Baltic Sea E-Nav Kickoff

6-7/11 2023

Conclusion

The kick-off can be summarised the actions taken during these two days; creating many of the initial agreements, thoughts and reflections on how the groups should achieve the goals of the Baltic Sea E-Nav project. Some of the more important information/questions from the meetings:

- How and when we are able to start testing our capabilities to produce and deliver S-101 products.

- The ideal way to report and achieve the Interreg obligations.

- The subsidy contract and partnership agreements and how it affects the project.

- Reflections on BS E-Nav connections to S-100 standards such as S-102, S-104, S-111, S-124, S-125, S-128 and S-212.

- Team building and rules for communication within the project.

Comments, questions and answers will be highlighted by **C: Q:** and **A:** respectively at the end of the notes for each presentation.

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Lithuania and Poland could not attend.

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Day 1

1 Partner introduction

Shared waters – Same standards Baltic sea partnerships for future navigation; The SMA starts the kick-off with a presentation introducing our joint effort in a new standard of navigation and presenting the project managers. SMA also introduces the agenda for the next two days.

2 Presentation related IHO work and SXXX relationship with IMO maritime services

As a baseline, the group needs to be on the same platform when talking about IHO. Hence, what is Hydrography? It is about measuring and describing hydrographic data. Hydrography for safety of navigation, economic interest, defence, environmental impact etc. IHO mission statement and question, how can we use the data for navigation? What external components can the collection of data contribute to?

There are close relations between UN, in IMO and SOLAS, and IHO.

BSICCWG is especially important for BS e-Nav.

BSMSIWG is important to MaDaMe.

Why do we need S-100? Paper charts to ENC. Paper charts have existed for a long time, but has slowly been transforming to ENC during the latter half of the 20th century. The first standards were good for paper charts, but there was no specific use for ENC. It became apparent that the bathymetry data could be used in a better way. All the different kind of ways you can use the data in ENC needs to be integrated in to one system; the goal of S-100.

Major benefits for S-100:

Safety, optimized loading, route optimization, cyber security and automated navigation. S-100 is supposed to be the first step towards automated navigation. For example, automating route planning is possible with S-100 systems. Connected to this are the environmental impact in the way vessels are able to reduce emissions, ships are able to take more effective routes and better use of UKC.

IHO has prioritisation in two phases:

Phase 1: Route monitoring mode, with some Critical Frameworks which helps the connections between the standards in phase 1.

Phase 2: Route planning mode.

The first operational products which are suited for IHO member approval to be presented in **November 2024.** The first systems are voluntary for navigation at the start. Currently, we are in the testing phase.

Because of our unique position of cooperation here in the Baltic sea, because we have multiple hydrographic offices and partners, we can together create the first tests which are applicable to similar situations with multiple partners. Because of this, the work on harmonisation is very important, and defined as milestones in this project.

C: During the last implementation, there was a very stressful early example of ENC implementation. Hence, we should reflect on having a good group circumstance now.

3   Status update (BAMOS, Contract signing/Partner Agreements, next steps)

SMA introduces all the different actors and what they do, see list above. SMA did not include any end-users for these meetings, because it would balloon the scale. There are however connections within the countries with the end-users.

Contract and partnership agreement, SMA introduces the subsidy contract and how it affects SMA. It contains the project proposal, budget and programme manual. The subsidy contract has been revised, the document is settled and is becoming a part of the framework. The contract did not include any questions for the other members to change. Was signed 2023-09-27.

The partnership agreement between SMA and all the other partners in the program. The SMA have to cover certain aspects in this agreement, the lawyers at SMA assures that the framework is ok. SMA and the other Hydrographic offices should however have another agreement for internal responsibilities.

Signed partnership-agreement before 2024-12-01 or there won't be any co-financing from the EU. This agreement contains rules for subcontractors, immaterial rights, budget, spending plan, reporting to SMA, withdrawal from the contract and other relevant guidelines on the partnership. It also contains some annexes: subsidy contract, detailed work plan, immaterial property rights (i.e. commercial data and how it is used) and detailed spending plan. Draft will be circulated soon, with rules on how the contract

should be signed. Suggestion is to partners to sign in parallel and SMA sign last.

Important dates, see presentation. One exception: SMA have received preparation costs payment, which will be distributed after the agreement is done. One point: costs are already eligible for compensation. You need to follow the rules on time reporting/procuring etc.

Q: This might be discussed by Interreg; the test data will not be in an open source format. EU does however want it to be open, what does it mean for BS E-Nav?

A: Things like project reports and tests should be open for other communities. Because of our interest in international relations, we might need some open data. We do however need to keep ENC data and the testing separate. The "BS E-Nav" base package is commercial. Discussions around what test-data to be available for free. Suggestion to use a testing licence schema, test data available under a specific licence. The end goal of the project is to have S-101 cover the Baltic sea. S-102 for shipping lanes and harbours. These are the aims.

Q: End goal is "full coverage" is that for S-102?

A: We don't have enough high res bathymetry for that to be realised. In Sweden, we have good bathymetric data in certain areas combined with security concerns. The definitions can be "full" to "relevant" coverage. There might be low-res over the entirety of the Baltic sea.

Q: Which res?

A: Good question, we don't have an answer yet. This is a question that is connected to harmonizing and should be worked on together.

Q: How will you know what the end-users want, now that we don't include them?

A: Because we are decoupled from end-users in the project, but in our respective HO's we know what mariners want and need. The students of captain classes are connected to R&D and are in turn already well versed on how the systems are used. Also, we will have some end-user validation in the standard. We probably know that S-101 ENC is not so different from S-57 ENC. The practical parts, downloading, using etc. we can't know. It is however important to understand the end-user. Size and cost of datasets can be affected.

C: We need some more tangible metrics. The questions around how the users use the systems, that need to be asked in the outset.

A: It's hard to answer customer satisfaction. An example: there was an accident which might have been avoided if the system that was used was S-102. PPU, portable pilot unit, which are more free to use other data, which might help in testing.

C: It costs money to do high res bathymetry, so we need to define whichever scenarios we are supposed to use them. If it's good enough for pilots, is it not good enough for everyone else?

C: S-101 and S-102 are connected; you can't produce test areas with only S-102 data.

C: We might need test routes from Finland to Sweden or vice versa. There are a lot of boundary crossings happening in such a test route. There are some other difficulties, there exist other areas which are important for testing. We need to find common denominators during these talks.

C: SMA has difficulties in providing data because of classified bathymetric data. Currently, SMA can work freely in areas between countries.

Q: Intellectual Property Rights and the partnership agreement, does those rules include IPR issues?

A: Don't think so, we should think about it during the next discussion on IPR. The articles are mostly about EU-law on procurement. The IPR issues might be on a specific issue basis.

4 Presentation of BSHC and the project's relationship to the Target group

BSHC, a group of members around the Baltic sea. Their mission is to facilitate:

Technical cooperation,

Stimulate hydrographic activities and capabilities,

Exchange information.

Delegations consists of national hydrographers and other experts in the field. The relations between these actors and the BS E-Nav project: the goal of total coverage of S-100 in the Baltic sea. This requires chart scheme for S-101 and harmonizing S-102 products over the Baltic sea. Other correlations include MSI and water level information.

C: As members of IHO, we need to follow the guidelines. Because we are creating results here together, we ensure that the results we get will be useful.

C: IRCC is waiting for the results from the projects such as Baltic Sea E-nav. They want a showroom of the results in the IHO offices in Monaco.

Q: Will the guidance be produced by BSHC?

A: The recommendations will be done under BSHC, the different WG will do more specific tasks. The important part is creating an IHO umbrella to summarize the results.

5 Presentation by the MA/JS (Interreg Baltic program + related projects)

Interreg is MA/JS, they are responsible for the daily work in the Interreg, applications and members. Interreg have a mission which handles cohesion: how the EU regional fund is used, how they invest in their 880 partners.

Interreg want to encourage the way their members cooperate, support transition and support public authorities. Anyone that is connected to the challenge of the Interreg mission statement can become a Interreg partner.

Interreg supports small projects with smaller budgets, timescale etc. Its designed to get into the Interreg family. Interreg also have core projects which are a bit bigger in scope, where it is required by the projects to develop outputs. What you create need to be piloted, tested in the field.

What Interreg does not support are projects with no tangible results. Interreg needs something that can be implemented. Another example is prototypes that are not in the hands of consumers. Also, no purely local interest. So multiple actors are needed from different countries.

Interreg priorities three main areas, in order: innovative societies, water-smart societies and climate neutral societies. All EU funding has a climate central goal.

Specifically, for water smart societies: The Baltic sea is a very congested, contested and frail. The Baltic sea needs to be impulse resilient. Below are some examples of Interreg project which are similar to Baltic Sea E-Nav:

BalMarGrav: During the 60s and 70s much of the data was collected, data which now needs to be standardised.

OpenRisk: Maritime risk assessment. Often are risks assessed for each country or specific incidents, which this project aims to fix. They are developing specific tools for getting this assessment more correct.

ORMOBASS: Successors to R-mode projects. These projects are developing the r-mode navigation systems, see R-mode Baltic and R-Mode Baltic 2.

MaDaMe: Unites actors to exchange information on safer navigation and sustainable shipping, especially when it comes to fairways.

EU strategy for the Baltic Sea Region, to find macro-regional strategy between eight EU members to cooperate. There are many more project partners similar to Interregs, i.e. Baltic sea South, which the EU strategy aims to coordinate. The EU strategy is divided into different policy areas, in which BS E-Nav is affected by PA Ship and PA Safe.

How does Interreg help? Through their webpage: to put whatever output you create into the same page. (interreg-baltic.eu/gateway)

Matchmaking platform, for networking at matchmaking.interreg-baltic.eu

Project libraries for resources from other projects under the Interreg umbrella.

Q: Would you define this project as ongoing or starting?

A: Ongoing.

C: One example of similar project is FAMOS, funded by SEF. What they do is working on other S-100 standards still might be important for BS E-Nav. The application made into 2 different projects.

6 PRIMAR presentation: Distribution of S-100 services

A presentation from Primar, how Primar can be of help in the S-100 project, what they are developing, cybersecurity etc. Regional ENC Coordination Centre (RENC). They have data from 74 different countries. Primar mission is to enhance safety at sea and to protect the maritime environment. They are no longer just focusing on the ENC products.

Primar have different services related to the delivery of ENC products. S-100 is one of the products they can supply. PRIMAR has worked with S-100 since 2012. There is a need for more training in S-100 in the member states. They are currently working on upgrading to S-100 edition 5.

Conversion of S-57 to S-101 data is a specific project which they are doing now. Also post-processing to help members see what they need to develop. Other projects include converting routes from S-57 to S-101, Primar learning portal for S-100, S-102 and S111 and S-100 Demonstrator. S-100 Demonstrator is used for real life testing, in which they overlay data with different standards like S-57, S-101, S-102, S-104 etc. S-100.no for info on the demonstrator.

How do the partners facilitate the way we get data to Primar? Partners can use VPN, direct harvest of data or API of service. Not only producing the data, but also the dissemination of data. The partners need to facilitate some kind of automatic solution.

Signed and encrypted data in compliance with the latest S-100 standard, which can be either by Primar or by the HO. For BS E-Nav, how will this be handled?

S-128 is not covered by Baltic Sea E-Nav, it is critical component of the framework. It can be called a catalogue of catalogues. It tells the status of all products from the issuing member. It will provide the graphical overview of what products are available for the end-user. The dataflow and distribution of S-128 is to be worked on and understood. S-128 will be included in every dataset which Primar is going to deliver. This is because the end-user needs to be able to merge the information from multiple nations and distributers.

Q: What is Dual fuel ENC production?

A: To create both S-57 and S-101 ENC charts simultaneously.

Q: The S-128 was discussed, but we decided that we consider it later. Now that the standard is more mature, are these related activities something we need to consider?

A: We have the system in place, so as long as we upload the correct data.

Q: We can try to have a regional cooperation on S-128, but it seems to be a national level? It's hard to follow the development.

A: S-128 is developing very quickly, but we can already consider it a critical component.

Q: What is the jurisdiction on RENCs?

A: At the start, all IHO member states needed hub to start the distribution of ENC. It's kind of an intergovernmental origination. It is for getting all this data to the end-user.

7   MaDaMe project presentation

Maritime Data Methods for Safe Shipping.

Started on the first of November and goes on for three years. Target groups: HOs, ship owners, users of ECDIS etc.

The goal with MaDaMe is mainly focused on S-124, S-125, S-212, to create a joint platform for the use of these standards. This focus comes from the IHO roadmap. MaDaMe is a part of a larger consortium of members, which contains end-users for real situations. Different members of the projects are leading the different WPs. They want joint workshops and interesting topics to discuss.

Q: Is it part of the plan that Primar can connect to the platform that MaDaMe is creating?

A: Madame hopes so, because many of the safety services are intertwined. Primar is monitoring the possibilities. What they need is some kind of collaboration between the different MCP (Maritime Connectivity Platforms). In the future, to be able to discover their services in the MCP's.

Day 2

8 Equality and teambuilding workshop: how do we work together in the BS E-Nav team?

The exercise can be summarized in four rules which the group created for the project:

Rule: Create a platform for sharing experiences and discuss challenges asynchronous. Everyone needs to take responsibility on communication.

Rule: The people that are doing the tasks need to know how they are linked to the project; people need to be active.

Rule: Channel solutions into something, like digital meetings on obstacles. You need to discuss whatever you are facing.

Rule: Involve the end-users as much as possible while still staying within expectations. Don't oversell the project.

9 Presentation by the MA/JS: Administration: Reporting (progress + work hours), budget, programme manual

Reporting of costs. BS E-Nav need resources for the bureaucracy and communication with Interreg. Reporting in BAMOS+.

Rules: Use your common sense, the partners are using taxpayer's money. Budget of 5M Euro, don't share the costs, every partnerships has its own responsibility. Hours spent in this project need to be applied to this project. No gifts and awards. Communication stuff is ok. Joint events are ok as long there is no separation of costs. No service contract with own employees as an external service. Partners should not contract each other. Internal invoicing is not possible, i.e. internal catering.

Cost categories: CAT0 to CAT6, see slides. These are then divided into simplified costs options and real costs. Staff costs is in unit costs. The manual on costs is under revision. CAT1 Staff – MAX 1720 hours per calendar year. Report is on a half year basis. The hour rate is predetermined, regardless of position. The maximum hours that can be reported changes depending on workload. Staff costs is the most important tab. You have to upload the report of hours to this tab.

The report of hours is done in a separate software. It's a PDF document on Interregs website. Current version is 2.0. Use Adobe Reader 10 or later for opening the PDF, do not open in the browser or other PDF-viewer.

BAMOS+ = Electronic data exchange system. Documents and admin project life cycle etc. An online system to check all documents and their place in the project. Reporting is fully covered by BAMOS+. Every partner need to fill in a partner report. It has to be controlled by both Interreg and controllers.

For section A+B, the lead partner has special tasks to complete a partner report. The lead partner needs to add the other partners in BAMOS+. Section C is partner specific. For the partner report, there is a specific controller section.

When the reports are clarified, the reports are reimbursed. There is no advance pay, Interreg can only reimburse. See the slides for how the payment is made. Pay attention to procurement, because each one will be checked by the controller. Bid at three: if the amount is above 10 000 euro, request at least three different offers. Save the proof that you got different offers. Special type of purchase: do not use in-house contracting. Consult your procurement experts. Costs need to be black and white in the end. Look at the slides to see what to avoid in procuring agreements.

Q: Are the hourly rates fixed for the project?

A: It is fixed, there will not be any adjustments. There might be changed for new projects. The rates are indexed.

Q: Why are can't we use our internal system?

A: Interreg is using a simpler type cost checking, there is no checking against salary. Number of units is the important part for reporting. We have to ensure that the hours are reported correctly. We do not want to risk any audit problems.

Q: Are the timesheets collected by the lead partner?

A: Handled by all partners.

Q: Do you need to reduce the workload number because of external factors, i.e. paternal leave?

A: It depends on what is in the contract.

Q: If we give everyone submit access, what happens?

A: There are two levels, on the project level they suggest only to have read access. On the partner level, they should have read, write and submit access.

Q: Item number column, if you accounted for one thing but it becomes more invoices, what happens?

A: Nothing, the form asks for group of activities. We suggest you contact Interreg if you have any questions regarding relevancy.

Q: Is there a specific controller in every country?

A: Some countries have centralised systems. The central body will check the expenses. Others have a decentralised system with specific criteria. Sometimes it can be a national control. In the Interreg toolkit there is information on controllers for each country.

Q: There can be case where the procurement is part of an earlier agreement. Are there any pitfalls in that scenario?

A: You can use them, as long as there was correct process earlier.

Q: We might need to purchase data from in house, what happens?

A: Check with the procurement experts, they know national law and how it applies in this case. Remember that you need to prove that you can only get the data from in house.

Q: The real working we are reporting, is this meeting counted? The dinner?

A: Yes, for meeting, the dinner might be on a national level.

Q: Is it the total number of hours per reporting year that you are reporting?

A: It will be automatically capped and reduced.

Q: When can you start your reporting on working on the project? (30th April)

A: You can see all the reporting times on the website.

Q: Can you clarify how to report how we work?

A: Only report total number of hours worked in the project.

Q: How long after the report deadline do you need to submit your report?

A: 1-month deadline to submit the report after the final day. Interreg can prolong the deadline, but they can give some leeway. Interreg are flexible.

Q: Are we more or less ok to report costs independent whenever they occurred?

A: No doubling is the rule, otherwise its ok. Interreg can align it with their fiscal years.

10 Let's get started! Detail planning of WP 1. Breakdown of the activities. Activity leaders (SMA, SAMK, RISE)

Showing the activities in the WBS (Work Breakdown Structure).

Activity 1.1 done, 1.2 coordinated by RISE, the aim with these is Delivery 1.1, product prototypes. Have the 80/20 workload in mind for prototyping and testing. The Baltic sea E-Nav base package consist of 3 levels: ENC-, depth- and sea surface prototypes. S-111 can wait, BS E-Nav needs to focus on S-104.

SMA have written specific parts for each partner. TRAFICOM needs to do some initial migration of the chart database early in the project. For others, this will come a bit later, time for that in WP3. After that is done, the partners can start on some ENC extraction. For SMA, they have everything stored in one database. SMA have problems during this process, and all HO's will need handle similar problems.

Next, S-102. EMA and MAL need to do some production system upgrades for S-102, which have already been carried out.

S-104 will need a model for how to apply the different sea surface prototypes. The description of the model is only a sketch phase, the way of treating that need to be treated carefully. The observation points are in place, but need refinement. What kind of accuracy is suitable? Detailed harbour operations are hard to model with S-104, hopes are that it will become clear during later phases of the process. One thing they have not focused on is uncertainty in the data that has been collected. In an ECDIS, you need to be able to track the uncertainty levels, i.e. CATZOC.

RISE presentation on the 1.2 activity, testing. Furuno Finland will develop the Navigation Software Prototypes (NSP) for other partners to use. Furthermore, WP2 starts at the same time as the software development. There will be simulators for testing piloting scenarios. RISE, SAMK and FF

will be meeting up in workshops. The security issues might need to be handled beforehand.

Below is a small summary of the discussion on testing areas, see the report from RISE for a more comprehensive evaluation.

Criteria:

-Shallow water

-Reference level

-Available or buildable in the simulator. The simulation might have some help from S-57. If the partners are able to have it in the simulator, it's better for end user piloting.

-Cross border water.

-Available oceanographic model

-Includes ports

-Water level adjustments are finished.

The group settled on five geographical areas.

Gulf of Bothnia, Umeå – Vassa (Sweden, Finland)

Irbes Strait (Estonia, Latvia)

The Sound (Denmark, Sweden)

Kadetrännan (Denmark, Germany)

Port of Gothenburg/Luleå (Sweden)

The possibility to choose one of these areas. The project needs options, as we might not get permission to publish the data. All data producers need to look at the areas and reflect on possibilities or issues with the areas. The partners requested the areas in geo-format.

The project comes from BSHC, the plan changed which contributed to a delay in the start of the harmonization work. We need to get together with the S-102 experts, we hope there will be some independency in this. It is also connected to S-104 for gridding.

Homework for every partner: to fill in tables on what they will do in each sub-activity and what the approximate cost will be. Tables to be provided by

SMA. This is both for setting a detailed structure in the project, but also as a fundament for the Partnership Agreements.

Q: Shouldn't it be some more interoperability box/boxes earlier in the project?

A: Yes, but is more applicable during later stages.

C: More discussions on earlier methods to tell that the product is functional is required.

C: PRIMAR plans to provide some checks to see difference between products. One option is to have the interoperability checks in S-98, but that is not decided. TRAFICOM currently have plans to create some sort of checks before the delivery to RENC for such interoperability. There should be no conflict between S-101 and S-102.

C: We analyse the checks on different levels. Traditionally, we have validated one dataset at a time. So we need to find a way file that works in the prototype.

C: In 1.2 we will do workshops. RISE needs early delivery to see that we actually load S-100 into ECDIS systems.

Q: Timing is very important; the deadline is one year from now for product prototypes. What we should agree upon, when do we want to be at the product prototype stage?

A: SMA suggest early next year.

C: We also need to agree on what edition of S-100 we decide to use for the prototype. However, after a new edition we don't want to work with older edition of S-100.

C: TRAFICOM cannot produce prototypes before September/October 2024. If there are any other partners that are converting, TRAFICOM needs help with that.

Q: A converted S-57 cell is better than nothing. Is it ok if others convert Finnish data?

A: TRAFICOM need test products, it is a totally new environment for them. TRAFICOM will go back and discuss when they can produce test data.

C: We put the delivery in the second period.

C: What are we really testing? Maybe just decide on whatever areas we are testing.

Q: What about data agreements? We need to be able to share the data.

A: It is in the partnership agreement. Maybe make the Annex on data agreements as a separate contract.

Q: Do we need contractual obligations in order to deliver test data?

A: We might need some kind of agreement. Might just be some kind of non-disclosure agreement.

C: The end of our project is some kind of commercial data, but it is not in the way the EU looks at output.

Q: How accessible will the software be for other partners, with different versions and upgrades?

A: It will be a separate PC running the software, not decided how they should share this PC.

C: There are developments in reading S-101 / S-102 data, such as NAVIC viewer.

C: One type of testing can be sending the data to PRIMAR. It is not just the data; it is the package of data that is important. It is important that the partners can package the data in the correct way. Also, this part needs testing. It not just the product and the format. A dataset should not just be the data but the package.

C: PRIMAR check has been tested by Estonia, but needs better response on what is wrong.

Q: Shouldn't the new PPU:s be able to take S-100 data?

A: They just started, there is no PPU in the project right now.

Q: Should you need all S-100 products at once?

A: No, realistically that is not going to happen. At the end of WP1 we should have a good prototype for each layer.

Q: Why haven't we decided on areas already?

A: Perhaps we can take time right now? Each and every org should take form this meeting some motivation on test data. There are a lot of criteria on where we should have the area. Entrances are interesting. Security is especially a problem in Sweden and Finland. Irbes strait is a good area. We need a common vertical datum in the area.

Q: Ref frame, according to S-98 it needs to be the same, but is that strict even for prototyping? For example, S-102 data supressing S-101 data.

A: You might get conflicting data if you do this. You might also get some artefacts.

C: We need to check in with the HELCOM plan and add it as criteria.

Q: Is FMI looking to talk with other institutes?

A: The model is very similar to other models, so they don't have workshops planned with other metrological institute such as DMI and SMHI. Copernicus can be a vessel for collaboration.

11 Outreach: general communication, visibility rules

Communication, how should the group communicate in the project? Communicating with the target groups, there are a lot of stakeholders in the Baltic sea. The partners should also showcase your project results, for relevant decision makers to be aware.

The program manual has a list of events to attend for us to take part in.

Visibility; make sure to use the Interreg logo in applicable ways. See the slides for other requirements. Interreg should be visible for the general public.

12 Other

BSH will lead S-102 activities. Patrick Westfeld confirms.