

Final Minutes
of the
NHC 62nd Meeting on 10-12 April 2018
Arkö Island, Sweden

A.1 Opening of the Meeting

Docs: NHC62 List of Participants, NHC62 List of Documents

The meeting was opened at 9:00. The NHC Chair, *Patrik Wiberg*, warmly welcomed the participants to the 62th Meeting of the Nordic Hydrographic Commission and looked forward to a fruitful and constructive meeting.

Unfortunately, *Dr Mathias Jonas* was not able to attend due to illness. *Georg Lårusson* and *Birte Noer Borrevik* were also unable to attend the meeting.

It was approved that *Annika Kindeberg* will act as secretary of the Meeting.

A.2 Practical information from the host

Docs: NHC62_A2_NHC62 Program

Patrik Wiberg welcomed everyone to Arkö Island in Sweden and informed the guests on practical arrangements. NHC and personal stickers were distributed to the participants.

A.3 Adoption of the Agenda

Docs: NHC62_A3_Draft Agenda Version 6.

The Draft Agenda was approved with the following amendments:

D.7, NO suggested it will be replaced by IHO Strategic Implementation plan discussions.

D.6, SE proposed D.6 to be handled after B.6.

D.2, FI wanted to add a presentation.

C.4, was removed.

E – FI wanted to discuss a questionnaire of printed charts.

A.4 Minutes and actions from the previous NHC 61st Meeting

Docs: NHC62_A4-1_NHC61 Meeting Minutes, NHC62_A4-2_List of NHC61 Actions

NHC61 Minutes has been commented and approved by correspondence. There were no further comments given in the meeting.

The action list from NHC61 was reviewed. Most of the actions were considered as done or on-going. The following comments were noted:

#1: New action, see action 1

#5, #7: DK received only one response (SE) and performed a telephone conference with SE, regarding licensing principles. IRCC9 showed no interest of adopting leisure boat issues. At the WENDWG, however, there were discussions on the subject and WENDWG has sent a question to the IRCC if they might add this issue to WENDWG ToR. DK will send out the questionnaire again.

#23: S-102 points of contact were discussed, it is important that HOs coordinate, this issue will be discussed. It was proposed to have a Nordic Contact list, including S-102 contact points.

Action 1: Chair to propose in the NHC report to IRCC10, that national requirement for ECDIS backup arrangements should be documented in association with S-66 to get better visibility for the end users.

Action 2: DK to send out revised questionnaire about the leisure market to all NHC MS and if necessary, arrange meeting.

B. IHO Work Programme 1 "Corporate affairs"

B.1 Report from the IHO Secretariat

Docs: NHC62_B1_Report from the IHO Secretariat

The IHO Secretary-General, *Dr Mathias Jonas*, was unable to attend the meeting.

The chair presented the report from the IHO.

DQWG actions was discussed, NO stated the importance of having the right participation in DQWG.

SE informed about a planned Cat B Hydrographic Surveyor course in November 2018. If the course is approved, there is a possibility to attend from other MS.

Discussions on the role of IRCC when the Council have been established. The Council has started a process to simplify and clarify decisions.

NO stated that C-55 and the Year book needs to be updated.

Action 3: Chair to present contact information on the IHO website of NHC and its WGs.

Action 4: All to consider the right participation in the DQWG.

Action 5: SE to present information on Survey course cat B in Gothenburg in November 2018.

Action P2: Member States to provide updates for C-55 and Year Book entries as appropriate.

B.2 National Report of Denmark

Docs: NHC62_B2_DK_National Report Denmark

Lars Hansen informed other MS about new routing system in Skagerrak and Kattegat in cooperation with Sweden. Approval of the new route is expected in May 2018. The deep water route T will be altered to achieve better safety. The traffic at Skagen is very intense. The TS will be moved further from Skagen and an inshore traffic zone will be established. Two recommended routes, A and B will be established after surveying the area. Implementation planned on 1 July 2020 and 3 new charts will be produced. Fuel consumption will be reduced by approx. 6 % when the new routes are finalized.

Jens Peter Hartmann informed that DK plans for an information campaign to leisure boat owners on the new routes. SE asked if there should be a joint information on this.

DK are buying two new 15 m ships for shallow water surveying and two ships/boats for Greenland surveying.

A tender for a new production system is being produced and DK would like to use experiences from SE and FI.

DK has a new product, called "light ENC", containing only coastline and depth contours. The product is supposed to support pilots and other navigators in Greenland waters where complete ENCs are not available.

The project "safe course" is used in the Greenland area.

DK will present a new license agreement, a draft has been sent out to the customers. The data will be "rented" out. WMS service will also be included. Volume of sales with upper limits. Protection of data will be a term of the new agreement.

DK has asked the government of their intentions to offer open DK hydrographic information. There is no response yet.

Action 6: Chair to present the new routing system in the report from NHC to IRCC10.

Action 7: DK to produce a draft joint information paper on new routing system.

B.3 National Report of Finland

Docs: NHC62_B3_FI_National Report Finland, Presentation

Rainer Mustaniemi briefly highlighted main issues. FI has worked hard on new systems implementation Bathymetric Data management System (MERTA) and Nautical Chart Production System (AHTI) see agenda item C.9.

The implementation of vertical chart reference N2000 has started.

Outsourcing phases of Maritime services since 2003 was reviewed i.e. Pilotage services, Ice-breaking services, Hydrographic Field Surveys and Fairway Maintenance. The Ministry of Transport and Communications is planning a major reorganization for the year 2019. According the plan two administrations will be established to where existing functions and tasks from the Finnish Transport Agency, the Finnish Transport Safety Agency and the Finnish Communications Regulatory Authority will be reorganized. In addition, a new state owned Traffic Management Company including i.e. VTS -services will be established.

Maarit Mikkelsen reported of FI surveying, and explained that FI had gained more experience of shallow water surveying, including using Lidar. Implementation of depth database is ongoing.

Jarmo Mäkinen reported that publication of new vertical chart reference (BSCD 2000/N2000) product publication will start in 2020.

B.4 National Report of Iceland

Docs: NHC62_B4_IS_National Report Iceland

Árni Vésteisson reported on new organization of Icelandic Coastguard from 2017 with smaller amount of divisions, where maritime is one of three. There is an ongoing process of improving the organization.

Surveying has been performed in the northwest regions to make a new chart. There is also plans to survey and produce charts at the Breidafjörður which is the most shallow area of Iceland and also impacted from tides and currents.

Iceland is implementing a new production system since 2016 and will be finished 2018.

Árni completed his presentation day 2 with information about MSDI where Iceland hosted a meeting in June 2016 and ICG-HG gave a presentation which led to the decision of Iceland joining ARMSDIGW.

Iceland updated its baseline and adopted a contiguous zone in June 2017.

B.5 National Report of Norway

Docs: NHC62_B5_NO_National Report Norway

Evert Flier regretted that *Birte Noer Borrevik* could not participate.

Re-organisation 2016, with four strategic tasks: Nautical charting, Survey, Marine infrastructure and Primar. The Geodata department now has a flatter organization, which is in progress.

NO has, together with 11 other agencies of Norway, produced a Marine spatial management tool to make plans for the sea areas.

B.6 National Report of Sweden

Docs: NHC62_B6_SE_National Report Sweden

Magnus Wallhagen informed about HO of Sweden organization and the new managers Kennet Swahn and Tomas Gränne.

Surveying has been performed, in total 10,900 km², with approx. 35-40 m as the medium depth. 58 % of Swedish waters is now in FSIS-44 quality. In 2018, SE will survey with both in-house resources and with procurement.

The "Chart improvement project" are in progress, 11 NE charts, 23 NE ENC's and 1 NE Small craft chart have been published until this date.

New legislation on maritime limits and boundaries came into force 1 March 2018. A contiguous zone has been established. The data is now available in digital format via www.geodata.se. All NE charts from 1 March will have the boundaries presented. The ENC's including new boundaries will be published during 2019. The existing ENC clip area will not be effected at present.

For the project Seabed 2030, Stockholm University is a regional center responsible for the Arctic and Pacific areas. Some information on this matter will be sent as an e-mail.

The chart viewer on www.sjofartsverket.se was presented (on request).

B.7 Review of the NHC Statutes

Docs: NHC62_B7-1 Review of the NHC statutes, NHC62_B7-2 Rules for selection of Member States from the NHC

The Chair presented the proposal of Revised NHC Statutes. The suggested corrections are in line with the new organization of IHO.

Day 2, proposal from SE as a result from the discussion under D.6 NHC MS response to Disaster and Crisis to make the following addition: "3d) To cooperate in the case of crisis and disasters affecting one or several Members ~~and also to exchange best practice in risk assessment and national contingency plans.~~" Meeting accepting with the remark to withdraw the over lined wording.

Action 8: Chair to send the statutes to IHO after signing.

B.8 Status report from the IHO EU Network WG (IENWG)

Docs: NHC62_B8_NO_IENWG

Evert Flier reported on the work of the IENWG. There is a good representation from the IHO as well as from the Nordic countries.

DK described that this work needs to be more intense to get good results for example when it comes to Arctic issues. A question – does the WG also take note of other projects and WG such as Copernicus?

The view of SE representative is that IHO has been noticed as an important player.

Evert Flier will continue as NHC representative in this WG.

C. IHO Work Programme 2 "Hydrographic Services and Standards"

C.1 Report status and plans of nautical publications

Docs: NHC62_C1-1_NO_NCPWG Report, NHC62_C1-2_NO_Nautical publications

Evert Flier presented the digitalization of the Norwegian Pilot guide. The project include streamlining the data flow, tide and wind information etc.

Question from FI: How many data providers? Answer: 278 coastal communities, ca 200 ports.

Question from SE: How do you prepare for ECDIS use in the future? Answer: The future with S-100 for nautical publications is very unclear today.

Evert presented the NCPWG action on ECDIS symbology catalogue. UK and NOAA have ECDIS chart I. NCPWG feels it is too ambitious to make this publication. Nordic countries should not make the effort of this work, but using one of the existing instead, preferably the NOAA version. <https://www.nauticalcharts.noaa.gov/publications/docs/us-chart-1/ChartNo1.pdf>

Action 9: All MS to investigate the possibility to include ENC Symbology for ECDIS in national INT I to the next NCEPG meeting.

C.2 Validation of Multibeam data

Docs: NHC62_C2_Nordic Hydrographic technical WG 2017 workshop

Evert Flier informed about the Nordic Hydrographic Technical WG. This group is exchanging experiences, which is very productive. The WG would like to have annual meetings off-season. SE proposes to continue bi-annual meetings. New name, Nordic Survey Expert Group. Next meeting; the autumn 2019 in Finland.

Decision: New name of the group; Nordic Survey Expert Group (NSEG).

Action 10: FI to host and chair next (NSEG) meeting. Task the group to discuss role and scope of the group. Report to NHC for approval.

C.3 Experiences with green laser bathymetry survey

Docs: NHC62_C3-1 Short Summary Experiences with Green Laser Bathymetry, NHC62_C3-2 Presentation Experiences with Green Laser Bathymetry

Evert Flier made a presentation of the LiDAR project where a seamless elevation model is the goal. National funding was received and surveying on land and sea including Lidar has been performed. Project to be finished in 2022 Lidar is very effective when "all is good", sometimes depths 10-12 m can be captured. 49 % data. Lessons learned... 0-5 m the goal but only 50% of this has been achieved. Optech Titan was the equipment used for the survey.

DK wants more info on Object detection. NO will provide.

C.4 --

C.5 National data policies in regard to Crowd Sourced Bathymetry

Docs: --

Evert Flier is a representative in the CSBWG and argued that we need a data policy in our offices that we can use CSB. Some HO use CSB (France, US) in some cases. How aware are we and do we have a policy? Lack of metadata is a problem. Evert thinks that NHC MS need to bring this important question to its office and invites us to use, for example, research vessels to assist in collecting data.

Jens Peter Hartmann said that guidelines on how to use the data are needed. There is many other purposes than navigational use. CSB data is better than no data. Can we have trusted and un-trusted data sets?

Arni Vésteisson informed that IS made a research project in 2005 where different data sets were compared. Result, use cat B-C >200 m. Iceland today uses CSB for >100m

Rainer Mustaniemi informed that in Finnish waters it is not allowed to survey but support the use in international waters.

Magnus Wallhagen said that Sweden has the same situation as Finland.. It is a big difference between small boats collecting shallow waters data and collecting data on deep waters. Navigational data or other purposes? There have been incidents in SE when CSB data has been used.

Lars Hanssen informed that a concept of trusted CSB can be used in DK, but to let anybody send us data will mean a risk with overload.

Action 11: SE to invite Martin Jakobsson to NHC 63 to further discuss CSB and Seabed 2030.

C.6 Nordic Chart Production Expert Group

Docs: NHC62_C6_NO_NCPEG 2017 minutes

Evert Flier reported from NCPEG that meets bi-annually.

There were discussions about the ToR of this WG and the meeting decided that we need to include the issue of harmonizing future S-100 products. Next host and chair is SE.

Action 12: SE to arrange NCPEG meeting in September 2019.

Action 13: Chair to amend ToR to also include future S-100 products and have agreement with all MS.

Decision: All WG ToR shall be published on IHO web.

C.7 Marine base maps

Docs: NHC62_C7_NO TopoBaty 2014- Testing LIDAR mapping in the coastal zone of Norway, Presentation

Evert Flier presented the NO project TopoBathy, surveying the seabed. Cost/Benefit analysis shows benefit. There is also a pilot project – Pre-Magin, including data for geological administration such as aquaculture and fisheries. New technology has been tested, for example remote survey boats.

DK are interested in the value creation, would like to investigate the CB analysis.

Action 14: Norway to send out C/B analysis to MS.

C.8 New Bathymetric data management system MERTA

Docs: --

Maarit Mikkelsson informed about the implementation of depth DB Merta. FI started procurement 2016. Minimum requirements, quality and price components was asked and evaluated in the procurement. Two tenders were received and Caris won the tendering process. The project has run according to the plan and final delivery was accepted in February 2018. Migration phase is in the process.

C.9 Development project for a new chart production system AHTI

Docs: --

Rainer Mustaniemi informed about the project of a new chart production system. The procurement design started 2017 and implementation in December 2017. Testing and training are performed at the moment and final acceptance of delivery is expected in December 2018. .

C.10 New Chart Production system with Cartography in source

Docs: NHC62_C10_SE New Chart Production System with Cartography in source

Kennet Swahn informed why SMA is using Cartography in source and what products SMA can produce with Caris HPD. To produce ENC from the new system was very fast and easy. Graphical products however, are much more complicated with one-to-one migration from the old paper charts. Cartography in source opens up for a simplified workflow. S-101 includes cartographic attributes and SE expects to be able to reuse existing cartography in future S-101 products.

C.11 Harmonized Chart datum between Denmark, Norway and Sweden

Docs: NHC62_C11_SE Minutes Chart Datum Skagerrak meeting

Thomas Hammarklint presented the results of this action from the last NHC meeting. Background – In SE BSCD2000 is being implemented and will be finalized in 2021. NO are using a different system. The CDWG have been working on harmonizing the chart datums. In Skagerrak, an interim solution will be necessary to ease up the situation for the users and to avoid duplication of work. Conclusions from meeting, important with harmonization. SE, DK and NO have BSCD2000 as LAND survey datum. SE and DK aim to have implemented BSCD2000 in all products at the latest in 2020. NO has no plan to use 2000 for water level and as chart datum. In Idefjord, SE and NO need to coordinate a harmonized presentation. Today it is 0,6 m difference between SE and NO depths!

Comment from DK: Different CDs are used in DK waters, however the large depths make system differences negligible.

DK will harmonize the implementation plan with SE in the Sound.

Action 15: SE to invite NO and DK to a meeting to discuss CD harmonization with focus on Idefjord.

C.12 ---

D. IHO Work Programme 3 "Inter Regional Coordination and Support"

D.1 Outcome of WENDWG8

Docs: NHC62_D1-1_Bulletin report WENDWG, Presentation IHB, Presentation DK+FI

Evert Flier reported from the last WENDWG:

1. A new IHO ENC catalogue, provided by Primar, has been published and it is more user friendly.
2. RENCs will produce a standardized specification for leisure crafts, since HO also have an obligation towards this market.
3. It is a huge difference in update regimes between different HOs. For some 3 weeks and for some 3 days.
4. Hong Kong HO builds a virtual RENC.
5. There was discussion on the resolution solving ENC overlap. If an ENC overlap is not solved within one year, it will be reported to IMO.

SE asked if there has been any reaction on bullet 2 from the large licensees. Evert thinks that they would appreciate if data is authoritative.

DK said that their project "safe course" had the same intention. What is the approach from IHO? Important that we consider their approach.

FI – Finnish S-57 data is kind of official, including an updating regime.

NO informed of the web site Havbase.no where AIS tracks are available.

D.2 E-navigation

Docs: NHC62_D2_SE_Status E-navigation in Sweden

Magnus Wallhagen gave a short presentation on the status of project *FAMOS*. Odin, the second phase, is in progress during 2016-2018. Includes surveying and how data can be used for efficient shipping including minimizing fuel consumption. Water levelling, geodesy, under keel clearance are important tasks in FAMOS. STM (Sea Traffic Management) is another project with SE lead which is working on route planning and route exchange. STM currently works with Just in Time-system where benchmarking the aviation industry to make the maritime industry more efficient is performed.

Magnus invites all MS to think about participation in future project and proposes that we search for more clear advantages for the end-users.

Rainer Mustaniemi gave a presentation of the Finnish pilot project *Smart Marine Fairways*. It includes i.e. development of bathymetric surfaces and realtime waterlevel and forecast services. In addition a new method for automated contour generation was studied and tested. The method will be taken into use in Finnish HO by implementing algorithm to the new Chart Production System. AHTIadn will be available for all Caris HPD users.

DK says it is important that all work together in the projects.

NO has questions on the situation of automatic contouring algorithms. SE wonders if we should have a common algorithm for contouring? There is a workshop in Germany on this subject later this year.

Action 16: Chair to ask BSH for invitation for Finland to the coming workshop regarding automatic contouring.

~~D.3 FAMOS report (see D.2)~~

D.4 MS chart data in WMS for use in national government agencies

Docs: --

DK and SE were tasked from the last NHC meeting to declare the position regarding usage of their chart data in WMS for other government agencies.

DK declares that they cannot agree to open data for NGAs.

SE has the same position as DK.

NO says it would be beneficial if consequences of open data could be described.

D.5 Evaluate the value of joint training of HO employees and report critical competences needed within NHC HO

Docs: --

There has not been so many occasions for joint training so far but the MS's will inform NHC MS when opportunities occur. The Swedish new Cat B course for surveyors will be a possibility to joint training course.

D.6 NHC MS response to Disaster and Crisis

Docs: NHC62_D6_ NHC MS Response to Disaster and Crisis

Magnus Wallhagen presented the IHO resolution on disaster and crisis management. The land data of the Nordic countries are shared in case of crisis. IHO is urging us to take some action on this matter.

Discussion on different kind of crisis situations that might happen and what kind of support we could offer each other on multi-lateral risk assessment. There is a common opinion of the meeting that we would like to co-operate on this matter.

SE was tasked to propose a new wording to be presented day two and to be included in the Statutes. This was done and the result is described under agenda item B.7 Review of the NHC Statutes.

Action P7: MS to coordinate all actions needed within the NHC in case of a disaster.

D.7 Cost Benefit Analysis of Increased Production and Improved Availability of Marine Geospatial Data

Docs: NHC62_D7_ NO Cost Benefit Analysis of Increased Production

Evert Flier informed of the C/B analysis of increased production and improved availability of Marine Geospatial Data.

Action 17: NO to send the latest Cost Benefit Analysis to MS.

D.8 IHO MSDI WG Report

Docs: NHC62_D8_MSDI Report

Jens Peter Hartmann presented the WG results of the latest meeting 9. The tasks are Communication and dissemination, Operational (data sharing and management), Policies and governances – RHC, Standards, Innovation – future perspectives, Training and education, Maintain and extend the publication IHO MSDI C-17, Conduct annual meetings of MSDI WG.

The video on *Marine Spatial Data Infrastructure* is available on You tube (IHO MSDI Video).

Publications S-64 and S-58 have been on the agenda and the WG works together with international forums such as UN-GGIM, ISO, OGC and the IHOMSDI WG. UN-GGIM has started a WG on Marine Geospatial Data where DK and NO are members.

Jens Peter shared his opinion of benefits when sharing data, even if it is not open.

D.9 IRCC10 Preparation

Docs: --

Patrik Wiberg proposed for SE as acting and FI as next chair to produce the report for IRCC10 in Goa and send out draft.

Action 18: MS to provide input if needed to NHC Chair for inclusion in the IRCC10 report.

Action 19: Chair to draft IRCC10 report with support from SE and send to MS for support.

E. Any other business

E.1 Questionnaire

Jarmo Mäkinen asked if it is possible to send out a questionnaire about charts, printing etc. and would like to have MS response next week.

Action 20: MS response to Finnish questionnaire before April 20 2018.

E.2 WEND representative

Evert Flier proposes that SE represents NHC in the WENDWG. NO is the representative of Arctic HC.

Decision: SE is the NHC representative in the WENDWG.

Action 21: NO to report to IHO of new NHC representative in the WENDWG.

F. Election of new Chair and Vice-Chair

Finland will have the next chairing turn and *Rainer Mustaniemi* was elected as a new chair of NHC.

G. Place and date of next Meeting

Finland informed that the next Nordic Hydrographic Commission NHC63 meeting will be held tentatively in early 9-11 April 2019 Helsinki or nearby.

Action 22: Chair will confirm the date and place for NHC63.

H. Review of NHC62 List of actions

Docs: NHC62_List of Actions

The secretary reviewed the actions from NHC62 and they were approved.

Action 23: Secretary to forward Draft Minutes and Draft List of Actions to all participants by 30 April 2018.

Action 24: All to forward their comments to Draft Minutes and List of Actions to secretary by 15 May 2018.

Action 25: NHC chair/secretary to distribute Final Minutes and List of Actions by end of May.

I. Closing the Meeting

The Chair thanked all participants for their active contribution and closed the Meeting.

FI thanked SE for chairing and hosting the NHC62 and awarded the NHC 62 participants with the *FTA 100 years* medal.

Annex:

1. List of NHC62 Actions