Global **Ballast Water** Management Programme

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1st Black Sea Conference
on Ballast Water Control and Management

ODESSA, UKRAINE, 10-12 OCT 2001

Conference Report

Roman Bashtannyy, Leonard Webster & Steve Raaymakers

A cooperative initiative of the Global Environment Facility, United Nations Development Programme and International Maritime Organization.

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The Global Ballast Water Management Programme (GloBallast) is a cooperative initiative of the Global Environment Facility (GEF), United Nations Development Programme (UNDP) and International Maritime Organization (IMO) to assist developing countries to reduce the transfer of harmful organisms in ships' ballast water.

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The *1st Black Sea Conference on Ballast Water Control and Management* was hosted by the Shipping Safety Inspectorate of Ukraine and opened by Mr William O'Neil, Secretary-General of the International Maritime Organization and Mr. Anatoliy Mogilnyy, 1st Deputy Head of the State Department of Maritime and Inland Water Transport, Ukraine Ministry of Transport.

Special thanks must go to Mr Vladimir Rabotnyov and Mr Sergei Limanchuk of the Shipping Safety Inspectorate - the GloBallast Country Focal Point (CFP) and CFP Assistant in Ukraine respectively – for undertaking planning and preparations for the Conference and coordinating its implementation. The dedicated support of Mrs Tatyana Lesnik, Mr Roman Bashtannyy, Ms Lidya Domkina and other staff of the Shipping Safety Inspectorate is also deserving of special acknowledgement.

Thanks must also go to IMO consultant Mr Oleg Khalimonov for the vital support provided in planning the Conference, preparing the draft Regional Action Plan, securing approval for the Action Plan form all Black Sea littoral States and acting as Technical Secretary during the Conference.

The Conference could not have been a success without the active and enthusiastic participation of all delegates from the participating countries of Bulgaria, Georgia, Romania, Russian Federation, Turkey and Ukraine. The position of the Commission on the Protection of the Black Sea Against Pollution (Istanbul Commission) and the Black Sea Environment Programme, in accepting a vital role for the implementation of the Regional Action Plan adopted and approved at the Conference, deserves special mention.

The Conference was funded by the GEF/UNDP/IMO Global Ballast Water Management Programme (GloBallast), with support-in-kind from the Government of Ukraine. The GloBallast Programme Coordination Unit (PCU) was responsible for initiating the Conference and overall coordination.

This report was prepared by Roman Brashtannyy of the Shipping Safety Inspectorate of Ukraine and Leonard Webster and Steve Raaymakers of the GloBallast PCU.

Delegates Photograph

Conference Resolution

1st Black Sea Conference on Ballast Water Control and Management

RESOLUTION

Adopted on 12 October 2001

1 The 1st Black Sea Conference on Ballast Water Management and Control, held in Odessa, Ukraine from 10 to 12 October 2001 and attended by the delegations from Bulgaria, Georgia, Romania, Russian Federation, Turkey and Ukraine as well as by representatives from regional, international governmental and non-governmental organizations,

2 WELCOMING the ongoing activities of the GEF/UNDP/IMO Global Ballast Water Management Programme (GloBallast) in particular its regional component,

3 RECALLING that the 1992 United Nations Conference on Environment and Development (UNCED), in its Agenda 21, requested to consider the adoption of appropriate measures to prevent the spread of non-indigenous organisms, and further to the appeal, in its Declaration on Environment and Development, that States apply the precautionary approach according to their capabilities,

4 RECALLING ALSO resolution A.868 (20) of the Assembly of the International Maritime Organization (IMO) by which it was recognized that the uncontrolled discharge of ballast water and sediments from ships has led to the transfer of harmful aquatic organisms and pathogens, causing injury to public health and damage to property and the environment,

5 NOTING the determination of the States Parties to the Convention on the Protection of the Black Sea to take all necessary actions, individually or collectively, in order to minimize and keep under control the pollution of the Black Sea environment, including pollution from ships,

6 RECALLING FURTHER THAT the Governments of the Black Sea countries have agreed with the policy and principles of the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea, covering all aspects of the marine pollution prevention, including prevention of introduction of exotic species into the Black Sea,

7 RECOGNISING the necessity of close cooperation between the countries of the Region,

.1 APPROVES the Regional Action Plan to Minimise the Transfer of Harmful Aquatic Organisms and Pathogens in Ships Ballast Waters;

.2 REQUESTS the Istanbul Commission and its Emergency Response Activity Center on Environmental and Safety Aspects of Shipping to undertake the coordination of the activities under the Regional Action Plan;

.3 AGREES to consider as a priority task implementation of measures recommended by the IMO Resolution A.868(20) and those which are being prepared by the Marine Environment Protection Committee (MEPC) of IMO, in the course of the development of a global mandatory regime on ballast water management and control.

.4 REQUESTS FURTHER GEF, UNDP and IMO to secure continuation of the GloBallast Programme within the timeframe needed to ensure a seamless introduction of the forthcoming IMO ballast water international regulations in the Black Sea Region.

Odessa, Ukraine

12 October 2001

Map - Black Sea Littoral States

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1 Opening Statements

By Mr William A. O'Neil, Secretary-General, International Maritime Organization

Good afternoon, distinguished delegates.

It is a great pleasure for me to be here in Odessa and to address you today at this First Black Sea Conference on Ballast Water Control and Management and I know that you are working through a busy agenda, so I will not take up too much of your time at this stage.

The introduction of invasive marine species into new environments by ships' ballast water is an issue that does not always receive the public exposure that it merits. Nevertheless, it has been identified by the Global Environment Facility as one of the four greatest threats to the world's oceans.

Despite the serious degradation that has already occurred in the Black Sea, studies have indicated that concerted action can both restore and protect the environment. But the problem clearly requires a multi-lateral approach and it is in that spirit that this conference is meeting today.

The decisions you will take at this Conference will have far-reaching effects on the Black Sea region, its environment and its people. I would like to wish you every success with your work towards the adoption of the Regional Action Plan and the Conference Resolution and to assure you that the International Maritime Organization is committed to supporting the development and implementation of a standardized global ballast water management regime and continues to take the lead in addressing this challenge.

I look forward to addressing you again at the close of this conference, when I hope to be reflecting on a positive and fruitful outcome to your deliberations.

Thank you

By Mr Anatoliy Mogilnyy, First Deputy Head of State Department of Maritime and Inland Water Transport, Ministry of Transport of Ukraine

Distinguished delegates, ladies and sirs.

I am glad to have the opportunity to thank you all for your participation in the First Black Sea Conference on Ballast Water Control and Management On behalf of the Ministry of Transport of Ukraine, the State Department of Maritime and Inland Water Transport, the International Maritime Organization and the GloBallast Programme, I want to express my special gratitude for the honour and trust that have been rendered to Ukraine in holding this Conference here.

The Government of Ukraine pays great attention to environmental protection issues, and particularly to marine environment problems. At the same time, one of our current priorities is integration with European and international legislation.

Today's conference combines both elements. We are applying all our efforts to achieve these aims and will continue to do so to ensure that Ukraine and all countries in the Black Sea region occupy a worthwhile place among the marine powers in dealing with this extremely complex and difficult problem, that is to overcome the consequences of and to prevent the transfer of unwanted marine species through ships' ballast water.

In conclusion I would like to say that Odessa, long famous for its hospitality, is happy to open its doors wide for you – our distinguished guests and neighbours in this big house called the Black Sea region. And we do hope that your stay here, along with the work of our Conference, will be both pleasant and successful.

On my side I can promise that every effort will be made to make this possible.

Thank you for your kind attention.

By Mr Dandu Pughiuc, Chief Technical Adviser, GloBallast Programme

It is a special privilege for me to welcome you to the First Black Sea Conference on Ballast Water Control and Management. I am encouraged that this conference is so well attended by high level representatives of the Black Sea countries – Bulgaria, Georgia, Romania, Russian Federation, Turkey and Ukraine – and by International Organizations, representatives of the shipping industry and environmental organizations.

I would like to inform you that the Secretary-General of the International Maritime Organization, who could not join us this morning due to previous commitments, will address the Conference later today.

The introduction of unwanted species to new environments has been identified as the second greatest threat to the world's oceans. Global shipping transports over 80 percent of the world's commodities and in the process, transfers around 12 billion tons of ballast water across the planet each year. While ballast water is essential for safe and efficient modern shipping operations, it may pose serious ecological, economic and health threats.

It is estimated that 4,500 different species are carried around the world at any one time in ballast tanks. The development of larger and faster ships, combined with rapidly increasing world trade, reduced natural barriers to the dispersal of species. Greater quantities are carried more quickly and frequently to a greater number of destinations. It is believed that a marine species invades a new environment somewhere in the world every nine weeks.

During the last 10 years, the transfer of alien invasive species in ships' ballast water has received increasing attention. The IMO member countries have developed voluntary guidelines for the control and management of ships' ballast water, to minimize the transfer of harmful aquatic organisms and pathogens. These guidelines were adopted by the IMO Assembly in 1997, by resolution A.868(20). They replaced earlier, less comprehensive voluntary guidelines adopted in 1993. In addition to the aforementioned initiatives, the IMO has joined forces with the Global Environment Facility (GEF), the United Nations Development Programme (UNDP), member governments and the shipping industry to assist less-industrialized countries to tackle the ballast water problem by initiating the GloBallast programme.

The overall objective of the Programme is to reduce the transfer of harmful marine species in ship's ballast water, by assisting participating countries to implement the existing IMO voluntary guidelines and to prepare for the introduction of a new ballast water convention. GloBallast aims to achieve these objectives by providing technical assistance, capacity building and institutional strengthening to remove barriers to effective ballast water management and control.

One of the most important components of GloBallast is to establish and support Regional Project Task Forces to increase regional awareness and cooperation and to foster replication of the programme results across each region. In this respect the programme's Country Focal Point (CFP) for India briefed member countries of the South Asia Cooperative Environmental Programme (SACEP) at a meeting in Sri Lanka and reported significant interest. The CFP for South Africa briefed various West African countries at a meeting in Angola and similarly reported a high level of interest. The government of the Islamic Republic of Iran made contacts with neighboring countries and the PCU Technical Adviser briefed a meeting of ROPME: the development of regional ballast water strategy for the Gulf is now firmly on the agenda. Although significant progress was made in promoting regional cooperation at each demonstration site, perhaps the most substantial step forward is being made today by the 1st Regional Conference in the Black Sea.

The Comb Jellyfish (*Mnemiopsis Leidyi*) was introduced into the Black Sea through ballast water coming from North America. The huge number of these ctenophores has led to the collapse of the

anchovy and sprat fisheries. You know yourselves that the loss to the region from this invasion has been enormous and particularly devastating to those fishermen who lost their livelihood. The difficulty in limiting the spread of invasive species to the neighbouring regions has, unfortunately, been proven – the jellyfish has been spotted in the Caspian Sea. Once a marine invasive species has been introduced it is usually impossible to remove.

It is essential that you prepare your countries to avoid such situations in the future and one way of doing this is through initiating the major activities outlined in the Regional Action Plan, which we will be discussing at this Conference. The Plan provides a framework for the activities that need to be developed and implemented within the Black Sea region to minimize the transfer of harmful aquatic organisms in ship's ballast water in accordance with IMO recommendations facilitating, in the same time, the preparatory process for the introduction of the new international regulatory regime.

There has been concern that GloBallast will end prior to the adoption of the new Convention. At the time of programme design, a basic assumption was that the new Convention would be adopted in 2002. This would have allowed a smooth transition between the regional replication and the implementation of the new regime. However, the complexity of ballast water matters has shifted the diplomatic conference for the adoption of the Convention to late 2003. To bridge the unexpected time gap between the end of GloBallast Phase I (March 2003) and the adoption of the new Convention and to exploit the unprecedented momentum of concerted international action precipitated by the programme to date, we have commenced development of the concept for GloBallast Phase II. IMO is committed to supporting this initiative and will continue to take the lead in addressing the challenge of a standardized ballast international water management regime.

The scientific community has warned about the risks posed by invasive species and the shipping industry has acknowledged the problem. A pragmatic and global approach is needed towards resolving these matters. Ballast water management and control is in the interest of all countries in the Black Sea region. With the hope that after the next three days you will end by adopting the Conference Resolution, I wish you the best of success in your work.

I would like to use this opportunity to thank the host country for their efforts to make this event a success and to all the delegates for their participation.

2 Introduction & Background

The International Maritime Organization (IMO), with funding provided by the Global Environment Facility (GEF) through the United Nations Development Programme (UNDP), has initiated the Global Ballast Water Management Programme (GloBallast).

The programme is aimed at reducing the transfer of harmful marine species in ships' ballast water, by assisting developing countries to implement existing IMO voluntary guidelines on ballast water management (IMO Assembly Resolution A.868(20)), and to prepare for the new international convention on ballast water management currently being developed by IMO member countries.
The programme aims to achieve this by providing technical assistance, capacity building and institutional strengthening to remove barriers to effective ballast water management arrangements in developing countries, through six initial demonstration sites. These six sites are Sepetiba (Brazil); Dalian (China); Mumbai (India); Kharg Island (Iran); Saldanha (South Africa) and Odessa (Ukraine). The initial demonstration sites are intended to be representative of the six main developing regions of the world; South America, East Asia, South Asia, Arab Countries/Persian Gulf, Africa and Eastern Europe respectively. As the programme proceeds it is intended to replicate these initial demonstration sites throughout each region.

The development objectives, immediate objectives and technical activities being implemented under the GloBallast Programme are outlined in the original UNDP Project Document (GLO/99/G31/A/16/19) and a Project Implementation Plan (PIP) developed by the Programme Coordination Unit (PCU). Objective 6 in particular calls for establishment and support of Regional Project Task Forces (RPTF) to increase regional awareness and cooperation and eventual replication of Programme activities conducted at the initial demonstration sites, throughout each of the six regions.

Being a common goal for all regions this objective has a higher priority for those that due to their geographic, oceanographic and/or ecological circumstances, e.g. comprising an enclosed sea, are more vulnerable to introduction and spread of invasive aquatic species and pathogens. In addition coastal states of such clearly defined areas, generally already have in place networks of regional cooperation on various aspects of maritime activities. For these reasons, of the six demonstration sites Odessa (Ukraine) in the Black Sea and Khark Island (IR Iran) in the ROPME Sea Area have been the first to initiate regional cooperation activities.

The Black Sea region presents a most unusual environmental problem. Of all the world's inland seas, such as the White Sea, the Baltic Sea and the Mediterranean Sea, the Black Sea is the most isolated from the world's oceans. Its only link with other seas is with the Mediterranean, through the narrow channels of the Bosphorus Strait, the Sea of Marmara and the Dardanelles. Relative to its size, this is a most tenuous link.

Yet almost a third of Europe and huge areas of Asia drain into the Black Sea and more than 160 million people live in the overall Black Sea catchment area. The Black Sea coastal zone is densely populated. In the summer season, the permanent population of around 16 million swells to around 20 million with the influx of tourists.

During the last 30 years, the Black Sea has been transformed by the harmful effects of modern industry, agriculture and fishing. As if this was not enough, it is now at threat from introduced marine species. Among the most severely affected regions of the world, the Black Sea countries have already suffered huge losses from a number of marine bio-invasions, including the notorious *Mnemiopsis* jellyfish from North America. The Black Sea is considered to have a low 'immunity' to aquatic bio-invasions. The enclosed nature of the sea dictates that regional co-operation is essential in any efforts to prevent and control introduced species.

In May 2001 the Secretary-General of IMO proposed to the governments of Bulgaria, Georgia, Romania, Russian Federation, Turkey and Ukraine to convene the *1st Black Sea Conference on Ballast Water Control and Management* as a matter of priority, in order to initiate cooperative regional arrangements on this matter. The proposal was unanimously supported by all Black Sea littoral States and the GloBallast PCU together with the Odessa Demonstration Site (Odessa DS) undertook all preparatory arrangements to convene a successful regional Conference and ensure unanimous adoption of a *Regional Action Plan to minimize the transfer of harmful aquatic organisms and pathogens in ships' ballast water.*

3 Conference Objectives

The objectives of the Conference were as follows:

- To enhance regional awareness and cooperation in the field of ballast water control and management.
- To establish the current status of invasive aquatic species and ballast water management arrangements in the Black Sea countries.

- To consider, approve and adopt a Regional Action Plan (RAP) to minimize the transfer of harmful aquatic organisms and pathogens in ship's ballast water.
- To agree on the machinery for implementation of the RAP including an appropriate coordination mechanism.

4 Conference Participants

The Conference was attended by:

- Several delegates from each of Bulgaria, Georgia, Romania, Russian Federation, Turkey and Ukraine, being senior representatives from each country's maritime administration, environment administration, port authority, marine science community and shipping industry;
- Several additional delegates from the host country (Ukraine);
- Delegates from the Istanbul Commission and Black Sea Environment Programme, including the Regional Activity Center for the Environmental and safety Aspects of Shipping in Varna, Bulgaria;
- The GloBallast Chief Technical Adviser and Technical Adviser plus their consultant; and
- The Secretary-General of IMO.

A complete participants list is provided in Appendix 1.

5 Conference Proceedings

The Conference proceeded according to a three-day programme (Appendix 2). The Conference was opened by the Secretary-General of IMO, Mr William O'Neil and opening statements were also given by the Government of Ukraine and the GloBallast Programme.

The usual IMO procedure of nominating a senior representative of the host country to chair the meeting was adopted. Mr. O. Zubkov, Director of the Department of Maritime and Inland Water Transport, was unanimously elected as Chairman, however in his absence Mr. Rabotnyov, 1st Deputy Head of the Shipping Safety Inspectorate of Ukraine acted as Chairman. As proposed by the Chairman the IMO consultant Mr. O. Khalimonov was appointed Technical Secretary of the Conference.

The technical programme commenced with background presentations by the GloBallast Technical Adviser, covering the nature of the ballast water problem and aquatic bio-invasions and the IMO response to the problem, including the IMO Guidelines, the new Ballast Water Convention and the GloBallast Programme.

The remainder of the first day was used for the presentation of Country Status Reports from Bulgaria, Georgia, Romania, Russian Federation, Turkey and Ukraine. The Country Status Reports are contained in Appendix 3.

The first half of the second day was used for technical presentations, including on the extent of biological invasions in the Black Sea and the status of activities undertaken at the Odessa Demonstration Site, such as the Legislative Review and Port Biological Baseline Survey (see Appendix 4). Specific attention was given to the experience of the Odessa DS in implementing

GloBallast activities. A special report was presented by Country Focal Point Assistant for Ukraine Mr. Sergey Limanchuk. (see Appendix 5).

The remainder of the second day was used to consider and discuss the draft Regional Action Plan (Appendix 6). A number of countries made significant proposals in relation to the RAP (see Appendix 5).

The Conference was concluded on the third day with unanimous approval for the RAP and adoption of the Conference Resolution, and a closing statement was made by the IMO Secretary-General, Mr William O'Neil.

The meeting was provided with the simultaneous interpretation into English and Russian languages.

5 Conference Outputs & Outcomes

General

The Outputs and Outcomes of the Conference include:

- Adoption of a Conference Resolution.
- A Country Status Report (Appendix 3) from Bulgaria, Georgia, Romania, Russian Federation, Turkey and Ukraine outlining:
    a. Coastal and marine environments.
    b. Status of marine bio-invasions.
    c. Existing institutional arrangements for ballast water management.
    d. Shipping and port data.
- Approval of a Regional Action Plan to minimize the transfer of harmful aquatic organisms and pathogens in ship's ballast water (Appendix 6).
- Increased awareness of the problem of ballast water and aquatic bio-invasions, both amongst workshop delegates and the broader community.

Summary of Country Status Reports

The Country Status Reports (Appendix 3) showed that all Black Sea countries have suffered from aquatic-bio-invasions, all are undergoing expansions of their port facilities and are seeing significant increases in shipping activity, and to date very little has been done to implement the IMO Ballast Water Guidelines, except at the GloBallast Demonstration Site at Odessa.

Most delegations stated that the exercise of developing a Country Status Report had played an important role in bringing various government and industry sectors together for the first time to discuss ballast water and aquatic bio-invasion issues, and had highlighted the lack of action to date and the need for action. The Conference and the in-country preparations for the Conference thereby played an important role in raising awareness and catalysing concerted action in each Black Sea country.

Consideration of the Regional Action Plan

During the introduction of RAP by the Secretariat it was explained that the draft RAP was jointly developed by the focal points of the Black Sea countries, the GloBallast Programme and the Odessa Demonstration Site. The elements of the draft RAP were initially discussed with the administrations concerned during pre-Conference country visits and inputs from these discussions were taken into account when preparing the draft RAP.

All participants agreed that the RAP was the most important item of the Conference agenda. There were a number of important proposals made and agreed in the course of consideration of RAP. All countries were unanimous in their agreement that existing regional mechanisms should be utilized to the fullest extend for the implementation of the RAP.

It was generally agreed that editorial and other proposals of lesser importance would be better dealt with by the Secretariat subject to their submission in writing.

In particular the Conference agreed on the following:

As suggested by Bulgaria, Section 2 "OBJECTIVES" was supplemented by an additional sub-paragraph:

"to enhance the regional cooperation in protection of the marine environment using the existing regional bodies, established under the Istanbul Commission and the GEF Black Sea Environmental Programme."

The request to the Istanbul Commission and Black Sea Environmental Programme was also welcomed by the IMO/GloBallast representatives which referred to the long-standing and fruitful cooperation with Varna Centre/Advisory Group on Environment and Safety Aspects of Shipping (ESAS) under the Istanbul Commission.

The Conference agreed to change the name of Section 3 to "Environmental Conditions of the Black Sea area" and approved certain editorial changes to this section.

Paragraph 5.2 of section 5 "Principal Actions" was discussed at length. In connection with the planned activity of setting up Ukrainian National Information Centre (NIC) it was recognized that when operational, NIC would inform the Istanbul Commission through the Advisory Group ESAS on different aspects of the activities related to the unwanted species e.g. sources of transfer, prevention control etc.

While discussing paragraph 5.9 "Cooperation with the Istanbul Commission" a recommendation was agreed that the Odessa GloBallast Demonstration Site should apply for observer status with the Commission. Although there was a suggestion to reflect this recommendation in the Conference Resolution the final decision was to retain it in the text of RAP.

A proposal by Georgia to establish an information database on the quality of ballast water intake worldwide was substantially discussed and merits of the proposal were generally recognized. It was noted however that this issue is of a global nature, going beyond regional boundaries and which be considered by the Ballast Water Working Group of IMO's Marine Environment Protection Committee (MEPC). The meeting came to the conclusion that an appropriate course of action for the Black Sea countries should be to participate and contribute to these activities within the framework of IMO.

A similar approach was agreed with respect to the proposal to develop uniform regional requirements and manuals for the ballast water management in the Black Sea area.

Implementation and enforcement of ballast water management and control standards were considered as a priority issue, recognizing that details of the future control mechanism should be further

developed and promoted on the regional level. It was generally accepted that the Port State Control system of the Black Sea MOU should be directly involved in this process.

Arrangements for future cooperation (Section 6 of RAP) were another issue of substance requiring unanimous agreement. This was reached after a thorough consideration of the cooperative mechanism, in particular the establishment of the Regional Task Force (RTF). The RTF should include National Focal Points and should closely cooperate with the ESAS Activity Center of the Istanbul Commission, including annual RAP implementation reports and make recommendations as appropriate.

The meeting outlined possible sources of funding and recommended that Donor Conferences to facilitate this regional process should be held every five years starting from 2003.

The Conference approved the revised Regional Action Plan, which is reproduced in Appendix 6.

Adoption of Conference Resolution

The Conference unanimously adopted the Resolution containing four operational paragraphs which:

- approve the RAP;
- request the Istanbul Commission to undertake coordination of the RAP;
- attach priority to the implementation of the appropriate IMO instruments;
- request GEF, UNDP and IMO to extend the GloBallast activities in order to insure introduction of the forthcoming international ballast water Convention.

Increased Awareness

Local TV and other mass-media representatives were present at the opening and closing ceremonies, and significant media coverage was achieved.

Many workshop delegates expressed that there own awareness of the issues had been greatly increased as a direct result of the Conference, and many requested additional supplies of the GloBallast awareness materials to be sent to them for use in their countries.

7 Closure of the Conference

After successful consideration and conclusion of the Agenda the Chairman gave the floor to the Secretary-General of IMO, Mr. William A. O'Neil for the concluding statement (see blow).

The Black Sea countries, host country and GloBallast PCU also made closing remarks, expressing their appreciation to the Conference organizers, Ministry of Transport of Ukraine, Shipping Safety Inspectorate of Ukraine, the Chairman of the Conference and the Secretariat for their outstanding efforts to bring the Conference to the successful conclusion.

Closing Address

By Mr William O'Neil, Secretary-General, International Maritime Organization

I am glad to be able to address the first Black Sea Conference on Ballast Water Management and Control before its closure today. I am particularly pleased that you have adopted a resolution for the

approval of the regional action plan to minimise the transfer of harmful aquatic organisms and pathogens in ships' ballast water. I have no doubt that reaching a successful conclusion was not an easy task, but I know that all the conference participants have approached the work with diligence and have contributed significantly to the final product.

It is essential now to commence preparation of national work plans in the framework of the overall objectives of the project. It is also essential that you prepare your countries to implement the anticipated international regime for ballast water management and control.

The success of any measures regarding ballast water management is largely dependent upon member states understanding the impact of transfers of unwanted species in ships' ballast water and the need for concerted common action.

Examination of shipping arrival patterns for countries in the Black Sea will enable the identification of the source ports from which ballast water is imported. This will be key to establishing the levels and types of risks of introductions each port faces and will enable more appropriate management responses. Monitoring procedures for the marine flora and fauna should be developed and exchange of information among the countries should be encouraged. Research and development efforts in the Black Sea countries should be co-ordinated to avoid duplication and should be based on the IMO guidelines and on the future convention.

The establishment of a working or correspondence group under the framework of the Istanbul commission would assist greatly in the review of national regulations and practices necessary to align these with IMO resolution A.868(20) and the future mandatory regime.

Training of ships' and shore personnel is another important measure towards regulation of ballast water discharges. I would like to encourage Black Sea countries to take advantage of the training package currently being developed under the GloBallast programme when it is ready.

As shipping is probably the most international industry, the only effective way to address shipping related issues is through the standardized international system. This has been one of the hallmarks of the success of IMO in its more than 50 years history. The avoidance of unilateral action by individual states is critical to the success of any activity regarding the management and control of ballast water in the Black Sea region. Therefore, I would like to urge you to commence implementation of the regional action plan and to reiterate IMO's commitment to continuous support in this respect.

The management of ballast water has become an important issue in international efforts to reduce degradation of marine habitat. The problem was first brought to the attention of IMO as long ago as the late 1980s, when a number of countries were experiencing problems with unwanted species.

In 1990, the marine environment protection committee – MEPC – set up a working group on ballast water, which developed guidelines addressing the problem of alien species. The guidelines were adopted in an MEPC resolution in 1991.

Since then, the issue has remained an important item on the committee's agenda, and MEPC is currently working towards convening a diplomatic conference to adopt a convention on the management and control of ballast water and sediments in 2003.

The proposed new instrument is based on a so-called "two-tier" approach. Tier one includes requirements that would apply to all ships, such as mandatory requirements for a ballast water management plan, a ballast water record book and a requirement that new ships shall carry out ballast water and sediment management procedures to a given standard or range of standards. Tier two includes special requirements which may apply in certain areas and would include procedures and criteria for the designation of such areas in which additional controls may be applied to the discharge and/or uptake of ballast water.

As you are aware, the first phase of the GloBallast programme will end in March 2003, before the diplomatic conference, which is scheduled for the second half of 2003. To bridge this gap and to

exploit the unprecedented momentum of concerted international action precipitated by the GloBallast programme to date the programme co-ordination unit have commenced development of the GloBallast Phase II concept. IMO will support this initiative and will continue to assist its member states in their endeavours towards this objective.

Distinguished delegates, the Black Sea region presents a most unusual environmental problem. Of all the world's inland seas, it is the most isolated from the world's oceans. Its only link with other seas is with the Mediterranean, through the narrow channels of the Bosphorus strait, the sea of Marmora and the Dardanelles. Relative to its size, this is indeed a tenuous link.

Yet almost a third of Europe and huge areas of Asia drain into the Black Sea and more than 160 million people live in the overall Black Sea catchment area. The Black Sea coastal zone is densely populated. In the summer season, the permanent population of around 16 million swells to around 20 million with the influx of tourists.

During the last 30 years, the Black Sea environment has been transformed by the harmful effects of modern industry, agriculture and fishing. The additional damage caused by exotic marine species and pathogens in ships ballast water is another major contributor to the degradation of the environment, and the measures you have agreed to at this conference represent a significant step forward in the battle to reverse those harmful effects.

I am pleased to see today that the efforts made under the GloBallast programme have produced a material result in this conference, which has concluded successfully today. Regional co-operation is crucial for the efficacy of any measures to minimize the transfer of harmful aquatic organisms in ballast water and the participation of high-level representatives of the six Black Sea countries has been crucial in achieving a positive outcome here in Odessa. The presence of representatives of the Istanbul commission is an additional guarantee that your conference has established the foundation for future regional co-operation on this major issue of great concern to the marine environment. I would like to thank the Ukrainian government for its hospitality and the shipping safety inspectorate of Ukraine for making this event a success.

Finally, I would like to congratulate the participants for the success of this conference. I would also like to take this opportunity to thank participants from the shipping industry and relevant environmental organizations for their substantial contribution to the works of the conference and I am sure that your co-operative efforts will be a significant factor in the campaign to restore the delicate environment of the Black Sea region.

Thank you

8 Conclusions

It can clearly be concluded that the *1st Black Sea Conference on Ballast Water Control and Management* was a success in achieving all of its stated objectives.

The foundation is now laid for the implementation of a Regional Action Plan to minimize the transfer of harmful aquatic organisms and pathogens in ship's ballast water, consistent with the IMO Guidelines and the emerging Convention.

Concerted action by all of the countries surrounding the Black Sea is now required in order to turn the Conference outputs and outcome and in particular the RAP, into reality.

9 Further Information

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Appendix 2:
Conference Agenda and Timetable

Conference Agenda

Convened at 9.30am on Wednesday, 10 October 2001 at the Conference Hall of the Kempinski Hotel, Odessa, Ukraine.

Opening of the Conference

Welcome statements by the Host Government and IMO

1. Adoption of the Agenda
2. Organization of the work of the Conference
3. Information on the IMO/UNDP/GEF Global Ballast Water Management Programme (GloBallast)
4. Review of the scientific and technical aspects of the Ballast Water Management and Control, R&D.
5. National presentations by the Black Sea countries:
    - Bulgaria
    - Georgia
    - Romania
    - Russian Federation
    - Turkey
    - Ukraine
6. Consideration and endorsement of the Regional Action Plan
7. Consideration and adoption of the Conference Resolution

Conference Timetable

Wednesday 10 October 2001

9.30	Registration
10.00	Ukraine and GloBallast/IMO opening remarks. Outline of the Conference Arrangements (housekeeping) Adoption of the Agenda Presentation of the GloBallast Programme
11.00	COFFEE BREAK
11.30	Presentations by participating countries (Ukraine, Bulgaria)
12.30	LUNCH
14.00	Presentations by participating countries (Georgia, Romania, Russia)
15.30	TEA BREAK
16.00 – 17.00*	Presentations by participating countries (Turkey) Statement by the Secretary-General of IMO
17.30	Visit to Opera Palace (ballet)
20.30 – 22.30	IMO/GloBallast Reception (Buffet)
*17.00 – 18.00	Press Conference (Heads of Delegations)

Thursday 11 October 2001

9.30	Report on Legislative Review (Mr. A. Visotsky)
	Report on Invasive Species in the Black Sea (Prof. J. Zaitzev)
	Report on Port Base Line Survey in Odessa (Messrs. Alexandrov & Berlinsky)
11.00	*COFFEE BREAK*
11.30	Discussion on the proposed Regional Action Plan (RAP)
12.30	*LUNCH*
14.00	Discussion on the proposed Regional Action Plan (Continued)
15.30	*TEA BREAK*
16.00 – 17.30	Discussion on the proposed Regional Action Plan (Continued) Consideration of the Conference Resolution
20.30 – 22.30	Ministry of Transport of Ukraine Reception

Friday 12 October 2001

9.30	Adoption of Regional Action Plan. Adoption of the Conference Resolution.
11.00	*COFFEE BREAK*
11.30 – 12.30	Conclusion Speech by IMO's Secretary-General Closure of the Conference

Appendix 3:
Country Status Reports[1]

[1] NB: The Country Status Reports have been reproduced as submitted and neither the GloBallast Programme nor IMO accept any responsibility for the content of the reports.

Bulgaria

Country profile

Bulgaria is placed on the west part of the Black Sea, and the Bulgarian Black Sea coast from Romanian to Turkish border is about 378 km in length. The coastline is characterised by relatively low (5 to 50m) and some high (100-120 m) rocky cliffs, interspersed by sandy beaches. The rocky cliffs are extended for the 50% of the coastline, beaches and sandy dune cover 40% and the remaining consist of landslide and erosion areas.

The population in the coastal area amounts to 800,000 people. This composes about 10% of the Bulgarian population. The living of a predominant part of the citizens along to the seaside is connected directly or indirectly to the sea and its resources: sailing, fishing, trading, shipbuilding and ship repairing, tourism, aqua farming, etc.

There are two major bays at Varna and Bourgas and a number of small ones. Several rivers of moderate size, including the Provadiiska, Kamchia and Veleka, drain the coastal plateau and coastal plane. River flows are irregular and relatively slow at the coast. There is no large estuarine system. Two types of lakes - limans and lagoons can be found in the coastal zone. There are 26 liman lakes and the largest ones are occupying the inland of the Varna and Burgas bays. Most of the lagoon lakes are along the southern coast.

The Bulgarian water transport is of a great significance for the country. There are three main tasks settled to the water transport in the structure of the national economy:

- to support preserving of the national sovereignty which includes: shipping, ports, sea tourism, human resources, geological exploring, infrastructure building, radio communications, environmental protection;
- to increase the revenue of the country balance of payment by carriage of Bulgarian and foreign cargoes; offering ships to Bulgarian and foreign freighters, handling Bulgarian and foreign cargoes at Bulgarian ports;
- to provide job employment in the area of the water transport.

The Republic of Bulgaria has a very good geo-strategic position. Through its territory pass traces of transport corridors No.4, 7, 8 and 9. Corridors 7 and 8 have a major importance for the country and its water transport.

Institutional arrangements

The responsible Bulgarian authority for all shipping related activities including the generally agreed principles and standards of international law and the international agreements to which the Republic of Bulgaria is a party is the Maritime Administration.

The Executive Agency Maritime Administration, Sofia is a specialized administrative structure to the Ministry of Transport and Communications. The Maritime Administration has been established by a Decree of the Council of Ministers.

The Maritime Administration performs its activities through a Headquarters in Sofia and four regional directorates – Varna, Bourgas, Lom and Rousse. The administrative structure and the subordination accepted are shown on figure 1.

The Maritime Administration performs functions on:

- safety of navigation in the sea spaces and in the internal waterways of the Republic of Bulgaria;
- Port State Flag State Control;
- traffic control;
- search and rescue;
- control and environmental protection of the Black Sea and the Danube river from pollution originated by shipping;
- training and issuing certificates of competence of seafarer;
- providing real communication between the State and the ships flying Bulgarian Flag,

Shipping and ports

The industry activities are concentrated in two centers - Varna and Burgas, where are located the biggest Bulgarian ports. The location of these ports as well as other smaller ones is shown on figure 2.

Varna is a big transport centre. The Varna Port Complex includes ports Varna East, Varna West and Baltchik. In the Varna district are situated also some specialised ports - Lesport, ferriboat port, petroleum terminal, etc. There are shiprepair and shipbuilding yards both located on a territory near to the Varna Bay. Railway connections to Sofia, Rouse, Dobritch, Bourgas are available. The highway to Sofia at present is under reconstruction. The international high road E-95 Constanta - Istanbul is situated near to the shoreline from Constanta to Bourgas and connects almost all of the biggest resorts on the Bulgarian Black Sea coast.

The town of Burgas is the other big Bulgarian industrial, transport and resort centre. The petrol refinery, big oil terminal, port complex, ship repair and shipbuilding yards are situated in the area of the Bourgas Bay.

About 6,000,000 tonnes cargoes are handled in the port of Varna annually. It has to be appointed the capacity of the port is considerable higher. The main cargo streams include coal, cement, soda, grain, sulphur acid, containers, etc.

The port of Bourgas handled about 22,000,000 tonnes cargoes for the year of 2000. The typical cargoes for the port include crude oil. chemicals, and general cargoes.

The Bulgarian Registry of Ships covers at present 1 287 333 GT. The number of the small vessels registered in the port of Varna amounts to 1824 with total tonnage about 5020 t. The ships registered over 40 GT are 196 with a total tonnage about 902,000 t.

The location of areas of shipping, fishing and other interests is shown on Fig 3

Coastal and marine environment

Overview

The Black Sea is the largest continental sea and is almost isolated from the World Ocean. It covers an area of 413 500 km2 with a water volume of 537 000 km3. The Black Sea is a stratified water body and 90% of its volume is occupied by the hydrogen sulphur zone. The sea level is higher by about 0.5 m than the level of the Sea of Marmara due to the density difference.

In contrast to the near Adriatic sea, most part of the Mediterranean and the regional seas, it suffers the following influences:

- It receives great quantities of running waters from Central and Eastern Europe,
- In contrast to the greater part of the other regional seas, it is peculiarly closed hydrographic basin. In spite of its greatest depth from 2200 m, from functional point of view it is very shallow sea, with functional depth of water exchange of 100 - 200 m.

These peculiarities of the Black Sea make the functioning of its ecosystem quite difficult, especially for the North - West part of the sea near to the Bulgarian and Romanian territorial waters.

The Bulgarian coast is influenced largely by the discharge of the big rivers in the Northwest and especially of the Danube, which waters flow along the Bulgarian coast to the Bosphorus.

The sea pollution is not only determined by external causes as the big rivers and the settlements along the coast. The Bulgarian coast area has its contribution too. It is supposed that along the Bulgarian coast are thrown about 650 000 cub. m. waste waters and just about 40 % of them are purified according to the required standards.

Shipping is considered to be one of the greatest pollutants and in particular the intensive flow of liquid cargoes which are needed not only for the Bulgarian industry but also for that of Romania and the states of the former Soviet Union.

According to the MARPOL 73/78 Convention the Black Sea is defined as a ”special area” connected to the prevention of the pollution by oil and oil products. At the same time several big oil terminals and petrol refineries are located in Bourgas (Bulgaria), Constanta (Romania), Novorosijsk (Russian Federation). Four of the riparian countries are actively involved in prospecting for oil and gas in the continental shelf.

There is a large traffic of crude oils in the region from different origins: Russian, Kuwait, Saudi Arabia, Iran, Iraq (before the embargo), Algeria, Libya, etc.

About 60 mil tons crude oil are transported annually in the Black Sea, including about 30 mil. tons via the Turkish Straits.

The number of the cargo ships operated in the Black Sea is about 50,000 annually, the number of the war ships in the basin is about 150 annually. The number of the main tanker movements for 1995 via the Turkish Straits amounts to 1,478 out of the Black Sea and 1,463 inbound.

An enormous increase in the traffic of crude oil is expected in the Black Sea Region in the next several years. The main reason for this change is the growth of the oil industry in the Caspian Sea region. The real substantial changes in tanker movements and routes are not clear till now but the information included in the above mentioned figures will be changed in a few years.

Marine resources

The Black Sea has a very narrow vertical living zone. It is characterized by very high productivity and rich population but with a limited number of different species. Life can be found only in the 8% of the total Black Sea’s water volume and the total number of species of plants and animals identified in the Black Sea is about 1200.

The Black Sea marine resources with economic importance include shellfish farming, fishing, catchment of Rapana, etc.

The sprat fishery is the most intensive during May-July. It accomplishes along the Bulgarian Black Sea coast, mainly between Cape Galata and Cape Emine and south of Sozopol.

With the disappearance of the mackerel along Bulgarian coast and the dramatic decline of the bonito and blue fish catches the yields of horse mackerel increased considerably. The species under consideration are warm-water ones and hibernate in the surface layers above the thermocline. Their spawning takes place exclusively in summer in the uppermost horizons (5-25 m) above depths of 15-

150 m. In autumn the fish move close to the coast for feeding but keeping nevertheless continuous southerly direction. The basic fishery area in autumn for horse mackerel is the northern regions of Varna Bay and Bourgas Bay.

Beaches and Tourism

The Black Sea coastal areas offer important tourist attraction. The long, mild summer climate, relatively gentle sea and extensive beaches draw substantial visitors. International tourism in the coastal zone provides 60% of tourism's revenues in the national account.

Accumulations of sandy deposits are common along the shoreline separating capes. Substantial deposits (more than 3 km in length) are located at the mouth of the Batova river (the Albena beach), as well as the beaches of Golden Sands, Varna, Skorpilovtsi, Obzor, Nessebur, Pomorie, Sunny Beach, etc.

Varna and Bourgas are the biggest seaside resort centres in Bulgaria. There are many resorts located in a north direction of Varna, including the castle "Evksinograd", St. Constantine and Elena, Golden Sands, Russalka, Albena, etc. Several big resorts are located near to Bourgas - Sunny beach, Dunite, Elenite, Nessebar, etc.

Much of the Bulgarian coast comprises of recreational, cultural or amenity areas used by both tourists and residents. Due to favourable climate combined with beaches the tourism has become a major industry along the coastline. The location of biggest coastal resorts is shown on figure 4.

Implementation of regulations

At present time, the only regulation dealing with the ballast water treatment is included in the "Mandatory rules for the regions under the jurisdiction of the harbourmasters of Varna and Bourgas". According to these Rules it is obligatory the exchange of the ballast water to be done at the Mediterranean Sea in case the ballast is taken outside of that region

New rules are under preparation by the Maritime Administration at present. According to the draft document the following requirements will be laid down:

- Ships in ballast, which has been taken outside the Mediterranean Sea, shall re-ballast in the Mediterranean Sea. Discharge of ballast for all ships in the region under the jurisdiction of Maritime Administration, except for segregated ballast, is prohibited.
- Discharge of segregated ballast by tankers and bulk carriers, etc., in the region of the Maritime Administration Directorate is allowed after clearing inwards and producing a Ballast Water Reporting Form, in accordance with Appendix 1 of Res. A 868(20), attached to the Master’s Declaration.
- It is prohibited to pollute the sea water around the ship during the discharge of the ballast, including causing visible changes of the water colour.
- The quays, decks and places for discharging ballast shall be sufficiently illuminated during the dark part of the day in order to ensure performing of visual control of the sea surface around the ship.
- Under suspicion that ballast waters contain oil or noxious substances, the Maritime Administration Directorate is authorized to require samples for analysis and if evidence is found to impose penalties to the ship and to the Master..

Proposals

In order to reduce possibilities of introduction of unwanted species into the Black Sea the following proposals could be made:

1. Implementation of appropriate sampling procedures to verify that the ballast exchange is really done as it is obligatory.
2. Some standards of the quality of the ballast water to be approved in terms of quantity and quality of the suspended matters in the ballast water.
3. To introduce a procedure for survey into the PSC of the BS MoU for the ballast water and sediments management of the ships.
4. Assessment to be conducted for the possibility sediments from the ships calling the Bulgarian Black Sea ports to be delivered.
5. A survey to be performed for identification and mapping of the areas of the sea that might be most affected by the harmful aquatic organisms and pathogens transferred by ships' ballast water.

Proposed amendments to the draft Regional Action Plan

To Section 2 OBJECTIVES.

1. Add a new bullet with the following text:
   - *to enhance the regional cooperation in protection of the marine environment using the existing regional bodies, established under the Istanbul Commission and the GEF Black Sea Environmental Programme.*

To Section 3 PROFILE OF BLACK SEA AND REGIONAL COUNTRIES.

1. Change the name of the section with "*Environmental conditions of the Black Sea Region*".
2. Change the second sentence of the second paragraph with the following text "*The conclusions of the Black Sea Trans-boundary Diagnostic Analysis (TDA), prepared during the first face of GEF BSEP in 1996, might be summarized as follows*:"
3. In the second bullet to replace "eutrophication" with "*nutrients*".
4. In the third bullet to replace "accidental" with "*accidental and operational*".

To Section 4 EXISTING REGIONAL INSTRUMENTS

1. Add a new paragraph after paragraph 5 (where BS SAP is mentioned) with the following text

   According to the BS-SAP a regional structure of consulting bodies was established, called Advisory Groups. One of the advisory groups is "Advisory Group on the Environmental Safety Aspects of Shipping" (AG ESAS), which is dealing, on behalf of the Black Sea Commission, with coordination of the regional aspects of pollution caused by shipping.

To Section 5 PRINCIPAL ACTIONS

1. To define indicative dates to each of the actions described in the section.
2. To subsection 5.2. to be included the following text:

   Annual reports will be prepared by the NIC and will be presented to the Istanbul Commission through the AG ESAS. The reports will include possible sources of unwanted species, respective

measures for prevention and control undertaken and planned in the region as well as the worldwide experience and trends on this matter.

3. To subsection 5.9 - the last sentence to be changed as follows:

   It is suggested that National Focal Points will be designated under the GloBallast Programme. The responsible body of the Istanbul Commission for cooperation with the Regional Programme Task Force will be the Advisory Group on Environmental Safety Aspects of Shipping. Heads of the Odessa Centre and the Coordinator of RPTF will be members of the AG ESAS.

To Section 6 ARRANGEMENTS FOR FUTURE COOPERATION

1. Change the first bullet of subsection 6.1. with the following text:

   - *Designate appropriate persons and responsible national institutions from each of the Black Sea countries, responsible for cooperation and implementation of the RAP activities*.

2. To add to the third bullet of subsection 6.1. the following text:

   - *… The consultative group members will include also the National Focal Points*.

3. The text of subsection 6.2 to be changed with the following:

   It is recommended the Head/Coordinator of RTF to be a member of the IC's Advisory Group on Environmental Safety Aspects of Shipping.

4. To add to the text of subsection 6.4 the following:

   The IC's AG ESAS to include the issues on ballast water management and control in the permanent agenda for its annual meetings.

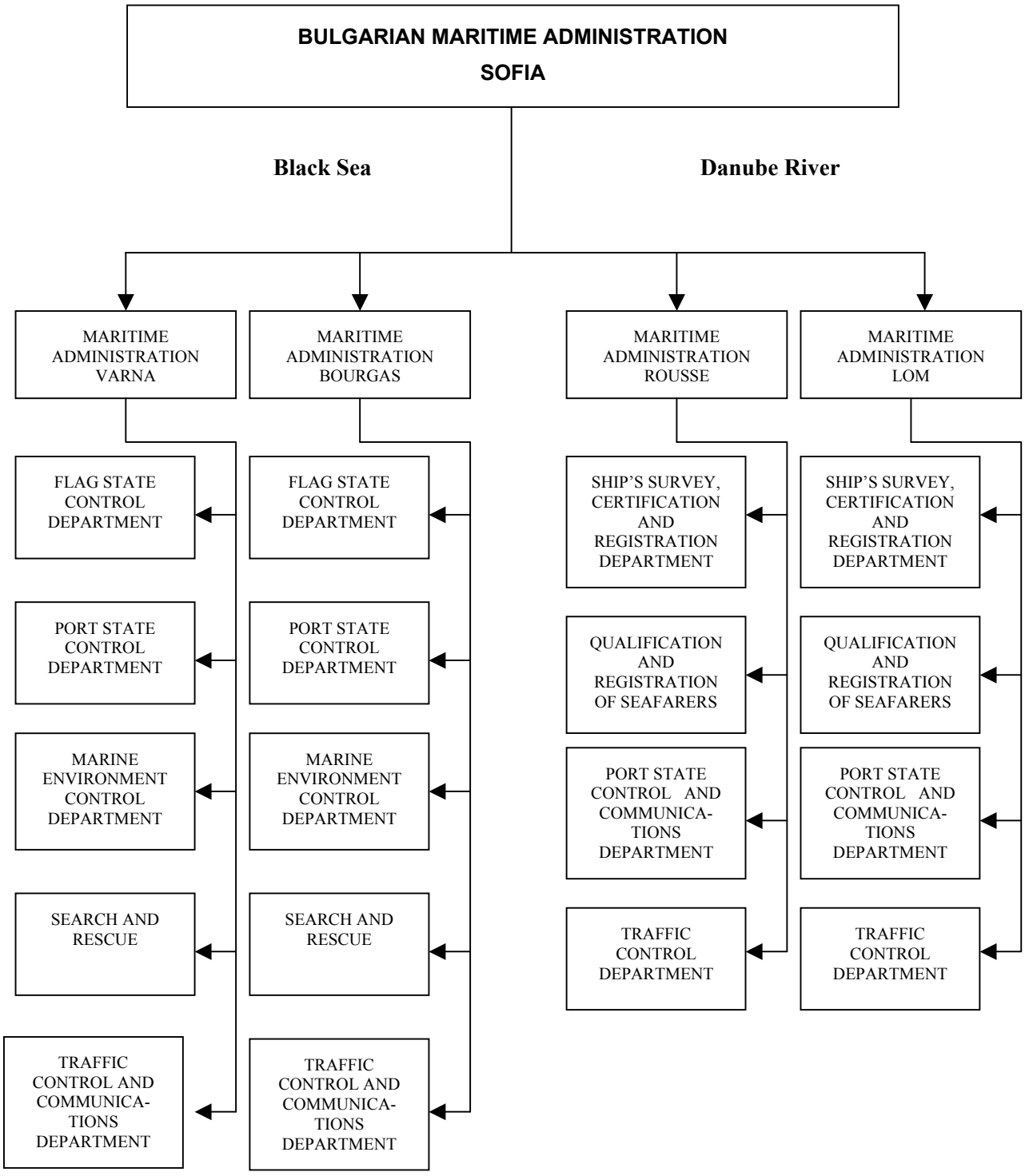


Figure 1: Maritime Administration - Administrative Structure and Subordination

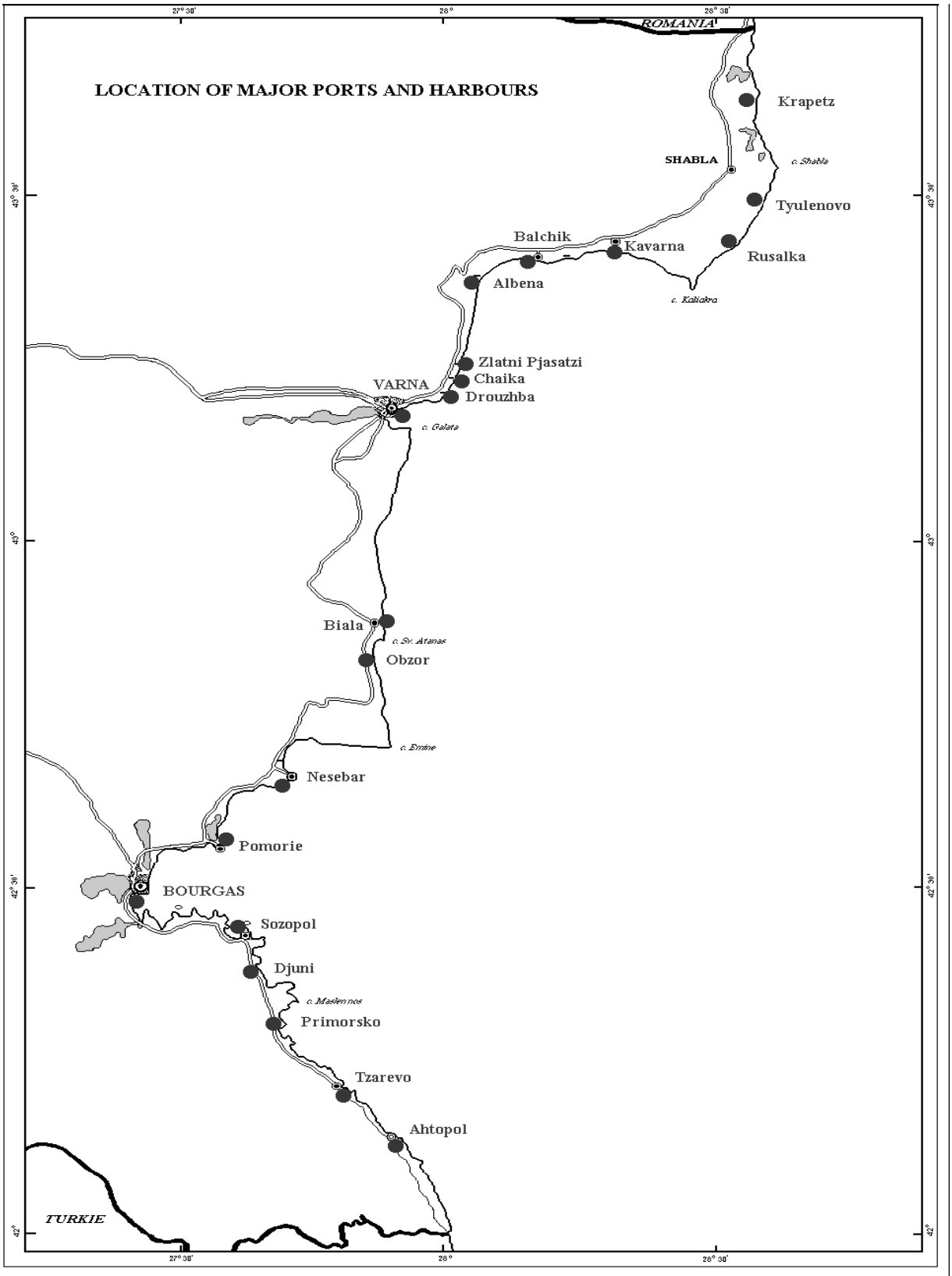

LOCATION OF MAJOR PORTS AND HARBOURS
ROMANIA
Krapetz
SHABLA
c. Shabla
Tyulenovo
Balchik
Kavarna
Rusalka
Albena
c. Kaliakra
Zlatni Pjasatzi
Chaika
VARNA
Drouzhba
c. Galata
Biala
c. Sv. Atanas
Obzor
c. Emine
Nesebar
Pomorie
BOURGAS
Sozopol
Djuni
c. Maslenos
Primorsko
Tzarevo
Ahtopol
TURKIE
27° 30'
28°
28° 30'
43° 30'
43°
42° 30'
42°

Figure 2

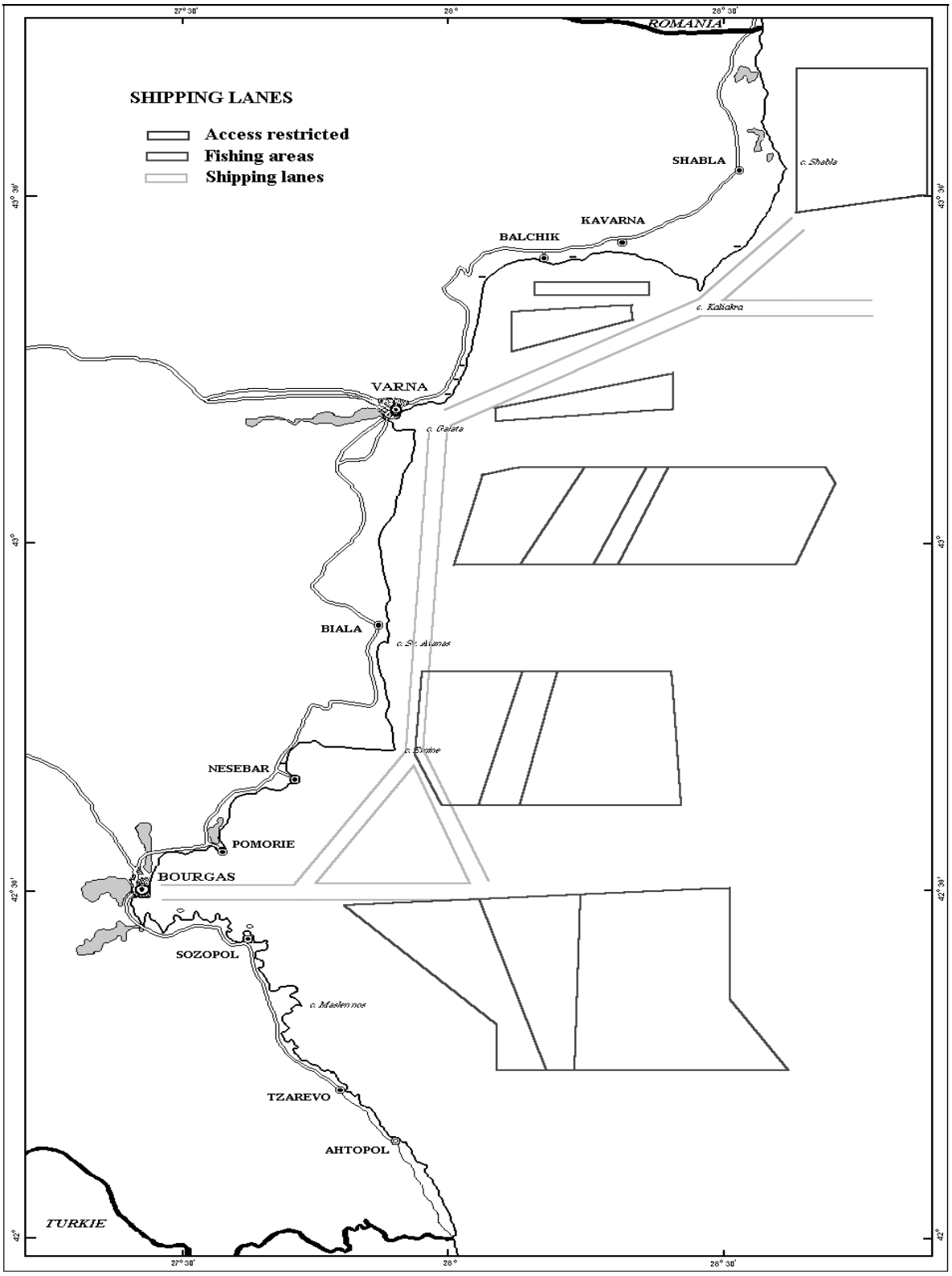

SHIPPING LANES
Access restricted
Fishing areas
Shipping lanes
ROMANIA
SHABLA
c. Shabla
KAVARNA
BALCHIK
c. Kaliakra
VARNA
c. Galata
BIALA
c. St. Atanas
c. Emine
NESEBAR
POMORIE
BOURGAS
SOZOPOL
c. Maslen nos
TZAREVO
AHTOPOL
TURKIE
27° 30'
28°
28° 30'
43° 30'
43°
42° 30'
42°

Figure 3

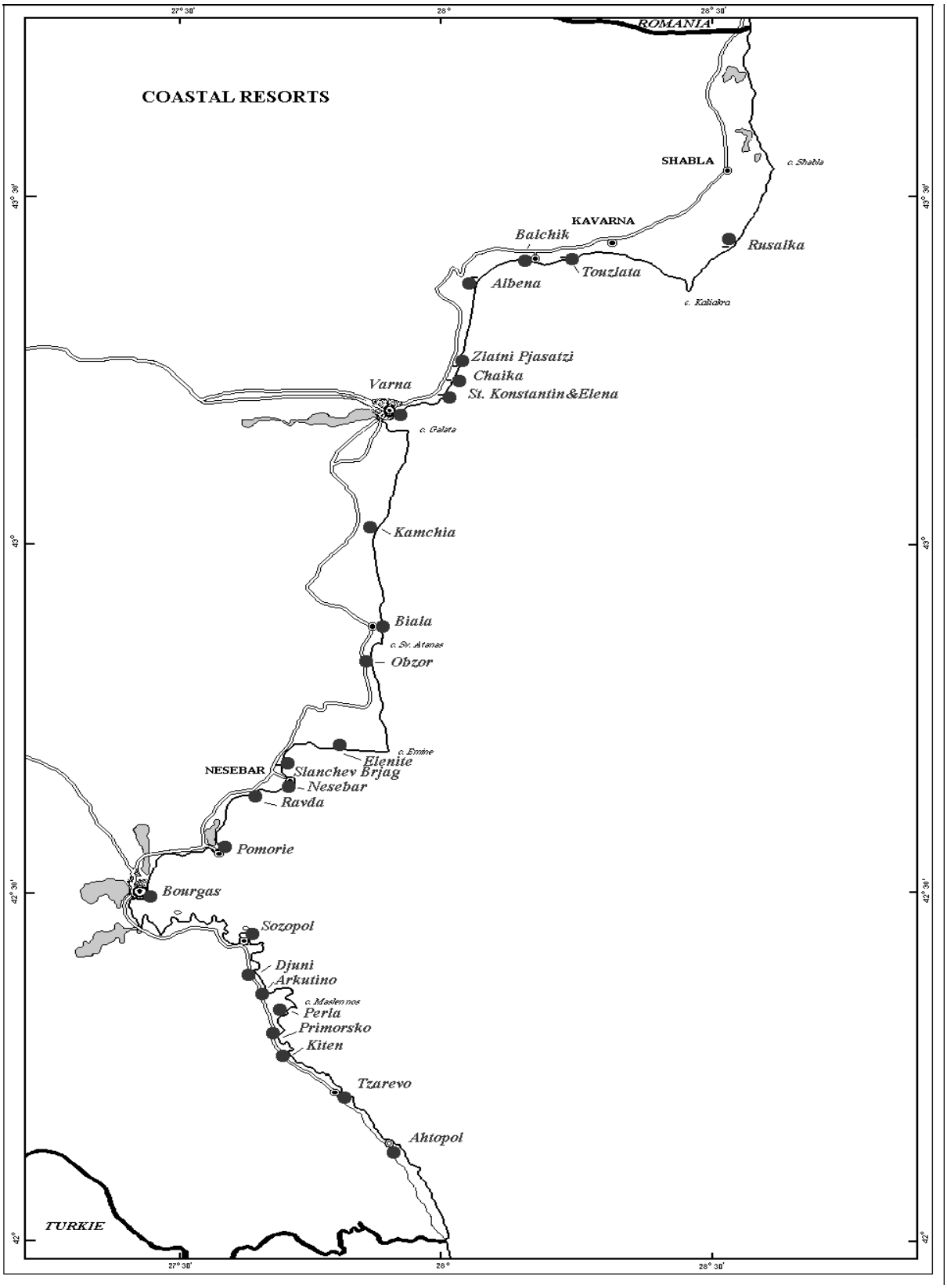

COASTAL RESORTS
ROMANIA
SHABLA
c. Shabla
KAVARNA
Balchik
Rusalka
Touzlata
Albena
c. Kaliakra
Zlatni Pjasatzi
Chaika
Varna
St. Konstantin&Elena
c. Galata
Kamchia
Biala
c. Sv. Atanas
Obzor
c. Emine
Elenite
NESEBAR
Slanchev Brjag
Nesebar
Ravda
Pomorie
Bourgas
Sozopol
Djuni
Arkutino
c. Maslen nos
Perla
Primorsko
Kiten
Tzarevo
Ahtopol
TURKIE
27° 30'
28°
28° 30'
43° 30'
43°
42° 30'
42°

Figure 4

Georgia

Country overview

- Georgia is situated on the eastern coast of the Black Sea, borders in the North with the Russian Federation, in the East with Azerbaijan and in the South with Armenia and the Turkish Republic.
- Population – about 5,000,000. Capital – Tbilisi (population 1.5 million). The biggest cities – Kutaisi, Batumi, Sukhumi, Poti, Rustavi.
- The length of the coastline is 168 nautical miles.
- Georgia plays a great role in the international transit corridor TRACECA and in oil transit from the Central Asian region to Europe.
- Volume of cargo operations: crude oil – 11 million tonnes; dry cargoes – 10 million tonnes.

Institutional arrangements

- Environmental Policy- **MoT** & **MoE** prepare policy on prevention of marine pollution
- Regulatory Authority – **Maritime Transport Administration** – adjusts the program of prevention of marine pollution according to policy prepared by the ministries.
- Executive Body
  - **Harbors Master** (MTA) – Port State Control
  - **Black Sea Convent. Inspection** (MoE) – pollution control
  - **MRCC** – Salvage & Rescue, Oil Spill Combating Operations (MTA)

Shipping

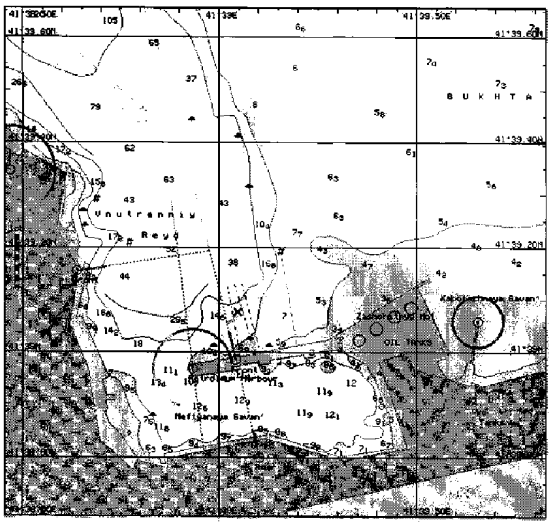
Shipping Companies – 285 ships in private companies

Maritime Agency – about 40 private agency companies

Classification Society – 11 Classification Societies recognised

Marine Oil Terminals in Batumi and Supsa

Ports

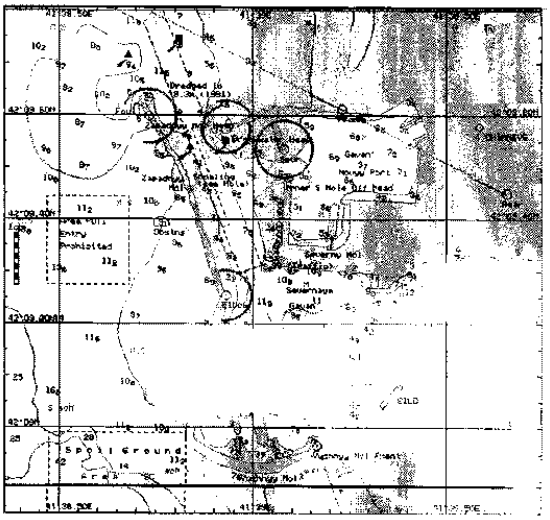


Port Batumi

Located on the southern coast of Georgia 25 km from the border with Turkey. The capital of Ajar Autonomous Republic – Batumi is a large oil port, has three oil berths and one open sea berth.

Volume of oil operation – 6,000,000 tons of crude oil.

Volume of segregated ballast dump – 2,800,000 mt

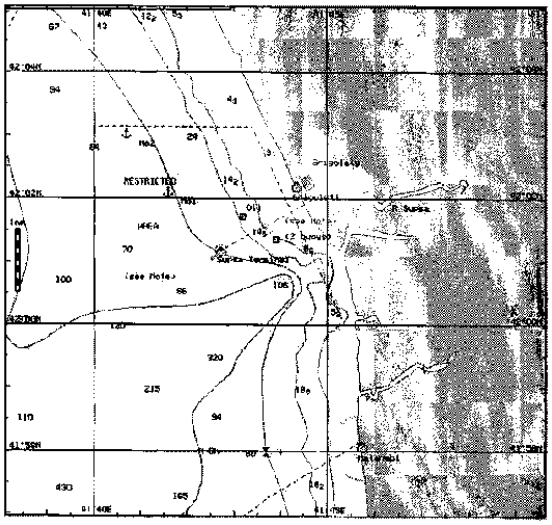


Port Poti

Located 65 km north of the port of Batumi, large dry-cargo port.

Volume of operations of dry cargoes – 6,000,000 mt,
and oil – 500,000 mt.

Volume of segregated ballast dump from tankers and clean ballast from dry-cargo vessels is about 30,000 mt.



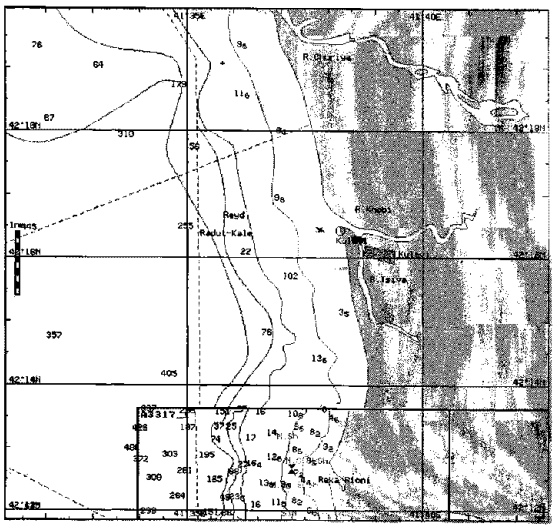
Port Supsa

Seaport created 45km north of the port of Batumi. Consists of one sea buoy.

Volume of operations of crude oil – 5,000,000 mt (year 2000).

Tankers of deadweight 150,000 mt are operated.

Volume of segregated ballast dump – 3,000,000 mt.



Port Kulevi

This oil port is being built north of the port of Poti.

Coastal and marine environment

The main equipment is concentrated on objects with the highest risk degree oil terminals of the ports of Supsa and Batumi.

Port of Batumi

Two complete sets of equipment are available. They belong to two organizations – SM4CC and chevron operator. The first complete set – at SMRCC – consists of heavy equipment intended for combating emergency oil spills of great volume in the open sea and coastal zone (skimmers, heavy booms etc.). The second complete set – belonging to Chevron – consisting of light equipment in two containers (light inflatable booms, light floating skimmer, shore hand fabricated tank) is intended foro liquidation of small emergency oil spills in the port.

Port of Poti

A contingency plan (17 September 1997) for oil spills exists and is approved by the Ministry of the Environment. The "skimming plan" covers organisation of skimming actions in the harbour, notification procedures and some recommendations on skimming technology. Although no equipment for oil spill abatement is available inside the port, quotations have been requested from international suppliers. The skimming plan outlines the structure of the specialised Division for Contamination Prevention.

Port of Supsa

All vessels must have the approved SOREP(MARPOL Pack) on deck in case of an oil spill, otherwise loading will not be allowed to commence. The terminal has all the necessary equipment in stock for abatement of an oil spill of Tier 2 size. GPC has developed an Oil Spill Response Plan (OSRP) Offshore Operations which forms a part of the organisation and procedures to be followed in the event of an oil occurring from the Single Point Mooring (SPM) system, marine vessel, sub-sea pipeline or along the coast following a shoreline impact.

The terminal has a service contract with Bruggs Marine and contract with OSRL for 24 hour readiness.

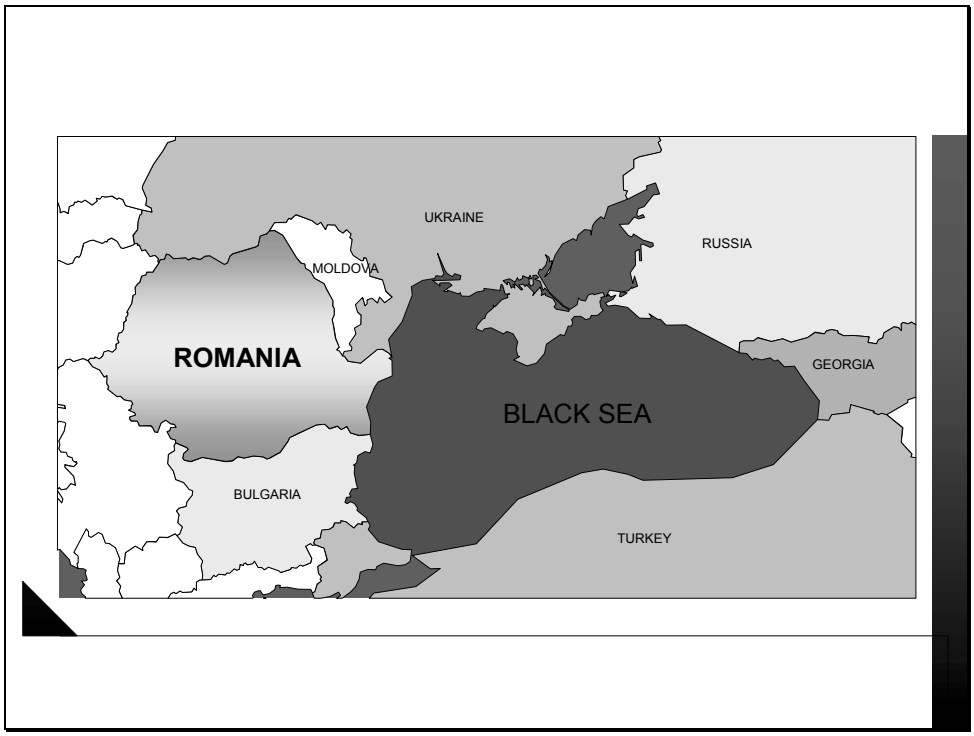
Law and regulation

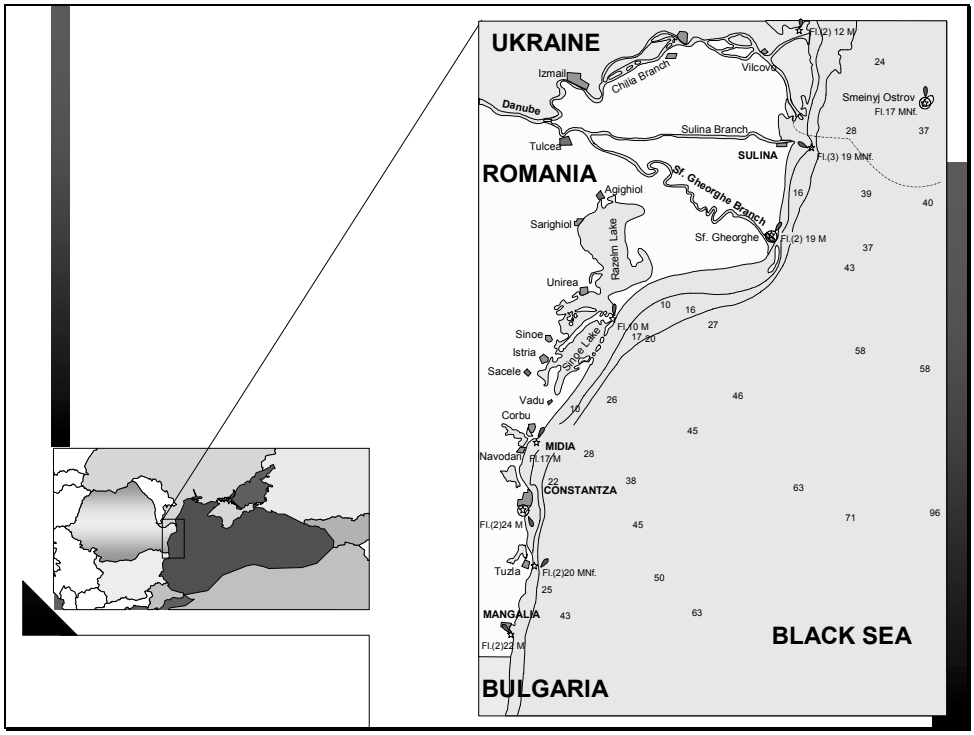
Maritime Code (MC-97)	– regulates all subjects of private maritime law and activity of Maritime Administration, seaports, Harbour masters, shipping companies, their responsibilities etc.
Law of Maritime Areas (MA-99)	– regulates all subjects of public law, continental shelf, economic zone, territorial sea, sanitary areas and maritime reservation.
Law of Maritime Rescue Service (MRS-2000)	– sets the rights and obligations of Maritime Rescue Coordination Centre, obligations of other authorities, responsibility of individual organisations.
Restructurisation of Transport and Communication System (TCL-2001)	– regulates the management system of transport and communications, determines the status of modal transport administrations as the subjects of public law.
Water Laws	– body of water legislation regulating matters of water resources protection
Presidential Decree on ballast water management no. 227 9.7.01	– sets the basic conditions of change of segregated ballast prior to vessel's entry into the sanitary areas of Georgia.
National Oil Spills Response Plan (NOSRP) 2001	–sets the rights and obligations of different ministries and organizations in charge with emergency oil spills. Determines Maritime Rescue Co-ordination Centre as responsible for emergency oil spill response.

Proposal

- To develop regional recommendations for preparing Guidelines on ballast water management.
- To prepare information on the status of seawater in different ports.
- To prepare a list of web-sites where maritime information is available.

Romania


UKRAINE
MOLDOVA
RUSSIA
ROMANIA
GEORGIA
BLACK SEA
BULGARIA
TURKEY


UKRAINE
Izmail
Chilia Branch
Vilcovo
Fl.(2) 12 M
Smeinyj Ostrov
Fl.17 MNf.
Danube
Sulina Branch
Tulcea
SULINA
Fl.(3) 19 MNf.
ROMANIA
Agighiol
Sf. Gheorghe Branch
Sarighiol
Razelm Lake
Sf. Gheorghe
Fl.(2) 19 M
Unirea
Sinoe Lake
Fl.10 M
Sinoe
Istria
Sacele
Vadu
Corbu
MIDIA
Navodari
Fl.17 M
CONSTANTZA
Fl.(2)24 M
Tuzla
Fl.(2)20 MNf.
MANGALIA
Fl.(2)24 M
BLACK SEA
BULGARIA

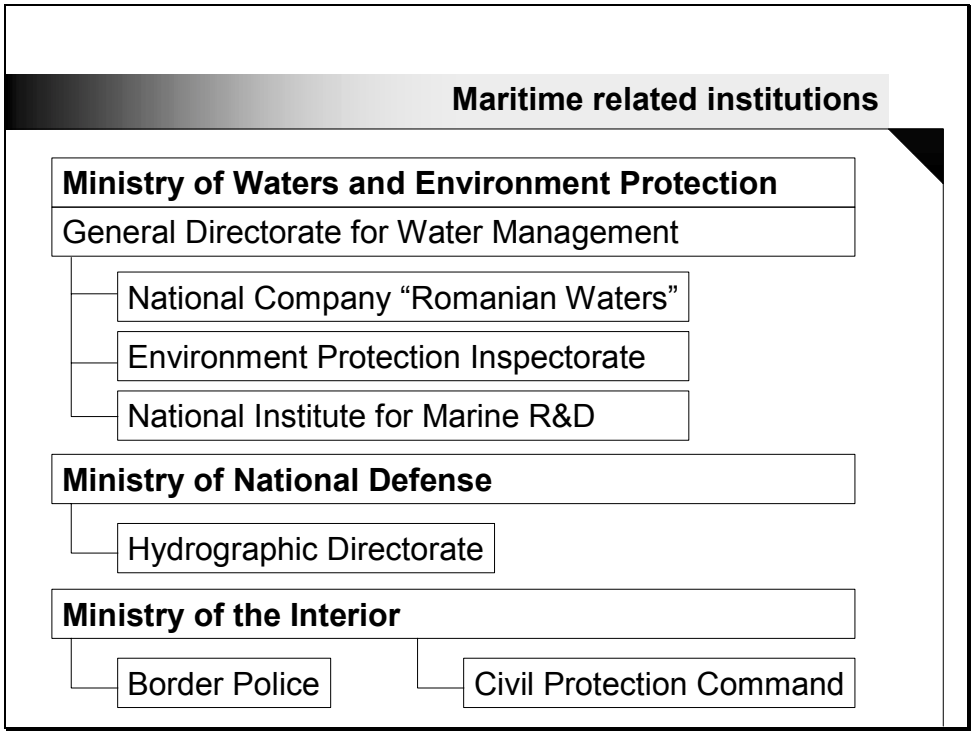
General information

- length of the Romanian seaside 244 km
- length of Delta Danube - Black Sea interface 65 km
- 4 maritime ports
- 14 resorts
- length of beaches 30 km
- average global traffic in maritime ports 37 mil. tons
- 4226 ships called the maritime ports in 2000
- fishing activity
  - 1300 boats
  - 474 motor boats
  - 7 trawlers
- the ancient cities: Histria, Tomis, Callatis

Maritime related institutions

- Ministry of Public Works, Transports and Housing (M.P.W.T.H.)
- Ministry of Waters and Environment Protection (M.W.E.P.)
- Ministry of National Defense (M.N.D.)
- Ministry of the Interior (M.I.)


Maritime related institutions
Ministry of Public Works, Transports and Housing
General Directorate of Maritime, Danube River and Inland Waterways Transports
Inspectorate of Civil Navigation
Harbor Master Offices
Romanian Register of Shipping
National Company Maritime Ports Administration
National Company for Naval Radiocommunications
Search and Rescue, Salvage & Intervention Group
Maritime Training Center


Maritime related institutions
Ministry of Waters and Environment Protection
General Directorate for Water Management
National Company "Romanian Waters"
Environment Protection Inspectorate
National Institute for Marine R&D
Ministry of National Defense
Hydrographic Directorate
Ministry of the Interior
Border Police
Civil Protection Command

Conventions

Romanian alignment to international rules:

IMO Conventions

- MARPOL 73/73
  - Annex I, II, V ... 1993
  - Annex III ... 2001
- OPRC … 2000
- CLC 1992 … 2000
- FUND … in preparation

Regional:

- Bucharest Convention, 1992
- Odessa Ministerial Statement, 1993
- Strategic Action Plan for the Black Sea
- Regional Contingency Plan for Oil Spills

Marine Research

• GOMOIU, M.-T., PORUMB I., 1969 - Mya arenaria L a bivalva recentrly penetrated into the Black Sea. Rev.Roum.Biol.

• GOMOIU, M.-T., 1972 - Some echological data on the gastropod Rapana thomasiana GROSSE along the Romanian Black Sea shore. - *Researches Marines*

• GOMOIU, M.-T., 1984 - *Scapharca inaequivalvis* (Bruguere) a new species in the Black Sea. - *Researches Marines*

• GOMOIU, M.-T., 1988 - Influence of maritime navigation on the coastal marine ecosystems.

• GOMOIU, M.-T., M. SKOLKA, 1996 - Changements dans la biodiversite de la Mer Noire dus aux immigrants. *GeoEcoMarina*

• GOMOIU, M.-T., M. SKOLKA, 1997 - A new gastropod-opistobranch at the Romanian Black Sea coast, *GeoEcoMarina*

• GOMOIU, M.-T., M. SKOLKA, 1998 - Increase of biodiversity by immigration - new species for the Romanian fauna.

• PETRAN, A., M. MOLDOVEANU, 1994-1995 - Post-invasion ecological impact of the Atlantic ctenophore *Mnemiopsis leidyi* Agassiz, 1865, on the zooplankton from the Romanian Black Sea waters. - *Researches Marines*

Shipping & Ports

Constantza Port

- traffic capacity … 85 mil. tons per year
- maritime traffic in 2000
  - total … 23.6 mil. tons
    - import … 11.5 mil. tons
    - export … 10.5 mil. tons
    - transit … 1.6 mil. Tons
  - solid bulk … 58%
  - liquid bulk … 19%
  - general cargo … 23%

Shipping & Ports

Sea Ports

- **Ships Call in 2000**

Total	… 4226
Constantza	… 3820
Midia	… 296
Mangalia	… 110

- **Classification:**

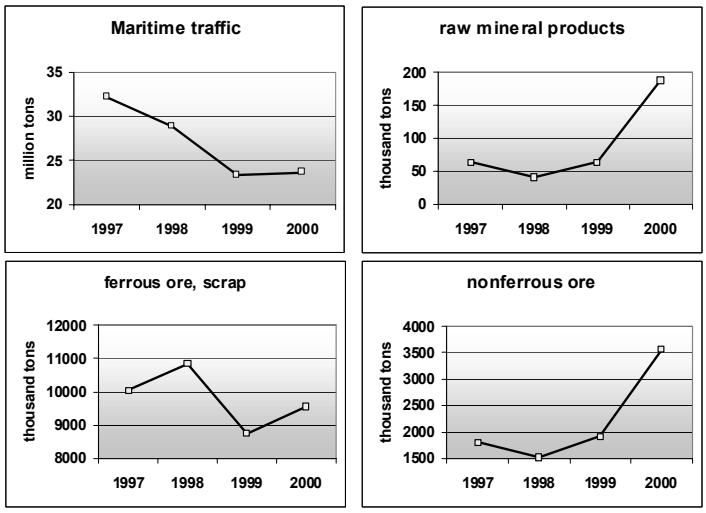
GRT 1 to 5000	3001
GRT 5001 to 10000	432
GRT 10001 to 20000	481
GRT 20001 to 40000	236
GRT over 40000	76

- **Type of ships**

Cargo ship	2446
Tanker	662
Container carrier	362
Bulk carrier	358
Other	398

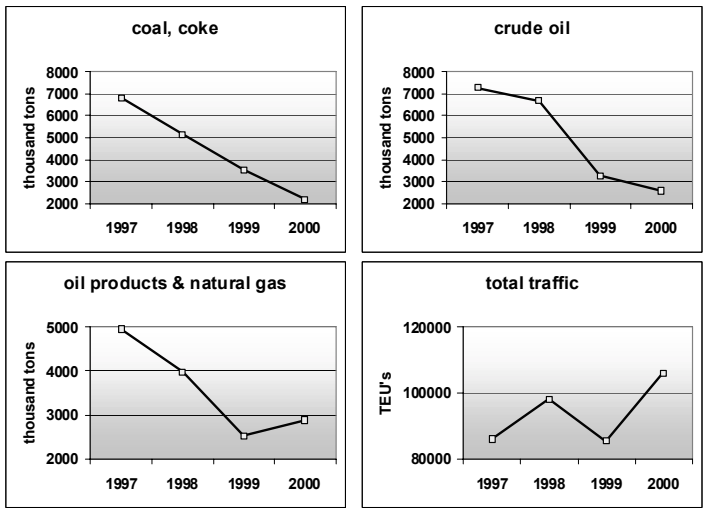
Shipping & Ports

Traffic evolution



Shipping & Ports

Traffic evolution



Shipping & Ports

Ships with ballast arrived in Constantza Port - 2001

	July	August	September	Total
Black Sea	38	52	13	103
Mediterranean Sea and Marmara Sea	42	106	49	197
Other zones	4	7	10	21
Total	84	165	72	321

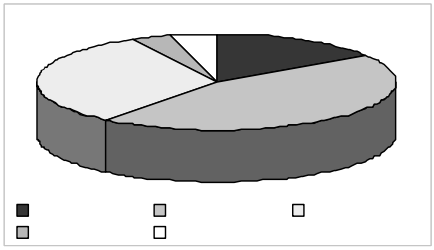
Shipping & Ports

Shipyards

- 7 for maritime ships construction (3000 - 200000 tdw)
  - Constantza
  - Braila
  - Mangalia
  - Oltenitza
  - Tulcea
  - Drobeta Turnu Severin
  - Galatzi
- 7 for ship repair (3000 - 200000 tdw)
  - Mangalia
  - Tulcea
  - Constantza
  - Galatzi
  - Midia
  - Braila
  - Sulina

Romanian Fleet

- 13 shipowners
- 45 maritime ships, of which
  - 4 tankers
  - 11 bulk-carriers
  - 24 cargo-vessels
  - 4 Ro-Ro
  - 2 ferry
- total capacity = 564843 tdw
- regular ferry services
  Constantza - Poti, and
  Constantza - Batumi
- no regular lines to Romanian ports
- no prospects for short-term development

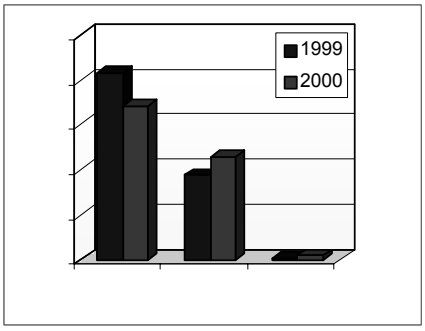


tdw

The Constantza Oil Terminal

Capacity
- 24 mil. tons/year on disch.
- 12 mil. tons/year on load.

Traffic (mil. tons)



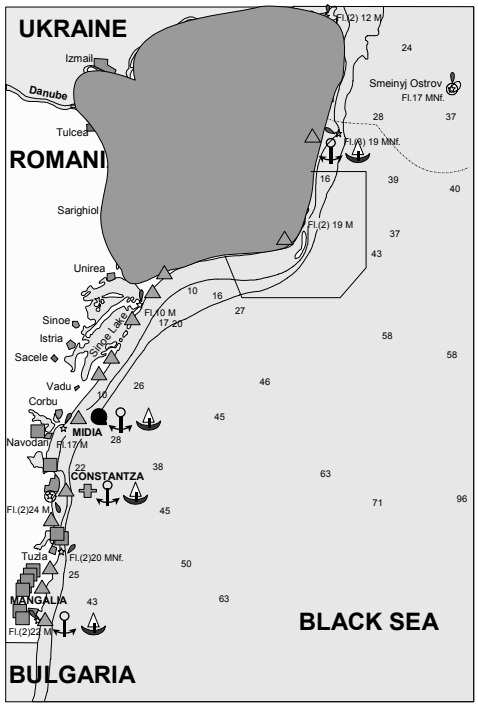
Number of ships
- 677 in 1999
- 736 in 2000

Ballast water received
- 53 mil. tons in 1999 (62 ships)
- 55 mil. tons in 2000 (75 ships)

Transport links
Black Sea, Red Sea, North Sea, Mediterranean Sea, Adriatic Sea, Baltic Sea, Atlantic Ocean, Indian Ocean, Pacific Ocean, Arabian Sea

Main areas & activities

- Danube Delta Reservation
- Fishing ports and stations
- Petrochemical plant
- Antipollution base
- Harbor
- Shipyard
- Touristic zones



Measures for marine environment pollution prevention

- In ports
  - bilge water treatment station
  - antipollution booms 2.8 km/ports + 1.7 km/high sea
  - depol vessels
  - skimmers
- Port Administration
- Oil Terminal
- Search and Rescue, Salvage & Intervention Group
- Shipyards
- A new project for port environment protection
  - vessels for collection of oily water and waste
  - ballast water full treatment station
  - incinerator of waste
  - ecological dump site waste with hazardous materials section

Biodiversity of the Romanian coastal waters (Living resources)

A recent assessment for the 1996-2000 period, put into evidence:

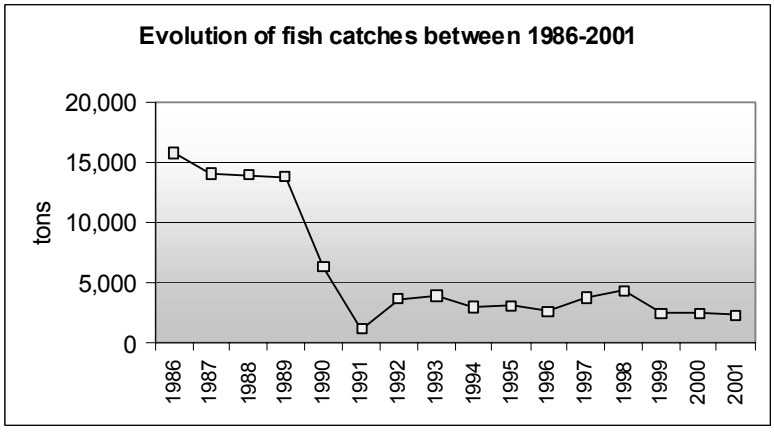
- 348 species planktonic and benthic plants (phytoplankton, fungi, macrophytes),

- 178 invertebrates (zooplankton, and zoobenthos),

- 141 fish, and

- 3 marine mammals.

Commercial resources (fishing)



Antropochorous immigrants penetrated into the Black Sea

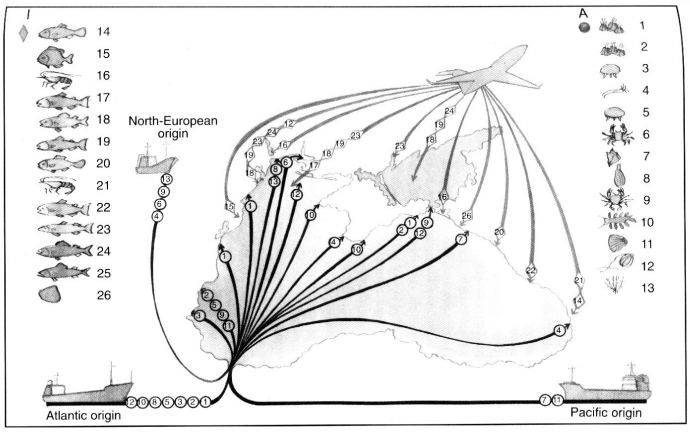


Fig 8. Introduction of exotic species into the Black Sea

Accidental Introduction: 1. Balanus improvisus, 2. Balanus eburneus, 3. Blackfordia virginica, 4. Mercierella enigmatica, 5. Bourgainvillia megas (1933), 6. Rhithropanopeus harrisi tridentata (19837), 7. Rapana thomasiana, 8. Mya arenaria, 9. Callinectes sapidus, 10. Doridella obscura, 11. Cunearca cornea, 12. Mnemiopsis leidyi, 13. Desmarestia viridis.

Intentional Introduction: 14. Gambusia affinis (1925), 15. Lepomis gibbosum (1930), 16. Pandallus kessleri (1959), 17. Plecoglossus altivellis (1963), 18. Roccus saxatilis (1965), 19. Salmo gairdneri (1965), 20. Oryzias latipes (1970s), 21. Penaeus japonicus (1970s), 22. Oncorhynchus keta (1972), 23. Mugil soiuy (1972), 24. Dicentrarchus labrax (1977), 25. Lateolabrax japonicus (1978), 26. Crassostrea gigas (1980).

Source: Y.U. Zaitsev

List of antropochorous immigrants penetrated into the Black Sea

(Source: Gomoiu, 1996)

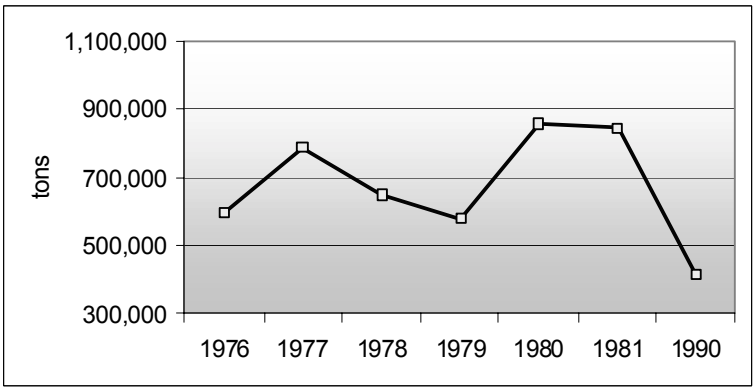
Species	Origine	Apparition	
		Black Sea	Romanian littoral
Balanus improvisus	Atlantic	1844	1910
Mercierella enigmatica		1924	1950
Blackfordia virginica		1925	1940
Chthamallus stellatus		1930	1930
Rithropanopaeus harrisii	Indo-Pacific	1932	1950
Bougainvillia megas		1933	1940
Balanus eburneus	Atlantic	1933	1940
Rapana thomasiana	Sea of Japan	1947	1963
Urnatella gracilis		1950	1950
Potamopyrgus jenkinsii	Indo-Pacific	1952	1952
Balanus amphitrite		1954	1960

List of antropochorous immigrants penetrated into the Black Sea

Species	Origine	Apparition	
		Black Sea	Romanian littoral
Balanus perforatus		1954	1960
Pandalus latirostris	Indo-Pacific	1959	1970
Calinectes sapidus	North-Atlantic	1968	1998
Mya arenaria	North-Atlantic	1972	1972
Scapharca inaequivalvis	Indo-Pacific	1980	1984
Mnemiopsis leidyi	North-Atlantic	1982	1987
Leucothea multicornis		1986	
Doridella obscura		1986	1997
Eriocheir sinensis	North-America		1997
Beroe ovata	Sea of China		1997

Bivalve *Mya arenaria*

Main area of distribution: Sulina - Mamaia, between 0-30 m depths, produced:



The ctenophore *Mnemiopsis leidyi*

Evolution of the biomass, in the 1993-1998 period:

	1993	1994	1995	1996	1997	1998
Area investigated (Nm2)	4899	4140	3084	3142	2934	3457
Area of distribution (Nm2)	4899	2792	250	2696	2163	1812
Mean density (t/Nm2)	10.0	15.42	0.741	0.524	0.390	1.277
Biomass (t)	48954	17870	185	1444	810	2159

Main ecological implication: dramatically decline of the small pelagic fishery.

Legislation implementation

- MARPOL 73/78, Annex I/II, and V
  - Environment, waters and navigation laws
  - Port Regulation
  - R.N.R. Rules
- MARPOL 73/78, Annex III
  - rules and regulations under preparation
- In Constantza Port
  - port reception facilities for:
    - bilge water
    - ballast water
    - ship waste
  - new project for full implementation of MARPOL (2005)
- IMO Resolution A.868(20) - under analysis

Proposals

- supporting of draft regional action plan;
- necessity of a financial support for implementation;
- a diplomatic conference for a new convention regarding water ballast
- control of ballast water to be part of Port State Control

Russian Federation

Russia has its outlet to the Black and Azov Seas through two administrative &economic units both the subjects of federation: Krasnodarskyy krai and Rostov oblast'.

The Rostov oblast' has a coast strip on Azov Sea, whereas Krasnodarskyy krai has a coastal line along the Black and Azov Seas, with a general length of 1,120 km. However, despite rather small coastline of Azov Sea in Rostov oblast', the influence of this subject of federation on a state of the Azov and Black Seas is rather significant, as just here such large river as Don runs into the Azov Sea, which watershed includes highly industrialized territories and those of intensive agriculture.

On its natural resources the territory of Black and Azov Sea coasts in Krasnodarskyy krai has no analogues in Russia. The significant amount of woods, unique resorts with mineral sources, especially valuable grounds, valuable fishing reservoirs, rare flora and fauna, monuments of nature and archeology are concentrated on this territory.

The whole area of only a 2 km sea coast strip makes about 188,68 thousand hectares, among which anti-erosion strip - 37,43 thousand hectares, of them 14,96 thousand hectares – Black Sea coast and 22,47 thousand hectares - Azov Sea. The area of first group woods makes 511,6 thousand hectares, especially valuable grounds - 302,95 thousand hectares; ordered grounds - 185,3 thousand hectares; nature monuments - 51,13 thousand hectares; archeological monuments - 5,99 thousand hectares.

The significant part of coastal territories is occupied by an infrastructure (railway and highways, pipelines, electric and communication cables, sewage systems, etc.), by objects of federal property (military objects, seaports, airports, other enterprises).

The major natural resources of Tamansko-Anapsko-Novorossiysk area are raw material for cement industry of Novorossiysk, mineral waters, medical mud and salts of filth. Fertile soil, especially if they are irrigated, can provide high fruitage, vegetable, technical cultures. Carbon soils are of special value, they are used for cultivation of restaurants, dessert and known sparkling grades of a grapes. Novorossiysk is the largest southern seaport of Russia, in which processing of general cargoes is carried out from the railway and petroleum from pipelines. The city of Anapa is known and largest children's resort in Russia which keeps an opportunities for development of this specialization in the future. In a settlement named Abrau-Dyurso the most famous plant of sparkling vines is located. And in area Bol'shoi Utrish skilled mussel and oyster plantations are located.

The main natural resources of Helendzhik-Tuapsinskyy area are recreational resources and wood. Favorable soils especially good for wine-growing are located in Helendzhik as well. There are no protected territories and water areas, not taking into account some nature monuments and small local ordered grounds in this area. On its economic specialization the area is similar to Tamansko-Anapsko-Novorossiysk, but differs by essentially small scales of recreational development, wine-growing and port facilities.

Of major importance for the development of Bolshoi Sochi area are its valuable recreational resources, which do not make a concession on their quality and variety to best Mediterranean resorts. In addition to the large landscape variety and favorable climate, good recreational conditions are supplemented by presence of mineral waters deposits. Industry of Bolshoi Sochi addresses only local needs. However, the concentration of an industry in some places creates powerful local centers and pollution of natural environments, first of all, natural waters and atmosphere.

Now many nature management problems in coastal zone are caused by complex system of its internal borders. It is climate, geological, geobotanical, zoo-geographical, landscape and other natural borders. Besides this, there are a lot of borders established by people, such as: administrative borders, border of a the special economic mode zone along coastal line, border of reserves, ordered areas, nature

monuments, water protected zones, wood fund, sanitary &protective zones of enterprises, inhabited zone, zone of country buildings, resort zone, railway zone, zone of territorial waters, etc.

The variety of internal borders in a coastal zone of Black and Azov seas determines complexity of mutual relation and interactions between nature users, which interests can be not identical and do not help to take objective decisions on maintenance of sustainable development.

To introduce the system of complex management for coastal zones by State committee of Russian Federation on environment protection (Gosecology of Russia) there were developed in 1997-1998 the Federal target program of complex management of Black and Azov coastal zones.

Ministry of Natural Resources of Russian Federation (MNR of Russia), being the assignee of Gosecology of Russia, is a federal body of executive authority that is carrying out the state ecological control and management of natural resources.

All interested federal bodies of the executive authority, organizations and departments are involved in the realization of the above-mentioned program.

Ministry of Transport of Russian Federation (Mintrans of Russia) according to the Decision of the Government of Russian Federation by December 30, 2000 № 1038 is a federal body of the executive authority which is conducting state policy and carrying out transport management.

State Service of Marine Fleet (Rosmorflot), being a component of Mintrans of Russia, represents a Maritime Administration of Russia.

Rosmorflot is a head branch coordination body in a system of federal bodies of the executive authority on maritime activities of Russian Federation, including problems of development and use of merchant, inland, icebreaking and special auxiliary fleet of Russian Federation, and also civil coastal infrastructure.

Basic tasks and functions include:

- realization of parent organization functions to provide Russian Federation participation in International Maritime Organization (IMO) and with appropriate powers - in other international organizations on maritime transport;
- realization of a methodical management and control of maritime transport organizations activity on performance of the international treaties of Russian Federation in the field of marine environment protection and requirements of nature protection legislation of Russian Federation;
- realization of secretary functions of interdepartmental commission of Russian Federation on International Maritime Organization.

State Marine Emergency and Saving &Coordination Service (Gosmorspasservice) carries out a methodical management and control of maritime transport organizations activity on performance of the international treaties of Russian Federation in the field of marine environment protection and requirements of nature protection legislation of Russian Federation in structure of State Service of Marine Fleet.

In its work Gosmorspasservice cooperates with maritime transport organizations, such as: maritime administrations of ports, merchant sea ports, shipping companies, and also carries out semantic acceptance of scientific &research works, which are carried out by branch research institutes under the order of Mintrans of Russia.

In the Russian zone of Black Sea situated the following ports: Novorossiisk with port point of Anapa, Tuapse, Sochi, Gelendzhik; on Azov Sea: Temryuk, Caucasus and Taganrog. In ports of Novorossiisk, Sochi and Tuapse there were established maritime administrations of ports.

In 2000 in the Russian Black Sea ports there were a following ships' calls:

Port of Novorossiisk - 5689,

Tuapse - 1180;

Sochi - 767:

In ports of Azov Sea:

Temryuk and Caucasus - 1327;

Taganrog - 598.

Conditions of ballast water discharge in ports are determined by "The obligatory decisions in ports" and are characterized as rather liberal, such as prohibition of ballast water discharge in case of visible change of water color at ship boards, and also possible penalties if ballast water is estimated by competent bodies of state control as pollution. Within nine months of this year in port of Novorossiisk has been discharged 11,428,660 cubic meters of ballast water.

Shipping patterns for Russian Black Sea ports is various and includes World Ocean, and thus are characterized by the following features.

Tanker bulk-oil fleet calling port of Novorossiisk in a ballast mainly from the European ports of Mediterranean, less often – Northern Europe, discharge segregated ballast in oil terminal "Shes-haris" during cargo operations without any restrictions.

Now the majority of tanker shipping companies which are carrying out oil operations from port of Novorossiisk, declared and undertake operational measures with ballast water according to "The Guidelines", including re-ballasting in Black Sea (on depths of more than 50 m), documenting of events in ballast water record books and other.

Ships coming in ballast for metal and fertilizers is characterized by significant expansion of shipping patterns of port beyond the Mediterranean in ports of Southeast Asia, Southern America and other ports of a world ocean. Proceeding from a biological diversity of these areas, the problem of invasive hydrobionts transfer is extremely urgent, and the threat to usual Black Sea marine environments taking into account these shipping patterns requires special attention. According to our information, such vessels do re-ballasting before entering the Black Sea in a very special case.

As for vessels-refrigerators and vessels with sugar coming to port with a cargo, despite of wide variety of shipping patterns, such problem is not urgent.

Long-term regular researches on a problem of introduced species taken to Black Sea with ships ballast water, are conducted by the Institute of Oceanology of Russian Academy of Sciences and the Azov Scientific &Research Institute of Fishery (AzSRIF).

There are about 36 kinds of introduced species in Black and Azov seas now. Some of them are rather painful for local species and ecosystem as a whole. An example is the introduction and development of toxic dinofite algae Alexandrium and Prorocentrum in Azov Sea. In conditions of high eutrophity they cause "flowering" of water (red flows).

Most dramatic changes to ecosystems of Black and Azov Seas have taken place after introduction of predatory ctenophora Mnemiopsis (Mnemiopsis leidyi) from northwest coast of Atlantic Ocean. Being a highly reproductive organism with a wide food spectrum, this new invader became an ideal object for successful colonization of Black Sea. Having appeared for the first time in Black Sea in 1982, in 1989 it has given enormous outbreak in number and bioweight, which has reached a billion tons. It has resulted into decrease of quantity and bioweight of fodder zooplankton. Its qualitative structure has changed. Becoming the food competitor, and also a consumer of caviar and larvae of plankton fishes (khamsa, jack mackerels, sprat) Mnemiopsis brought a huge damage to their stocks. As a result catch of these kinds have decreased. Other kinds of fish have also suffered, especially those consuming benthos animals.

According to AzSRIF in summer of 1988 Mnemiopsis has appeared in Azov Sea, and within one year has given enormous outbreak in its number and its biomass. And for more than ten years it forms here a powerful temporary population with its development features, inherent to it, and caused by a particular mode and biota of ecosystem. This invader appears in Azov Sea in spring time or in beginning of summer and forms within a rather short term a population with biomass of 20-30 mln. tons of crude weight. Its greatest number population of Mnemiopsisa reaches at the end of summer, or in the beginning of autumn. In winter ctenophora disappears in Azov Sea.

The main influence of Mnemiopsis was laid upon zooplankton communities, which structural and functional organization has changed significantly. It has broken reproduction and food conditions of pelagic fish populations. Thus, a number and biomass of khamsa and sardelle in a so-called "ctenophora" period has declined in several times compare to years before invader's appearance: average annual catch for 1990th (21,9 thousands tons) was less on 143,4 thousands tons of average catch during previous 25 years.

Damage to economy resulting from Mnemiopsis introduction into Azov Sea is estimated in USD 43 mln. annually and it is only reduction of catch of khamsa and sardelle.

To decrease the pressure of ctenophora among measures offered at the meeting of Commission on Fishery in Mediterranean Sea with participation of FAO, UNEP and other international organizations it was proposed to introduce another ctenophora beroe (Beroe ovata), which eats only Mnemiopsis. These recommendations were supported by a group of GESAMP experts, which has defined several variants of measures on improvement of Black and Azov Seas ecosystems. However, Black Sea countries didn't implement any of these offers.

Ctenophora beroe appeared in Black Sea in 1997 by the same way, with ships' ballast waters according to AzSRIF. During 1997-98 it was met incidentally. And distributed only in a middle of August 1999 in a northeast part of Black Sea. In September-October 1999 Beroe ovata was detected in Azov Sea. Within last two years it is forming quite large population at the end of summer and positive results of its presence in these seas are already marked.

Results of researches show, that during the period sufficient for travel of a sea-going vessel from one part of Europe to another, for example from Baltic Sea into Northern (that is 3-4 days), all plankton community are safely transferred in ballast waters without essential changes. During transatlantic voyages (10-14 days) the number of organisms in ballast waters reduced, but some species keep alive and are quite capable for active life (Olenin, 2000). Substantial growth of world shipping fleet tonnage and reduction of time for sea voyages has broken the presence of biogeographical barriers and increased in many times the danger of marine species introductions into new environments. The cases of catastrophic "ballast" invasions, which call significant ecological and economic consequences became frequent. And unfortunately, Black and Azov Seas are among the leaders on a number and consequences of such invasions.

That is why activities within the International Maritime Organization (IMO) on a problem of prevention of transfer of unwanted marine species and pathogens is rather actual for this region.

Being a party of MARPOL 73/78 Convention, Russian Federation constantly participate in a work of Marine Environment Protection Committee (MEPC) of IMO, takes part in development of IMO documents on prevention of introduction of unwanted marine species and pathogens with ships ballast waters and sediments. National or departmental managing documents are developed based on these specified documents.

Thus, IMO MEPC Resolution 50(31) "Guidelines on prevention of introduction of unwanted marine species and pathogens with ships' ballast water and sediments" has been included into management directive (MD) 1.04.17-94 "Rules of registration of operations with oil, oil products and other substances, harmful for people health or alive sea resources, and with their mixtures worked out onboard of ships and other floating devices".

Rules of ballast water discharge are also included into Guidelines on prevention of pollution from ships (MD 31.04.23-94).

On the basis of specified documents shipowners develop their management documents. All tankers of "NOVOSHIP" Shipping Co. have onboard "Guidelines on management and control of discharge of ballast water onboard", specialized for certain types of vessels, and included into a general "Safety Management System" according to the ISM requirements. “Model BW Management Plan” proposed by Intertanko was taken as an "operational model" for development of these “Guideleines…”.

Based on IMO Resolution A.868 (20) “Guidelines for the control and management of ships` ballast water to minimize the transfer of harmful aquatic organisms and pathogens” State Fishery Committee of Russian Federation developed a branch “Regulations for the control and management of ships` ballast water to minimize the transfer of harmful aquatic organisms and pathogens”.

According to the from Ministry of Transport of Russian Federation in 1993 Central Scientific &Research Institute of Merchant Marine has made a research “Development of technical requirements to treatment systems for tankers’ ballast water, discharged in ports”. It was a purpose of this work to study possible methods of treatment of tankers’ ballast water from harmful marine organisms. Possible treatment methods have been analyzed, their advantages and disadvantages were determined from the point of efficiency and opportunity of use in merchant marine. As a result it was shown, that one of perspective methods appeared an ozone treatment method, which can be used both onboard and onshore. Researches revealed, that certain installations made by national industry are suitable for water ozone treatment but they need some revision.

Within the framework of the Regional Action Plan it is possible to consider the following issues:

- monitoring of a biological diversity and establishing of a database on invasive species;
- development of uniform regional requirements on ballast water exchange;
- development of criteria for clean ballast water;
- to approve alternative methods instead of ballast water exchange method.

Turkey

1st Black Sea Conference on Ballast Water Management and Control
10-12 October 2001, Odessa, Ukraine

TURKEY PROFILE

• 7 District Directorate

• 68 Harbour Master along all the coasts

Turkey

1st Black Sea Conference on Ballast Water Management and Control
10-12 October 2001, Odessa, Ukraine

TURKEY PROFILE

- Turkey is a large peninsula country with 8.333 km. coastline
- Surrounded by 4 seas namely; Black Sea in N, Marmara Sea in NW, Aegean Sea in W and Mediterranean in S.

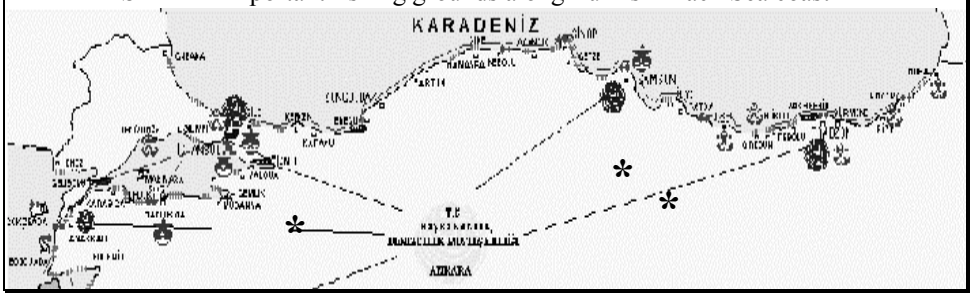
Turkey

1st Black Sea Conference on Ballast Water Management and Control
10-12 October 2001, Odessa, Ukraine

TURKEY PROFILE

- 14 provinces along Black Sea coast of Turkey
- 1.695 km. long coastline between Iğneada (W) and Sarp (E)

- **ECOLOGY** 3 major delta; Sakarya, Kızılırmak and Yeşilırmak and many important coastal forests of specific Black Sea vegetation type, rich terrestrial and coastal wildlife
- **TOURISM** Several beaches along Turkish Black Sea coast
- **FISHERY** Important fishing grounds along Turkish Black Sea coast



1st Black Sea Conference on Ballast Water Management and Control
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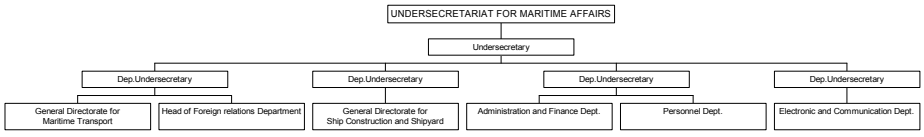
INSTITUTIONAL ARRANGEMENTS



- Undersecretariat for Maritime Affairs (UMA) reports to a State Minister
- Responsible for development of maritime policy and implementation of international conventions as well as national laws and regulations relevant to maritime issues in Turkey
- UMA headquarter is located in Ankara while 7 District Directorates are located along the coasts of Black Sea (2), Marmara (2), Aegean (1) and Mediterranean (2) with 68 Harbour Mastership.

Turkey

1st Black Sea Conference on Ballast Water Management and Control
10-12 October 2001, Odessa, Ukraine

INSTITUTIONAL ARRANGEMENTS

- General Directorate for Maritime Transport/Maritime Safety Dept. is responsible for port State control, marine environment protection, pollution prevention and ballast water management and control issues.
- Foreign Relations Dept. is responsible for coordination and co-operation.

Turkey

1st Black Sea Conference on Ballast Water Management and Control
10-12 October 2001, Odessa, Ukraine

INSTITUTIONAL ARRANGEMENTS

RELEVANT INTERNATIONAL CONVENTIONS and REGIONAL AGREEMENTS

- International Conventions on Load Lines'66 in November 1968
- Ratified MARPOL 73/78 Annexes I, II and V in June 1990
- Ratified Med.MoU on port State control in July 1997
- Ratified Black Sea MoU on port State control in December 2000

Turkey

1st Black Sea Conference on Ballast Water Management and Control
10-12 October 2001, Odessa, Ukraine

SHIPPING & PORTS

NATIONAL MERCHANT FLEET

(>300 GRT vessels as of September 2001)

- **Total 9.5 million DWT**
- **Total number of vessels about 900**
- 168 Bulk cargoes
- 4 Oil bulk ore (OBO)
- 101 Tankers
- 50 Chemical material tankers
- 9 LPG
- 25 Ro-Ro
- 32 Container
- 20 Ferryboat

- Turkish merchant fleet is at 20th rank in the world.

Turkey

1st Black Sea Conference on Ballast Water Management and Control
10-12 October 2001, Odessa, Ukraine

SHIPPING & PORTS

PORTS

		# of total ports	Major Ports
• Black Sea	:	25	8
• Marmara Sea	:	16	10
• Aegean Sea	:	12	6
• Mediterranean	:	9	5
TOTAL		**62**	**29**

• Major Ports are the ports which circulate over 50.000 passengers annualy or handle 100.000 tons of international cargo / year or 500.000 tons of international general cargo / year.

• 7 container ports exist in Turkey (İstanbul/Haydarpaşa, İzmir, Mersin, İskenderun, Samsun, Derince and Bandırma)

Turkey

1st Black Sea Conference on Ballast Water Management and Control
10-12 October 2001, Odessa, Ukraine

SHIPPING & PORTS

TRANSPORTATION PATTERN

- 90% of foreign trade transportation is realized by maritime transport
- 5% of the fleet belongs to public sector while 95% to private sector
- 170 million tonnes of annual handling capacity of Turkish ports including fuel oil and oil products
- In cabotage transportation, 16.5 million tonnes unloading and 21 million tonnes loading in the year 2000

Turkey

1st Black Sea Conference on Ballast Water Management and Control
10-12 October 2001, Odessa, Ukraine

SHIPPING & PORTS

TRANSPORTATION PATTERN

In the year of 2000;

- Export transportation 32.2 million tonnes
- Import transportation 86 million tonnes
- Turkish flag vessels have share of 31% within this transport

Turkey

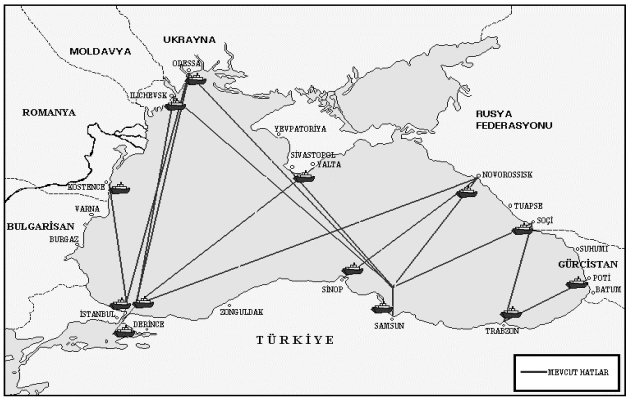
1st Black Sea Conference on Ballast Water Management and Control
10-12 October 2001, Odessa, Ukraine

SHIPPING & PORTS

TRANSPORTATION PATTERN

Ro-Ro and passenger lines in Turkey including Black Sea

1- Rize – Poti
2- Trabzon – Sochi
3- Samsun – Llyichevsky
4- Samsun – Novorossisky
5- Zonguldak – Ukrain
6- Haydarpaşa – Trieste
7- Çeşme – Trieste
8- Tekirdağ – Trieste



Turkey

1st Black Sea Conference on Ballast Water Management and Control
10-12 October 2001, Odessa, Ukraine

INSTITUTIONAL ARRANGEMENTS

- R&D studies regarding the ballast water issue started in October 1997 including literature survey, sampling and lab studies.
- Sampling continued up to date while lab studies still continuing.
- Actual monitoring has not been started yet but study on the policy and methods to implement a smooth monitoring were started.
- However, there are some scientific research studies in Turkey for allien species transported to Mediterranean Sea including Black Sea –apart from ballast water- through Suez Channel (Lessepsian species), accidental discharges (i.e. Monaco Marine Museum), fouling on board or aqua-culture.

Turkey

INSTITUTIONAL ARRANGEMENTS

R&D STUDIES IN TURKEY

- Initial scientific study started in Black Sea Technical University, Marine Science Faculty by Selda Öztürk on October 1997.
- In the first phase, ballast water sampling study was conducted in Trabzon Port on a Turkish flag vessel "Naz-K" on December 1997. Purpose of this study is to develop sampling methods of ballast water in Turkey.
- Second phase contains ballast water sampling from 3 international cargo vessels of bulk cargo, general cargo and Ro-Ro calling at İstanbul Port from Egypt, Italy and Italy respectively in August 2001. The purpose of this study is to understand allien species in the ballast water of internationally operating vessels and identify species of unwanted aquatic organism, if any.

Turkey

INSTITUTIONAL ARRANGEMENTS

R&D STUDIES IN TURKEY

- Third phase contained lab studies in which filtration and sedimentation work were completed in September 2001 while species identifiaction is underway.
- The results will be published by Undersecretariat for Maritime Affairs (UMA) with a report.
- In addition to the above study, TUDAV (Turkish Marine Research Foundation) also have a monitoring study on ballast water management and control in Turkey in collaboration with the relevant state bodies such as UMA, Ministry of Environment, Borders and Coasts Health General Directorate.

Turkey

BACKGROUND ON ALLIEN SPECIES

ALLIEN SPECIES in the BLACK SEA

Allien species	Source	Effect
Minemiopsis leidyi	N. America, Atlantic **Ballast water**	predation on larvae and eggs of Anchovy *Engralius engralis,* possible cause of sharp decline in Anchovy stocks
Rapana venosa	Indian Ocean **Ballast water**	predation on mussels *Mytilus galloprovinicalis* and oysters on rocky bottom.
Mugil so-iuy	Japan Sea **Aqua culture**	unknown

Source: Black Sea Biological Diversity, Black Sea Env. Studies Vol.9, Ed. B. ÖZTÜRK

Turkey

BACKGROUND ON ALLIEN SPECIES

ALLIEN SPECIES in the MEDITERREAN

Allien species	Source	Effect
Caulerpa taxifolia	Tropical water **accidental**	Harmful for biological diversity
Destomona ornata	North Africa **Ballast water**	Unknown

Turkey

Ukraine

State of Ukraine

Ukraine is located in the Southeastern part of the European continent and it is bordered on the east by Russia, on the north by Byelorussia, on the west by Poland, Slovakia and Hungary and on the south-west by Romania and Moldova. The southern boundary is the Black Sea with a coast line of 1628 km and the Sea of Azov with a coast line of 1107 km. The total length of Ukraine border is 6500 km. The country has a total area of 603,700 sq. km, the capital city is Kiev and the other orimary cities are Kharkiv, Lviv and Odessa.

Though Ukraine proclaimed its independence in 1991 after the disintegration of the Soviet Union its history goes back through the centuries to ancient times. Its location on the Black Sea and the Sea of Azov gave Ukraine an opportunity to develop its maritime sector. There are 24 ports for commercial activities and fishing both on the coast and on the rivers Danube and Dnipro. These inlude 18 sea ports situated in three geographical regions: Danube (Reni, Izmail, Ust-Dunaisk), Black Sea (Belgorod-Dnestrovky, Illichevsk, Odessa, Yuzhny, Nikolayev, Oktiabrsk, Kherson, Skadovsk, Yevpatoria, Sevastopol, Yalta, Theodosia), and Azov (Kerch, Berdyansk, Mariupol). Odessa, Illichevsk, Yuzhny, Nikolayev, Kherson, Izmail and Mariupol are considered the largest ones. Odessa is the main port of the country and counts its history from 2 September 1794 when the first piles were rammed, under an order signed on 27 May 1794 by Empress Catherine II to build a military harbour and merchant berths near the fortress of Khadjibey. Convenient geographical situation, links with the natural resources in Russia and external trading between east and west exerted favorable influence upon the quick development of the port. Now the Port of Odessa is one of the largest ports in the Black Sea. Its location on historically founded merchant ways between east and west, closeness to the Bosphorus and Dardanelles (convenient exit to Mediterranean Sea and Indian Ocean, round-the-year navigation in the port and proximity to the big industrial and agricultural areas of the region make it a particularly attractive, heavily used port whose trade volume is growing rapidly.

Coastal and marine environment

The Black and Azov coasts compose the significant part of Ukrainian border on the south. Physical and biological peculiarities of the Black Sea are under the influence of such big rivers as Danube, Dnipro and Dnestr. They cause the low salinity, clarity and temperature and high organic loadings in coastal waters. Te Black Sea has the largest catchment area in the world and receives pollution from more than 170 million people. Only 6.5 million of these live on Ukrainian coast. Sanitary conditions of Black and Azov Seas in Ukrainian sector are variable and unsatisfactory.

The most widespread kinds of microorganisms (determined as pathogens) are colon bacillus, staphylococcus and salmonella. Increase of quantitative parameters of presence of colon bacillus may be observed from time to time. Some outbreaks of cholera in the south were observed.

Fisheries play an essential role in the economy of coastal areas of Ukraine. The most important fishes are sprat, anchovy, roach, bream, Black Sea shark and also other seafoods, such as molluscs and sea grass (filoflora and zoostera). Seafood processing is concentrated in Odessa, Kerch, Vilkovo, Belgorod-Dnestrovky, Illichevsk, Nikolayev, Sevastopol, Mariupol, Yalta and Genichevsk. Fishing activity in region is closely linked to conditions of the marine environment. Marine pollution, over-fishing, coastal development/hanbait loss and invasive aquatic species has resulted in significant reductions in fisheries production. Currently fish catches in the Black Sea are 80% of 1997 levels, and the Azov Sea, which was extremely productive on a global scale, has lost more than 90% of its productivity. In the whole, fisheries loss may be estimated at least in USD 75 million per year.

Coastal areas of the Black and Azov Seas are also traditionally considered to be of the best tourist value for Ukraine. They include more than 540 kms of beaches. Suitable for recreational use, they

have large stores of mineral waters (on some assessments total amount of such waters compounds up to 13 000 cubic мeter per day) and deposits of a curative silt. The Ukrainian coast of the Black and Azov Seas can accept up to 1.5 mln of tourists. The most important recreational regions are in Crimea and in Odessa on the Black Sea and Donetsk, Zaporozhye and part of the Kherson oblast' on the Azov Sea. Tourist infrastructure on the Azov coast is not advanced.

During recent years pollution has undermined tourism as the economically important sector. It has resulted in reduction of recreational activity, reorientation of tourist flows in other directions and to significant losses for this sector on a national scale.

Invasion by exotic species into coastal zones and inland seas and lakes of the world has become increasinlgy common during recent years due to many factors. It is believed that during the last hundred years vessels brought more than 20 exotic opportunistic settlers in the coastal waters of the Black Sea. The most dramatic effect on the local ecosystem has been produced by the already notorious American comb jelly (*Mnemiopsis leidyi*).

Also known as rainbow jelly, it feeds on zooplankton, eggs and fish larvae. It was accidentally introduced in the Black Sea in the early 1980s and now is a mass planktonic species with a total Black Sea biomass of about one billion tons. According to the evaluation of UN Food and Agriculture Organization (FAO) the fisheries decline due to *Mnemiopsis leidyi* may be quantified at 200 million US Dollars per year and the indirect costs related to the idle fishing infrastructure (fishing fleet, ports, processing factories, etc.) may be as high as 500 million US dollars per year.

The introduction and establishment of the American comb jelly in the Black Sea means that the region in general and specifically its ports are now exporting sites for *Mnemiopsis.*

Structure of management

According to national legislation the central body for merchant marine of Ukraine is the Ministry of Transport (Mintrans). The major tasks of Mintrans in a sphere of merchant marine are: state management of water transport complex, organization of its trouble-free operation, maintenance of realization of state policy on sustainable development of shipping, realization of measures on development of uniform transport system of Ukraine and its integration toward European and global transport systems.

While carrying out the management of maritime and inland water transport, the Ministry, according to Presidential Decree №678/2000 from 11.05.00 "regarding a Provision about the Ministry of Transport of Ukraine", "in international relations in a part of the decision of questions, which are in its competence, carries out functions of Maritime Administration of Ukraine". Mintrans distributes the functions of state regulation to all, without exception, shipping companies and on both sea and river-going vessels of Ukraine. The functions of state supervision on Ukrainian ships' safety are divided between the Ministry of Agriculture Policy (ships of fishing fleet) and Mintrans (all ships, except those of fishing fleet).

The structure of the Mintrans includes the Department of Maritime and Inland Water Transport (Ukrmorrechflot). Ukrmorrechflot carries out the management of not only transport fleet of Ukraine, but also of coastal infrastructure, safety of navigation of ships in Ukrainian waters, ships staying in ports, navigation and hydrographic maintenance, search and rescue, etc. To perform international convention functions there are specialized sub-divisions in the structure of Ukrmorrechflot, e.g. State Hydrographic Service, Inspection on Training and Certification of Seamen and Shipping Safety Inspectorate of Ukraine (Shipinspectorate). Pilotage services, posts of regulation on ships routing, hydrographic enterprises, sea salvage services, educational and training centers, etc. are also managed by Ukrmorrechflot.

The major tasks of Shipinspectorate is realization of Port and Flag State Control. The duties of Port State Control according to the national legislation are also assigned to inspections of port state

control, which are included into a structure of port administrations and are supervised by harbour masters. The regulation of the work of the harbour masters is carried out by Ukrmorrechflot, and supervision of efficacy of performance of duties, assigned to him, - be the Shipping Safety Inspectorate.

Registration and calculation for all, without exception, vessels of Ukraine are carried out by the Inspection of General State Ships Registrar of Ukraine subordinated directly to the Deputy Minister of Transport.

The authority to realize technical supervision on Ukrainian ships is delegated by Mintrans to Classification Societies, acting on the basis of the agreements between them and the Ministry. The right of issue of the international convention certificates are also delegated by the cabinet of Ministers to State Committee of Fishing, working within the Ministry of Agriculture Policy.

The Ministry of Environmental Protection and Nuclear Safety is the Governmental body in charge with the national policies relating to environmental protection. The Ministry performs its duties, under the Law of Environment Protection of 1991 (No. 1264-XII), through 25 Regional Ecological Divisions around the country. The particular tasks related to marine environment are discharged through the State Inspections for the Protection of the Black Sea and Sea of Azov subordinated by General Ecological Inspection. Offices of those State Inspections are established in all the commercial ports. The main responsibilities of the Ministry include the planning, co-ordination, supervision and control of the national environmental policy and the preservation and conservation and sustainable use of renewable natural resources.

The Ministry of Public Health is the governmental body in charge with public health and sanitary surveillance. The duties related to the maritime activities are performed through the Department of Sanitary Epidemiology and its Division on Transport. Sub-divisions for all the means of transportation are dealing with environment, travelers and imported/exported products. A significant component of scientific resources of the Ministry of Public Health is represented by the scientific research institutes, among which five are located in Odessa and all are concerned in practical solution of the ballast water problem.

Shipping and ports

Shipping in the Ukrainian sector of the Black and Azov Seas is very intensive. There are more than 30 sea transport complexes as well as number of ship-building and ship-repair plants, such as Odessa ship-repair plants “Ukraine” and No. 2 and the Illichevsk, Kiliya and Izmail ship-repair plants.

As of January 1 2000 there were about 160 sea and river shipping companies which operate 2,501 ships registered in Ukraine and flying the national flag. Among them 2,200 ships are river vessels. Among 300 sea-going ships 122 are under operation of shipping companies of Ukrmorrechflot with a total deadweight of 0,8 bln. tons. The remaining 178 ships are mainly with deadweight not exceeding 1,000 tons.

According to the World Bank future volumes of cargo transport in Ukrainian ports is likely to increase by 1 billion tonnes per year, transit freights by 2-3 billion tonnes per year while import freights are unlikely to change.

A significant part of Ukrainian port traffic is oriented towards Europe (14%) and China (6%) and the largest part represents trade with CIS countries (42%). It may be therefore assumed that the largest amounts of ballast water discharged may originate from Europe and the Far East.

The ports are equipped with ships’ waste reception and treatment facilities for gabrbage and waste oil, as required by MARPOL. Nevertheless, pollution from ships still occurs because of failures and illegal discharges. The number and scale of pollution cases from ships during the last five years has remained stable and do not exceed 2-3 cases in a year. Other "hot spot" with regard to ecological safety is the navigation in Kerch strait. All ports are supplied with means for responding to emergency

discharges of oil, but the equipment for reaction in case of extreme situations in the high sea is available only in the state shipping company SATKO (Odessa).

Implementation of regulations and legal acts

Ukraine has four levels of regulatory instruments according to the Ukrainian Constitution:

- Minister's Orders are prepared by the interested departments with the support of specialized institutes. They generally have internal character and address very specific issues of the current activity of the respective organization. In order to enter into force the Orders have to be registered with the Ministry of Justice.
- Decision (Decree) of the Cabinet of Ministers involves more than one ministry and it concerns larger scale activities from different segments of the economy. This level seems to accommodate the largest part of the regulatory instruments.
- Presidential Decree, similar in effects with the laws but used in some specific situations.
- Laws which are initiated by the interested departments and institutes, finalized in the ministries and adopted as projects by the Cabinet. After extensive analysis in the Specialized Committees of the Parliament, the laws are passed through the Parliament and become the ultimate and most powerful legal instruments after their entry into force. This process appears to be a very long and complicated one and usually refers to fundamental matters.

The law on protection of the natural environment (1991) establishes general principles of development of legislation on conservation and regeneration of some components of environment, including the Black and Azov Seas environment.

The Water Code of Ukraine (1995) contains positions on protection of superficial waters and in particular those of Black and Azov Seas. According to the Code, inland sea waters and the territorial sea are waters of national value. The main feature of the Code with reference to marine environment problems is that it establishes the nature protection requirements for sea transport, specifying how vessels should be constructed and equipped to prevent operational pollutions. It also defines allowed kinds of activities on the seabed. The code also establishes protective zones and zones of development and determines special restrictions of the regulated economic activity in these zones.

The Ministry of Ecology and Natural Resources of Ukraine (Minecology) has accepted a Strategy of Conservation of the Ukrainian Biodiversity. Significant attention is given to coastal and sea ecosystems. The Ministry together with the Interdepartmental Coordination Commission on the Conservation of Biological and Landscape Variety has also prepared a Concept of Protection and Rehabilitation of the Environment of the Black and Azov Seas. Its purpose is to avoid growing influence of human activity on environment of the Black and Azov Seas, assistance in development of ecologically friendly activities in the region and conservation and enrichment of biological diversity in such a manner that it will guarantee sustainable development of coastal territories.

In 2001 the Law of Ukraine "About the acceptance of the nation-wide program of protection and regeneration of environment of the Azov and Black Seas" (for 2001-2005) was approved.

The separate aspects of the decision of a problem to avoid marine environment pollution from ships are adjusted by the Merchant Marine Code of Ukraine and Water Code of Ukraine.

Ukraine became a party to the International MARPOL Convention and its five appendices in 1993. However, ships and ports of Ukraine had been already working to MARPOL requirements for many years.

All requirements of MARPOL have been incorporated into national legislation as the normative document, the Manual on Prevention of Pollution from Ships.

Taking into account that the national specifications on quality of the environment, including specifications of discharges of polluting materials, are more rigid than the international standards established by MARPOL 73/78, national rules are under reconsideration, and their separate positions, terms and definitions will be improved with the purpose harmonizing with the international standards.

Ukraine participated in the IMO ballast water discussions and the development of the IMO ballast water management guidelines A.868(20) from their inception. Taking into account the realized need for special measures on ships ballast water management and control, even prior to the beginning of the GloBallast Programme in Ukraine, review of the above mentioned Ships Manual in order to include a unit regulating ship ballast water management onboard of Ukrainian ships was proposed. This reviewed section of the Manual stipulates the necessity of Ballast Water Management Plans onboard ships and the obligatory filling by the captains of vessels entering ports of Ukraine, the Ballast Water Reporting Form as per A.868(20).

Proposals from Ukraine

Taking into account the closed character of Black and Azov Seas basin, high anthropogenic loads and its vulnerability the only correct approach to the conservation of the Black Sea ecosystem is via a uniform, coordinated and cooperative regional system. This obvious fact has already been recognized by Black Sea countries for many years and is manifested in many the regional agreements, programs and plans.

The region has all necessary means, in terms of regional structures, to meet any ecological problem. However, the countries of the region are facing economic difficulties, and assistance is required from international organizations. Such help from three organizations - founders of the GloBallast Programme, gives Ukraine sufficient optimism to begin joint performance of one of the earlier untouched measures (component 41) of the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea, 1996. For this purpose Ukraine proposes:

1. To consider and accept the Regional Action Plan to minimize the transfer of harmful marine and pathogens organisms in ships ballast water for the Black Sea region.

2. To consider and accept the Resolution of the Conference to approval the Regional Action Plan as a document establishing the basic directions of implementation of IMO Resolution A.868 (20) in the region as well as the forthcoming international Convention on ballast water control management.

Appendix 4: Odessa Demonstration Site Background Papers[1]

[1] NB: The background papers have been reproduced with only basic editing and neither the GloBallast Programme nor IMO accept any responsibility for the content of the papers.

Odessa Demonstration Site Activity Report

The active participation of experts from the Shipping Safety Inspectorate of Ukraine in meetings of the IMO Marine Environment Protection Committee (MEPC), in particular, in activities of the Ballast Water Working Group in the 1990s, resulted in holding an IMO Workshop on Ballast Water Management and Control for the countries of Black and Azov Seas, aboard the scientific research vessel "Georgiy Ushakov" in September 1999. This workshop obtained active participation from Black Sea countries and good media coverage and also demonstrated Ukraine's abilities in organization of more consecutive work in this direction.

The Port of Odessa in Ukraine was chosen together with five other Demonstration Sites aroud ther world for implementation of the GloBallast Programme. The Shipping Safety Inspectorate was nominated by the Ministry of Transport as the Lead Agency for Programme implementation in Ukraine, and its First Deputy Head, Mr. Vladimir Rabotnyov was designated as a Country Focal Point for Ukraine.

To perform all components and tasks of the Programme a Country Programme Task Forces (CPTF) was established and held its inaugural meeting on 20 June 2000, at which official approval of CPTF membership was given. This is therefore considered as the Birthday of the Odessa GloBallast Demonstration Site (Odessa DS).

The structure of the CPTF is inter-ministerial and cross-sectoral, including representatives from shipping and ports, local authorities and inspections, scientific research institutes and others, engaged in problems of ecological and medical and sanitary safety of shipping. With assistance of the PCU in London a National Workplan for Ukraine has been developed and duly authorized. It is the main document for the activities of the Odessa DS.

Within this period, the following activities have been carried out at the Odessa DS:

- Articles about the introduction of aquatic invasive species and pathogens into new ecosystem and possible management options have been published in Ukrainian mass-media as well as in other countries of a region. GloBallast posters have been translated and prepared for publication.
- Four sessions of CPTF held, its members participated in many international, regional and national conferences and seminars, presenting information on the problem and the GloBallast Programme.
- He first edition of a typical lecture for seafarers to be included into educational programs of marine educational institutions and training courses has been developed.
- CPTF experts participated in a number of special seminars and workshops organized by the PCU.
- Work on establishing DS web site is continuing. This will include information on performance of Programme tasks; international, regional and national materials on invasive aquatic species; scientific research results; methods of ballast water management and control onboard, technological information on ballast water treatment.
- A number of offers on technological systems of ballast water treatment have been received for the analysis of their efficiency and suitability on the basis of IMO criteria.
- Analysis of the national legislation regarding ballast water control and relevant issues has been carried out and first version of appropriate report developed.

- Reporting procedure on water ballast management according to IMO Resolution A. 868(20) for ships calling ports of Ukraine is working.

- According to the recommendations of PCU consultant necessary sampling and laboratory equipment were purchased and now on-site survey of marine flora and fauna is being carried in Odessa Port.

Not everything in our work proceeds so smoothly. Both failures and conflicts have occurred, which is common taking into account the intense rhythm of the activity. But during all our work we constantly feel the help and support from the GloBallast PCU, and in particular from Messrs Dandu Pughiuc and Steve Raaymakers, and their highly skilled advisers. We fully understand, that the efficiency of regional cooperation in the field of ballast water management will depend to a very large degree on an overall performance of our site, and consequently we will use all our efforts for duly and qualitative implementation of all GloBallast tasks.

Invasive Species in the Black Sea

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Introduction

Among other marine areas, the Black Sea is one of the most invaded by exotic species of plants and invertebrate animals, accidentally introduced with ships' ballast waters, ballast sediments and fouling. There are several reasons for this. The first is the isolation of the Black Sea from the world ocean. Its only tenuous link with other seas and oceans is with the Mediterranean through the Bosphorus Strait, the Sea of Marmara and the Dardanelles. The Bosphorus is essentially a narrow, elongated, shallow channel, nearly 31 km long. Its width varies between 0.7 and 3.5 km with an average of 1.3 km at the surface (Zaitsev and Mamaev, 1997).

The second reason is the huge drainage basin of the sea, which is over 2 million km^2, entirely or partially covering 22 countries in Europe and Asia Minor. The surface of the Black Sea is 423, 000 km^2. The third reason is the large number of incoming rivers all contribute to the unique water balance of the Black Sea. The major rivers are the Danube, Dnieper, Dniester, Kizilirmak and Yesilirmak. Average annual river flow into the Black Sea is 360 km^3, ranging from a minimum of 250 km^3 in 1949 to a maximum of 510 km^3 in 1940 (Zaitsev and Mamaev, 1997). The first consequence of this is the low salinity of the Black Sea water (not more than 18‰ on the surface), and the second one a low "biological immunity" of the Black Sea, which is inhabited at a great extent by relic and endemic species. Such a conclusion it follows from the analysis of invasions in this sea which is quite well investigated, in terms of biological diversity, ecology and man-made impact on its ecosystem.

What was known before the beginning of Port Surveys investigations under the GloBallast Programme? There is little information about the situation inside of the Black Sea ports, but outside the ports, according to the recent data of the Odessa Branch IBSS, where are working a group of experts in Systematics and Taxonomy of marine organisms, in the Black Sea have been discovered not less than 40 species of aquatic plants and invertebrate animals accidentally introduced by ships (Zaitsev and Öztürk, 2001). Some of these settlers are shown in the Fig 1.

Phyletic diversity and geographical origin

As to phyletic diversity of exotic species, in the Black Sea there are representatives of 8 plant divisions (phyla) and 9 animal phyla (Zaitsev and Ozturk, 2001). Among invertebrates the most rich in species are the phyla Coelenterata, Annelida, Mollusca and Arthropoda.

Information about geographical origin of exotics is a very important both theoretically and practically, in particular, because it allows to advise shipping of areas and times to be avoided in taking on ballast, so as to minimize the potential uptake and transfer of living species. This is one of questions of the risk assessment problem in connection with ballast waters. Practically all species, accidentally introduced into the Black Sea, are originated from the coastal zones and not from the open sea. Thus, the ballasting in shallow waters, in terms of uptaking of living organisms, is much more unwanted, than in deep-water areas.

As to geographical origin, more than two thirds (68%) of the Black Sea exotics are originated from the boreal North Atlantic Ocean, and 21% are from the Pacific Ocean, mainly from its boreal part.

Entry mechanisms

The entry mechanisms of ship-introduced species are the transportation in ballast waters, in bottom sediments in ballast tanks, and in fouling communities of ship's hulls. Some organisms (for example, wood damaging fungi) can be transported in wooden decks. Such a case was noted in the Odessa port.

Behavioural change of exotics

A very important aspect of exotic's problem is the ethological (behavioural) change of many settlers (Zaitsev and Öztürk, 2001). The most probable reason of this is the absence of antagonistic species in new habitats. For example, the snail *Rapana thomasiana*, originated from the Sea of Japon, in the Black Sea do not suffer from its main predators: sea stars, octopuses or large-size crabs, like in its homeland. The comb jelly *Mnemiopsis leidyi* in the North American Atlantic coastal waters is neither such a serious competitor for food of planktophagous fish or a predator of its pelagic eggs and larvae as in the Black and Azov Seas. Because in its original waters the population of this species is inhibited by *Beroe* comb jellies and other biotic counterbalances.

Similar behavioural changes are characteristic for the East European species, like the zebra mussel and the round goby, which were accidentally introduced in the North American waters. These examples suggests that the introduction of antagonistic species is a real possibility to decline the population of a harmful settler and to reduce its impact on native organisms. In absence of antagonists, an opportunistic settler is free for a practically unlimited growth of population (Zaitsev, 2000; Zaitsev and Öztürk, 2001).

Impact on native species

Considering the impact of exotics in new habitats it is necessary to mark that it is rather complicated to elucidate all biological and ecological consequences of introduction of a foreign species into an area where it does not naturally occur and to tell an integral estimation. Practically, each settler can be, on one hand, positive for native species, and on the other hand, negative one. Therefore, in many cases it remain to conclude that the considered species in its new habitat is "more positive, than negative" or vice versa (Zaitsev and Öztürk, 2001).

However, in some cases, there are no doubts about the environmental effect of settlers.

For example, the brown alga *Desmarestia viridis* originated from the Northern Atlantic Ocean excretes an acridic cell sap, which is destructive to other weeds (Vozshinskaya et al., 1971, Gosner, 1978), but this property has non yet been investigated in the Black Sea.

The Diatom *Rhizosolenia calcar avis* from the boreal Atlantic Ocean is one of the blooming species in the Black Sea phytoplankton. This species is more negative than positive because it is not eaten by zooplankton and pelagic fish shoals (e.g. anchovy shoals) avoids the areas of *Rhizosolenia* blooms. Its positive effect is the generation of oxygen.

The barnacle *Balanus improvisus* from the Atlantic Ocean is a typical organism of fouling communities, and it has spread to infest waterways, fouls cooling-water intakes of industry and ships' hulls.

The Comb jelly *Mnemiopsis leidyi* from the American Atlantic waters is the most striking example of a negative influence of exotic species on the Black Sea species. This jelly-like animal, eating zooplankton, fish eggs and larvae, was the main reason of the fishery collapse in the Black Sea and the Sea of Azov in the late 1980s- early 1990s. The damage caused by *M. leidyi* in the late 1980s for the Black Sea fisheries reached up to $200,000,000 per year (Caddy and Griffiths, 1990). Much worse, according to the same authors, is the damage concerned with the inactivity of fishing ships, fishing ports and corresponding factories. In the Sea of Azov, the damage caused by the same exotic ctenophore (where only the reduction of annual catches of local subspecies of anchovy, *Engraulis*

encrasocholus maeoticus, and tyulka, *Clupeonella cultriventris*, were considered) reached up to $40,000,000 (Volovik, 2000)

The soft-shell clam *Mya arenaria* from the Atlantic Ocean is both negative and positive for the Black Sea ecosystem. Its main negative influence consists in the competition for habitats with a small local bivalve *Lentidium mediterraneum*, which avoids sandy bottoms silted by *M. arenaria*. For example, in the Odessa Gulf the area of the biocoenosis of *L. mediterraneum* was reduced about fivefold in the 1980s, as a result of the expansion of *M. arenaria*. This is environmentally essentially, because *L. mediterraneum*, due to its small size and thin shells, is a favourite food of youngs of all native bottom fish: gobies, flounder, turbot and sturgeons. From the other hand, young specimens of *Mya* begins an additional food source for adult bottom-living fish, the same gobies, flounder, turbot and sturgeons, for gulls and some other marine birds. Moreover, *Mya* became an additional biofilter in coastal sandy-bottom zones, which is quite important in eutrophicated areas.

The large snail *Rapana thomasiana* from the Sea of Japan is a notorious predator of oysters, mussels and other native bivalves, which are important as a food for bottom fishes and as filtrators of marine water. In the 1950s it depleted the Gudauta oyster bank on the Caucasian shelf, eating prevailing oysters, scallops and mussels (Chukhchin, 1984). Only in the prebosphoric area, *Rapana* is eaten by the sea star *Marthasterias glacialis*, but this species of echinoderms is very rare in the Black Sea and occurs exceptionally in this area. Only in the 1980s commercial catches of *Rapana* begans along Turkish, Bulgarian, Russian and Ukrainian coasts (Zaitsev and Öztürk, 2001). This exploitation for export of *Rapana* meat severely reduced its population and its impact on native bivalves. But this is the only example of a man-made reduction of a population of a harmful exotic species in the Black Sea.

The white fingered crab mud *Rhithropanopeus harrisi tridentata* from the Atlantic Ocean is a bottom predator and scavenger, and an additional food source for native bottom fish - gobies (Gobiidae), flounder (*Platichthys flesus luscus*), turbot (*Psetta maeotica*), sturgeons (Acipenseridae). In the Black Sea it is considered a more useful than a harmful settler.

The Chinese mitten crab *Eriocheir sinensis* originated from the Yellow Sea aestuaries was introduced in the Black Sea very likely from the North Sea. It is considered a harmful species, because of destroying of river's banks and feeding of trapped fish. In the Black Sea it is a rare species at present time encountered in the Odessa Gulf area and in front of the Danube delta.

The bristle worm *Mercierella enigmatica,* originated from the Indian Ocean coastal wetlands, is a fouling organism in the low salinity areas of the Black Sea and its coastal wetlands.

The impact of the shipworm *Teredo navalis,* because of its small number, can not be significant at present, but special investigations are needed. According to some information, is founded as a wood boring organism in the Turkish waters of the Black Sea. According to Gomoiu and Skolka (1996), this mollusc is the oldest exotic species in the Black Sea, which was introduced in 750-500 B.C. during Attic period of Greek conquests.

The barnacles *Balanus improvisus* and *B. eburneus*, introduced in the XIXth century, are harmful settlers because of fouling. Besides, barnecles' nauplii are voracious predators of pelagic fish larvae. Covering fish nets, *Balanus* reduces their cathability and buoyancy. Of a special technological interest is the impact of barnacles on iron and steel in the sea water. Settlements of *B. improvisus* and even single specimens, attached to ships' hulls or other underwater metallic constrictions, are severely increasing the speed of the corrosion of metals (Stepanok, 1983).

The accidental introduction of the comb jellies *Beroe ovata* and *B. cucumis* is a positive event because these ctenophores are antagonistic species of *Mnemiopsis*, whose population was reduced after the introduction (also accidental one) of *Beroe* species.

Sensitivity of marine areas to exotics

The examination of different cases of exotic's invasions reveals, that the ecological capacity of a sea, regarding its ability to receive and to adapt new alien organisms, is a function, *inter alia*, of its biological diversity (Zaitsev and Öztürk, 2001). As a general rule, a high biological diversity corresponds to a low share (percent) of naturalized exotic species, and an area with low biological diversity, inhabited at a great extent by endemic and relic species (this is the case of the Black Sea, the Sea of Azov and especially of the Caspian Sea), has a high percent of introduced and naturalized species.

Chance to minimize the risk

Different possibilities to minimize the risk of transfer of living organisms in ballast waters were proposed. Each of them has its merits and demerits.

The ballast water exchange in the open sea is one of proposals. It is a good but not an absolute solution, because the bottom sediments in ballast containers are not washed out during the ballast water exchange. These sediments are, as a rule, even more contaminated by aquatic organisms, than the water from the same container.

The ballast water treatment methods need to be destructive for transported aquatic organisms, but safe for ship's material and constructions.

The decline in populations of harmful alien species in their new habitat is another way in this direction. One of possibilities is to catch introduced species. Such is the case of the snail *Rapana* in the Black Sea. Thanks to intensive catching, the poulation of this voracious mollusc was reduced about tenfold and its impact on native bivalves was weakened correspondingly. Another way is the introduction of exotic's antagonistic species. This method was proposed by GESAMP (1997) with reference to the outbreak of *Mnemiopsis* in the Black Sea. The validity of this method was confirmed by the *Mnemiopsis* population decline after the inroduction of *Beroe* comb jellies.

Because it is impossible to stop once and for all the introduction of exotics via ships, it is very important to undertake biological surveys and monitoring in ports. This is one of recommendations under the current IMO ballast water management guidelines (Pughiuc, 2001).

So, many of accidentally introduced species are biologically, ecologically and economically very important as competitors and predators of native species, including commercial molluscs, other invertebrates and fishes. They are uninvited, unbidden visitors and their impact on local environment can be defined as a powerful and unmanaged impact on the biological diversity. And, what is alarming, this process of introduction of new aquatic organisms via ships' ballast water continues and became stronger.

In this connection, the Global Ballast Water Management Programme initiated by the IMO, is very opportune and necessary one. Because it is not possible to manage and control introduced marine species unless you know what they are and where they are. And the Port Survey in this context is of paramount importance, because the ports are the *hot spots* of nonnative, exotic species, introduced via ships.

Uniform biological surveys and monitoring in all Black Sea ports are essential to assess native biological diversity and determine the presence, absence, distribution, abundance and seasonal dynamics of introduced marine species. On the basis of these data it is possible to identify the donor areas from which ballast waters are imported and to define the most perilous ports with harmful organisms for the Black Sea and to suggest ways to minimize this process.

Information gaps

There are more than enough reasons to consider that the list of exotic species in a given sea defines only the visible part of the exotic's "iceberg" (Zaitsev and Öztürk, 2001). Indeed, first of all, are considered large-size organisms. As to meiobenthos and microbenthos, phytoplankton, zooplankton and all the more bacteria, our knowledge are very incomplete or lacking. However, the smallest organisms are the most numerous in ballast waters from coastal zones.

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Zaitsev Yu. and Mamaev V. Marine Biological Diversity in the Black Sea. A Study of Change and Decline. New York: United Nations Publications, 1997, 208 pp.

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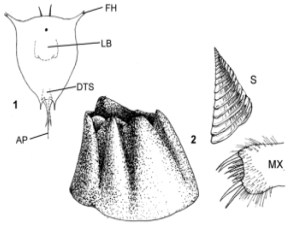
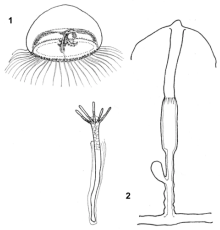
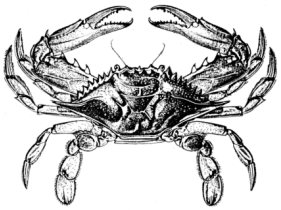
The bivalve mollusc Anadara inaequivalvis (Scapharca inaequivalvis)



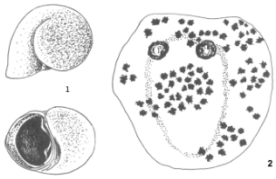
The barnacle *Balanus eburneus*



The Hydrozoan *Blackfordia virginica*

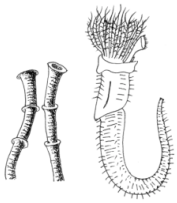


The blue crab *Callinectes sapidus*



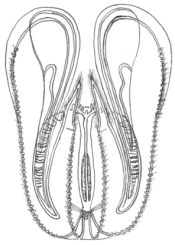
The nudibranch mollusc *Doridella obscura*

The oyster *Crassostrea gigas*

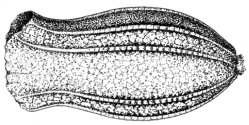


The bristle worm *Mercierella enigmatica*

The brown alga *Desmarestia viridis*



The comb jelly *Mnemipsis leidyi*



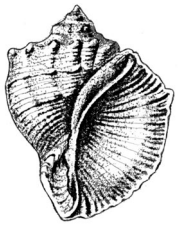
The comb jelly *Beroe cucumis*

The planktonic diatom *Rhizosolenia calcar-avis*

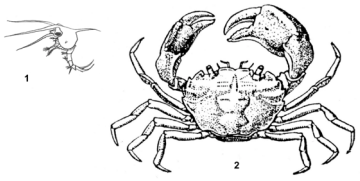
The bivalve mollusc *Mya arenaria*

The Hydrozoan *Perigonymus megas*

The snail *Potamopyrgus jenkinsi*



The snail *Rapana thomasiana*



The mud crab *Rhithropanopeus harrisi tridentata*

Figure 1. Some exotic species introduced in the Black Sea (not to scale)

Port Baseline Survey in Odessa

B. Alexandrov and N.Berlinskyy
Odessa branch of the Institute of Biology of Southern Seas
Ukraine National Academy of Science

The participation of the Odessa Branch of the Institute of Biology of the Southern Seas (OB IBSS) in IMO ballast water activities began on 14 September 1999, on the occasion of the 1st international meeting to discuss problems of biological monitoring and ballast water management. The meeting took place aboard the scientific research vessel *Georgi Ushak*. Apart from forty representatives of Caspian and Black Sea States on board, there were some 200 other passengers from the Black Sea area – contained in the ballast water taken on board in the port of Odessa. By the end of the meeting, the importance of the majority of these "passengers" was acknowledged, and the participants in the meeting had gained practical knowledge of the problems caused by the transport of living organisms from one port to another. According to IMO, some 10 billion tonnes of ballast water are transported in the world every year, and some 3000 aquatic organisms have been recorded in it. Many of these transported organisms have successfully settled in rivers, seas and oceans where they were formerly unknown, and have become the cause of serious ecological and economic impact. Thus the daily economic damage caused by the settlement in the Black Sea and the Sea of Azov of the scallop *Mnemiopsis leidyi*, is estimated by international experts from FAO at US$250,000. The introduction of a bivalve mollusc, the zebra mussel (*Dreissena polymorpha*) from the Black Sea to the American Great Lakes has led to losses of billions of dollars.

Under the Strategic Action Plan for the rehabilitation and preservation of the Black Sea (article 41), the Black Sea countries planned to submit a joint proposal to IMO for conducting an in-depth study on measures to avoid any further introductions of exotic species into the Black Sea through the deballasting of vessels. The GEF/IMO/UNDP GloBallast Programme may be regarded as a practical response to that proposal.

Bearing in mind the experience of the Odessa Branch of the Institute of Biology of the Southern Seas in research into biological aspects of the problems of exotic species, as well as direct involvement in preparing documentation for invitations to tender for the project from Ukraine, the Institute was nominated to head the work of implementing the biological monitoring of the waters of the Odessa port, as part of the GloBallast Programme. In addition to the Institute, experts from the Ukraine Scientific Centre for Marine Ecology in the Ukraine Ministry of the Ecology and the Ukraine Scientific Medical Research Institute for Transport in the Ukraine Ministry of Health also participated. As guidelines for the conduct of the biological research part of the Programme, the Basic Protocol, prepared in Australia by the Centre for Research on Introduced Marine Pests (CRIMP) was used (whereby specific types of invasion, giving rise to unforeseen ecological damage were designated).

With respect to research strategies in a region such as the Black Sea, there may be two approaches. The first involves an analysis of literary data, as well as analysing collections in natural history museums with the object of identifying introduced species. Secondly, detailed research must be carried out in areas where exotic plants, animals or micro-organisms are likely to be found. Such marine areas are usually found in the neighbourhood of ports.

The work of the Odessa Branch of the Institute of Biology of the Southern Seas in the first stage was described in detail in the report of the Institute's chief expert, Academician Y. P. Zaitsev of the Ukraine National Academy of Science. In addition to the above, it should be noted that it was agreed to identify three stages in the population of the Black Sea by exotic organisms, which according to the available literature nowadays represent a total of 41 species of flora and fauna.

The first stage (1920-1950) was a period of intensive development of the shipping fleet following the invention in 1897 of the internal combustion engine and the construction of new ports. During that

period in the Black Sea eight colonies were introduced, chiefly associated with the hulls of visiting ships.

The second stage (1951-1980) saw a dramatic decline in species introduced unintentionally. Of 12 exotic species introduced into the Black Sea, only one came by accident. The remainder, fish and shrimps, were deliberately introduced by humans for acclimatization. Possible reasons for the decline in the number of introduced species was the high use of highly effective anti-fouling paints based on tributyltin (TBT). The anti-fouling paint retained its biocidal properties for 18-42 months.

The third stage (1981 to the present) is characterized by damage to the biological balance in the Black Sea as the result of its enrichment and the dramatic growth in commercial shipping using ballast water. Since 1973, the discharge into the sea of nitrogen and phosphorus compounds from rivers and coastal sources reached maximum levels, as detected from periodic sampling of water in areas ranging from 3 to 40 thousand square kilometres. The quantities discharged from the Danube, the Dniester and the Dnieper alone totalled 155,000 and 14,000 tonnes respectively. The total number of ships passing through the Bosphorus in the period 1995-2000 was 47-51 thousand /year, and of those, 2-7 thousand ships/year were ships over 200 metres long. The intensity of invasions rose to maximum in that period - one species a year. Confirmation that the appearance of invasive species in that period resulted from ballast water is that each of them in during of their life cycle, or at the initial stage of development, live in deep water seas and have the characteristics of planktonic organisms.

To implement the second strategic approach to detecting exotic species introduced into the Black Sea, a special marine ecology research centre was set up in the port of Odessa under the GloBallast Programme.

Three tasks have been determined as crucial to current biological work:

1. To determine key invasive or target species which play a significant role in the life of the marine ecosystem, identify the particular features of their development in quantitative terms and ascertain the extent of their distribution in the waters of ports and adjacent sea areas.

2. To detect significant exotic species. For that purpose, it is envisaged to select additional samples from each monitoring station.

3. To estimate the role of native species of plants and animals in comparison with exotic species.

The research covers populations of water strata (bacteria, fungi, single-cell marine organisms and invertebrates), the accumulation of technical installations in the port, the population of alluvial deposits (single-cell aquatic organisms, invertebrates, specially investigated stages of development of hydrobionts - pure dinophyte water organisms, capable of releasing toxic "fluorescence" into the water, certain winter-breeding planktonic and bentos invertebrates, capable of surviving for a long time until the onset of favourable conditions). Experts from the Institute of Biology of the Southern Seas are responsible for processing the research data.

As well as hydrobiological samples, water samples for study of their micro-biological characteristics will be selected by experts from the Ukraine Scientific Medical Research Institute for Transport at each station.

The research centre also intends to identify special features of the lives of exotic species in the port of Odessa. In particular, a study of the literature and records of temperature data and diurnal/nocturnal regimes (seasonal changes) by experts of the Ukraine Scientific Medical Research Institute for Transport.

The programme for the biological monitoring of the port of Odessa was agreed and discussed with IMO experts, including PCU consultant Dr. Marnie Campbell during her mission to Odessa in August of this year.

For the purpose of comprehensive research it is intended to establish 52 stations in the waters of the port of Odessa and within neighbouring waters. The research is planned to take place in the period from August to November this year. The choice of times allows taking biological samples in the warm water and cold water seasons, which is related to the specific characteristics of flora and fauna in the target areas (taking account of the replacement of warm water species of hydrobionts by cold water species). The overall Programme is intended to select 96 samples of benthos, 216 samples of accumulations, 50 samples of plankton etc. A surface and underwater video recording will be made at each of the monitoring stations prior to the selection of samples. The selection of samples will be carried out from the Institute of Biology of the Southern Seas submarine "Cprug". Up to now, 17 monitoring stations have been established. Key introduced/target species have been identified (Fig. 1). Twenty six experts and 13 technical assistants have been recruited for the work.

As well as the scientific aspect of the Programme, other work planned involves raising public awareness. This work includes:

1. Production and showing of a special film on the problems involved in studying the process of biological invasion in the Black Sea.

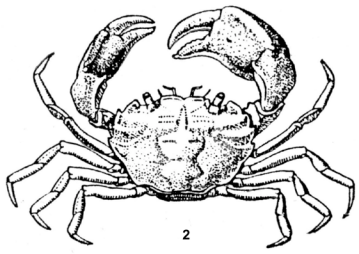
2. Encouraging the public to watch out for new invasions.

3. Preparing collections of introduced species in the Black Sea.

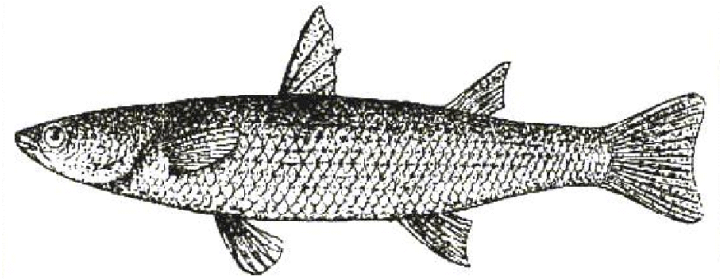
4. Presentation of special items and commentaries in the press and on television (N. A. Berlinski has appeared twice on radio in relation to specific projects and the beginning of the survey of the port of Odessa).

The Odessa Branch of the Institute of Biology of the Southern Seas has already received and will continue to receive financing from the GloBallast Programme to acquire equipment and materials necessary to carry out the survey of the port. The experts on board, after receiving specialist advice from M. Campbell, decided on a method of taking samples in accordance with the requirements of the GloBallast Programme. Naturally, the knowledge and equipment received must be used not only in the context of national development (Ukrainian ports) but also in regional programmes (in ports of countries of the Black Sea Basin).

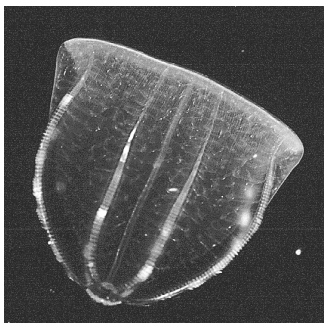
Bay Barnacle (Balanus improvisus) – 1844



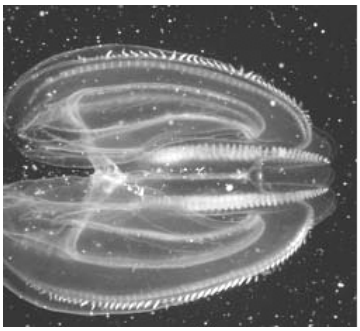
White-fingered mud crab (Rhythropanopens haririsi) –1937



Haarder (Mugil soiuy) – 1968



Comb jelly (Beroe ovata) – 1997



Comb jelly (Mnemiopsis leidyi) – 1982

Figure 1: Exotic species that have been found during the Odessa port survey (September – October 2001)

Appendix 5:
Proposals of Delegations

Georgia

1 To develop regional recommendations concerning shipborne Guidances on Water Ballast Management taking into account particularities of the Black Sea region and oil traffic in it. Existing nowadays Guidances are incapable due to insufficience of the time factor and geographic space in the region. An alternative: to approve Guidances by national marine administrations.

2 To establish informational base where the Administration of a country ballast is dumped could obtain information from concerning the situation of water in a port where the ballast is received.

3 Taking into consideration development of IP technologies, as well as an enormous number of web

Romania

1 Supporting of draft regional action plan;

2 necessity of a financial support for implementation;

3 a diplomatic conference for a new convention regarding water ballast control

4 control of ballast water to be part of Port State Control

Russian Federation

We would like to suggest that the following items should be considered within the framework of the Regional Action Plan:

1 monitoring of biological diversity and creation of a database on alien species' types, exchange of information by alien species' types;

2 developing of uniform regional requirements towards water ballast replacement;

3 elaboration of criteria water ballast should comply with;

4 approval of alternative techniques instead the water ballast replacement procedures.

Bulgaria

General proposals

In order to reduce possibilities of introduction of unwanted species into the Black Sea the following proposals could be made:

1 Implementation of appropriate sampling procedures to verify that the ballast exchange is really done as it is obligatory.

2 Some standards of the quality of the ballast water to be approved in terms of quantity and quality of the suspended matters in the ballast water.

3 To introduce a procedure for survey into the PSC of the BS MoU for the ballast water and sediments management of the ships.

4 Assessment to be conducted for the possibility sediments from the ships calling the Bulgarian Black Sea ports to be delivered.

5 A survey to be performed for identification and mapping of the areas of the sea that might be most affected by the harmful aquatic organisms and pathogens transferred by ships' ballast water.

Proposals and Amendments to the Draft Regional Action Plan

To Section 2 OBJECTIVES.

1 Add a new bullet with the following text:

- *to enhance the regional cooperation in protection of the marine environment using the existing regional bodies, established under the Istanbul Commission and the GEF Black Sea Environmental Programme*

To Section 3 PROFILE OF BLACK SEA AND REGIONAL COUNTRIES.

1 Change the name of the section with "*Environmental conditions of the Black Sea Region*".

2 Change the second sentence of the second paragraph with the following text "*The conclusions of the Black Sea Trans-boundary Diagnostic Analysis (TDA), prepared during the first face of GEF BSEP in 1996, might be summarized as follows:*"

3 In the second bullet to change "eutrophication" with "*nutrients*".

4 In the third bullet to change "accidental" with "*accidental and operational*".

To Section 4 EXISTING REGIONAL INSTRUMENTS

1 Add a new paragraph after paragraph 5 (where BS SAP is mentioned) with the following text

According to the BS-SAP a regional structure of consulting bodies was established, called Advisory Groups. One of the advisory groups is "Advisory Group on the Environmental Safety Aspects of Shipping" (AG ESAS), which is dealing, on behalf of the Black Sea Commission, with coordination of the regional aspects of pollution caused by shipping.

To Section 5 PRINCIPAL ACTIONS

1 To define indicative dates to each of the actions described in the section.

2 To subsection 5.2. to be included the following text:

Annual reports will be prepared by the NIC and will be presented to the Istanbul Commission through the AG ESAS. The reports will include possible sources of unwanted species, respective measures for prevention and control undertaken and planned in the region as well as the worldwide experience and trends on this matter.

3 To subsection 5.9 - the last sentence to be changed as follows:

It is suggested that National Focal Points will be designated under the GloBallast Programme. The responsible body of the Istanbul Commission for cooperation with the Regional Programme Task Force will be the Advisory Group on Environmental Safety Aspects of Shipping. Heads of the Odessa Centre and the Coordinator of RPTF will be members of the AG ESAS.

To Section 6 ARRANGEMENTS FOR FUTURE COOPERATION

1 Change the first bullet of subsection 6.1. with the following text:

- *Designate appropriate persons and responsible national institutions from each of the Black Sea countries, responsible for cooperation and implementation of the RAP activities.*

2 To add to the third bullet of subsection 6.1. the following text:

- *... The consultative group members will include also the National Focal Points*

3 The text of subsection 6.2 to be changed with the following:

It is recommended the Head/Coordinator of RTF to be a member of the IC's Advisory Group on Environmental Safety Aspects of Shipping.

4 To add to the text of subsection 6.4 the following:

The IC's AG ESAS to include the issues on ballast water management and control in the permanent agenda for its annual meetings.

Ukraine

Taking into account the closed character of Black and Azov Seas basin, high anthropogenic loads and its vulnerability the only correct approach to the conservation of the Black Sea ecosystem is via a uniform, coordinated and cooperative regional system. This obvious fact has already been recognized by Black Sea countries for many years and is manifested in many the regional agreements, programs and plans.

The region has all necessary means, in terms of regional structures, to meet any ecological problem. However, the countries of the region are facing economic difficulties, and assistance is required from international organizations. Such help from three organizations - founders of the GloBallast Programme, gives Ukraine sufficient optimism to begin joint performance of one of the earlier untouched measures (component 41) of the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea, 1996. For this purpose Ukraine proposes:

1. To consider and accept the Regional Action Plan to minimize the transfer of harmful marine and pathogens organisms in ships ballast water for the Black Sea region.

1. 2. To consider and accept the Resolution of the Conference to approval the Regional Action Plan as a document establishing the basic directions of implementation of IMO Resolution A.868 (20) in the region as well as the forthcoming international Convention on ballast water control management.

Appendix 6:
Regional Action Plan

Regional Action Plan to minimize the transfer of harmful aquatic organisms and pathogens in ships' ballast water

1 Introduction and Background

The introduction of invasive marine species into new environments by ships' ballast water, attached to ships' hulls and via other vectors, has been identified by the Global Environment Facility (GEF) as one of the greatest threats to the World ' s oceans. The others are land-based sources of marine pollution, overexploitation of living marine resources and alteration and destruction of marine habitat.

In response to this threat, the International Maritime Organization (IMO) has taken a number of initiatives. As a specialized United Nations agency responsible for the international regulation of ship safety and the prevention of ship-sourced marine pollution, IMO is the most appropriate forum through which to address this issue. The member states of IMO have developed voluntary guidelines for the control and management of ships' ballast water, to minimize the transfer of harmful aquatic organisms and pathogens. These guidelines were adopted by the IMO Assembly in 1997, by Resolution A.868(20). They replace earlier, less comprehensive voluntary guidelines adopted in 1991. Management and control options recommended by the guidelines include:

- Minimizing the uptake of organisms during ballasting, by avoiding areas in ports where outbreaks or populations of harmful organisms are known to occur, in shallow water and in darkness, when bottom-dwelling organisms may rise in the water column.
- Cleaning ballast tanks and removing muds and sediments that accumulate in these tanks on a regular basis, which may harbour harmful organisms.
- Avoiding unnecessary discharge of ballast water.
- Undertaking ballast water management procedures, including:
  - Exchanging ballast water at sea before arrival in port, replacing it with 'clean' open ocean water. Any marine species taken on at the source port are less likely to survive in the open ocean, where environmental conditions are different from coastal and port waters.
  - Non-release or minimal release of ballast water.
  - Discharge to reception facilities.
  - Other technical and technological methods of ballast water treatment.

The guidelines also provide for recording and reporting procedures and a particularly useful model for a 'Ballast Water Reporting Form' is given as Appendix 1 to the guidelines.

The shipping industry has also been very active in helping to address the problem of invasive marine species. In particular, the International Chamber of Shipping (ICS) and the International Association of Independent Tanker Owners (INTERTANKO) have published a Model Ballast Water Management Plan. This give practical guidance for the implementation of the IMO voluntary guidelines on board ships.

All of these approaches are subject to limitations. Reballasting at sea currently provides the best-available risk minimization measure, but is dependent on serious ship-safety limitations. Even fully implemented, reballasting or ballast exchange at sea may not be 100% effective.

Significant research and development efforts are therefore underway by a number of scientific and engineering research establishments around the world, aimed at developing a more complete solution to this problem. Options that are being considered include filtration and sterilization using ozone, ultra-violet light, heat treatment and chemicals.

In recognition of the limitation of the current IMO voluntary guidelines, and the serious threats still posed by invasive marine species, IMO members have agreed to develop a mandatory international legal regime to regulate and control ballast water. The IMO's Marine Environment Protection Committee (MEPC) and its Ballast Water Working Group, are well advanced with developing this regime and it is hoped that the new instrument will be agreed by member countries in 2003.

In addition to these measures, to assist less industrialized countries to tackle the invasive species and pathogens problem IMO, together with the GEF International Waters (IW) portfolio and the United Nations Development Programme (UNDP) in March 2000 launched a project commonly referred to as the Global Ballast Water Management Programme or GloBallast.

2 Objectives

The Objectives of this Regional Action Plan are:

- to provide a framework for the activities that need to be developed and implemented within the Black Sea Region in order to minimize the transfer of harmful aquatic organisms in ships' ballast water, in accordance with the IMO recommendations and GloBallast Programme;
- to facilitate the preparatory process within the Black Sea Region for the introduction new international regulations and practices on ballast water management and control; and
- to enhance the regional cooperation in protection of the marine environment using the existing regional bodies, established under the Istanbul Commission and the GEF Black Sea Environmental Programme.

3 Environmental conditions of the Black Sea Region.

The Black Sea region is a semi-enclosed sea area surrounded by the coasts of Bulgaria, Georgia, Romania, the Russian Federation, Turkey and the Ukraine.

The condition of the Black Sea environment to be the subject of serious concern due to the ongoing degradation of its ecosystem and misallocation of its natural resources. The conclusions of the Black Sea Trans-boundary Diagnostic Analysis (TDA), prepared during the first phase of Global Environmental Facility (GEF) Black Sea Environmental Programme (BSEP) in 1996, might be summarized as follows:

- The Black Sea ecosystem is still under threat from the introduction of the different kinds of pollutants mainly of organic/biogenic in nature, not only from land run-off but especially from rivers;
- Most of the Black Sea is now affected by the over-introduction of nutrients;
- The Black Sea ecosystem is still under threat from the introduction of other hazardous pollutants, especially oil. Oil is entering the environment as a result of accidental and operational discharges from ships as well as from land-based sources;
- Exotic marine species and pathogens already introduced via ships' ballast water are causing substantial damage to the Black Sea ecosystem and are poised to similarly affect those of the neighbouring Mediterranean and Caspian Seas; and
- Despite statements predicting that process of degradation of the Black Sea is irreversible, ecological monitoring during recent years has shown a significant improvement in the condition of some ecosystem components. This tendency should be maintained and strengthened.

The scope and gravity of the degradation processes in ecology of the Black Sea have overstepped the boundaries of waters under national jurisdiction and has become common problem for the countries of

the region. All regional states are parties to the MARPOL 73/78 Convention and their ships comply with the basic requirements of the Convention. Each country has appropriate legislation in place to regulate the discharge of harmful substances from ships, taking into account the fact that under MARPOL 73/78 the Black Sea has 'special area' status.

4. Existing Regional Instruments

The basic international instrument, which outlines the framework of joint regional principles, is the Convention on protection of the Black Sea from pollution signed by the countries of the Black Sea basin in 1992 (the Bucharest Convention). The main aim of the Convention is the creation of favourable conditions for joint actions to protect the Black Sea environment and living resources, whilst taking economic and social implications into account. The Convention defines priority measures on marine pollution prevention as a result of human impact, the future reduction of such impacts and the control of its consequences, as well as determining the criteria for cooperation in emergency situations.

The Ministerial Declaration on Protection of the Black Sea (Odessa, 1993) established the political framework for the implementation of the Convention. It is based on the philosophy behind the Rio Declaration (1992) and calls for immediate, balanced and continuous actions at all levels towards the protection and rehabilitation of the Black Sea marine environment, as well as its sustainable development.

The Odessa Declaration provides an outline for actions towards the conservation and protection of the Black Sea and became a basis for the International Program of Environment Management and Protection of the Black Sea - Black Sea Environmental Program (BSEP, 1993-1996). However, the implementation of the Convention and BSEP has been constrained by the adverse economic climate currently prevailing in the region.

The overall objective of BSEP is to coordinate the efforts of the Black Sea countries towards implementing the Bucharest Convention. Whilst the Program was initially financed by GEF with support from UNDP and PHARE, in 1998 responsibility for the financing of the Program's activities passed to the coastal states.

The first phase of implementation of the Program was finalized in 1996 with the signing of the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea (Black Sea Strategic Action Plan / BS SAP). The underlining tenet of the BS SAP includes the principle of prevention complemented by sustainable development. The most significant political actions by BS SAP are aimed at the reduction of pollution levels, the management of living resources and sustainable social development. Under SAP, the regional environmental quality criteria are being developed, the coordination of the national programmes for minimization of the dumping of dangerous substances and biogens is being carried out, the Harmonized Monitoring System of the sea is being introduced and environmental assessment criteria are being reviewed.

According to the BS-SAP a regional structure of consulting bodies was established, called Advisory Groups. One of the advisory groups is "Advisory Group on the Environmental Safety Aspects of Shipping" (AG ESAS), which is dealing, on behalf of the Black Sea Commission, with coordination of the regional aspects of pollution caused by shipping

One of SAP's most significant political actions is aimed at reducing the level of pollution in the Black Sea and is linked to the prevention of marine environment pollution from shipping and stated the following:

41. *Black Sea countries will present a joint proposal to the IMO, in 1997, for conducting an in-depth study on measures to avoid any further introductions of exotic species into the Black Sea through the deballasting of vessels. Given the danger of such species migrating to other seas in the region, the coastal states of the Caspian and Mediterranean seas will be consulted*[*].

Certain specific activities to raise public awareness in the Black and Caspian Sea countries of the problem associated with the introduction of harmful aquatic organisms and pathogens into new locations should be noted:

- the International Scientific Workshop for the Black and Caspian Seas Region Countries on Problems of Ship's Ballast Water Management and Control was held from 14-17 September 1999 on board the scientific vessel "Georgiy Ushakov"; and
- The International Workshop of the Caspian Environment Programme on the Invasion of the Caspian Sea by the Comb Jelly Mnemiopsis Leidyi - Problems, Perspectives, Needs for Action was held in April 2001 in Baku.

5. Principal Actions

5.1 Public Awareness

To increase the level of public awareness: dissemination using the mass media, information and publications on the problem of invasive marine species and pathogens via the transfer of ballast water and how it has been managed at global and regional/national levels.

GloBallast Programme materials and IMO MEPC Ballast Water Working Group documents will be used for this exercise. The experiences of other countries and regions will also be taken into account.

5.2 Information Clearing House

The establishment of a clearing house mechanism for exchanging uniform information on changes in the species content of marine flora and fauna and information about the prevention and control measures taken by Black Sea countries and worldwide is necessary.

In connection with the establishment of a GloBallast Demonstration Site in Odessa, Ukraine (Odessa GloBallast DS), and the gradual development and broadening of its activities, it is planned to set up a National Information Center (NIC) in the framework of the Programme. The information contained in its databases will be available to Ukraine and Black Sea countries.

Once the NIC will become operational it will inform the Istanbul Commission through Advisory Group ESAS on possible sources of unwanted species, respective measures for prevention and control undertaken and planned in the region as well as the worldwide experience and trends on this matter.

5.3 Regional Risk Assessment

Before a country decides on whether to adopt the 'blanket' (i.e. all vessels) approach or to target specific, identified high risk vessels only, a general, first-past risk assessment needs to be carried out. This should look at shipping arrival patterns and identify the source ports from which ballast water is imported. Once these are identified, source port/discharge port environmental comparisons should be carried out to give a preliminary indication of overall risk. This will greatly assist the port state to assess which approach to take.

An initial, 'first-past' regional risk assessment needs to be carried out for the Black Sea. This is important for establishing the level and types of risks of introductions that each port faces, as well as

[*] This action has not been implemented yet.

the most sensitive resources and values that might be threatened. These will differ from site to site, and will determine the types of management responses that are required

5.4 Regional Monitoring

The uniform regional monitoring system for the species profile in its ports should be developed and implemented. The system will be based on the Port Baseline Survey System undertaken by the GloBallast Programme in the port of Odessa.

It is suggested that a gradual introduction of monitoring procedures of marine flora and fauna should be put into practice in the region's ports. These procedures will reflect those established by the GloBallast Programme.

5.5 Research and Development

The search for optimal solutions, the undertaking of joint scientific research and practical assessment of technical and technological methods of ballast water treatment (BWT) both on board and in land-based waste disposal facilities as well as participation in the development of international BWT standards should be undertaken.

It is planned to produce a regional Research and Development (R&D) Directory, hold a regional R&D Workshop for scientists and researches to assess proposals submitted against future IMO Ballast Water Treatment Standards, or against adjusted provisional criteria, should the IMO standards not be available.

It is essential that all the countries of the region actively support the outcome of the Workshop: the agreed optimal solutions, the practical measures for finalization, testing and their introduction into practice.

5.6 Rules and Regulations

The unification and introduction of rules and regulations for the ports and ships routings of the region to regulate ballast water management and control procedures is necessary.

It is suggested that a Working/Correspondence Group be established, which will be charged with the review of national regulations and practices in order to align these with IMO Resolution A.868(20) and certain provisions of new IMO Instruments, and to recommend a uniform regime for ballast water management and control procedures for Black Sea region.

5. 7 Training

The establishment of a regional system for training those personnel (at all levels) involved in risk assessment, ballast water control, marine monitoring in ports and on board ballast water management.

It is proposed that a Training Centre (TC) based on the Odessa GloBallast DS is set up, for seafarers, port officers and organizations responsible for monitoring. This TC will promote the dissemination of these training programmes to other countries in the region, and assist in establishing national training centres/facilities.

5.8 National Action Plans (NAP)

The Black Sea countries will develop their NAPs that will support, and generally follow, the RAP activities.

5.9 Cooperation with the Istanbul Commission

It is necessary to provide cooperation with the Istanbul Commission on all issues regarding the protection of the Black Sea marine environment from pollution from ships, including the prevention

of biological and epidemiological pollution, the detection of such pollution, the development and implementation of regional activities towards the minimization of its harmful impact.

It is recommended that Odessa GloBallast DS and the RTF should apply for the observant status with the Istanbul Commission.

6. Arrangements for future cooperation.

In order to implement the RAP it is essential that the regional mechanism for cooperation among the Black Sea countries on ballast water problems is established and maintained. This may include but not be limited to the following:

- designate appropriate persons and responsible national institutions from each of the Black Sea countries, responsible for cooperation and implementation of RAP activities;
- use relevant mechanisms of international and regional organizations (IMO, Istanbul Commission, Danube Commission, etc) and
- establish a consultative group or Regional Task Force (RTF) for ballast water management and control. The consultative group members will include also the National Focal Points.

It is recommended that the RTF should cooperate closely with the Advisory Group (AG) on Environment Safety Aspects of Shipping and thus will enhance the capacity of the Istanbul Commission regarding ballast water management issues. The Istanbul Commission will coordinate the work of this group.

It is recommended that annual reports on the progress made in implementing the RAP shall be provided to the Istanbul Commission. The report should also contain recommendations for enhancing implementation of and amendments to this Plan, taking into account ongoing IMO activities and recommendations. The Commission should consider the report and agree on any enhancements and/or amendments that may be necessary for the optimal implementation of the Plan.

Country Focal Points (CFP) of Black Sea countries will meet at least every year in order to evaluate the progress made in implementing the RAP and shall propose any additional measures that they consider may be required to attain its overall aims. The Information Centres (IC's) AG ESAS to include the issues on ballast water management and control in the permanent agenda for its annual meetings.

It is recommended that the shipping industry (including ports of the region) is fully involved in RAP activities.

7. RAP Financing

Funding for the implementation of RAP may be secured from national, regional and/or international resources. General public funding or the application of specific economic mechanisms as well as utilizing grants and loans should be explored.

It is recommended that Donor Conferences to assist this regional process will be held every five years, starting in 2003.

The Istanbul Commission may consider and decide whether the joint regional activities may be funded from the Black Sea Environment Fund.

The GloBallast Programme may provide seed funding to facilitate the initiation of the RAP

More Information?

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