

# Panamax Bulker TCO Report

An assessment of the benefits,  
cost and savings of a hull  
coating upgrade.



## Content of this report

1. Methodology and executive summary
2. Economical potential
3. Regulatory compliance







“ We guide the maritime industry as a trusted advisor, enabling customers to achieve sustainability and operational excellence through responsible hull performance management ”

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EVP Hempel Marine

Methodology and executive summary

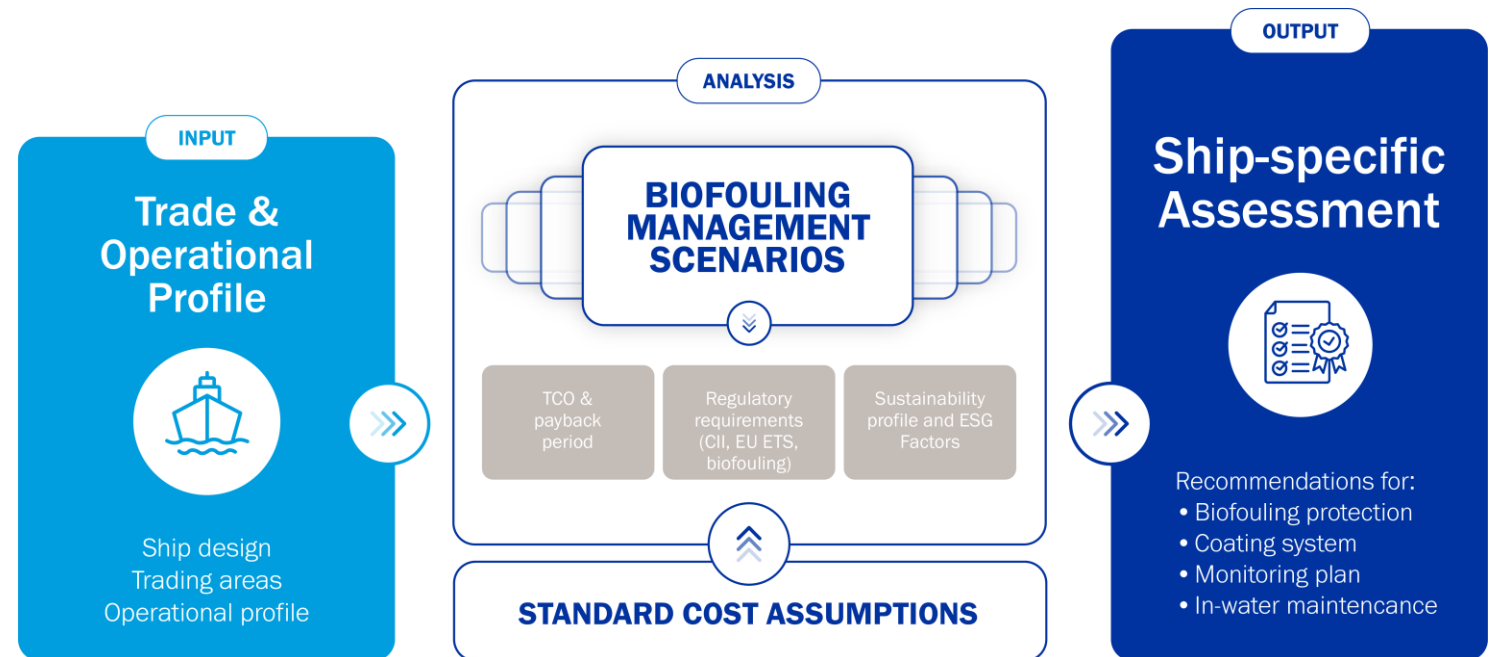
# Impact of a hull coating upgrade





# Ship Specific Assessment

A fact-based approach for selecting the optimal solution for your vessel



# Comparison of three scenarios

Hull performance scenarios are based on 3 coating solutions  
(Premium Silicone, Silicone, SPCs)

Hempaguard Ultima/ Globic 9500 Top Performance System		
BootTop	Globic 9500	Full blast
Vertical	Hempaguard Ultima	Full blast
Flat Bottom	Hempaguard Ultima	Full blast

Hempaguard X7/ Globic 9500 Upgrade System		
BootTop	Globic 9500	Full blast
Vertical	Hempaguard X7	Full blast
Flat Bottom	Hempaguard X7	Full blast

Globic 8000 Baseline System		
BootTop	Globic 8000	Spot blast
Vertical	Globic 8000	Spot blast
Flat Bottom	Globic 8000	Spot blast

# Executive summary

Economical benefits and regulatory compliance with premium silicone hull coating

## Economic Feasibility Study

Upfront Cost \$  
(\$371K)



Fuel Savings %  
14%



Fuel Savings \$  
\$3M



Expected Payback Period  
12



## Regulatory Compliance

CO2 Reduction (tn)  
14K



EU Carbon Cost Savings  
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Speed Increase %  
1.52%



### CIJ Projection

2025  
C

2026  
C

2027  
C

Economical potential

# Impact of a hull coating upgrade





# Impact of a hull coating upgrade

## Expected efficiency improvements

### Added Power % per year



### Assumptions

Out of dock savings are based on the absolute power gain from the smoothness of silicone compared to self-polishing antifouling.

Savings over time is based on speed loss difference of silicone compared to self-polishing antifouling translated to power saving.

3:1 relationship between power increase and speed loss is assumed.

### Paint System Description

Paint System Description	Out of Dock Power Gain %	Surface Preparation %	Speed Loss %	Out of dock & Surface Preparation Diff%	Overtime Power Savings %	Total Fuel Savings %
Full • Globic 9500 • Hempaguard Ultima	4.55	0.00	1.20	7.05	6.90	13.95
Full • Globic 9500 • Hempaguard X7	4.55	0.00	1.40	7.05	6.30	13.35
Spot • Globic 8000	0.00	-2.50	3.50	0.00	0.00	0.00



**Expected  
paypack period**

**12**

**Months**



# Impact of a hull coating upgrade

TCO and expected payback period

	Elements of Cost	Full Globic 9500, Hempaguard Ultima	Full Globic 9500, Hempaguard X7	Spot Globic 8000	Top Upgrade VS Baseline System
Paint	Paint purchasing cost	\$420,000	\$380,000	\$200,000	\$220,000
Repair Yard	Surface preparation cost	\$116,000	\$116,000	\$46,000	\$70,000
	Washing cost	\$7,000	\$7,000	\$7,000	\$0
	Paint application	\$83,000	\$83,000	\$36,000	\$47,000
	Shipyard Rent	\$40,000	\$40,000	\$30,000	\$10,000
	Off Hire cost	\$96,000	\$96,000	\$72,000	\$24,000
Cleanings	Diver cost	\$0	\$0	\$16,000	-\$16,000
	Extra costs for next DD	\$0	\$0	\$21,000	-\$21,000
	Additional fuel consumption	\$0	\$0	\$160,000	-\$160,000
	Off Hire cost - Cleaning	\$0	\$0	\$18,000	-\$18,000
Fuel	Total Cost of Fuel	\$18,400,000	\$18,500,000	\$21,400,000	-\$3,000,000
TCO	Total Cost of Ownership	\$19,162,000	\$19,222,000	\$22,006,000	-\$2,844,000
Total Savings					-\$2,844,000
Expected Payback Period (Months)					12

Regulatory compliance

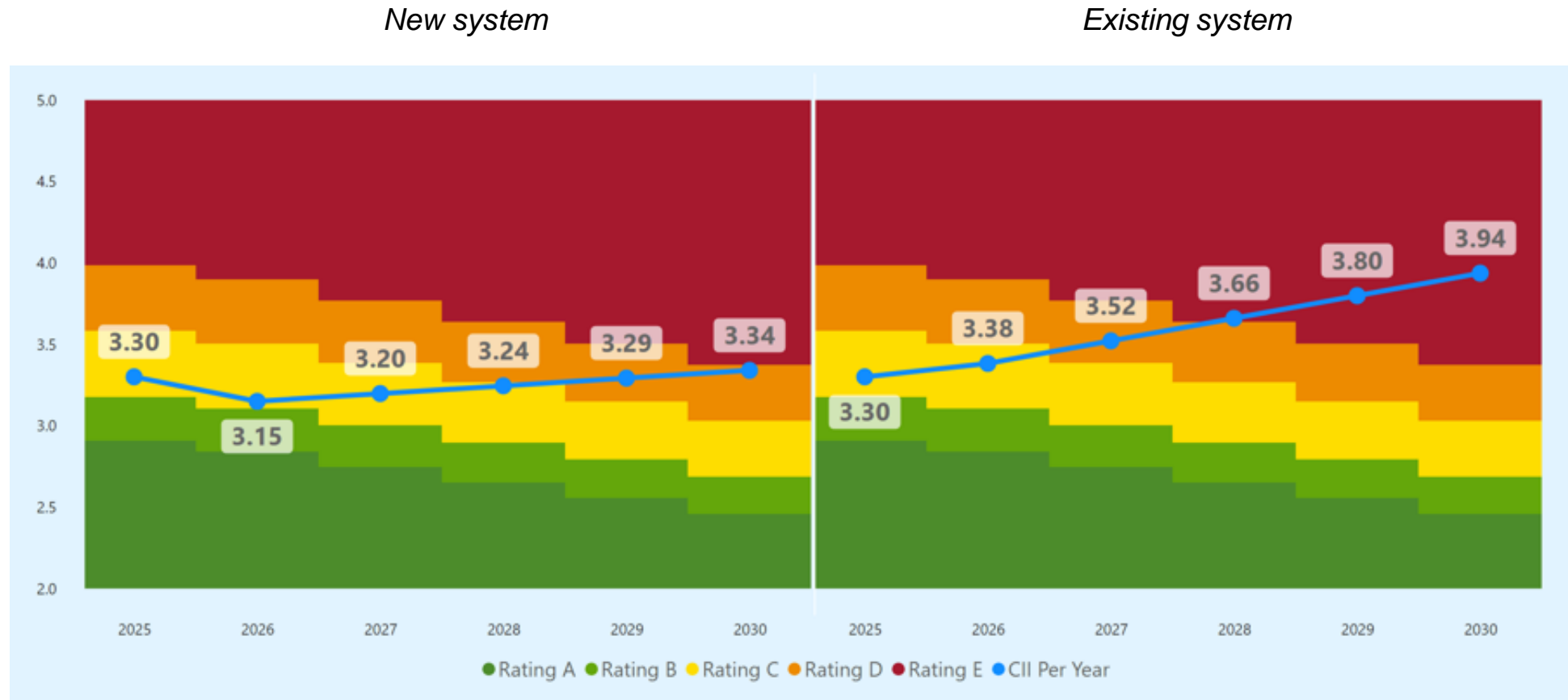
# Impact of a hull coating upgrade





# Impact of a hull coating upgrade

Impact on CII rating vs. existing coating system



# Impact of a hull coating upgrade

## Impact on RightShip's GHG Rating

### Vessel

- Panamax Bulkers : 98704 DWT
- Attained EEXI : 3.86 gCO<sub>2</sub>/ton.mile
- Vref : 14.42 knots

### Peer Group ±10 % DWT

- 433 vessels
- Vmin : 13.01 knots

### Speed Corrected Intensities (SCI)

SCI values are calculated for all ships in the peer group as:

$$SCI = E_1 \frac{V_{min}^2}{V_{ref}^2}$$

Where  $E_1 = EEDI/EVDI/EEXI$

- SCI of Clivia Oldendorff : 3.14 gCO<sub>2</sub>/ton.mile
- Size score : 0.98
- GHG rating : B

### GHG Rating

### Size Score

### Count of Ships

### % Ships

GHG Rating	E	D	C	B	A
Size Score	< -1.0	> -1.0	> -0.5	> 0.5	> 1.0
Count of Ships	29	5	231	97	71
% Ships	7%	1%	53%	22%	16%

Surface Preparation - Coating System	Power Gain %	Speed Gain %	Speed Gain (Knots)	Speed Corrected Intensity	Size Score	GHG Rating
Full • Globic 9500 • Hempaguard Ultima	4.55	1.52	0.20	3.05	1.80	A
Full • Globic 9500 • Hempaguard X7	4.55	1.52	0.20	3.05	1.80	A
Full • Globic 8000	0.00	0.00	0.00	3.14	0.98	B



# Get an **impact assessment** of a coating upgrade for **your vessel**

[Book a vessel specific assessment today >>](#)