



**IHO Capacity Building Programme**

**The State of  
Hydrography and Nautical Charting  
In Republic of Azerbaijan**

**December 2017**

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## Abbreviations

ASMA	Azerbaijan State Maritime Administration
CB	Capacity Building
CBSC	Capacity Building Sub-Committee
DNC	Department of Navigation and Cartography
ENC	Electronic Navigational Chart
IHO	International Hydrographic Organization
IMO	International Maritime Organization
LRIT NC	Long Range Identification and Tracking National Centre
MBES	Multi-Beam Echo Sounder
MBSHC	Mediterranean and Black Seas Hydrographic Commission
MSI	Maritime Safety Information
MoD	Ministry of Defence
NHA	National Hydrographic Authority
NHC	National Hydrographic Committee
NtMs	Notice to Mariners
PCA	Primary Charting Authority
RHC	Regional Hydrographic Commission
SOLAS	[United Nations] Convention for the Safety of Life at Sea
DNHO	Turkish Navy-Department of Navigation, Hydrography and Oceanography
UNCLOS	United Nations Convention on the Law of the Sea
WEND	Worldwide ENC Database
WWNWS	Worldwide Navigation Warning Service

## REPORT

### 1. Introduction

The International Hydrographic Organization (IHO) is an intergovernmental international organization, currently comprising of 87 Member States. The IHO seeks to ensure that all States with coastlines and maritime interests provide adequate and timely hydrographic data, products and services, thereby advancing maritime safety and efficiency in support of the protection and sustainable use of the marine environment. The United Nations recognizes the IHO as the competent authority for hydrography and nautical charting. The IHO Secretariat, based in Monaco. Azerbaijan is currently not a member of IHO.

The IHO has encouraged the establishment of Regional Hydrographic Commissions (RHCs) to coordinate hydrographic activity and cooperation at the regional level. The RHCs are made up predominantly of IHO Member States; however, other coastal States may also participate as Associate Members or Observers. RHCs are not formal bodies of the IHO, but work in close cooperation with the Organization to help further achieve its goals and programs. RHCs meet at regular intervals to solve mutual hydrographic and chart production problems, plan joint survey operations, and resolve schemes for International Chart coverage in their regions.

This report has been written with the express intention of assisting the Government of Azerbaijan to strengthen and develop its hydrographic capability to meet its current and future needs and its international maritime obligations under the UN Convention for the Safety of Life at Sea (SOLAS). The report comprises a description of the visit, major conclusions and a number of recommended actions for consideration by the relevant organizations.

The report is supported by various Annexes providing detailed information including the dependence on hydrography and nautical charting of various sectors in Azerbaijan, an analysis of the current survey state, an analysis of the existing charting situation and recommendations for the strengthening of national hydrography in Azerbaijan.

### 2. IHO Technical Visit

A proposal for a technical visit to the Azerbaijan was approved by the 15<sup>th</sup> Capacity Building Sub Committee (CBSC) to assess the current status of nautical charting and hydrography in the country and to provide advice to the government and to stakeholders on a way ahead. The language of the technical visit was submitted and approved as Turkish so the visiting team was defined to be comprised by Turkey.

**Capt.Serdar AKAN** and **Cdr.Burak İNAN** from Turkey carried out hydrographic awareness and technical assessment visit to Azerbaijan between 12 and 14 December 2017.

The IHO Team first called on the Chief of the The Department of Navigation and Cartography (DNC) **Capt.Davud BAGHIRLI**. The main meetings were held at the building of DNC where the members of the Hydrographic and Cartographic Section had assembled.

The meetings enabled the IHO Technical Team to build up a picture of the conspicuous features of the hydrographic activities. The meetings also facilitated the appreciation of data available and data sharing amongst the national representatives. It was clear to the visiting team that all the stakeholders especially Department of Navigation and Cartography (DNC) was well prepared for the meetings and able to actively interact with the team. This resulting report has been written with the express intention of assisting the Government of Azerbaijan to develop and strengthen its hydrographic capability to meet its current and future needs and also its international maritime obligations under the SOLAS Convention.

The report comprises a description of the visit, a brief assessment of the current situation and an analysis of the nation's hydrographic needs, major conclusions and a number of recommended actions for consideration by the relevant authorities.

### 3. Assessment of the Previous Technical Visit

No technical visit was conducted before.

### 4. Azerbaijan Hydrographic Assessment

The following is a general assessment of the situation in Azerbaijan regarding hydrography and nautical charting services.

#### 4.1 National Hydrographic Awareness

In general, there is high awareness in Azerbaijan of the obligations and provisions under SOLAS Chapter V Regulations 4 and 9 to ensure that appropriate hydrographic and charting services are made available. Azerbaijan has been a member of IMO and a signatory to the SOLAS Convention.

The Government of Azerbaijan, through its various agencies, is aware of the current state of hydrography and nautical charting in Azerbaijan and the benefits of modern hydrography to economic growth, safety of navigation and protection of the marine environment. Awareness was one of the key tasks of the IHO Technical Visiting Team.

#### 4.2 National Hydrographic Infrastructure

Two agencies within Azerbaijan have responsibility for/or participate in matters: Department of Navigation and Cartography of Ministry of Defence and Azerbaijan State Maritime Administration (ASMA).

ASMA has responsibility for Maritime Affairs and implementation of all Maritime Conventions ratified by Azerbaijan. It is a regulatory body. It has no hydrographic or charting capability.

DNC within in the Ministry of Defence (MoD) is the principal point of contact with the IHO and responsible for hydro meteorology, maintenance and improvement of marine navigational aids in ports and coasts, national hydrography and nautical charting. DNC represents itself as the Primary Charting Authority (PCA).



Şekil 1- Visit to ASMA

### 4.3 National Hydrographic Committee (NHC)

To coordinate hydrographic effort for the effective fulfilling of SOLAS responsibilities and the efficient management of a State's maritime area the IHO recommends the establishment of a National Hydrographic Committee (NHC) to provide input and coordination of the hydrographic programme and setting national charting and surveying priorities. In this way, the stakeholders are in a position to assist in the continuing maintenance of the charts, longer term planning and perhaps also to the programme budget.

All hydrographic stakeholders need to be involved in contributing to Azerbaijan national hydrographic programme. This is not only to identify and prioritise national requirements, but also to contribute to the execution of the programme. This could be through help in-kind, such as the provision of ships/boats, or personnel or through contributions to enlist contract support – for example for surveys of areas targeted for development. A key role for the stakeholders is to educate and encourage everyone to forward all relevant new or changed hydrographic information to the national coordinator for hydrography and charting.

Azerbaijan has currently no established National Hydrographic Committee (NHC) but the need for coordination of the national hydrographic effort was clearly demonstrated to the IHO Technical Team.

### 4.4 National Hydrographic Authority (NHA)

The IHO recommends that every coastal State should designate a NHA responsible for coordinating hydrography and charting in the country. The role of the NHA is to be the principal national and international point of contact and to act on behalf of the government to ensure that the State meets its international obligations to make proper Maritime Safety Information (MSI) and nautical charting services available to mariners. The NHA is the first point of contact for in-country stakeholders and for maintaining relations with relevant international organisations. In the case of Azerbaijan, these contacts would include the IHO, MBSHC, related MBSHC Coordinators, other countries and agencies that might support hydrographic development and assistance in Azerbaijan.

Although Azerbaijan State Maritime Administration (ASMA) is the lead authority for maritime safety, Department of Navigation and Cartography (DNC) is the recognized point of contact for the IHO. So, the DNC seems to be the most appropriate body to be the NHA. The Ministry of Defence should seek a formal arrangement in order to establish a national legal framework by means of a law, decree or equivalent.

### 4.5 Maritime Safety Information (MSI)

There is an established MSI infrastructure but does not coordinates its activities with the Worldwide Navigation Warning Service (WWNWS) implemented globally by the IMO and IHO. The ASMA represents itself as the primary Navigational Warnings Authority and DNC represents itself as the primary Notices to Mariners (NtMs) authority in Azerbaijan. Nevertheless, an appropriate national service is being provided for Azerbaijan waters and the ASMA is the point of contact for the MSI.

It has been determined during the visit to the ASMA that MSI data has been exchanged via internet/official fax among the coastal states without a coordinating body in order to enhance the maritime safety at the Caspian Sea.

The technical visit team visited the Long Range Identification and Tracking National Centre (LRIT NC). According to the paragraphs 8.17 and 8.27 of the "Statute of the State Maritime Administration of the Republic of Azerbaijan approved by "Presidential Decree № 395, dated 20 April 2006, enforcement of Chapter V Regulation 12 (Vessel Traffic Services) of

SOLAS Convention are obliged to ASMA and this function are undertaken by the Centre. The main functions of the center are ensuring safety of navigation at sea, providing VTS services, coordination of SAR activities, ensuring that harbour masters perform effectively, undertaking flag and port state control on vessels and providing pilot services.



*Şekil 2-Visit to LRIT NC*

#### 4.6 Hydrographic Surveying

Surveys in small percentage (in just small marinas and ports) have carried out to modern equipment during last 3 years but only with single beam echo-sounders. The surveys do not meet the minimum standards of IHO Standards for Hydrographic Surveys (S-44). The data contained in charts come from old bathymetric data, usually from digitization of reprinted nautical charts. DNC has limited capacity for hydrographic data processing at this stage. This is mainly because of lack of modern software, lack of experienced staff and not clearly defined work flow.

DNC has been conducting surveys with side scan sonar system particularly for checking oil and gas pipelines, shipwrecks and port entrances.

Due to ambiguity regarding maritime boundaries on Caspian Sea there is uncertainty for survey responsibilities between the Azerbaijan and the other coastal states.

#### 4.7 Nautical Charting

Since Azerbaijan is not yet a member of the IHO, there is no official schema of INT paper nautical charts. The Azerbaijan coasts and the Caspian Sea are currently covered by 41 paper charts listed in Annex-A and 40 ENC's produced by the Department of Navigation and Cartography (DNC). Although most of the data contained in charts come from old bathymetric data, usually from digitization of reprinted nautical charts, they are updated by monthly basis Notices to Mariners (as updates or blocks) and contain the latest navigational significant information. The data from which the charts are compiled is noted as being in many cases old. The charts and ENC's are distributed by only the Department of Navigation and Cartography.

DNC has limited capacity for chart compilation at this stage. Only one chart (chart 2329) has been compiled as a new edition during the last three years. This is mainly because of lack of chart production software, lack of trained nautical cartographers, lack of experienced staff

on nautical charting and lack of hydrographic data. Inappropriate organizational structure and work flow in chart production are also two other factors. Department of Navigation and Cartography uses CorelDraw for paper chart production and 7Cs for ENC production.



*Şekil 3-Visit to Chart production office*

Azercosmos is the company provides highly reliable, satellite-based communication services to enterprise and government customers for DTH, voice, video, data and mobility applications. It is the only satellite operator in Caucasus established on May 3rd 2010 and fully owned by the government of Azerbaijan Republic. Having launched the Azerspace-1, the first-ever satellite of Azerbaijan, on February 8th 2013. Azercosmos can provide topographical maps in appropriate scale which covers the coastline of Azerbaijan in order to contribute to the update of nautical charts.

The visiting team could not identify any formal arrangement for chart production responsibilities between the Azerbaijan and the other coastal states.

#### 4.8 Hydrographic Resources

The main hydrographic resource is Department of Navigation and Cartography (DNC). Companies like BP, SOCAR-FUGRO, Geo Kinetics and Van Oord also provides data for gas and petrol areas.

DNC is responsible for the operation of the survey ships and boats. There are 2 survey ships (H-560 and H-561) and 2 survey boats (H-562 and H-569) actively used at this moment. The survey platforms are old but in good maintenance condition and equipped with the following systems.



Survey Platform	Technical Information	Equipped with
<p>H-560</p> 	<p>Length: 61,03m  Displacement: 1122 ton  Crew: 26</p>	<p>Maritech Adriatic Shadows Side Scan Sonar with the full suite of supporting devices.</p> <p>NaviSound 215 Single-beam Echo sounder with the full suite of supporting devices.</p> <p>Trimble GPS</p>
<p>H-561</p> 	<p>Length: 53,4 m  Displacement: 682 ton  Crew: 24</p>	<p>Klein System 3000 Side Scan Sonar with the full suite of supporting devices</p> <p>NaviSound 215 Single-beam Echo sounder with the full suite of supporting devices.</p> <p>Trimble GPS</p>
<p>H-562</p> 	<p>Length: 28,58 m  Displacement: 127 ton  Crew: 9</p>	<p>Furuno FE-700 Single-beam Echo sounder</p> <p>Furuno GP-31 GPS</p>
<p>H-569</p> 	<p>Length: 28,58 m  Displacement: 127 ton  Crew: 9</p>	<p>PEL-4 Single-beam Echo sounder</p> <p>Furuno GP-31 GPS</p>

Department of Navigation and Cartography (DNC) mostly has the archive of hard copy of raw survey data.

There are two permanent tide gauges (analogue) located in Naval Base Baku City and Main Naval Base Puta Area installed in the country carried out by DNC.

#### 4.9 Personnel and Training

Department of Navigation and Cartography has 7 officers. However, they are well-motivated and highly professional with mixed specializations, grades and experience. The current manpower available to DNC is summarized below.

Staff	Number	Comments
<b>Hydrographic Specialists</b> <b>Surveying</b>	7	6 of them have hydrographic course Cat B, 1 of them has experience by on job training
<b>Cartographers</b>	6	Graduated from Technical High School
<b>Technical Assistants to Specialists</b>	11	Graduated from Technical High School
<b>Other professional staff</b>	-	-
<b>Computer specialists</b>	1	-
<b>Other specialized staff</b>	3	Electronics, communications

#### 4.10 Additional stakeholders

Ministry of Emergency Situations, Ministry of Finance, Ministry of Economy, Azerbaijan Caspian Shipping Company and other shipping companies, Ministry of Foreign Affairs, Ports, Ministry of Ecology and Natural Resources, Ministry of Defence, Navy and Patrol and Gas Companies are additional stakeholders due to their activities.



*Şəkil 4- Visit to Navy Headquarter*

#### 4.11 Contingency Plan

There is no contingency plan which can be used after the occurrence of a disaster affecting coastal areas under national jurisdiction to promulgate Maritime Safety Information and conduct a preliminary survey to confirm the principal transportation routes.

### 5. A Way Ahead

#### 5.1 Maritime Safety Information (MSI)

MSI is considered by the IHO as the first phase in hydrographic capacity building. Although there is an established national MSI infrastructure and informally coordinates its activities in Caspian Sea it was clear to the IHO Technical Team that there was lack of understanding and coordination of MSI affairs under the SOLAS obligations. So, MSI training for staff is needed. DNC and ASMA may benefit from valuable MSI training opportunities of the IHO Capacity Work Programme. To assist in this the MBSHC CB Coordinator should submit the MSI training requirement of Azerbaijan in the next CBSC meeting.

#### 5.2 National Hydrographic Surveying and Charting

Azerbaijan has extensive hydrographic surveying needs. Surveys are inadequate and not done according to modern standards. The data from which the chart and ENCs were compiled is noted as being old, imperfect and come from digitization of reprinted old nautical charts. To assist in this the IHO Technical Team recommended that the DNC to establish a Hydrographic Strategy Plan which includes Charting Plan, a Survey Plan, a Training Plan and an Infrastructure Development Plan with the priorities and milestones.

#### 5.3 Bilateral Arrangements for Surveying and Charting

Bilateral agreements with established hydrographic services are a valuable means of fulfilling SOLAS obligations for countries with a limited and/or developing hydrographic and charting capability.

There is no bilateral arrangements other than a protocol which was signed in December 2017 between Azerbaijan and Turkey in order to promote cooperation in the field of hydrography and cartography . Also there is a formal bilateral agreement with Turkish Navy-Department of Navigation, Hydrography and Oceanography (TN-DNHO) to be the PCA as an interim solution until the in-house chart production is established.

#### 5.4 National Hydrographic Committee

It was evident to the visiting team that Azerbaijan is already aware of the need of the effective cooperation and coordination of the national activities regarding with the hydrography. So, as a first step it is recommended that the regular meetings of the stakeholders, which can be called National Hydrographic Correspondence Group, under the chairmanship of DNC are held to make best use of Azerbaijan's valuable hydrographic assets. This will prove a positive step towards the establishment of a formal National Hydrographic Committee (NHC) to build a solid maritime infrastructure to support the safety of navigation and the economic growth. It is recommended that the Ministry of Defence (MoD) should seek a formal arrangement in order to establish a national legal framework by means of a law, decree or equivalent.

#### 5.5 National Hydrographic Capability Development

Azerbaijan has limited national hydrographic and cartographic resources and lacks a legal arrangement and an investment on these issues.

Training is a continuing issue for DNC with all of its technical training having, by necessity, to be conducted outside of Azerbaijan. To bring the current staff to a fully trained level

requires the provision of two (2) IHO Cat A Hydrographic Course, and three (3) IHO Cat B Cartographic Course. The new recruits, if provided, to Department of Navigation and Cartography will also require training to IHO Cat B level in their respective disciplines. It is recommended that the training be provided to the existing staff as a matter of priority with that for new recruits allowed for in future budgets or plans.

There are limited opportunities for international hydrographic training. A list of courses is contained in IHO publication *C-47-Training Courses in Hydrography and Nautical Cartography*, freely available from the IHO website. The list of the FIG/IHO/ICA recognized programmes in Hydrography and Nautical Cartography can be found in the IHO website under "Capacity Building". Short courses in the fundamentals of hydrographic data gathering are available through the IHO Capacity Building Programme and should be considered by Azerbaijan with the MBSHC CB Coordinator support.

It is an option for Azerbaijan to establish formal bilateral agreements with well-established hydrographic offices as an interim solution until the in-house chart and survey production is established.

An additional source of capacity building is to include clauses in commercial survey contracts in the country to include capacity building. This can be achieved by amending national regulations that control surveys in the national sovereignty.

## 5.6 Contingency Plan

All Coastal States should have contingency plans developed in advance in order to be prepared in case a disaster occurs. After the occurrence of a disaster affecting coastal areas under its jurisdiction, each State should promulgate Maritime Safety Information and conduct a preliminary survey to confirm the principal transportation routes, according to the extent of the damage. In response to the reconstruction of ports, each State should undertake hydrographic surveys so as to keep the charts updated. These actions should be coordinated with neighbouring States, Regional Hydrographic Commissions and others as appropriate. It is important that each Coastal State provides both a senior point of contact and a working point of contact for communication and coordination purposes; this could include the DNC, Maritime Safety Department (MSD) and the Ministry of Emergency Situations which seem the most appropriate organizations so far. Contingency plan should contain the key elements which are stated in IHO Resolution 1/2005 as amended - *IHO Response to Marine Disasters, and Contribution to Prevention and Alert Systems*.

## 5.7 Maritime Spatial Data Infrastructure

All states are advised to establish a Marine Spatial Data Infrastructure (MSDI), which will be integrated to the National Spatial Data Structure in the later stage. In this way, NHAs could provide "much more than nautical charts" to all sections and interested parties (wider use of hydrographic data, improved decision making, reducing duplication, improved data management, cost savings through efficiencies, etc.). DNC has currently no MSDI.

## 6. Technical Visit Conclusions

Based on discussions and the facts obtained, the following principal conclusions have been reached:

- (1) There is high awareness of national hydrography in Azerbaijan and a desire to improve it. Most of the necessary components for addressing hydrographic issues, in relation to SOLAS Chap. V regulations in particular, are in place in Azerbaijan. Azerbaijan, as contracting Party to the SOLAS convention and IMO Member, is already in the position to increase its hydrographic capability and has desire to be a member of Hydrographic Community.
- (2) Ministry of Defence (MoD) in particular Department of Navigation and Cartography (DNC) establishes the goal to be an IHO Member State. State Maritime Administration (ASMA) also supports this idea. It was clear to the Technical Visit Team that Azerbaijan wants to be part of international cooperation in hydrography and wants to be a leading country in Caspian Sea.
- (3) Department of Navigation and Cartography (DNC) within in the Ministry of Defence (MoD) seems to be the most appropriate body to be the National Hydrographic Authority (NHA).
- (4) Although the Azerbaijan government have committed significant resources to the establishment and maintenance of the Azerbaijan State Maritime Administration (ASMA) and the Department of Navigation and Cartography (DNC) for the safety of navigation in Azerbaijan's waters and the economic development and the marine environmental protection of the nation, DNC has limited national hydrographic and cartographic resources and still lacks a legal arrangement and an investment on these issues.
- (5) The establishment of the National Hydrographic Committee (NHC) can provide the framework to enhance cooperation amongst the various stakeholders.
- (6) Department of Navigation and Cartography (DNC) has old but well manned and maintained survey ships (H-560, H-561) and survey launches (H-562, H-569) capable of meeting nation's hydrographic requirements in case of equipped with Multibeam Echo-sounder Systems (MBES). Azerbaijan has extensive hydrographic surveying needs. Surveys are inadequate and not done according to IHO standards.
- (7) It is anticipated that H-560 and H-562 which are planned to be equipped with a MBES in 2018 for hydrographic surveying are to be the main hydrographic platforms to cover the nation's immediate requirements.
- (8) DNC needs a Hydrographic Strategy Plan which includes a Charting Plan, a Survey Plan, a Training Plan and an Infrastructure Development Plan with the priorities and milestones.
- (9) A capacity building plan is necessary in order to provide the human resources to the operation of the DNC and achieve the goals envisioned by the Azerbaijan.
- (10) DNC needs to go through a period of organizational structure and equipment change which will need careful handling to allow the organization to maintain its output and prepare for the future.
- (11) DNC maintains its paper charts and produces ENCs but has poor national capability for chart production. DNC establishes the goal to compile charts from the national surveys.
- (12) There is no FIG/IHO certified Cartographer and CAT-A Hydrographer in DNC so it feels the lack of experience in nautical charting and surveying.

- (13) There is only one Bilateral Arrangement reported between DNC and other Hydrographic Services for hydrographic and cartographic cooperation.
- (14) There is no contingency plan which can be used after the occurrence of a disaster affecting coastal areas under national jurisdiction to promulgate Maritime Safety Information and conduct a preliminary survey to confirm the principal transportation routes.
- (15) Some of paper charts and ENCs covering Azerbaijan sovereign area are currently produced and published by the other coastal states but there is no Bilateral Arrangement reported between those parties.
- (16) DNC needs to follow the relevant IHO meetings to be aware the latest hydrographic and cartographic standards and improve the relations between the other Hydrographic Offices (HOs) and Countries.
- (17) ASMA does not have a MSI web page in order to contribute safe navigation. MSI data has been exchanged via internet/official fax among the coastal states without a coordinating body in order to enhance the maritime safety at the Caspian Sea.

## 7. Technical Visit Recommended Actions

- (1) Azerbaijan should consider the creation of a National Hydrographic Community (NHC) which will meet annually or biannually, under the leadership of The Department of Navigation and Cartography (DNC). The Ministry of Defence (MoD) should seek a formal arrangement in order to establish a national legal framework by means of a law, decree or equivalent.
- (2) DNC is the recognized point of contact for the IHO. So, it seems to be the most appropriate body to be the National Hydrographic Authority (NHA). The MoD should seek a formal arrangement in order to establish a national legal framework by means of a law, decree or equivalent.
- (3) The Government of Azerbaijan may consider sending a letter to Government of Monaco to accede to the Convention on the IHO.
- (4) To coordinate effort for the effective fulfilling of national responsibilities and the efficient management of States maritime areas in the Caspian Sea it is recommended, as a first step, the establishment of a Caspian Sea Correspondence Group to provide coordination of the hydrographic, cartographic and MSI issues within the Caspian Sea. The states may find a way to coordinate the chart production and survey responsibilities in the region.
- (5) Government of Azerbaijan or Ministry of Defence (MoD) to consider:
  - a) To allocate a specific budget to the DNC so it can get relevant charting and surveying systems/software and reach the “critical mass” in line with the priorities.
  - b) To adopt a mid-term strategic plan for staff resources in hydrography, cartography and related training (especially for mid-term: 2 Cat A in hydrography, 3 Cat B in Nautical Cartography).
  - c) To adopt a short-term strategic plan to invest on the chart production software and hardware.
  - d) To allocate regular funding and travel support for the DNC to fulfil the duties of the Department and to represent Azerbaijan in appropriate forums, and in particular, to attend relevant meetings of the MBSHC and IHO.
- (6) It is necessary to establish a formal routine flow with coastal states in Caspian Sea for the charts covering Azerbaijan waters if charts are to be maintained to the standards required for safety of navigation. This is also important for legislation and royalty issues.
- (7) With the other ministries in charge, the ASMA should design the procedure to get the data from foreign surveys carried out in the waters under its national jurisdiction. These data should be given to the National Hydrographic Data Centre (to the DNC).
- (8) DNC to establish a Hydrographic Strategy Plan which includes Charting Plan, a Survey Plan, a Training Plan and an Infrastructure Development Plan with the priorities and milestones.
- (9) DNC to establish a programme for the revision of all the published charts of Azerbaijan and a priority programme for the surveys.
- (10) DNC to re-organize the organizational structure of the department in order to gain affective way of the chart compilation and hydrographic data processing capability and prepare for the future.
- (11) A capacity building plan is necessary in order to provide the human resources to the operation of the DNC and achieve the goals envisioned by the Ministry of Defence (MoD).

- (12) ASMA to ensure that a Maritime Safety Information (MSI) Coordinator is nominated as soon as possible to fulfill the national obligation under SOLAS V/4 on navigational warnings.
- (13) ASMA to establish an MSI web page on its website to publish the relevant MSI and Notices to Mariners (NtMs).
- (14) DNC to apply to the MBSHC and national hydrographic services to develop the national hydrographic infrastructure for Azerbaijan and the participation in on job/board trainings (especially on chart production and multibeam survey practices) that staff of the DNC can gain the necessary training and professional experience.
- (15) MBSHC CB coordinator to inform DNC regarding the CB training opportunities in the region and elsewhere.
- (16) DNC to profit from the training opportunities as approved in the IHO CB Work Programme, especially those related to phase 1.
- (17) DNC to establish a Marine Spatial Data Infrastructure (MSDI), which will be integrated to the National Spatial Data Structure in the later stage. In this way, DNC could provide “much more than nautical charts” to all parties interested (wider use of hydrographic data, improved decision making, reducing duplication, improved data management, cost savings through efficiencies, etc.).
- (18) DNC should consider adopting the WEND principles for the ENC Distribution.
- (19) For interoperability, it is important that the DNC adopts as soon as possible the relevant standards and be aware of the emerging S-100 compliant standards and get prepared to the new standard S-101 for ENC production.
- (20) Azerbaijan to consider and prepare a Contingency Plan that can be implemented in the event of a significant disaster occurring in the country and provide a senior point of contact for communication and coordination purposes; this could be the ASMA which seems the most appropriate organization with the support of DNC.
- (21) Azercosmos to assess the requirement of DNC and define priority survey of the topographical maps in appropriate scale which covers the coastline of Azerbaijan in order to contribute to the update of nautical charts.



## Chart Catalogue

S/s	Chart No	Scale	Header of the Chart	Published
<b>0 &lt; 1: 25 000</b>				
1	2340A	1:10 000	Lənkəran reydi <b>The Lenkaran road</b>	2005
2	2340B	1:10 000	Sara Kanalı və Liman <b>Liman city &amp; the Sara channel</b>	2005
3	2327A	1:12 500	Bakı limanı <b>The Baku port</b>	2015
<b>1: 25 000 &lt; 1: 75 000</b>				
4	2300	1:25 000	Yaşma kəndindən Şuraabad kəndinədək <b>From Yashma settlement up to the Shuraabad settlement</b>	2005
5	2310	1:25 000	Bakı dəniz balıq limanına yanaşmalar <b>The approaches to the Baku Sea Fish port</b>	2017
6	2311	1:25 000	Şah dilindən Pirallahı adasınadək <b>From the Shakh Dili up to the Pirallahı island</b>	2017
7	2312	1:25 000	Çilov adası yanaşmalarla <b>The Chilov island with the approaches</b>	2015
8	2313	1:25 000	Neft daşları adası yanaşmalarla <b>The Oil Rocks island with the approaches</b>	2015
9	2314	1:25 000	Abşeronun Şimal körfəzi yanaşmalarla <b>The northern gulf of Absheron with the approaches</b>	2015
10	2315	1:25 000	Abşeron və Syurupa bankaları <b>The Tsurupa &amp; Absheron banks</b>	2005
11	2320	1:25 000	Makarov bankasına yanaşmalar <b>The approaches to the Makarov bank</b>	2015
12	2321	1:25 000	Türkan reydi <b>The Turkan road</b>	2009
13	2322	1:25 000	Böyük Zirə adasından cənuba rayon <b>The area to the south from the Boyuk-Zira island</b>	2005
14	2323	1:25 000	Makarov bankasına cənubdan yanalmalarla <b>The approaches to the Makarov bank from the south</b>	2005
15	2324	1:25 000	Xərə-Zirə adası cənub-şərqdən yanaşmalarla <b>The Khera-Zira island with approaches from the southeast</b>	2015
16	2325	1:25 000	Sanqaçal burnuna yanalmalar <b>The approaches to the Sangachal cape</b>	2005
17	2326	1:25 000	Xərə-Zirə adası Şimal-Şərqdən	2015

			yanışmalarla The Khera-Zira island with approaches from the notheast	
18	2327	1:25 000	Bakı buxtası The Baku bay	2015
19	2328	1:25 000	Sahil qəsəbəsinə yanışmalar The approaches to the Sahil settlement	2017
20	2329	1:25 000	Puta qəsəbəsinə yanışmalar The approaches to the Puta settlement	2015
21	2332	1:25 000	Çiqil adasına yanışmalar The approaches to the Chiguil island	2017
22	2333	1:25 000	Daşlı adasına yanışmalar The approaches to the Dashli island	2005
23	2334	1:25 000	Səngi-Muğan adasına şərqdən yanışmalar The approaches to the Sengui-Mugan island from the east	2005
24	2335	1:25 000	Pirsaat buxtasına yanışmalar The approaches to the Pirsaat bay	2017
25	2336	1:25 000	Gil adasına yanışmalarla The approaches to the Guil island	2015
26	2340	1:25 000	Lənkəran Reydi və Liman Yanışmalarla Liman city & Lenkaran road with the approaches	2005
27	2330	1:50 000	Kür çayının mənsəbinə yanışmalar The approaches to the mouth of the Kur river A. Neftchala wharf	2005
28	2331	1:50 000	Kalmıçkov bankasından Kumani bankasınadək From the Kalnichkov bank up to the Kumani bank	2005
<b>1: 75 000 &lt; 1: 300 000</b>				
29	231	1:100 000	Abşeron yarımadasının Şərq Sahili From eastern part of the Absheron peninsula	2017
30	232	1:100 000	Şahdili burnundan Pirsaat burnunadək From the Shakh Dili cape up to the Pirsaat cape	2015
31	233	1:100 000	Pirsaat burnundan Kür çayınadək From the Pirsaat cape up to the Kur river	2015
32	234	1:100 000	Kür çayı mənsəbindən Lənkəran şəhərinədək From the Pirsaat cape up to the Lenkaran city	2015
33	235	1:100 000	Lənkəran şəhərindən Lisar burnunadək From Lenkaran city up to the Lisar cape	2005
34	22A	1:200 000	Dərbənddən Giləzi dili burnunadək From Derbend up to the Kilezi Dili cape	2009
35	23A	1:200 000	Bakıdan Lənkəranadək	2015

			<b>From Baku up to Lenkeran</b>	
36	23B	1:200 000	Abşeron yarımadası <b>Absheron Peninsula</b>	2007
37	23C	1:200 000	Lənkərəndən Seyfidrud burnunadək <b>From Lenkeran up to the Sefidrud cape</b>	2005
<b>1: 300 000 &lt; ~</b>				
38	21	1:750 000	Xəzər dənizinin şimal hissəsi <b>The northern part of the Caspian Sea</b>	2005
39	22	1:750 000	Xəzər dənizinin orta hissəsi <b>The average part of the Caspian Sea</b>	2015
40	23	1:750 000	Xəzər dənizinin cənub hissəsi <b>The southern part of the Caspian Sea</b>	2017
41	2	1:1 500 000	Xəzər dənizi <b>The Caspian Sea</b>	2005

## General Description of Azerbaijan and Its Geography and Infrastructure<sup>1</sup>

### 1. Introduction

The coast of Azerbaijan Republic is about 615 kilometres in length. Azerbaijan (officially the Republic of Azerbaijan) is a country in the South Caucasus region, situated at the crossroads of Southwest Asia and South-eastern Europe. It is bound by the Caspian Sea to the east, Russia to the north, Georgia to the northwest, Armenia to the west and Iran to the south. The exclave of Nakhchivan is bound by Armenia to the north and east, Iran to the south and west, has an 11 km long border with Turkey in the north west.



Picture 1-Map of Azerbaijan Republic

### 2. Ports and Harbours

#### Port of Garadag:

Latitude : 40°12'44.48" N

Longitude : 49°34'11.69" E

Mean depth : 5-6 metres



<sup>1</sup> This information was provided and coordinated with DNC

*Picture 2. Port of Garadag*

Berth 26 on pier 2:

Length of coastline: 239 m

**Marina (Yacht club):**

Latitude : 40°21'43.57" N

Longitude : 49°50'22.06" E

Mean depth : 4-5 metres



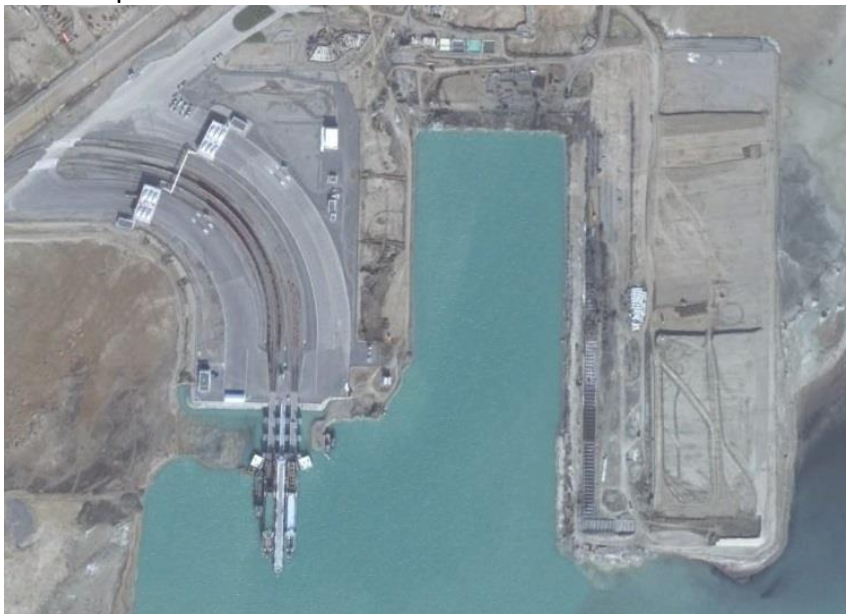
*Picture 3- Marina*

**Alat Port:**

Latitude : 39°58'27.89" N

Longitude : 49°26'46.98" E

Mean depth : 9-10 metres



### 3. Offshore Oil and Gas

**Shah Deniz gas field** is the largest natural gas field in Azerbaijan. It is situated in the South Caspian Sea, off the coast of Azerbaijan, approximately 70 kilometres (43 mi) southeast of Baku, at a depth of 600 metres (2,000 ft). The field covers approximately 860 square kilometres (330 sq mi). The Shah Deniz gas and condensate field was discovered in 1999.

**The Absheron gas field** is an offshore natural gas field in the Caspian Sea. The field is located 100 kilometres (62 mi) southeast of Baku and 25 kilometres (16 mi) northeast of the Shah Deniz gas field. It covers approximately 270 square kilometres (100 sq mi).

**Azeri–Chirag–Gunashli (ACG) or Azeri–Chirag–Deepwater Gunashli** is a complex of oil fields in the Caspian Sea, about 120 kilometres (75 mi) off the coast of Azerbaijan. It consist of Azeri and Chirag oil fields, and the deepwater portion of the Gunashli oil field. An overall estimated area of the development is 432.4 square kilometres (167.0 sq mi). It is developed by the Azerbaijan International Operating Company, a consortium of international oil companies, and operated by BP on behalf of the consortium.

### 4. Maritime Claims

Azerbaijan is still in process of demarcation, and does not have clearly defined borders. Negotiations continue to define the maritime zones with the coastal states.

### 5. Defence including Coastguard

Azerbaijan Navy has crucial function to control and protect Azerbaijan waters. There is no coastguard.

### 6. Planned Maritime Developments in Azerbaijan Waters

The New Port in Alat is a transportation hub linking the west (Turkey & EU), south (Iran & India) and north (Russia). Situated in the vicinity of the regions of Azerbaijan, it will also increase its connectivity as an efficient hub and so increase the volume of cargo being handled. In addition, new port location is linked to existing highways and railways, connecting the port to the inland regions of the country.

There are three international rail routes into Azerbaijan, which all converge at Alyat:

- To the northwest, passing through Baku to Russia,
- To the west, passing through Georgia to the shores of the Black Sea and Turkey,
- To the south and to the border area with Iran.

The lengths of the quays are as follows:

- General Cargo Quay – 650 m (4 berths),
- Ro-Ro Quay – 300 m (1 berth),
- Service Berth – 450 m (multiple berths)

**Technical Visit Programme**  
(Baku, 12-14th December 2017)

12th December 2017			
No	Time	Event	Remarks
4.	09:00 – 09:30	Departure of IHO Delegation from hotel to Department of Navigation and Cartography (DNC)	DNC HQ
5.	09:30-09:45	Opening Remarks & Introduction between IHO Delegation–DNC Command	DNC HQ
6.	09:45-09:50	Admin Remarks, Agenda	DNC HQ
7.	09:50-10:30	AZ presentation on organization and future plans, discussions	DNC HQ
8.	10:30-11:00	IHO and CB presentation	DNC HQ
9.	11:00-12:30	Visit to Hydrography and Charting Center	DNC HQ
10.	12:30-14:00	Lunch	
11.	14:00-17:30	Visit to Hydrography and Charting Center	DNC HQ
13th December 2017			
No	Time	Event	Remarks
12.	09:00 – 09:45	Departure of IHO Delegation from hotel to Azerbaijan Navy	Az Navy HQ
13.	09:45 – 12:00	Discussions & offices tour visit	Az Navy HQ
14.	12:00-12:30	Official photo	Az Navy HQ
15.	12:30-14:00	Lunch	
16.	14:00 – 17:00	Visit to Hydrographic vessels division	Survey Ships
14th December 2017			
No	Time	Event	Remarks
17.	09:00 – 09:30	Departure of IHO Delegation from hotel to Azerbaijan State Maritime Administration	ASMA
18.	09:30 – 12:30	Discussions & offices tour visit	ASMA
19.	12:30-14:00	Lunch	
20.	14:00 – 17:30	Final Assessment End of Technical Visit	DNC HQ
21.	17:00 – 21:00	Official Dinner	

## List of Contacts

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