

**NATIONAL SHIP DESIGN AND
RESEARCH CENTRE
Visakhapatnam, India**

NSDRC'S ROLE IN THE PROJECT

- Inventory of Alternate Antifoulings
- To analyse Costs and Benefits of Using and Not Using TBT based compounds
- Develop Waste Disposal Strategy for TBT Through Detoxifying Organisms
- To Raise Awareness in Policy makers, Industry and General Public

INVENTORY OF ALTERNATE ANTIFOULINGS

- An Inventory of TBT free Antifoulings that are approved/recommended by Classification Societies will be made
- Data will be collected for the following parameters
 - Biocides
 - Other Components and VOC's
 - Type of paint(i.e. SPC, CDP, Hybrid, Foul Release etc)
 - Areas of Applicability
 - DFT required for 3/5 years performance

THE FOULING PROBLEM

- Fuel Consumption of a ship can increase by as much as 50% for a severely fouled vessel
- Fuel accounts for approximately 50% of the operating cost of a vessel
- Profitability of the ship is therefore drastically reduced due to fouling
- Fouling causes an increase in greenhouse gasses and the transmigration of alien species

ADVANTAGES OF TBT BASED AF PAINTS

- Satisfactory performance of at least 5 years
- Applicable for all Trading Routes, Weather Conditions, Ships Speed etc.
- Very predictable behaviour of paint
- Predictable schedules for ships
- Conveniently fits into “Class Survey” cycle
- Requirement of smaller engines operating at maximum efficiency
- Rarely require booster biocides
- Very Cost effective

COST BENEFIT ANALYSIS OF USING AND NOT USING TBT PAINTS

- Collection of Data from the Shipping Industry for the following Parameters (costs)
 - Paints
 - Paint application
 - Frequency of painting
 - Dry-dock costs
 - Increase in fuel consumption
 - Loss of revenue due to unscheduled dry-docking

COST BENEFIT ANALYSIS OF USING AND NOT USING TBT PAINTS – Contd.

- Collection of Data from the Paint Industry will include
 - Cost of paints
 - Material data safety sheets
 - Methods and costs of paint application
 - Test results on the performance of paints
(Panel/Patch/Full)
 - Performance of the paints under various conditions such as temperature, trading routes, speed of ship etc.

SHIPPING COMPANIES AND OTHER SHIP USERS SHORTLISTED FOR DATA COLLECTION

- The Shipping Corporation of India (SCI)
- Great Eastern Shipping Company (GESCO)
- Tolani Shipping
- Emriates Trading Associates (ETA)
- Varun Shipping
- Dredging Corporation of India
- Visakhapatnam Port Trust
- Ministry of Shipping, Andaman and Nicobar Administration

PAINT MANUFACTURERS SHORTLISTED FOR DATA COLLECTION

- Akzo Nobel (International Paints)
- Sigma Coatings
- Hempel Marine Paints
- Jotun Paints
- NOF-Kansai Marine Coatings
- Chugoku Marine Paints
- Kumgang Korea
- Ameron

WASTE DISPOSAL STRATEGY FOR TBT

- Collaboration with NIOT
- Provision of sewage Treatment Plant on Land/ship
- Optimize Critical Parameters for Operation using microorganisms
- Develop Waste Disposal Strategy for TBT

DISSEMINATION OF INFORMATION

- Organisation of Workshops (Two)
- Liason between Researchers, Shipping Industry and Paint Manufacturers
- Participation in Seminars/workshops
- Publishing in Journals/newsletters of
 - Trade associations
 - Classification Societies

THANK YOU