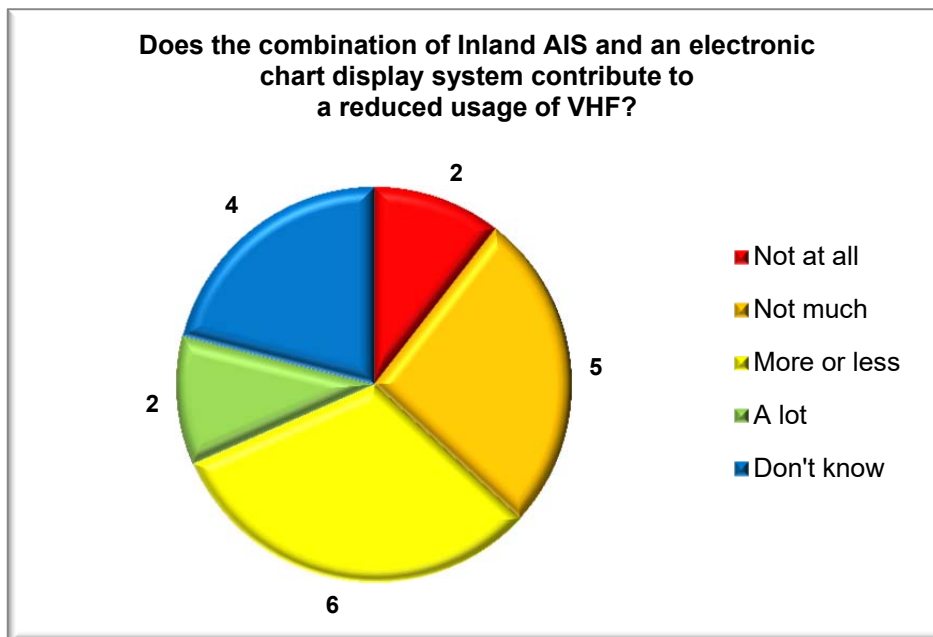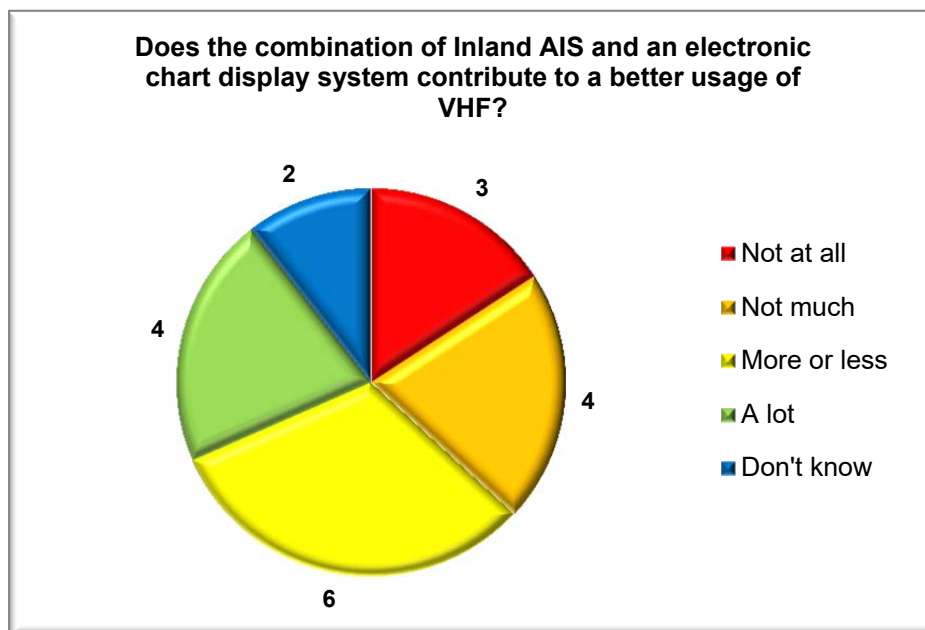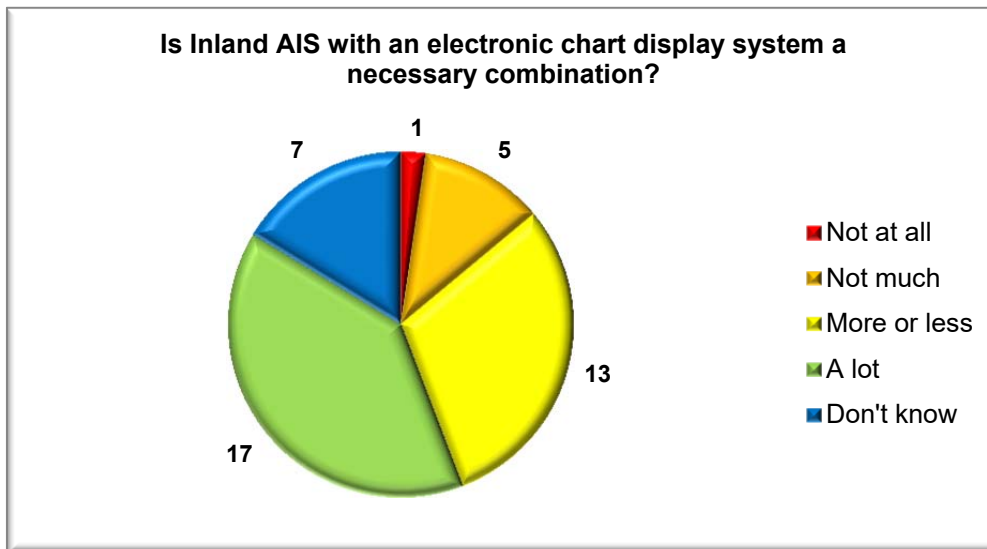

Figure 57

12.10.2 The opinion of the enforcement and police authorities
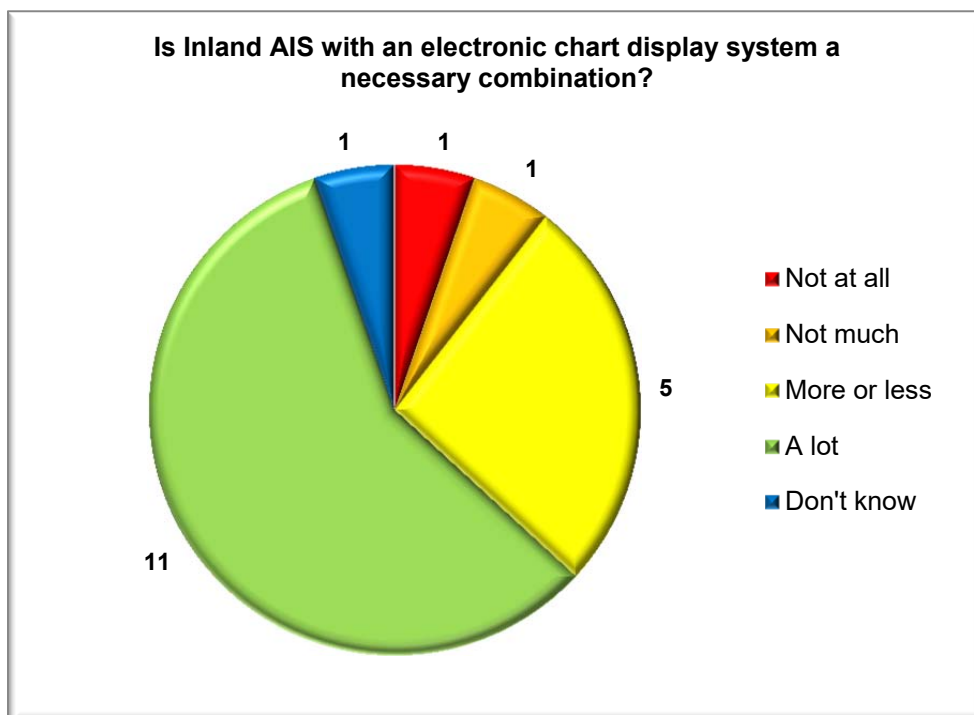

Figure 58

13   Regulations

13.1   Installation firms

6 firms stated that they have questions relating to the installation of Inland AIS devices or Inland ECDIS devices (or comparable electronic chart display system) which need to be dealt with by the CCNR. A summary of those questions is given below.

Regulations for installation

A limited number of installation firms commented that the installation regulations should be stricter, and should focus more on their implementation in practice. In their current form, the regulations are such that every firm installs and connects the system in a different way. In addition, no attention is paid to the VHF radio, even though that can certainly be affected by the Inland AIS device.

Second Inland AIS device

There is a question regarding the availability of regulations relating to the installation and use of a second Inland AIS device.

Requirements for screens for electronic chart display systems

A few installation firms indicated that, in their opinion, it would be good to have more regulations to cover the Inland ECDIS systems in information mode, similar to those that apply to screens.

13.2   Waterways authorities

Extending the RPR, Article 4.07

- 16 waterway authorities stated that, in their opinion, the RPR Article 4.07 should be extended to other types of vessel.
- For 18 waterway authorities, this is not necessary
- 9 waterway authorities indicated that this is not relevant to their service.

Table 38 gives an overview of the types of vessel mentioned.

Vessel types	Respondents
All vessels	6
All recreational craft	5
Small craft	2
Other	5

Table 38

Table 39 sets out how this could improve the performance of their tasks.

Contribution to their tasks	Respondents
A better overview of the waterway	4
A better and quicker identification	2
Increased traffic safety	4
Better lock planning	2
Other	6

Table 39

Problems with the RPR, Article 4.07

40 waterway authorities stated that the requirements of the RPR, Article 4.07, have caused no problems with the performance of their duties.

The current regulations are clear to all stakeholders

28 waterway authorities stated that the regulations are clear to them.
7 waterway authorities stated that in their opinion certain parts of the regulations are not clear to them. The following comments were made:
- The wording should be simpler.
- What is a legal requirement?
- Which navigation charts can be used?

Which changes/additions would be required to the RPR, Article 4.07

No reactions to this question.

13.3   Enforcement and police authorities

Extending the RPR, Article 4.07

16 services stated that in their opinion it is not necessary to extend the RPR, Article 4.07 to other types of vessel.
2 services indicated that this is not relevant to their service.

Problems with the RPR, Article 4.07

2 services stated that the requirements of the RPR, Article 4.07, have caused problems with the performance of their duties.

- Availability of open data for enforcement is missing.
- The obligation for police vessels to have Inland AIS is not workable due to constant supervisory tasks. They should be excluded.

11 services stated that they do not have any problems.
2 services indicated that this is not relevant to their service.

The current regulations are clear to all stakeholders

- 11 services stated that the regulations are clear to them.
- 8 services stated that this does not apply to their service.

Which changes/additions would be required to the RPR, Article 4.07

A few suggestions:

- The blue sign should be mandatory.
- The enforcement and police authorities should be excluded from the obligatory use.
- Make the availability of data for enforcement mandatory.
- Possibility for the waterway authorities to grant exemption from the Inland AIS obligation.

Annex 1:   Calculation of number of respondents needed

In order to determine whether or not, on the basis of the number of responses, the sample can be considered as representative for both the target group skippers and the target group installation firms, a statistical calculation was carried out. The calculation is provided below.

The following statistical formula was used:

$$n= \frac{N*Z^2*p(1-p)}{Z^2*p(1-p)+(N-1)*F^2}$$

- Population = N
- % of failure = F
- Spread = p
- Response = n
- Reliability = Z

Questionnaire Skippers:

- Population   = N = 8000[5]
- % of failure = F = 5%
- Spread = p = 50%
- Reliability = Z = 95%

$$n = \frac{8000*(1,96)^2*50*50}{1,96^2*50*50+7999*5^2} => \frac{30732,8*50*50}{9604 +(7999*25)} => \frac{76832000}{209579} = \textbf{366,10}$$

The usable number of respondents was 1203, so this satisfies the requirement.

Questionnaire Installation firms:

- Population   = N = 111[6]
- % of failure = F = 5 %
- Spread = p = 50 %
- Reliability = Z = 95 %

$$n = \frac{111*(1,96)^2*50*50}{1,96^2*50*50+110*5^2} => \frac{426,42*50*50}{9604 +(110*25)} => \frac{1066044}{12354} = \textbf{86,29}$$

As the total population is known and very small, a correction must be used:

$$n= \frac{N*Z^2*p(1-p)}{Z^2*p(1-p)+(N-1)*F^2} * \sqrt{\frac{N-n}{n-1}}$$

$$n = \frac{111*(1,96)^2*50*50}{1,96^2*50*50+110*5^2} * \sqrt{\frac{111-87}{87-1}} => 86,29 * \frac{24^2}{86^2} => 86,29 * 0,2791 = \textbf{24,1}$$

The usable number of respondents was 50, so this satisfies the requirement.

---

[5]   Being a estimate of the vessels sailing on the Rhine
[6]   The number authorized installation firms that are registered with the CCNR.

Annex 2:   Relevant regulations

Annex 2.1 Article 4.07 du RPNR, AIS Intérieur et ECDIS Intérieur

1. Les bâtiments doivent être équipés d'un appareil AIS Intérieur conforme à l'article 7.06, chiffre 3 du Règlement de visite des bateaux du Rhin. L'appareil AIS Intérieur doit être en bon état de fonctionnement.

   La 1ère phrase ci-dessus ne s'applique pas aux bâtiments suivants :
   a)   bâtiments de convois poussés et de formations à couple, à l'exception du bâtiment qui assure la propulsion principale,
   b)   menues embarcations, à l'exception :
   -   des bâtiments de police équipés d'un appareil radar, et
   -   des bâtiments possédant un certificat de visite conformément au Règlement de visite des bateaux du Rhin ou un certificat réputé équivalent conformément à ce règlement,
   c)   barges de poussage sans système de propulsion propre,
   d)   engins flottants sans système de propulsion propre.

2. L'appareil AIS Intérieur doit fonctionner en permanence et les données saisies doivent correspondre à tout moment aux données effectives du bâtiment ou du convoi.

   La 1ère phrase ci-dessus ne s'applique pas,
   a)   si les bâtiments se trouvent dans un port de stationnement nocturne visé à l'article 14.11, chiffre 1,
   b)   si l'autorité compétente a accordé une dérogation pour les plans d'eau séparés du chenal navigable par une infrastructure,
   c)   aux bâtiments de police, si la transmission de données AIS est susceptible de compromettre la réalisation de tâches de police.

   Les bâtiments visés au chiffre 1, 3ème phrase, lettre a), doivent éteindre les appareils AIS Intérieur présents à bord tant que ces bâtiments font partie du convoi.

3. Les bâtiments qui doivent être équipés d'un appareil AIS Intérieur, à l'exception des bacs, doivent en outre être équipés d'un appareil ECDIS Intérieur en mode information ou d'un appareil comparable pour la visualisation de cartes, qui doit être relié à l'appareil AIS Intérieur, et ils doivent l'utiliser conjointement avec une carte électronique de navigation intérieure à jour.
   L'appareil ECDIS en mode information, l'appareil comparable pour la visualisation de cartes et la carte électronique de navigation intérieure doivent être conformes aux Exigences minimales pour les appareils ECDIS en mode information et les appareils comparables pour la visualisation de cartes pour l'utilisation de données AIS Intérieur à bord des bâtiments (Résolution 2014-I-12).

4. Au moins les données suivantes doivent être transmises conformément au chapitre 2 du Standard suivi et repérage des bateaux en navigation intérieure :

   a) Identifiant utilisateur (Maritime Mobile Service Identity, MMSI) ;

   b) Nom du bateau ;

   c) Type de bâtiment ou de convoi conformément au Standard pour le suivi et le repérage des bateaux en navigation intérieure ;

   d) Numéro européen unique d'identification des bateaux (ENI) ou, pour les navires de mer auxquels n'a pas été attribué d'ENI, le numéro OMI ;

   e) Longueur hors tout du bâtiment ou du convoi avec une précision de 0,1 m ;

   f) Largeur hors tout du bâtiment ou du convoi avec une précision de 0,1 m ;

   g) Position (WGS 84) ;

   h) Vitesse sur route ;

   i) Route ;

   j) Heure de l'appareil électronique de localisation ;

   k) Statut navigationnel conformément à l'annexe 11 ;

   l) Point d'acquisition de l'information relative à la position à bord du bâtiment avec une précision de 1 m, conformément à l'annexe 11.

5. Le conducteur doit immédiatement actualiser les données suivantes après tout changement :

   a) Longueur hors tout avec une précision de 0,1 m, conformément à l'annexe 11 ;

   b) Largeur hors tout avec une précision de 0,1 m, conformément à l'annexe 11 ;

   c) Type de bâtiment ou de convoi conformément au Standard pour le suivi et le repérage des bateaux en navigation intérieure ;

   d) Statut navigationnel, conformément à l'annexe 11 ;

   e) Point d'acquisition de l'information relative à la position à bord du bâtiment avec une précision de 1 m, conformément à l'annexe 11.

6. Les menues embarcations qui utilisent l'AIS ne peuvent utiliser qu'un appareil AIS Intérieur conforme à l'article 7.06, chiffre 3, du Règlement de visite des bateaux du Rhin, un appareil AIS de classe A possédant une réception par type conformément aux prescriptions de l'OMI, ou un appareil AIS de classe B. Les appareils AIS de classe B doivent être conformes aux exigences correspondantes de la Recommandation UIT-R.M 1371, de la directive 1999/5/CE (RTTE), et de la norme internationale CEI 62287-1 ou 2 (y compris la gestion des canaux DSC). L'appareil AIS doit être en bon état de fonctionnement et les données saisies dans l'appareil AIS doivent correspondre en permanence aux données effectives du bateau ou du convoi.

7. Les menues embarcations auxquelles n'a pas été attribué un numéro européen unique d'identification des bateaux (ENI) ne sont pas tenues de transmettre les données visées au chiffre 4, lettre d) ci-dessus.

8. Les menues embarcations qui utilisent l'AIS doivent en outre posséder une installation de radiotéléphonie en bon état de fonctionnement et commutée sur écoute pour le réseau bateau-bateau.

Annex 2.2 Minimumeisen aan Inland ECDIS-apparatuur en daarmee vergelijkbare visualiseringssystemen

VOORWOORD

De CCR heeft bij Besluit 2013-II-16 de uitrustings- en gebruiksverplichting van Inland AIS op de Rijn met ingang van 1 december 2014 ingevoerd.

Tegelijkertijd met de invoering van Inland AIS wordt het verplichte gebruik van Inland ECDIS-apparatuur in de informatiemodus of een daarmee vergelijkbaar visualiseringssysteem op schepen[7] vastgelegd. Het Inland AIS-apparaat moet met het Inland ECDIS-apparaat in de informatiemodus[8] of een daarmee vergelijkbaar visualiseringssysteem zijn verbonden en er moet een geüpdate elektronische binnenvaartkaart worden gebruikt.

In dit document zijn de minimumeisen aan visualiseringssytemen van elektronische kaarten bij het gebruik van Inland AIS-gegevens aan boord van schepen, vastgelegd. Bovendien worden aanbevelingen gegeven, die ertoe bijdragen de weergave van de Inland AIS-gegevens qua nauwkeurigheid, duidelijkheid en dus betrouwbaarheid te verbeteren. Deze aanbevelingen zijn niet bindend; de CCR raadt evenwel aan deze op de zelfde wijze als de bindende minimumeisen na te komen.

Teneinde fundamentele minimumeisen en aanbevelingen te identificeren, worden in de volgende hoofdstukken de volgende uitrustingen aan boord van schepen behandeld:

a)   de elektronische binnenvaartkaarten;

b)   een apparaat voor het visualiseren van elektronische binnenvaartkaarten;

c)   de software voor het visualiseren van elektronische binnenvaartkaarten.

Er dient te worden opgemerkt dat voor speciale toepassingen met een verdere strekking dan de minimumeisen, indien nodig bindende eisen kunnen worden vastgelegd door de bevoegde autoriteiten.

Noot
Met de in dit document gebruikte formulering "visualiseringssystemen van elektronische kaarten" wordt verwezen naar

-    een Inland ECDIS-apparaat in de informatiemodus of

-    een vergelijkbaar apparaat voor het visualiseren van elektronische kaarten.

1.   Minimumeisen aan en aanbevelingen voor de elektronische binnenvaartkaarten

Minimumeisen:

-    de elektronische binnenvaartkaarten geven op nauwkeurige wijze de contouren van de rivier en van de vaargeul weer en zijn op de officiële elektronische binnenvaartkaarten gebaseerd;

-    de elektronische binnenvaartkaarten zijn opgeslagen in het visualiseringssysteem aan boord van het schip.

Aanbeveling:

-    de meest recente officiële ENCs[9] gebruiken.

---

[7]   Met uitzondering van veerponten
[8]   De Inland ECDIS-Standaard maakt een onderscheid tussen de informatiemodus en de navigatiemodus. Informatiemodus is het gebruik van Inland ECDIS alleen voor informatiedoeleinden zonder geïntegreerd radarbeeld, navigatiemodus is het gebruik van Inland ECDIS voor het sturen van het schip met over de kaart geprojecteerd.
[9]   ENCs: elektronische navigatiekaarten

2. Minimumeisen aan en aanbevelingen voor het apparaat voor het visualiseren van elektronische binnenvaartkaarten

Minimumeisen:

- het apparaat voor het visualiseren van elektronische kaarten is door middel van een betrouwbare kabelverbinding aan het Inland AIS-apparaat aangesloten;
- tijdens de vaart van het schip is het apparaat uitsluitend voor het visualiseren van elektronische binnenvaartkaarten bestemd;
- de gevisualiseerde informatie is vanuit de stuurstand goed zichtbaar.

Aanbevelingen:

- het visualiseringssysteem van elektronische kaarten voldoet aan de eisen betreffende de geldende standaard voor Inland ECDIS in de informatiemodus;
- een aanvullend afzonderlijk visualiseringssysteem van elektronische kaarten voor de informatiemodus gebruiken, indien het schip met een Inland ECDIS-apparaat in de navigatiemodus is uitgerust.

3. Minimumeisen aan en aanbevelingen voor de software waarmee elektronische binnenvaartkaarten gevisualiseerd kunnen worden
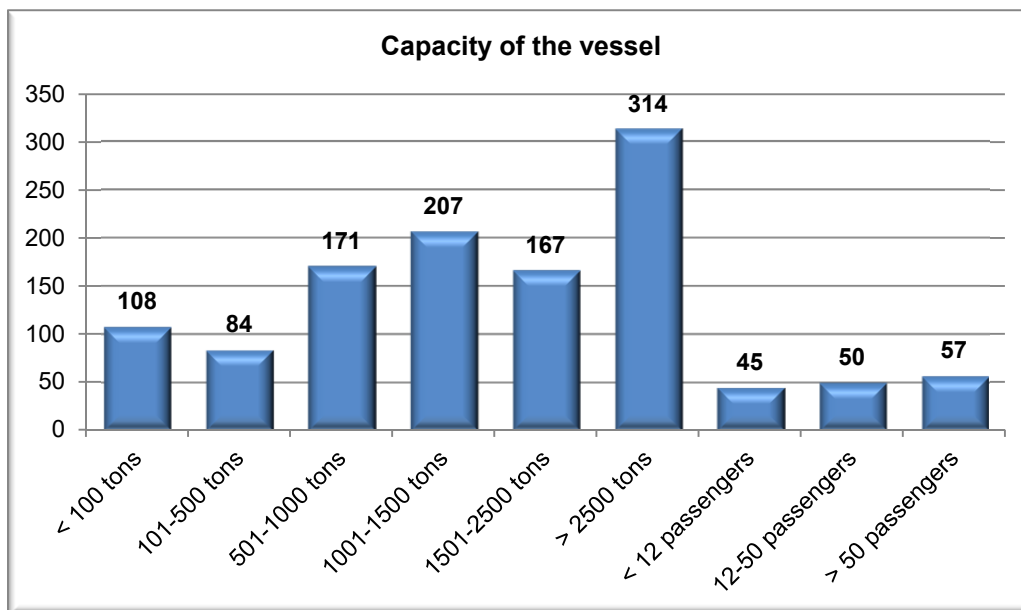
Minimumeisen:

- de software geeft de correcte en actuele positie van het eigen schip op de elektronische binnenvaartkaart weer;
- de software geeft op de elektronische binnenvaartkaart de correcte en actuele positie van de andere schepen weer;
- de software biedt de mogelijkheid de gedetailleerde lijst met AIS-informatie, als bedoeld in artikel 4.07, vierde lid, van het Rijnvaartpolitiereglement, van een gekozen schip weer te geven.
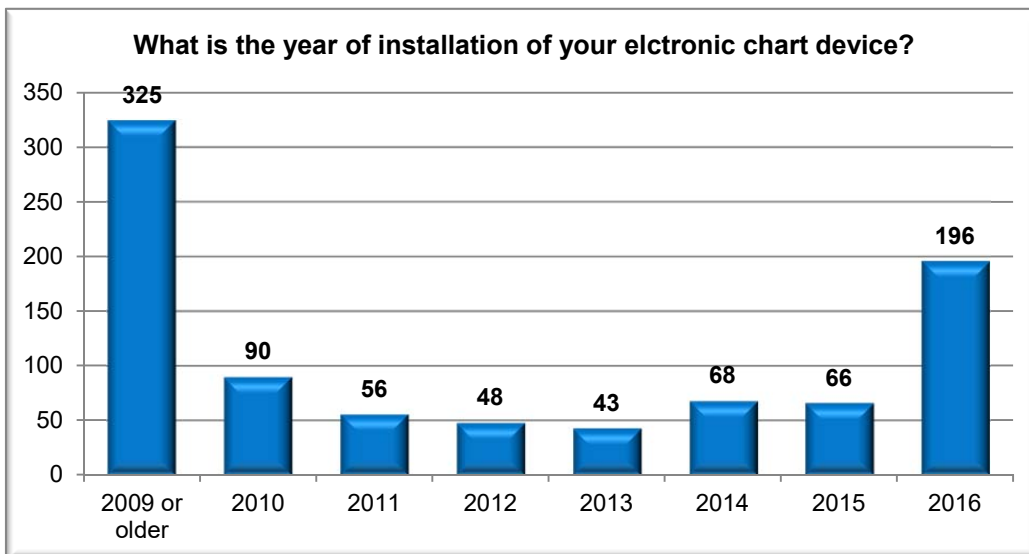
Aanbevelingen:

- de software voor het visualiseren van elektronische binnenvaartkaarten voldoet aan de eisen betreffende de navigatiemodus van de geldende Inland ECDIS-Standaard;
- de software voor het visualiseren van een elektronische binnenvaartkaart oriënteert deze zodanig dat het schip de as van de vaarweg volgt.

Annex-3: Other information about the skippers

This Annex 3 includes additional information from the questionnaire that was not directly needed in the analysis. Nevertheless, this information is important.

Capacity of the vessel

Annex 3 Figure 1

What is the year of installation of your elctronic chart device?

Annex 3 Figure 2

Annex 4: Other information about the Installation firms

This Annex 4 includes additional information from the questionnaire that was not directly needed in the analysis. Nevertheless, this information is important.
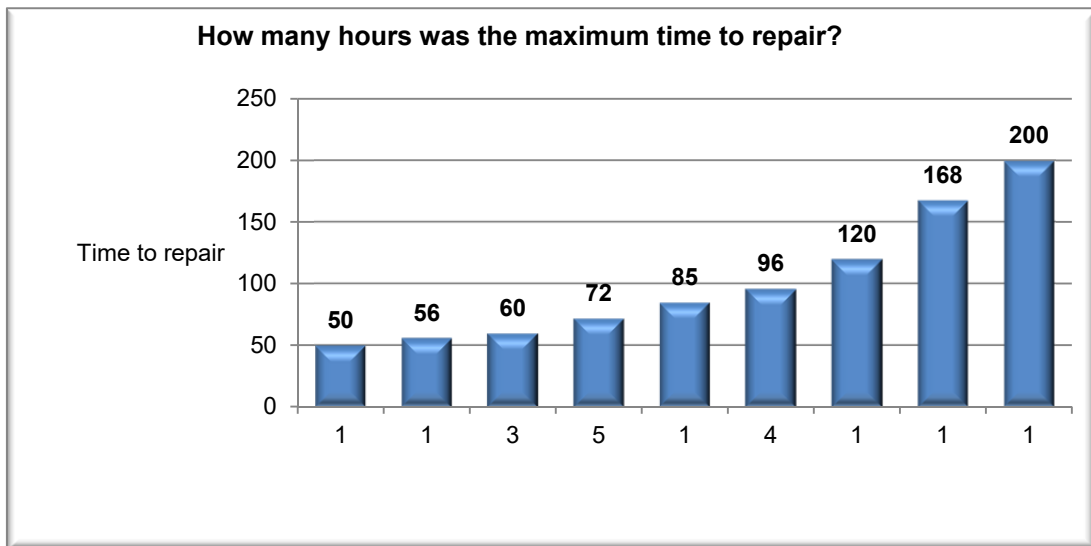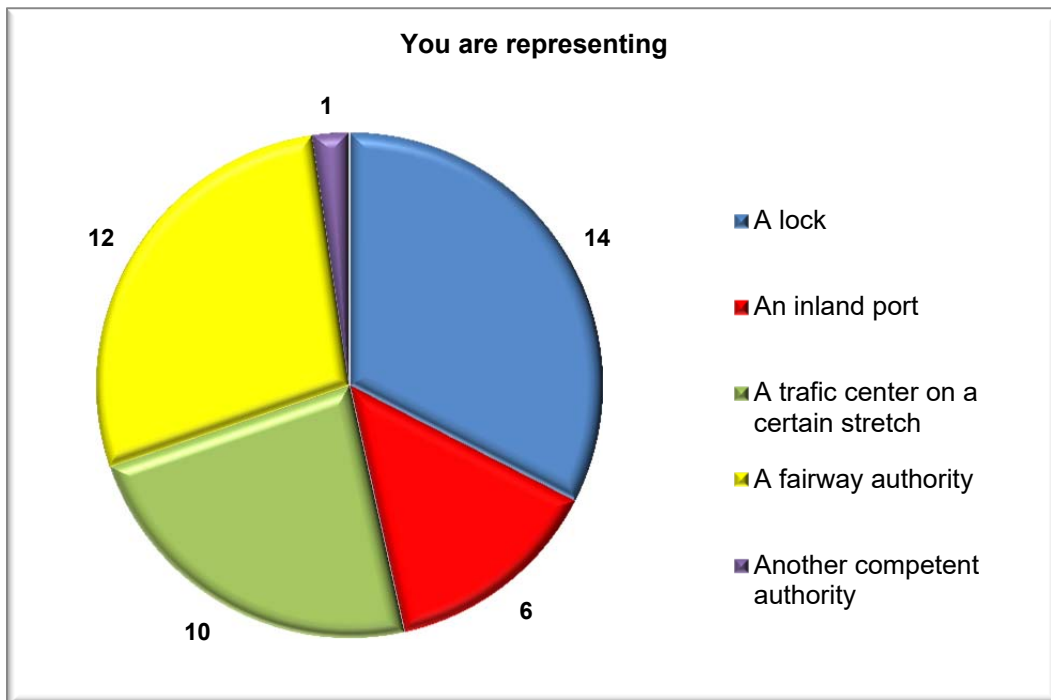
How many hours was the maximum time to repair?

50	56	60	72	85	96	120	168	200
1	1	3	5	1	4	1	1	1

Time to repair

Annex 4 Figure 1

Annex 5:   Other information about the waterway authorities

This Annex 5 includes additional information from the questionnaire that was not directly needed in the analysis. Nevertheless, this information is important.
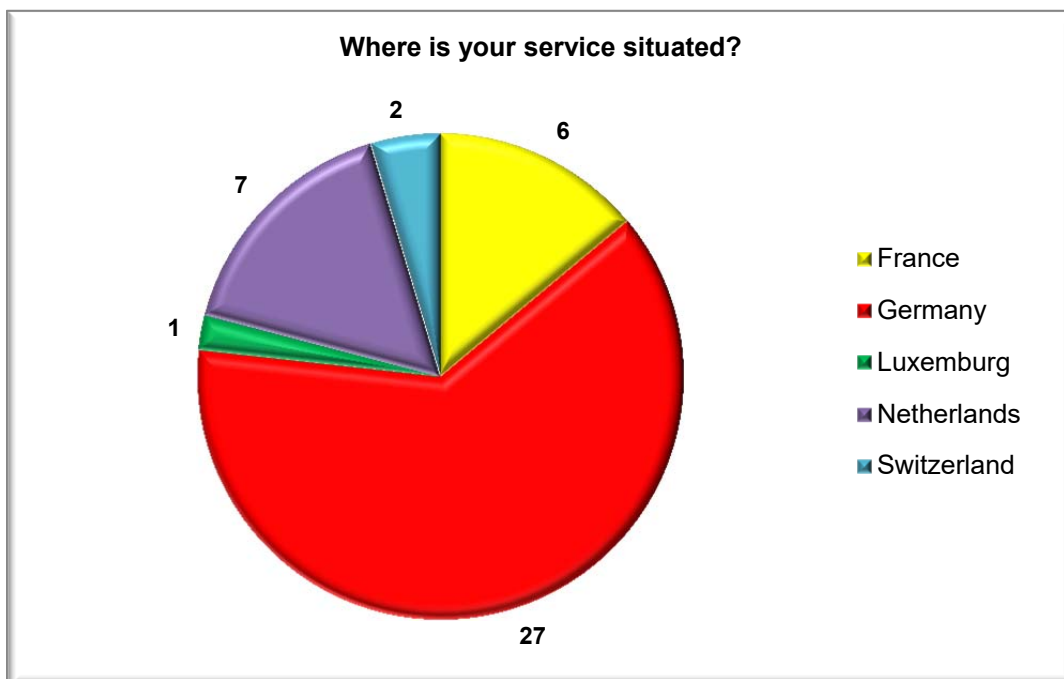
You are representing

- A lock
- An inland port
- A trafic center on a certain stretch
- A fairway authority
- Another competent authority

Annex 5 Figure 1

Where is your service situated?

- France
- Germany
- Luxemburg
- Netherlands
- Switzerland

Annex 5 Figure 2

Annex 6: Other information about the enforcement and police authorities

This Annex 6 includes additional information from the questionnaire that was not directly needed in the analysis. Nevertheless, this information is important.
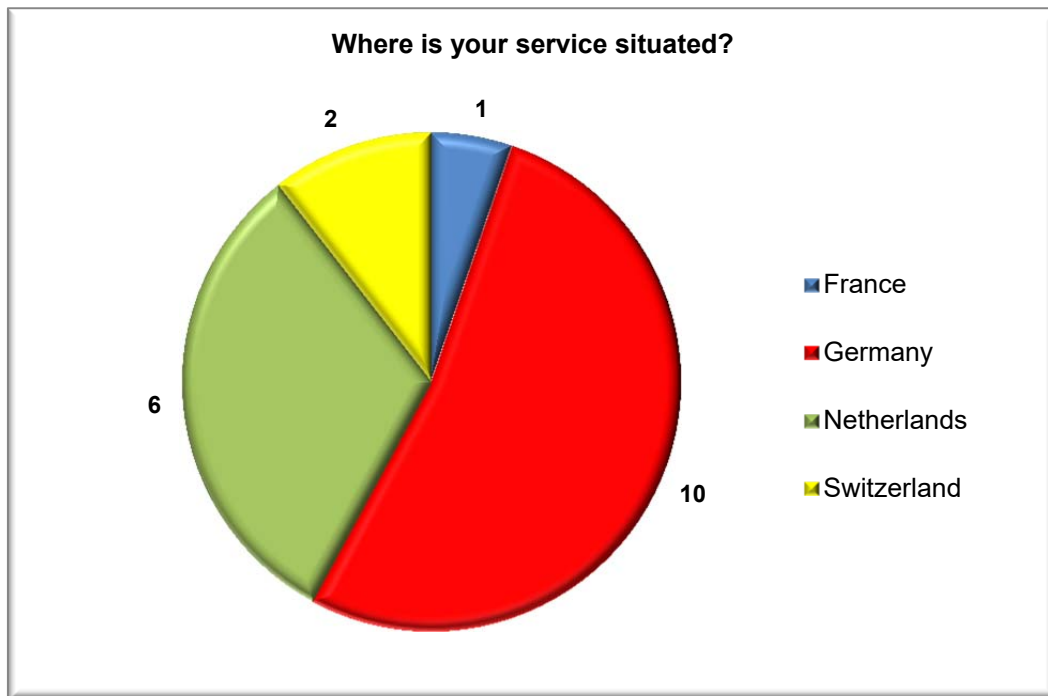
Where is your service situated?

- France
- Germany
- Netherlands
- Switzerland

Annex 6 Figure 1

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