

Invasive Aquatic Species and International Ballast Water Management

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Discussion Overview

- Globalization and Oceanic Shipping
- Define Water Ballast
- Define IAS (Invasive Aquatic Species)
 - The Process
- Global Implications
 - Environmental Case Studies
- Argument Justification
 - IAS Management Model
- A Proposition for US Leadership

Globalization and Oceanic Shipping

- Globalization
 - Interconnectedness
 - Growth and Sacrifice
- Shipping accounts for 98% of world trade
- Removing naturally-occurring barriers
- Decline of US-owned & controlled vessels registered in US
 - Different Jurisdictions = Increased IAS Outbreaks



Defining Water Ballast

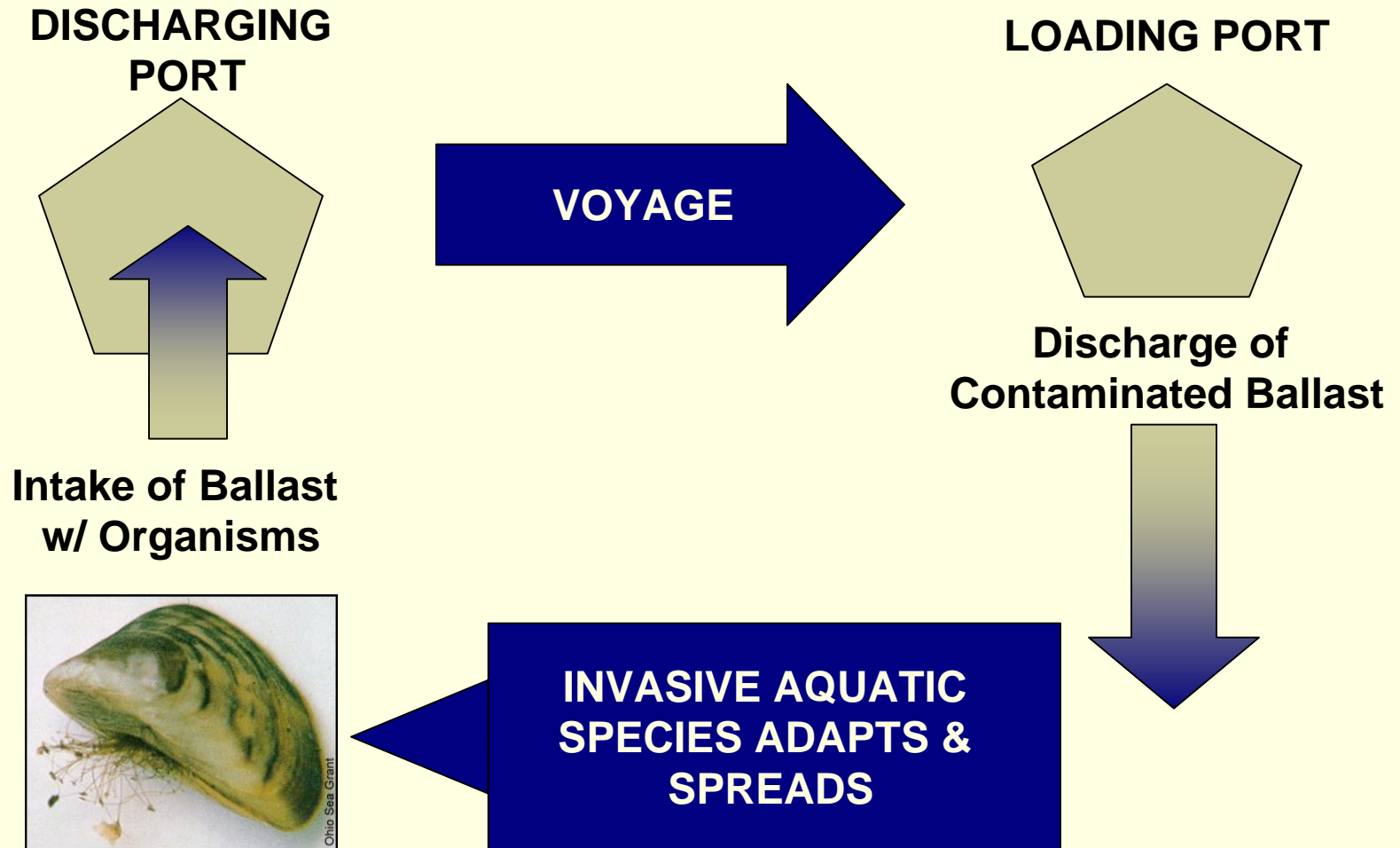
- Ballast
 - The water a ship intakes / releases to maintain its stability, balance, and structural strength
- 10 billion tons of ballast water is released annually
 - Tankers & Bulk Carriers (74%)
- 3,000 + species in ballast water



Defining Invasive Aquatic Species (IAS)

- “The planktonic life stages of larger plants and animals that become an Invasive Aquatic Species when it enters a foreign environment and alters, affects, or depletes the native indigenous populations.”

The Ballasting Cycle – A Visual Representation of IAS



Global Implications I – Environmental Case Studies

- Introductions of IAS have increased due to:
 - Increase in World Trade
 - Larger Ships
 - Faster Ships
- International Cases
 - Zebra Mussel (Great Lakes, US)
 - Comb Jellyfish (The Black Sea)
 - Toxic Dinoflagellates (Australia)

Global Implications II – Establishing an International Standard

- Indecisive Opinions
 - Mid-Ocean Ballast Exchange
 - IMO says 95% Volumetric Exchange
 - Required for vessels entering waters outside a nation's EEZ (200 miles)
- Lack of Conformity & Enforcement
 - IMO of the UN
 - 2004 – *International Convention for the Control and Management of Ships Ballast Water & Sediments*
 - Mandatory BW Guidelines (No Enforcement)
 - First International Law
 - Represents 35% of World Merchant Shipping Tonnage
 - US refuses to ratify the Convention

Argument Justification – IAS Management Model

- What IAS Management Should Be
 - Successful IAS Management =
 f (Will + Conformity + Regulation + Capacity)
- Developed vs. Developing Countries
 - Cost
- International Cooperation
 - Without it, all efforts that are made will be nullified

A Proposition for US Leadership

- Why the US?
 - To Help
 - To Enable
 - To Strengthen
- Two Options
 - Ratify IMO Convention
 - Influence
 - Establish an Independent IAS Organization
 - Develop and Oversee

For Reference

- The recommendations made within this presentation are not limited to the US, but to other nations and international leaders as well.

Thank You

- International Association of Maritime Universities (IAMU)
- AGA7 Local Executive Committee
- Dalian Maritime University
- The California Maritime Academy and President Bill Eisenhardt
- Dr. Donna Nincic
- Questions/Comments:
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