Multi-year Expert Meeting on Transport, Trade Logistics and Trade Facilitation
Sustainable Freight Transport Systems: Opportunities for Developing Countries

14-16 October 2015

INTRODUCING MSC TO UNCTAD

by

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CSO Environmental and Social Business Affairs
Mediterranean Shipping Company (MSC)

15 October 2015

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The vision of the Aponte family brought MSC exponential growth in terms of both volume and fleet capacity which now serve customers all over the world.

Over the past 45 years, Mr Aponte has led MSC from a one vessel operation to become a world leader in global container shipping.

Today, our focus remains on establishing long-term partnerships with customers ensuring our joint success.
MV PATRICIA WAS WHERE IT ALL BEGAN FOR MSC

The origins of the Aponte’s family are in the peninsula of Sorrento, south of Naples, a region with a very long maritime tradition going back to ancient times.

MSC was created in Brussels, in 1970 with a single general cargo vessel, the Patricia.
MSC OSCAR, THE WORLD’S LARGEST CONTAINER SHIP

In January 2015, MSC introduced its flagship container vessel, the largest ever built.

- 395.4 m long
- 59 m wide
- Record-setting capacity of 19,924 TEU
- Approx. 2,76 g/t.km
MSC at a glance

Over 2.5 Million TEU

Over 450 Offices

Over 150 Countries

Over 24,000 Staff

Over 465 Vessels

Over 200 Routes

Over 315 Ports of Call

© Copyright MSC Mediterranean Shipping Company S.A.
Our shipping expertise has been built over the past 30 years by carrying people and goods all over the world.

In a global economy, our mission is to offer reliable and sustainable transport solutions by sea, road and rail to customers in all industries.

We will achieve this, as a family-owned business, by building long-term relationships founded on knowledge, professionalism and care.
Our Vision

We aim to become the most sustainable, technologically-advanced and customer-focused shipping line in the industry.

We will continue to enrich people’s daily lives by facilitating global trade with integrity, responsibility and respect for the environment.

Our global team will deliver market-leading customer service by being experts in their field, motivated and proud of what they do.
WHY MSC?
WE’RE ALL ABOUT PEOPLE & RELATIONSHIPS

We pride ourselves on offering global transport solutions in a way that is right for you and your business. We’re passionate about what we do, which means you can expect the very best customer service.

GRACE CHIA
MSC Asia
WE MIGHT BE GLOBAL, BUT OUR SERVICE IS DELIVERED BY LOCAL PEOPLE

We know that each country has its own challenges and its own way of doing business.

Over the past 45 years, MSC has built our global network based on a local, personal approach.
“OUR CUSTOMERS CAN RELY ON EXPERT ADVICE AND SUPPORT THAT IS RIGHT FOR THEM AND THEIR BUSINESS.”

DONNA CHIDLOW
MSC Export National Sales Manager
United Kingdom
CORPORATE SOCIAL RESPONSIBILITY
“We recognise the world's oceans are precious and must be protected from pollution. That is why MSC is committed to the development of positive ethical and environmental change within our company.”

DIEGO APONTE
President & CEO
MSC Mediterranean Shipping Company S.A
MSC will improve its environmental performance through:

- Research & Development
- Maximum vessel utilisation
- Vessel retrofitting
- Slow steaming
- Network optimisation
- Low sulphur fuel (ECA compliant)
- Ship recycling (IHM compliant)
MSC Code of Business Conduct defines clear standards of ethical and responsible behaviour. These apply to each of our 24,000 employees and our suppliers.

The full policy can be found on [MSC.com](http://MSC.com)
MSC works with foundations and charities of all sizes in nations around the world.

We are equally proud of our major global initiatives (such as our support of UNICEF) and the many local programmes undertaken by our personnel locally.
Memberships and Associations

- WPCI: www.wpci-esi.org
- Clean Shipping Index: www.cleanshippingindex.com
- CINS: www.cinsnet.org
- BSR: www.bsr.org
- EcoVadis: www.ecovadis.com
- CDP: www.cdp.net
- EcoTransIT: www.ecotransit.org
OUR SERVICES

Global Services
Enhanced East-West Network
Dry Cargo
Oversized & Breakbulk Cargo
Intermodal
Cross Trading
Warehousing & Storage Solutions
MSC brings its customers outstanding global coverage, connecting all of the world’s trade centres.
Efficient
- Enhanced Transit Times
- More Direct Port Pairs
- Larger Scope of Ports

Reliable
- More Weekly Departures
- Improved Schedule Integrity

Sustainable
- Fewer Vessels
- Slower Steaming
- Over 10% less CO²
SOME FACTS & FIGURES
MSC Intake Capacity - Growth 2015

Vessels' capacity
Expon. (Vessels' capacity)
MSC SD approach

• 1. Partnerships with other Carriers, UNCTAD, UNITAR, UNDP, ITC,...

• 2. Use of exact sciences and methodologies

• 3. Own Maritime Technology Research and Design

• 4. Increased Training Programs (hi-tech systems)

• 5. Integrated Energy Management
The ocean currently absorbs one fourth of anthropogenic CO2 emissions, reducing the increase in atmospheric CO2 that would otherwise occur because of fossil fuel combustion.

While atmospheric CO2 determination is relatively easily, the complexity of the ocean physics and biogeochemistry, the high CO2 variability in the different ocean basins and the high cost of its observation, makes the commercial ships community the most efficient source of ocean carbon data providers when they are fixed with autonomous CO2 sensors.

The Voluntary Observing Ship network (Carbon—VOS) is essential for providing the global observation system for the ocean CO2 sink. They form the backbone of the global ocean observation system.
• As it is indicated in the Atlantos proposal, the VOS line crossing the East Atlantic from North Europe to South Africa is essential for our knowledge about the role played by the oceans and how they are being reacting against the increase in the atmospheric CO₂ concentration.

• The Mediterranean Shipping Company is, therefore, one of the most important contributors for the continuous monitoring of the surface ocean carbon dioxide concentration, being the only company crossing the East Atlantic in a constant route.

• Below tracking emissions research by MSC Martine, MSC Gina and MSC Benedetta.
Energy Efficiency Retrofit - Joint Projects

Eco-Bow

Propeller

For a total of 448,000 TEU and 8,615,000 tdw
## Overview  Eco-Bow & Propeller Projects

<table>
<thead>
<tr>
<th></th>
<th>Bulbous Bow</th>
<th>Propeller</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Study</td>
<td>Modification</td>
<td>Study</td>
</tr>
<tr>
<td>4.300</td>
<td>4,0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.800</td>
<td>4,2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.000</td>
<td>3,9%</td>
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<tr>
<td>5.600</td>
<td>3,1%</td>
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<tr>
<td>5.900</td>
<td>2,2%</td>
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<td>8.300</td>
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<td>to be verified</td>
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<tr>
<td>8.400</td>
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<td>done</td>
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</tr>
<tr>
<td>8.600</td>
<td>14,0%</td>
<td>done</td>
<td></td>
</tr>
<tr>
<td>9.200</td>
<td>9,2%</td>
<td>done</td>
<td>7,3%</td>
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<tr>
<td>9.700</td>
<td>8,8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.100</td>
<td>5,2%</td>
<td></td>
<td>to be verified</td>
</tr>
<tr>
<td>14.000</td>
<td>4,2%</td>
<td>done</td>
<td>10,60%</td>
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**Motivation:** Improving the ships performance in terms of fuel consumption at off-design points while sailing in slow steam conditions.

For 8,300 TEU container vessels a bulb shape optimization was carried out.

Offen Ship, MSC and DNV-GL Study is based on parametric modeling and fluid dynamic analysis (CFD) identifying the optimum bulbous bow shape for the re-defined operational profile.
Eco-Bow Project – baseline hull geometry

Baseline particulars:

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<tbody>
<tr>
<td>LOA</td>
<td>324.8 m</td>
</tr>
<tr>
<td>LPP</td>
<td>309.2 m</td>
</tr>
<tr>
<td>BOA</td>
<td>42.8 m</td>
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<tr>
<td>Draft</td>
<td>13.0 m</td>
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</table>
Eco-Bow Project with focus on a 8,300 TEU – Process Overview

**Phase 1**

General data and geometry of the vessel
- Hull lines digitalisation and build-up of a virtual hull model
- Bulbous bow region with cutout

**Phase 2**

ECO-Retrofit-Bow bulb shape optimization
- Full bulbous bow optimization incl. evaluation of hydrostatic & hydrodynamic properties
- Indication of fuel saving potential by CFD calculations
# Eco-Bow Project – operational profile & expected savings

## Operational Profile

<table>
<thead>
<tr>
<th>Draft / Speed</th>
<th>A (23 kn)</th>
<th>B (22 kn)</th>
<th>C (19 kn)</th>
<th>D (16 kn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (14.5 m)</td>
<td>AA (0%)</td>
<td>BB (3.5%)</td>
<td>BC (14.0%)</td>
<td>BD (17.5%)</td>
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<tr>
<td>B (13.0 m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C (11.5 m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D (10.0 m)</td>
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## Expected Savings

<table>
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<th>Draft / Speed</th>
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<th>B (22 kn)</th>
<th>C (19 kn)</th>
<th>D (16 kn)</th>
</tr>
</thead>
<tbody>
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<td>A (14.5 m)</td>
<td>AA (-6.5%)</td>
<td>BB (-1.9%)</td>
<td>BC (4.8%)</td>
<td>BD (11.3%)</td>
</tr>
<tr>
<td>B (13.0 m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C (11.5 m)</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>D (10.0 m)</td>
<td></td>
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</table>
Propeller Project

DNV-GL and MMG were offering the following analysis necessary for power requirement determination:

- Nominal wake fields for different drafts and speeds
- Total resistance prediction

Propeller Project – Nominal Wake Plots
Propeller Project – Total Resistance Prediction
Do you want more?

Hull Resistance Special Paintings

Computer Fluid Dynamics Technology

Integrated Energy Management

Weather Routeing Technologies

Trim Optimalisation
Dear Mr. Chairman,

Dear Excellencies,

Dear Ladies and Gentlemen,

Thank you for your attention.
for the real world