



**Creating products and knowledge
for the Mediterranean**



IMPLEMENTATION OF THE BALLAST WATER CONVENTION. DETECTION INVASIVES SPECIES IN HARBOR

**ATELIER DE VALIDATION DE LA PLATEFORME DE DONNEES PAR LES UTILISATEURS ET DE
FORMATION A L'OCEANOGRAPHIE OPERATIONNELLE**

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ODYSSEA

1. Introduction
2. Ballast Water Convention (BWC)
3. Odyssea support to the implementation of BWC
4. Biodiversity protection

WHO WE ARE



ODYSSEA

Fundación Valenciaport is a centre for **Applied Research, Innovation** and **Training**, serving the port-logistics cluster.

It is an initiative of the Port Authority of Valencia, bringing together key companies, universities and institutions in the port community.

Since its creation, it has developed projects in more than sixty countries, mainly in the Mediterranean, the rest of Europe, Asia and Latin America.



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KNOWLEDGE AREAS



**Port-Maritime
market**



**Port planning
and
management**



**Port
logistics**



**Digital
transformation**



**Sustainability
and energy
transition**



**Security and
protection**



**Integration
between the
port and the city**

FUNDACIÓN VALENCIAPORT IN NUMBERS:



* 2019 figures

OUR CLIENTS

International
Institutions



Government and
Governmental institutions

Depots



Exporters
and Importers



Freight Forwarders, Logistics Operators
and Hauliers



Logistics
Zone



Customs and Border
Inspection services



Maritime and
Port Authorities



Inland Terminals
and Dry Ports

Rail Operators and Services



Shipping Companies and
Maritime Agents



Container
Terminals



Marinas

Cruises

Ro-Ro Terminals



Technical-Nautical Services



Bulk and Multipurpose
Terminals

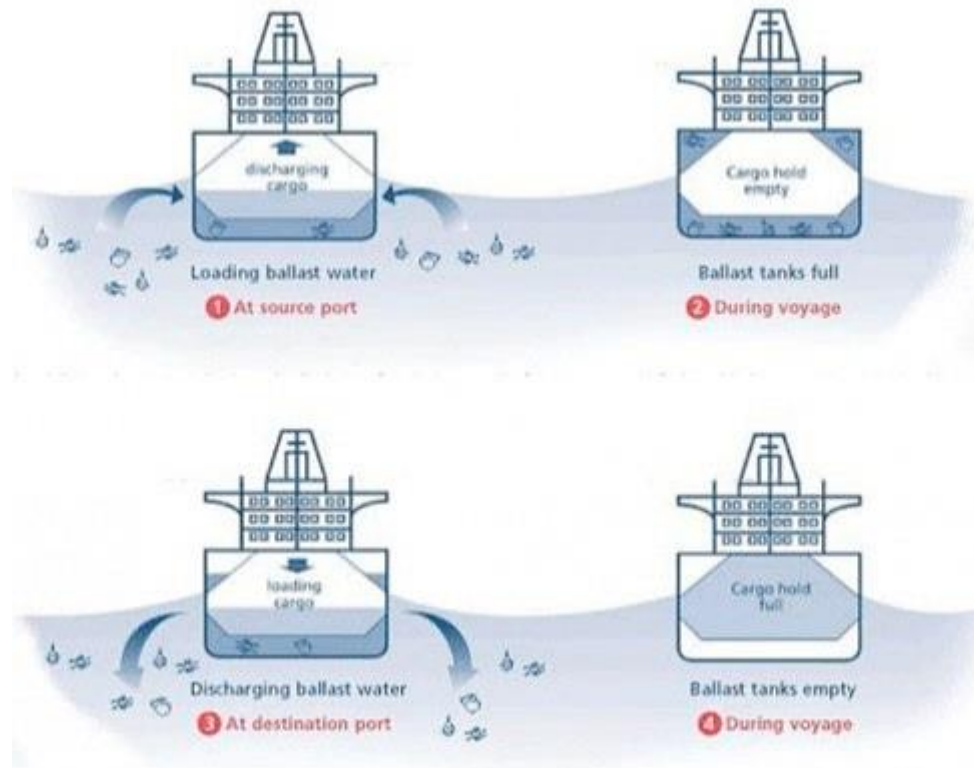


Fundación Valenciaport has collaborated with companies and organizations from all stages of the transport chain

Ballast Water Convention



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Pic Source: NOAA: International Maritime Organization

Ballast Water Convention



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Where (Regulation B-4) and how (Regulation D-1)

exchange ballast water in the Mediterranean Area

- The IMO Guidelines (G6) provide specific depth and distance from the shore requirements for ballast water exchange (BWE)
 - At least 200 nautical miles from the nearest land and 200 meters in depth
 - At least 50 nautical miles from the nearest land and in 200 meters in depth (Regulation B-4).
- Special areas for BWE could be designated following IMO Guidelines (G14)

Exemptions to ballast water management

(Regulation A-4) in the Mediterranean Area

- Under certain low risk conditions the BWM convention Regulation A-4 enables to grant exemptions to any requirements to apply regulation B-3, ballast water treatment systems
- Or regulation C-1, on measures additional to those in Section B of the convention.

Circumstances when ballast water

management do not apply (Regulation A-3)

- The Regulation A-3 establishes that “the discharge of Ballast Water and Sediments from a ship at the same location where the whole of that Ballast Water and those Sediments originated and provided that no mixing with unmanaged Ballast Water and Sediments from other area has occurred. If mixing has occurred, the Ballast Water taken from other areas is subject to Ballast Water Management in accordance with this Annex”. The BWMC does not provide an exact definition on the concept of “same location” so it is a topic of regional discussions.

Odyssea support to the implementation of BWC



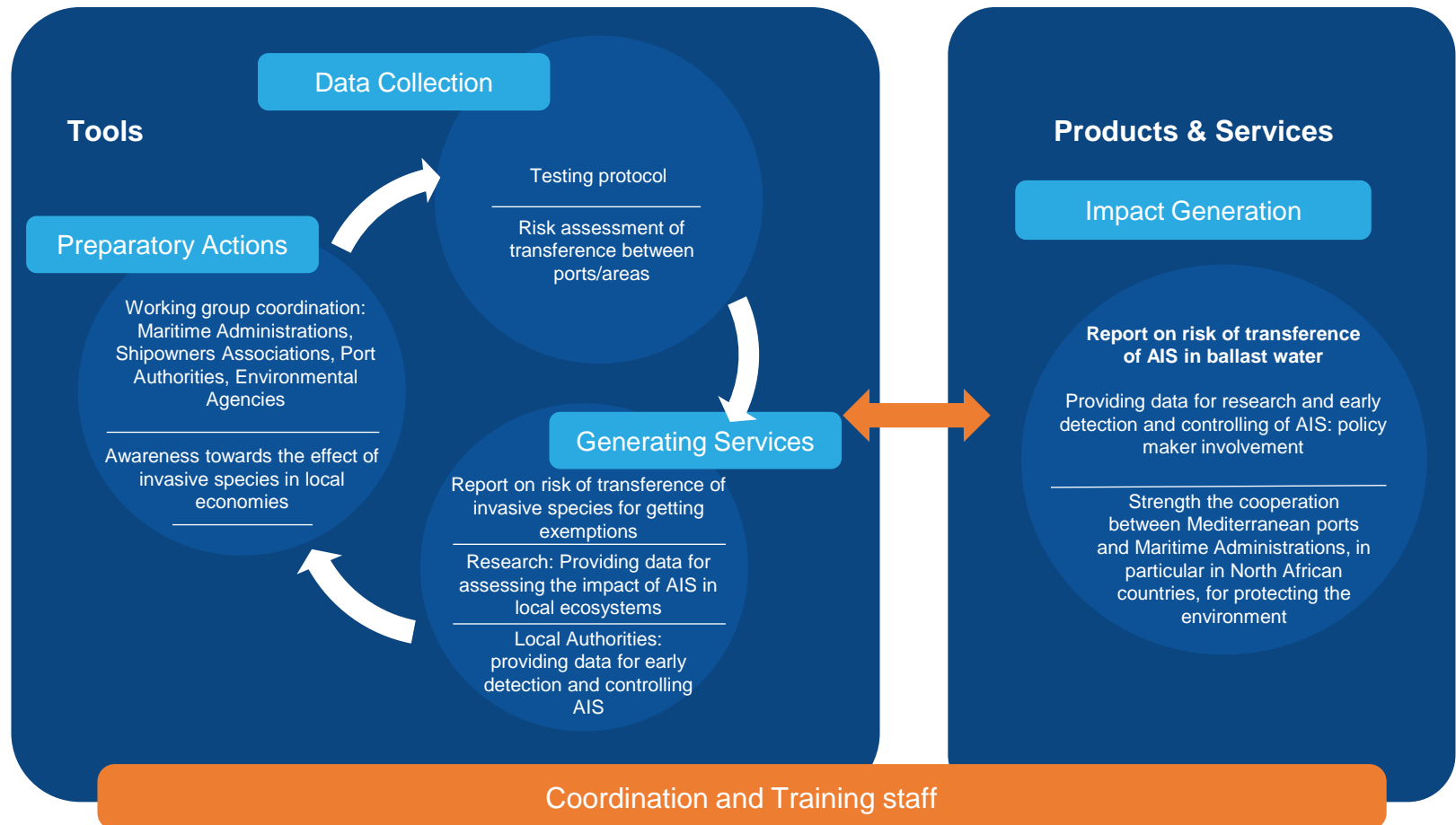
The Aim

The aim is to **provide a tool** for monitoring and conducting an harmonised implementation of the Ballast Water Convention in the Mediterranean basin. The **data collected** will provide relevant information to researchers and public authorities for **assessing and controlling the impact of alien invasive species (AIS)** in local ecosystems.

Activities include:

- ⦿ Coordination between stakeholders and interested parties for **developing common procedures** in the Med: Reach a common agreement at least between main ports in the Mediterranean sea (Algeciras, TangerMed and Valencia in a first stage. Piraeus in a second stage)
- ⦿ Data collection procedure (administrative and technical): Sampling instruments and methods.
- ⦿ Data analysis and storage. Risk of transference of invasive species through the ballast water .
- ⦿ Training staff

Odyssea support to the implementation of BWC

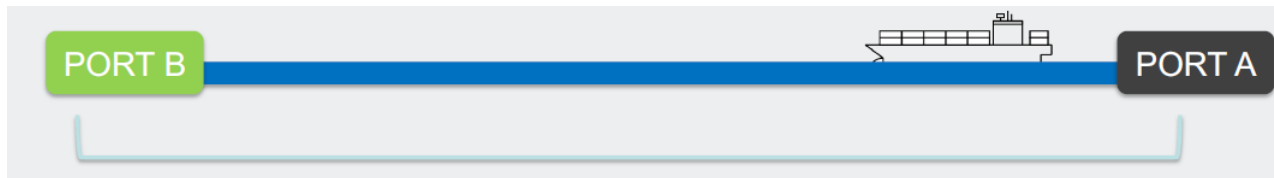


Exemptions



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Vessels sailing in the same route, covering short distance and sharing same biogeographic region



Shipowners can request an exemption for installing a ballast water treatment system if the risk of transference of AIS is acceptable;

- Specified ports or locations
- Consultation with other States that may be affected
- No mixing with water from other locations
- Risk assessment to ensure same level of protection

Exemptions



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Advantages

1. No BWM required (exchange, BWMS installation, etc.)
2. No maintenance and operation expenses
3. No training of crew
4. No risks of violation
5. No administrative burden



Exemptions



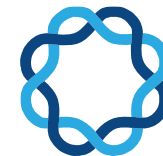
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Port authority responsibilities

1. Conduct or require the risk assessment
2. Provide acceptable procedures and guidelines
3. Evaluate risk assessment
4. Collect evidence of compliance



Working Group Role



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WP4

1. Definition of testing protocols
2. Monitoring port waters at the Port of Valencia
3. Definition of risk assessment algorithm
4. Implementation on the platform.

It is expected that IWG members closely collaborate providing knowledge and expertise in the development of a common approach towards the definition of protocols for giving **exceptions** and assessing potential **same risk areas**. Namely, IWG members will contribute to:

- 1 Definition of **testing protocols** for the Mediterranean basin aimed to compare different ports in terms of AIS
 - Data to be collected (suggestion: Keep at the minimum for facilitating the successful implementation.
 - Standard procedures for testing and data collecting
- 2 **Monitoring port waters at least** at the Port of Valencia
- 3 **Risk assessment algorithm complying with resolution MEPC.162(56) :**
 - HELCOM/OSPAR
 - GLOBALLAST

NOTE: Others are out of the scope of Odyssea Project

Baseline Survey

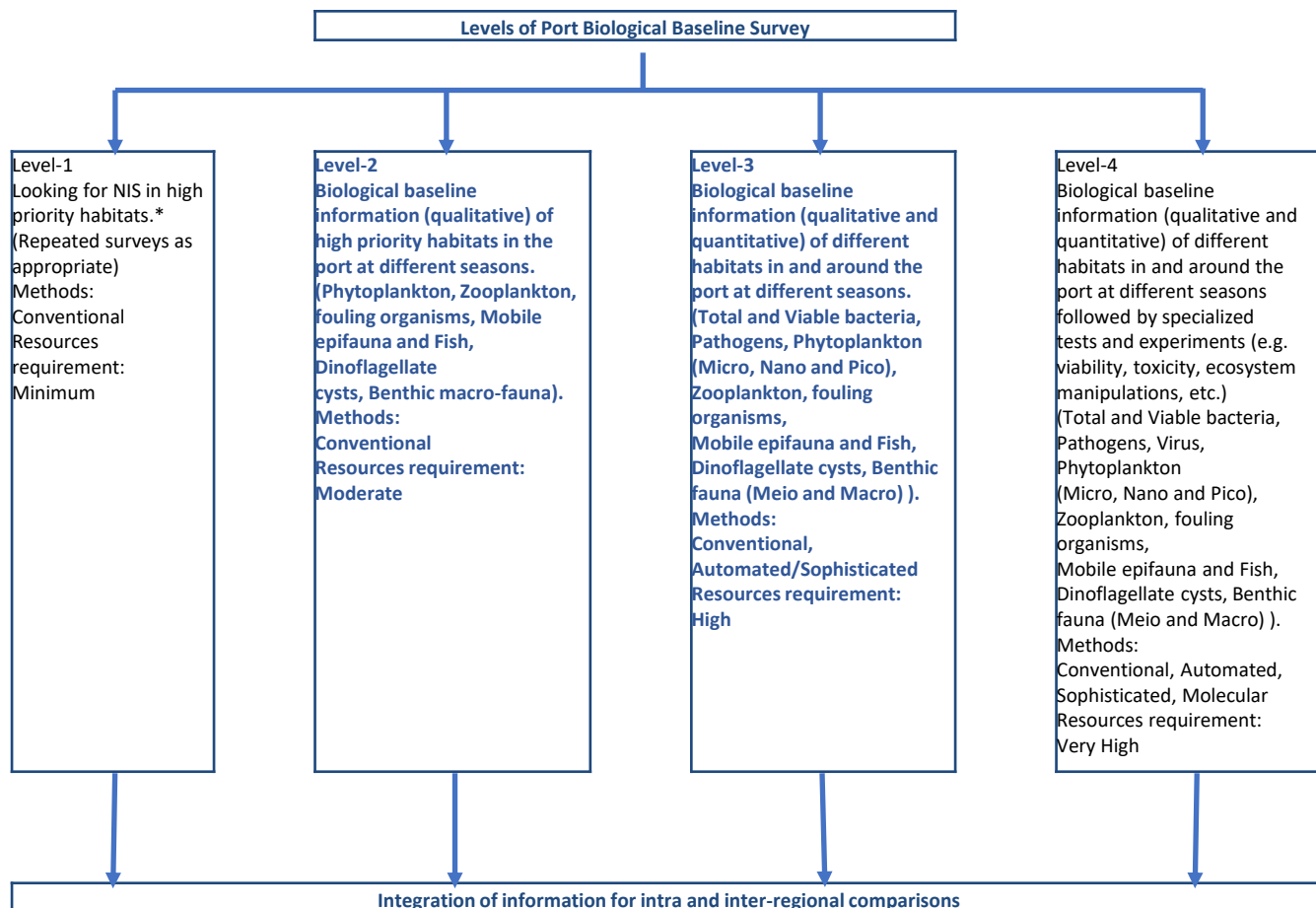


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WP2/9

1. Analysis of data available and requested
2. Cooperation and coordination between ports, environmental agencies and maritime administrations



Testing and sampling



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WP2/9

1. Analysis of data available and requested
2. Cooperation and coordination between ports, environmental agencies and maritime administrations

ODYSSEA scope includes (at least) sampling of 3 sampling points located inside the port of Valencia and breakwaters

Analysis of organisms in the water column:

1

- Pathogenic bacteria: *Vibrio cholerae*, intestinal enterococci and *E.coli*.
- Phytoplankton.
- Zooplankton.

Analysis of benthic organisms (from the bottom):

2

- Infauna (soft substrate organisms).
- Epifauna (organisms that live on the bottom).
- Fouling organisms.

Sampling frequency:

3

- Quarterly for water.
- Annual for benthic organisms.

Sampling locations



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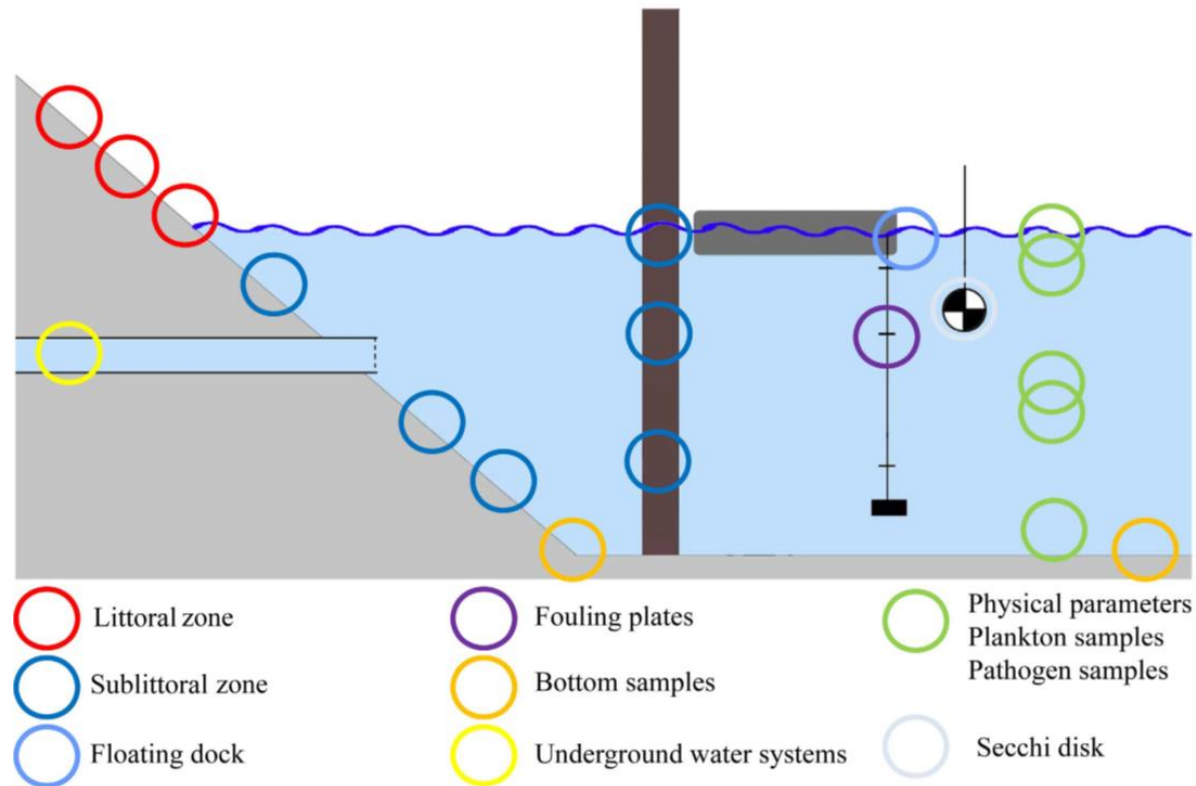


Habitat Search for Species



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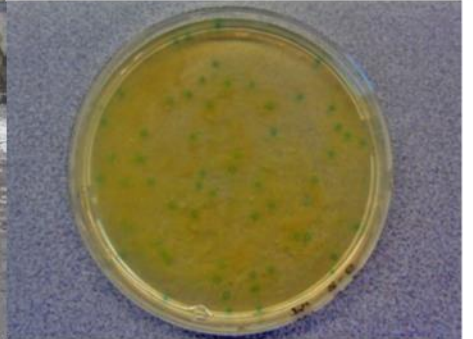
HELCOM/OSPAR PROTOCOL



Survey methods



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Information on ports and species: species risk levels(1/3)

	Low risk species=1	Medium risk species=2	High risk species=3
1.Dispersion potential or invasiveness	The species doesn't spread in the environment because of poor dispersal capacities and low reproduction potential	Except when assisted by man, the species doesn't colonise remote places. Natural dispersal rarely exceeds more than 1km per year. The species can however become locally invasive because of a strong reproduction potential.	The species is highly fecund, can easily disperse through active or passive means over distances > 1km/year and initiate new populations.
2. Colonisation of high conservation value habitats	Populations of the non-native species are restricted to habitats of no conservation value (e.g. harbor constructions as quay walls or bank and shoreline stabilisation or pipes for cooling systems)	Populations of the non-native species are usually confined to habitats with a low or a medium conservation value and may occasionally colonise high conservation value habitats	Non-native species often colonise high conservation value habitats, these are all biotopes where endangered species can be found. Most of the sites of a given habitat are likely to be readily colonized by the NIS when source population are present in the vicinity and makes therefore a potential threat for red-listed species.

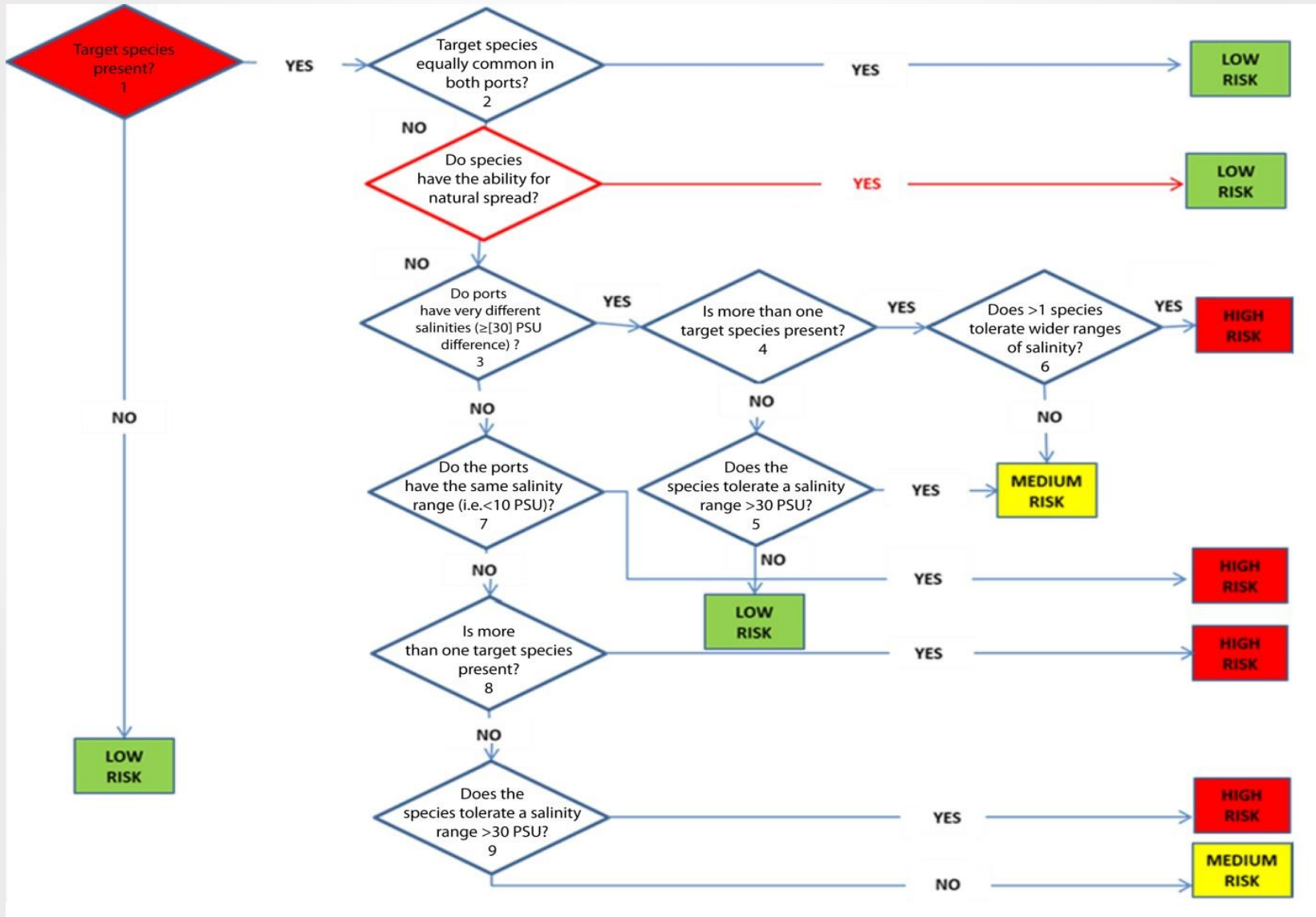
Information on ports and species: species risk levels (2/3)

<p>3. Adverse impacts on native species</p>	<p>Data from invasion history suggest that the negative impact on native population is negligible</p>	<p>The non-native species is known to cause local changes (<80%) in population abundance, growth or distribution of one or several native species, especially among common and ruderal species. This effect is usually considered as reversible.</p>	<p>The development of the non-native species often cause local severe (>80%) population declines and the reduction of local species richness. At a regional scale, it can be considered as a factor precipitating (rare) species decline. Those non-native species form long-standing populations and their impacts on native biodiversity are considered as hardly reversible.</p>
<p>4. Alteration of ecosystem functions</p>	<p>The impact on ecosystem processes and structures is considered as negligible.</p>	<p>The impact on ecosystem processes and structures is moderate and considered as easily reversible. Temporary modification of water and sediment properties (e.g. algae which can be removed such as <i>Lemna</i>) or decrease of the rate of colonisation of open habitats by species which build barriers.</p>	<p>The impact on ecosystem processes and structures is strong and difficult to reverse e.g. food web disruption (<i>Crassostrea gigas</i>) or habitat destruction (<i>Eriocheir sinensis</i>).</p>

Information on ports and species: species risk levels(3/3)

5.Effects on human health	Data from invasion history suggest that the species has weak toxic effects and no treatment is necessary	Data from invasion history suggest that the species has moderate symptoms, easily treated, no permanent damage	Data from invasion history suggest that the species has negative impact on human health, permanent damage or death
6.Effects on natural resources (e.g. fisheries)	Data from invasion history suggest that negative impact on natural resources is negligible	Data from invasion history suggest that the species has only slight negative impact on natural resources and is restricted only on single locations	Data from invasion history suggest that the species causes serious loss on aquaculture or fisheries harvest
7.Effects on property (e.g. cooling systems)	Data from invasion history suggest that the negative impact on property negligible	Data from invasion history suggest that the species has only slight negative impact on property and this is restricted only on single locations	Data from invasion history suggest that the species has high negative impact on property at many locations
8.Dispersed by ballast water or sediments	Invasion without BW, but target species now found in the harbour with the chance to dispersed further by BW	Dispersal via BW and other possibilities (stocking, ...)	Dispersal mainly by BW or are already found in BW or Sediments

Algorithm for assessing the risk of transference



Biodiversity protection



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Environmental Compliance is an act of conforming to:

- environmental Laws, regulations and standards,
- requirements such as permits and certificates to operate
- manage monitoring programs or schedules, by using correct locations, correct parameters, and correct frequency
- use correct procedure to process data, perform calculations and validate the data for reporting purposes
- generate routine compliance reports for authorities
- use correct Environmental Data Management Systems' to facilitate compliance activities



Biodiversity protection



ODYSSEA



1. End-users and Policy-makers involvement
2. EU Added Value

International cooperation (that is foreseen in Odyssea) can guarantee adequate and safe control of marine water movements. This can only be achieved by conducting risk assessments within the MED basin. Odyssea will provide valuable data and results for monitoring and implementing the EU maritime strategy.

- 3 **The Convention on Biological Diversity (CBD)**; Article 8(h) requires Parties: “As far as possible and as appropriate, (to) **prevent the introduction of, control** or eradicate those alien species which threaten ecosystems, habitats or species.”
- 4 **United Nation’s Convention on the Law of the Sea (UNCLOS)**; Article 196 provides that “States shall take all measures necessary **to prevent, reduce and control** . . . the intentional or accidental introduction of species, alien or new, to a particular part of the marine environment, which may cause significant and harmful changes thereto.”
- 5 **International Convention for the Control and Management of Ships’ Ballast Water and Sediments (BWM Convention)** Article 6 provides that “Scientific and Technical Research and Monitoring calls for Parties individually or jointly **to promote and facilitate scientific and technical research on ballast water management; and monitor the effects of ballast water management in waters under their jurisdiction..**”

Early detection

Notification to
environmental
agencies

Monitoring and
controlling the
AIS spreading

Biodiversity protection



ODYSSEA



WP9

1. End-users and Policy-makers involvement
2. EU Added Value

International cooperation (that is foreseen in Odyssea) can guarantee adequate and safe control of marine water movements. This can only be achieved by conducting risk assessments within the MED basin. Odyssea will provide valuable data and results for monitoring and implementing the EU maritime strategy.

Strategic Action Programme for the Conservation of Biological Diversity (SAP BIO) in the Mediterranean Region

Article 2,3,4 provides that “Considering the lack of data and knowledge necessary for risk assessment and the implementation of preventive and control actions, priority at national level should be given to:

6

- Encouraging all necessary actions (e.g. research work, data collection, monitoring, etc.) aimed at improving the available knowledge
- Coordinating the actions that are necessary for the regular provision of supplementary information for the national and Mediterranean-wide reference lists of non-indigenous species
- Supporting the sharing of information and concerted action at regional level
- Encouraging the implementation of scientifically-backed regionally-harmonized measures of prevention and control..”



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THANK-YOU

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