

## Partner Search Form

### 1. Project Proposal Information

<b>Project Proposal Title</b>	BALLAST WATER EXCHANGE USING FRESH WATER PRODUCTION BASED ON WASTE ENERGY
<b>Project Proposal Acronym</b>	
<b>Keywords</b>	ballast water, fresh water, brine, ship, waste energy, evaporation
<b>Abstract (Max. 2000 words)</b>	<p>It has been known for decades that discharged ballast water transferred from distance ports could be a significant vector to introduce non-indigenous invasive organisms. Recognizing this problem, the International Maritime Organization (IMO) in November 2004 introduced the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention) to reduce the consequences. According to the convention, after a defined period, depending on construction date and ballast capacity, ships shall meet the Ballast Water Performance Standard (Regulation D-2) which stipulates that discharged ballast water shall contain fewer organisms than defined. In the meantime Ballast Water Exchange (BWE) remains a valuable interim option and improvements to ships' designs may increase the efficiency of BWE. The operating cost of BWE is approximately US \$0.01-0.02 per ton of ballast water, but higher costs result when a ship requires additional piping for safe or effective exchange</p> <p>All recommended ballast water treatments are consuming a lot of energy. This has the consequential environmental impact of additional greenhouse gas pollution as well as an economic impact due to the increase of daily consumption of diesel or fuel oil. At the same time a lot of heat from exhaust gases is released inefficiently into the atmosphere. These deleterious effects can be reduced during the voyage by producing fresh water in the evaporators. The existing capacity on ships can produce daily only a limited quantity of fresh (drinkable) water for her needs. But if additional evaporators are supplied on board to produce industrial (non-drinkable) water, the production rate could be increased several times. As there are many ballast income ports located in the places where fresh water resources are limited, the ship may sell produced fresh water to the terminal. Preliminary research of fresh water prices in ports world wide shows that the average price is 3 € per metric ton. If ships sell fresh water produced during the voyage for a single 1€ on average,</p>

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	<p>the yearly income could be significant. Fresh water production would also eliminate some other problems such as the negative effects of BWT using chemical additives and preventing accumulation of sediments in ballast tanks. Detailed studies will be necessary to research the following: existing structure and possible changes of ship tanks in correlation with free surface moments which have great impact on stability, the usage of brine as a ballast water substitute, the optimum of efficient sizes of evaporators due to reduced space in the engine room, the environmental contribution due to reduction of greenhouse and other pollutant gases while not wasting energy using BWT systems and economic impact in general. Also potential heat energy should be examined in detail. The project will research an idea as to how to establish the necessary equipment on board and the advantages and disadvantages of such equipment.</p>
<b>Project Description (Main Work Packages)</b>	<p>WP 1 - PROJECT MANAGEMENT          WP 2- ANALYSIS OF POTENTIAL WASTE ENERGY          WP 3 - EVAPORATION PROCESS OPTIMISATION          WP 4 - VAACUM EFFECT ON LIVING ORGANISMS          WP 5 - BRINE ENVIRONMENT          WP 6 - SHIP CONSTRUCTION IMPACT          WP 7 - GREEN HOUSE GASES REDUCTION          WP 8 - ECONOMICAL IMPACTS          WP 9 - DEVELOPMENT OF BALLAST WATER EXCHANGE STANDARDS FOR SHIPS USING SUCH TECHNIQUE          WP 10 - DISSEMINATION</p>
<b>Current Consortium (Partners, Organisation Types)</b>	open
<b>Deadline for Responses</b>	not defined yet

## 2. Profile of the Partners Sought

<b>Organisation Type</b>	any
<b>Required Skills and Expertise</b>	As per WP needs

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<b>Role in the project</b>	As per WP needs
<b>Other Requirements</b>	

### 3. Project Proposer Information

<b>Name of the Organisation</b>	UNIVERSITY OF LJUBLJANA FACULTY OF MARITIME STUDIES AND TRANSPORT
<b>Organisation Type</b>	UNIVERSITY
<b>Country</b>	SLOVENIA
<b>Fields of Activity</b>	MARITIME TRANSPORT
<b>Contact Person</b>	Capt. VALTER SUBAN
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<b>Previous FP Projects Participated</b>	

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