National Ballast Water Management Strategy for Turkey

Undersecretariat for Maritime Affairs of Turkey

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This document is prepared based on the results of the National Ballast Water Management Project which was executed by The Scientific and Technological Research Council Marmara Research Centre of Turkey (TUBITAK-MAM) for the need of Undersecretariat for Maritime Affairs. All the information on this report prepared under the control of the project manager Dr. Arzu OLGUN and Murat KORÇAK from Undersecretariat for Maritime Affairs.

This document which is aimed to prepare a national strategy for ballast water management is a draft version. It will be finalized after the adoption of all stakeholders.

The guidance of Dr. Arzu OLGUN and Mr. Murat KORÇAK was taken as a basis on defining the strategic priorities and actions. On the other hand the draft Mediterranean and Black Sea ballast water strategy documents are used as reference documents.

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Preface

Invasive alien species in marine environment have serious economic, environmental and human health impacts and are now recognized as one of the four greatest threats to biodiversity globally. The others are global warming, land based pollution and excessive hunting.

Ships' ballast water is of particular concern as a vector of introduction of invasive alien species in the Turkish seas because of the large quantities of ballast water coming from different marine environments around the world being discharged at Turkish ports.

"International Convention for the Control and Management of Ships' Ballast Water and Sediments" provides a critically needed set of management tools to address the issue and calls for regional cooperation and harmonization of policies to attempt solving this transboundary marine environmental problem. Although the BWM Convention has not yet entered into force, the national process of ratifications is underway in many countries including Turkey.

The general objective of the present strategy is to establish the framework for an international harmonized approach for Turkey on ships' ballast water control and management, which is consistent with the requirements and standards of the BWM Convention. In this context the relevant activities are defined and a timeline was planned.

The present Strategy is composed of 10 Strategic Priorities and of an Action Plan and Work Plan/Timetable for its implementation.

1

Ballast Water Problem for Turkey

The ships carry clean sea water in special separated tanks which is called ballast water in order to enhance their equilibrium and stability. Ships usually carry ballast water in empty cargo navigations. The amount of the ballast water is approximately %30-35 of the ship's deadweight tonnage. By this way, ships carry millions of different kind of species and microorganisms from one ecosystem to another. This species can be reproduce without control and invade the habitats irreversibly.

Ballast water is one of the most important vectors that contribute the invasion of aquatic organisms. It is known that the 80% of the international trade is made with ships. It is estimated that approximately 7 billion tons of sea water is transporting internationally every year. This means more than 7000 species is transporting with ships into their ballast water tanks every day between different ports.

When the effect of invasive species to marine environment compared to oil pollution it can be determined that the effect of oil pollution is acute, terminating and can be observed with eye. But the effects of the oil pollution decreases with time. Nevertheless when we consider an invasion, the first impact is very low. After a period of time the effect on the habitat will increases irreversibly and the results will be devastating.

Invasive alien species have serious economic, environmental and human health impacts and are now recognized as one of the greatest threats to biodiversity globally. In marine and coastal environments, invasive species have been identified as one of the four greatest threats to the world's oceans.

Turkish coasts are one of the most sensitive sea areas because of the intensive maritime traffic. There are 66 different kinds of species are reported to be invaded in Turkish coasts and 19 of them could be characterized as harmful invasives. Turkey started an initiative on her region in order to tackle this problem and start a project with The Scientific and Technological Research Council Marmara Research Centre of Turkey (TUBITAK-MAM)

The project aims to define the risks of the international maritime traffic and the effect of the ballast water carried by these ships. Also the measures need to be taken for decreasing these risks was defined. In order to minimize the risks of the aquatic organisms and pathogens the relevant ballast water management measures which are defined in the Ballast Water Management Convention and its guidelines were defined.

Also, the responsibilities of Turkey after signing the Ballast Water Convention were defined during the national project. With this information the relevant activities for building up the management infrastructure is defined.

Turkey is a leading partnership country for Mediterranean Sea on the Globallast Partnership Project initiated by IMO. In this respect Turkey organizes workshops and trainings and also lead the chairmanship of the Regional Task Force consists of all Mediterranean countries.

This strategy document defines the objectives with respect to experiences of the national project of Turkey and the activities which will be carrying on reaching these objectives were planned with an action plan.

2

Obligations for Turkey

International Scale

Ballast Water Convention is open for signature to the IMO member countries until 2004. This convention is prepared in order to find a global solution to invasive species carried in ballast water. In this respect, the convention defines the responsibilities of port states, flag states and shipping industry. Also rules for control and management of ballast water and sediments were defined.

The main aim of the convention is to decrease and finally prevent the transportation of invasive species to other marine habitats. In order to perform this aim the convention defines two methodologies. These are ballast water exchange and treatment.

The responsibilities that the convention defines can be divided on three main titles. These are responsibilities of ships, maritime authority and port authority.

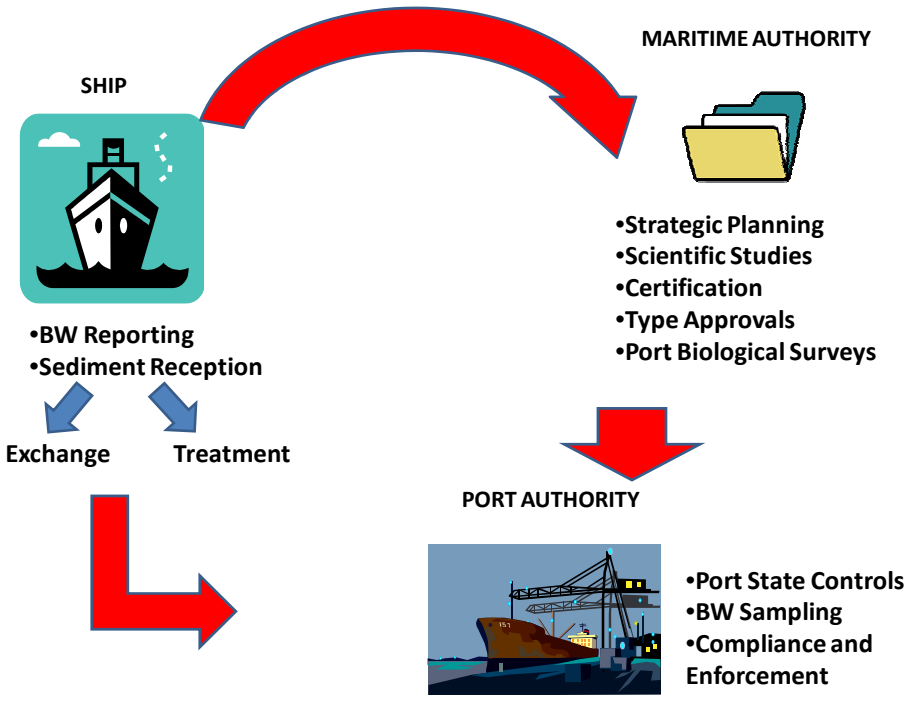

Figure 1: Ballast water management

The obligations which are defined by the convention is line up briefly by titles. Firstly the obligations for ships are like as below:

Table: 1 The obligations for ships

THE OBLIGATIONS FOR SHIPS
Ballast water management certificate
Ballast water management plan
Define a responsible personnel on board responsible for ballast water management
Ballast water record book
Make exchange operations in the transition period of the convention after this install an approved treatment facility on board and treat the ballast water
Giving sediments to the reception facilities
Reporting the ballast operations with ballast water reporting form

The obligations for Maritime Authorities are like as below:

Table: 2 The obligations for maritime authorities

THE OBLIGATIONS FOR MARITIME AUTHORITIES
Define the strategy and prepare an action plan
To promote the scientific studies
Preparing the national legislation
Giving ballast water certificates to ships
Giving type approvals to ballast water treatment facilities
Determine the exemptions for applications
Coordinate the port biological surveys
Attend to coordinate regional arrangements
Define alternative ballast water exchange areas
Define applications for the ships that is not in the scope of the convention

The obligations for Port Authorities are like as below:

Table: 3 Obligations for port authorities

THE OBLIGATIONS FOR PORT AUTHORITIES
Port State Controls
Ballast water sampling
Compliance and enforcement

Regional Scale

Turkey is a signatory country for both Barcelona and Bucharest Conventions. There are regional studies are going on in order to prepare the regional strategy documents both under the umbrella of REMPEC and Black Sea Commission. This national strategy document prepared with a harmonization of these two draft regional strategy documents. Turkey actively participates to both of these studies and manages the chairmanship of these studies.

National Scale

Turkey starts the signing procedure for Ballast Water Management Convention. But the convention is not in force yet. Turkey notices the great risk of the bioinvasions. Because of this great risk it is planned to start national implementations before the convention put in force. The national legislations were prepared during the national project of Turkey. These legislations will be revised for a transition period until the convention put in force and will be publish in order to start the implementations.

Ballast water management is not a system which can be implemented only on national basis. It has to be harmonized with the regional and international systems. The independent national implementation of a country could be harmful for the other.

One of the most important examples to this issue is the Turkish Straits. The Russian and the Ukranian authorities accept only the ships which exchange their ballast water before entering their port. But navigation pattern on the Black Sea is not enough to finalize the exchange operations. The ships start to exchange their ballast water on Aegean Sea and go ahead to these operations on Marmara Sea. These areas are not suitable for exchange operations with respect to the convention standards. But there is no rules put in force on this area which prohibits the exchange operations.

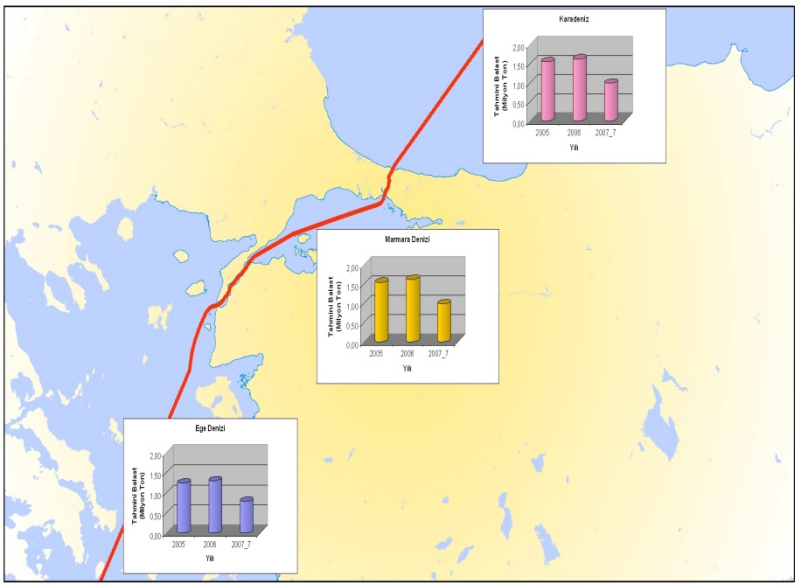

Figure 2: Ballast water problem in Turkish Straits

It is calculated that there is 4.5 million tones of ballast water is exchanged on this Turkish Straits area. Especially on Çanakkale Strait area and on the Marmara Sea the invasive species ***Chrysaora hysoscella*** starts to increase its population very rapidly. It is a poisonous species that threats the human life.

Figure 3: *Chrysaora hysoscella*

On this strategy document both national and the international studies are defined in order to make a harmonization between regional instruments. Especially the draft Mediterranean and Black Sea strategy documents are used as reference documents.

3

Invasive Alien Species

It is founded during the national project that there are 66 different species are reported to be carried with ships and invade the Turkish coast areas and 19 of them could be define as harmful invasive species. The details of this species can be found in the national status assessment report of Turkey.

Table: 4 Invasive species vectors

Vector	Number of species
Suez Canal (Lesepsian)	176
Ship Transfered	66 (19 of them are harmful)
Gilbartar	6
Aquaculture	3
Total	263

The most important and famous invasives for Turkey can be reported as follows.

Mnemiopsis leidyi

Figure 4: Mnemiopsis Leidyi

Origin: North Atlantic Coasts, South America

Recorded: Black Sea (1980) Azov Sea, Marmara Sea, East Mediterranean and Aegean Sea

Impacts: It was introduced in the Black Sea in the 1980s, where only one species of comb jelly, the small sea gooseberry *Pleurobrachia pileus* occurred until then. The most likely cause of its introduction is accidentally by merchant ships' ballast water. The first Black Sea record was in 1982.
By 1989, the Black Sea population had reached the highest level, with some 400 specimens per m^3 of water (>10 animals/cubic foot) in optimal conditions. Afterwards, due to depletion of food stocks resulting in lower carrying capacity, the population dropped somewhat.

In the Black Sea, *M. leidyi* eats eggs and larvae of pelagic fish. It caused a dramatic drop in fish populations, notably the commercially important anchovy *Engraulis encrasicholus* (known locally as *hamsi, hamsiya, hamsa*, etc), by competing for the same food sources and eating the young and eggs. Biological control was tried with *Beroe ovata*, another comb jelly, with some degree of success; it appears as if a fairly stable predator-prey dynamic has been reached.

Beroe ovata

Figure 5: Beroe Ovata

Origin: United States, North Atlantic Coasts

Recorded: Caspian Sea, Black Sea, Marmara Sea, Azov Sea

Impact: Beroe ovata also is native to the same general region as Mnemiopsis. However, unlike most ctenophores, Beroe shuns crustacean zooplankton, but prefers dining on other ctenophores. Interestingly, the primary food for Beroe ovata is Mnemiopsis. Considering that Beroe was first detected in the Black Sea in l997, this relationship offers one explanation for why Mnemiopsis populations have declined in recent years. It is now thought that purposely introducing Beroe may be a potential solution to the problem of Mnemiopsis in the Caspian Sea.

Rapana venosa

Figure 6: Rapana Venosa

Origin: Japanese Sea, East Chinese Sea, Yellow Sea

Recorded: French, USA (Chesapeake Bay), Uruguay, Argentina, Adriatic Sea, Aegean Sea, Black Sea

Impacts: Due to its predatory impact R. venosa is considered as one of the most unwelcome invaders worldwide. R. venosa is an active predator of epifaunal bivalves, and its proliferation is a serious limitation cultivated and natural populations of oysters and mussels. R. venosa are very voracious predators and Rapana is blamed in the Black Sea for the decline of the native, edible bivalve fauna. They have caused significant changes in the ecology of bottom-dwelling organisms and have resulted in the near extinction of the Gudaut oyster although scientists are still studying the impacts of R. venosa, they are very concerned about its potential damage to native species.

Especially in Black Sea there is no predator for this species. After 1970's this species becomes economically important for Turkey in 1988 and 1989 10,000 tonnes of R. Venosa was catched. On Turkey there are 11 fabrics were established in order to export the meat of this species.

4

Scope Purpose and Objectives of the Strategy

Scope of the strategy

1. Geographical scope

Ballast water implementations cannot be limited to the only port implementations because of its nature. When we count in the scientific and monitoring studies a boarder geographically are is needed. It is defined for the scope of the strategy the Turkish Search and Rescue Area can be used. This area was also used in the national project of Turkey.

Figure 7: Turkish Search and Rescue Area

2. Technical scope

Technical scope is defined as titles below:

- Administrative studies
- Capacity building studies
- Education activities
- Raising Awareness instruments
- Scientific researches

Purpose of the strategy

The purpose of this strategy is planning of the future studies by establishing a work plan in order to minimize the harmful effects of alien species carried in ballast water to marine environment, economical activities and public health. Also it is aimed to establish a system in order to monitor the implementation of this strategy and make revisions on the future plans.

Objectives of the strategy

- Establish a ballast water management system with respect to the International Ballast Water Management Convention
- Establish capacity building activities for Undersecretariat for Maritime Affairs as the leading agency in order to make;
    - port state controls,
    - certification,
    - type approvals,
    - biological port baseline surveys,
    - coordination with the universities and research centers,
    - supporting scientific studies
    - revision of the knowledge on ballast water management
- Minimize the risk of invasive species in order to protect the sustainability of the marine sectors like as fishing, agriculture or tourism.
- Establish a national task force
- Establish the national legislations
- Coordinate with the regional initiatives

5

Leading Agency

The leading agency for ballast water management issues is the **Underseretariat for Maritime Affairs** of Turkey.

The responsibilities of the leading agency

Table: 5 Responsibilities of the leading agency

UMA is responsible for:
Implement the national strategy
Establish the national legislations
Implement the ballast water management activities to all ships calling Turkish ports
Ensuring that all key stakeholders are fully conversant with the National Strategy
Monitoring and reviewing on an ongoing basis how effectively the National Strategy is being implemented and introducing changes, as necessary;
Ensuring effective enforcement of national legislation
administration of relevant international instruments related to ballast water management
Incorporating into the National Strategy improved measures that become possible due to experience gained in operating the National Strategy and/or through developments in research or technology, or changed international requirements or 'best practice
Participating in international, regional and national matters relating to BWM

6

Division of Labor

Table 6 Division of Labor

STAKEHOLDER	RESPONSIBILTY
Undersecretariat for Maritime Affairs (UMA)	It is the leading agency for ballast water implementations. All the implementations on ballast water management will carry on by UMA • Implementing the national strategy • Preparing the national legislation • Implementing the port state and flag state rules • Leading the national task force and control and direct the activities of the task force • Monitoring the implementation of the strategy • Monitoring the implementation of the national legislation • Making the revisions on the strategy document • Participating the international studies on ballast water management
Tübitak-MAM	Tübitak-MAM becomes the most experienced authority on ballast water management issues after finalizing the national ballast water management project • Consulting to the leading agency • Analyzing the ballast water samples • Participating the international studies with UMA • Revision on the national project
Directorate General of Health for Border and Coastal Areas	Especially for the ships crossing the Turkish Straits this general directorate has special responsibilities on controlling the ships • Ballast water controls for the ships crossing Turkish Straits • Controlling activities for ships for health diseases • Consulting to the leading agency
Ministry of Environment and	• Controlling the land based invasives and integrate with the

Forestry	ballast water managements system • Consulting to the leading agency
Ministry of Agriculture	• Controlling the land based invasives and integrate with the ballast water managements system • Controlling the invasives from ship farming • Consulting to the leading agency
Ministry of Tourism	• Assist the raising awareness studies • Consulting the leading agency
Chamber of Shipping	• Informing the Turkish maritime sector about the implementations of the ballast water management activities • Consulting to the leading agency
Coast Guard	• Controlling the ballast water discharge forbidden zones
Universities and Research Centers	• Consulting to the leading agency • Executing the port biological baseline surveys • Reporting the invasives detected
Turkish Shipbuilders Association	• Coordinating the installation of ballast water treatment equipments
Shipyard Managers	• Executing the sediment reception from ships • Reporting the activities to the lead agency
Harbor Masters of UMA	• Executing the ballast water management inspections • Giving permition to ships with respect to ballast water reporting forms
District Directorates of UMA	• Coordinating the Harbor Masters
NGO's	• Informs the public and raise the awareness • Assist the port biological baseline survey studies
Fish catching cooperatives	• Report the observations about the new species or fish stocks
Port Managers	• Assist the harbor masters on inspection activities
Ship Agents	• Fill the ballast water reporting forms from the web based system accurately
Ship Farmers	• Report the species that they are farming
Municipalities	• Assist the port biological baseline surveys
Majors	• Assist the port biological baseline surveys

National task force

The national task force consists of all abovementioned stakeholders. The working system and responsibilities of the task force is defined below:

Responsibilities of the task force

- Task force evaluates the ballast water implementation activities politically, strategically and legislatively and produces suggestions for revision.
- Task force revises the national strategy document
- Task force implements the necessities of the National Strategy;
- Task Force develops and implements an evaluation plan;
- Task Force potentially continue to work together after the development of the National Strategy to provide guidance, oversight, and advice on matters relating to harmful aquatic organisms and pathogens

Working system of the task force

- Undersecretariat for Maritime Affairs will lead the task force
- The task force meets once a year regularly
- If there is an extra meeting suggested from a member then the task force organizes an intercessional meeting
- The members of the task force communicate via correspondence group between meetings
- There could be some sub groups could be established for evaluating the different kind of tasks
- All the decisions of the task force will be given by consensus
- After every task force meeting the leading agency will publish the minutes of the meeting.

7

Strategic Priorities

Table: 7 Strategic priorities

Strategic priority 1: Support the Ballast Water Management Convention
• **Turkey supports particularly the work of the International Maritime Organisation and are committed to take all appropriate actions toward the ratification of the BWM Convention for its entry into force as soon as possible.**
Strategic priority 2: Maintain capacity building activities
• **Turkey stress the need to continue efforts to enhance capacity building, knowledge transfer and training of personnel after the National Project in order to implement the ballast water management needs concerned in the convention**
Strategic priority 3: Support the scientific studies on harmful invasive species
• **Turkey promotes research and development programmes in the field of invasive alien species and ships' ballast water management, as means to enhance knowledge and help setting scientific grounds on which best measures on controlling the transfer of invasive aquatic species can be based.**
Strategic priority 4: Use risk assessment
• **Turkey considers the risk assessment is an appropriate tool to guide on ballast water management measures and is committed to establish surveys and monitoring programmes including reporting and alert mechanisms.**

Strategic priority 5: Attend regional arrangements
• **Turkey works collaboratively to adopt regional arrangements with neighboring countries concerning ballast water management in not only the Mediterranean region but also the Black Sea Region consistent with the requirements and standards set in the BWM Convention.**
Strategic priority 6: Keep the strategy under review
• **Turkey call for regular meetings with the National Task Force for the purpose of reviewing and evaluating the ongoing relevance of the Strategy, and overall effectiveness of activities carried out under the Action Plan**
Strategic priority 7: Work on adequate resources
• **Turkey's long-term objective is to ensure the sustainability and continuity of activities from self-financing sources.**

8

Action Plan

Table: 8 Action plan

Action 1. **Ratify the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention)**
• Finalize the ratification process as soon as possible
Action 2. **Adopt capacity building activities in Turkey**
• Building up ballast water inspection offices in District Directorates of UMA • Supply inspection equipments • Education of the personnel
Action 3. **Adopt national legislations for Turkey**
• Revise the draft legislations in order to finalize for adoption • Establish a solid compliance and enforcement (CME) system
Action 4. **Establishment of the national task force**
• Organize an expanded meeting for establishment the task force • Adopt the terms of reference document for the national task force • Adopt the strategy document and action plan • Plan the future activities of the task force
Action 5. **Prepare the certification procedures**
• Organize the procedure for preparing the ballast water management certificates • Organize the procedure for preparing the type approvals for treatment facilities
Action 6. **Prepare the raising awareness instruments**
• Organize a ballast water management symposium

• Preparing booklets, brochures, posters for circulating to public from harbor maters • Revising the internet web page of national ballast water management system and translate the web page to English • Show the BBC documentary film to public
Action 7. **International coordination**
• Participate the regional and international meetings • Contribute actively the drafting procedure for Mediterranean and Black Sea Strategy documents
Action 8. **Biological baseline surveys**
• To organize a national port baseline biological survey workshop • To collaborate with the universities and promote them to make surveys • To collect all information together in order to prepare a reporting system for biological base line activities
Action 9. **Pilot implementations**
• To extend the pilot implementations to İstanbul an İzmir region • Supply inspection equipment

9

Action Plan Implementation Time Table

Table: 9

Action Points	Activities	Year					
		2010	2011	2012	2013	2014	2015
Action 1. Ratify the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention)	• Finalize the ratification process as soon as possible		✔				
Action 2. Adopt capacity building activities in Turkey	• Building up ballast water inspection offices in District Directorates of UMA		✔	✔			
	• Supply inspection equipments		✔				
	• Education of the personnel	✔	✔				

Action Points	Activities	Year					
		2010	2011	2012	2013	2014	2015
Action 3. Adopt national legislations for Turkey .	• Revise the draft legislations in order to finalize for adoption		✔	✔			
	• Establish a solid compliance and enforcement (CME) system			✔	✔	✔	✔
Action 4. Establishment of the national task force	• Organize an expanded meeting for establishment the task force	✔					
	• Adopt the terms of reference document for the national task force	✔					
	• Adopt the strategy document and action plan	✔					
	• Plan the future activities of the task force	✔					

Action Points	Activities	Year					
		2010	2011	2012	2013	2014	2015
Action 5. Prepare the certification procedures	• Organize the procedure for preparing the ballast water management certificates	✔	✔				
	• Organize the procedure for preparing the type approvals for treatment facilities	✔	✔				
Action 6. Prepare the raising awareness instruments	• Organize a ballast water management symposium		✔				✔
	• Preparing booklets, brochures, posters for circulating to public from harbor maters	✔	✔		✔		✔
	• Revising the internet web page of national ballast water management system and translate the web page to English			✔	✔	✔	✔
	• Show the BBC documentary film to public		✔				

Action Points	Activities	Year					
		2010	2011	2012	2013	2014	2015
Action 7. International coordination .	• Participate the regional and international meetings	✔	✔	✔	✔	✔	✔
	• Contribute actively the drafting procedure for Mediterranean and Black Sea Strategy documents	✔	✔				
Action 8. Biological baseline surveys	• To organize a national port baseline biological survey workshop		✔				
	• To collaborate with the universities and promote them to make surveys		✔				
	• To collect all information together in order to prepare a reporting system for biological base line activities			✔	✔	✔	✔

Action Points	Activities	Year					
		2010	2011	2012	2013	2014	2015
Action 9. Pilot implementations	• To extend the pilot implementations to İstanbul an İzmir region		✔	✔			
	• Supply inspection equipment		✔	✔			