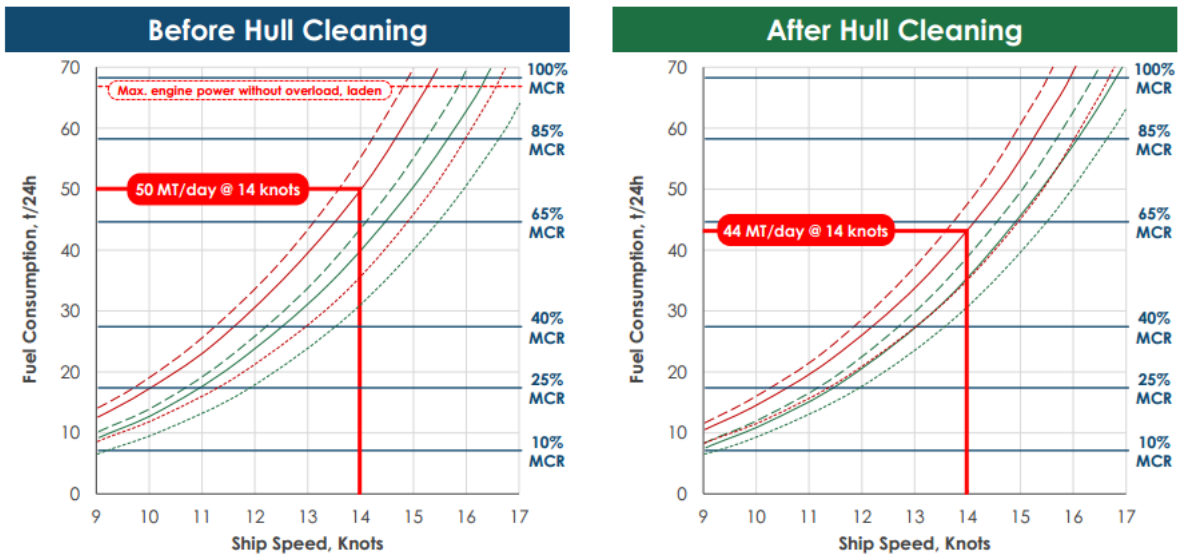


Effect of a clean hull

External study done by www.ship-efficiency.org



A clean hull resulted in a fuel saving of 6 MT/day @ 14 knots speed in laden condition @ Beaufort0

- Comparison of Speeds & Consumptions before & after Hull Cleaning :
 - Laden Consumption @ 14 knots - 50.5 MT / day vs. 47 MT / day
 - Ballast Consumption @ 10 knots - 16 MT / day vs. 15 MT / day

Proving the benefit independently for all stakeholders :

- Based on 140 Laden days & 160 Ballast days per year
 - Fuel saving in laden passage : 3.5 MT / day
 - Fuel saving in ballast passage : 1 MT / day

Total Fuel saved per year:

- Fuel savings = $(140 \times 3.5) + (160 \times 1)$
 = 590 MT / year @ \$ 650 / MT of HFO
 = 590 MT x \$ 650
 = **\$ 383,500**

Reduced CO2 emissions per year:

$$= 590 \text{ MT} \times 3.2 \text{ MT of CO}_2 \text{ per MT of Fuel}$$

$$= \mathbf{2,080 \text{ MT of CO}_2 / \text{year}}$$

Harsonic gives you 24/7 prevention and protection where the effects of hull cleaning and propeller polishing start to diminish.