

CHANTIER NAVAL SOUSS MASSA



# BLUE WAVE

*A trawler that pollutes less, costs less to run.*

A simple guide for everyone — no engineering degree required.

Located at the New Port of Agadir, on Morocco's Atlantic coast, our shipyard builds, repairs and maintains steel and aluminium vessels from 6 to 37 metres long.

Today we build boats for fishermen and shipowners across Morocco, France, Senegal and Mauritania — and we ship around 12 new vessels every year.

**17 yrs**

of experience

**53+**

vessels delivered

**12**

boats per year

**08**

exported



## ISO 9001:2015 CERTIFIED

International quality management standard — every step of every build is documented, audited and traceable.

## WHAT WE BUILD



### Sardine boats 22 – 28 m

35 units delivered. Our most-built series, sold in Morocco and Mauritania.



### Trawlers 22 m

Including BLUE WAVE — only the world's 2nd diesel-electric hybrid trawler.



### Longliners 12 / 21 m

Used for deep-sea longline fishing, exported to Mauritania.



### Workboats & offshore

Tugs, barges, jack-ups — heavy-duty boats for industrial work.

## Why fishing boats need to change

*Fishing fleets around the world face the same three pressures — and most are getting worse, not better.*



**Diesel is expensive**

**+ 65 %**

*Marine diesel price evolution (2020 – 2024)*

Fuel is the single biggest running cost of a fishing boat. When the price of diesel goes up, fishermen lose money on every trip — even when they catch plenty of fish.



**CO<sub>2</sub> is a real problem**

**≈ 600 t**

*of CO<sub>2</sub> emitted per year by one 22 m trawler*

A modern trawler burns hundreds of thousands of litres of diesel every year. That equals the annual carbon footprint of around 100 cars.



**Old boats are tired**

**30+ yrs**

*average age of artisanal wooden boats*

Many traditional wooden boats are decades old, with old engines, leaky systems and high maintenance. They burn far more fuel than a modern hull.

# A 22-metre trawler — built in Agadir, fishing in France

BLUE WAVE · AGADIR → LE GUILVINEC



**22 m**

LENGTH

*A medium coastal trawler*

**Steel** Hull

**Aluminium** superstructure

*Solid, modern, low-maintenance*

**4 people**

CREW

*1 captain, 2 crew, 1 mechanic*

**France**

WORKING

*Home port: Le Guilvinec*

*Designed by France's Cabinet S.D.A. (Quimper) and built entirely in Morocco, Blue Wave was delivered to her Breton owner in 2021. She crossed from Agadir to Le Guilvinec under her own power — and her diesel consumption was already over 20 % lower than a conventional trawler of the same size.*

# Three 22-metre fishing boats — same job, very different fuel bills

## Artisanal wooden boat

1980S TECHNOLOGY



**Hull** Wood — heavy, soaks water

**Engine** Old direct diesel

**Drive** Direct shaft, no control

**Maintenance** Frequent, costly

≈ 120 L / hour

WHILE TRAWLING

## Conventional steel trawler

TODAY'S STANDARD



**Hull** Steel — strong, optimised

**Engine** Modern marine diesel

**Drive** Diesel + gearbox + reducer

**Maintenance** Standard

≈ 70 L / hour

WHILE TRAWLING

## Blue Wave — hybrid

TOMORROW, TODAY



**Hull** Steel and aluminium modern shape

**Engine** Diesel + electric motor

**Drive** No gearbox — direct

**Maintenance** Lower (fewer parts)

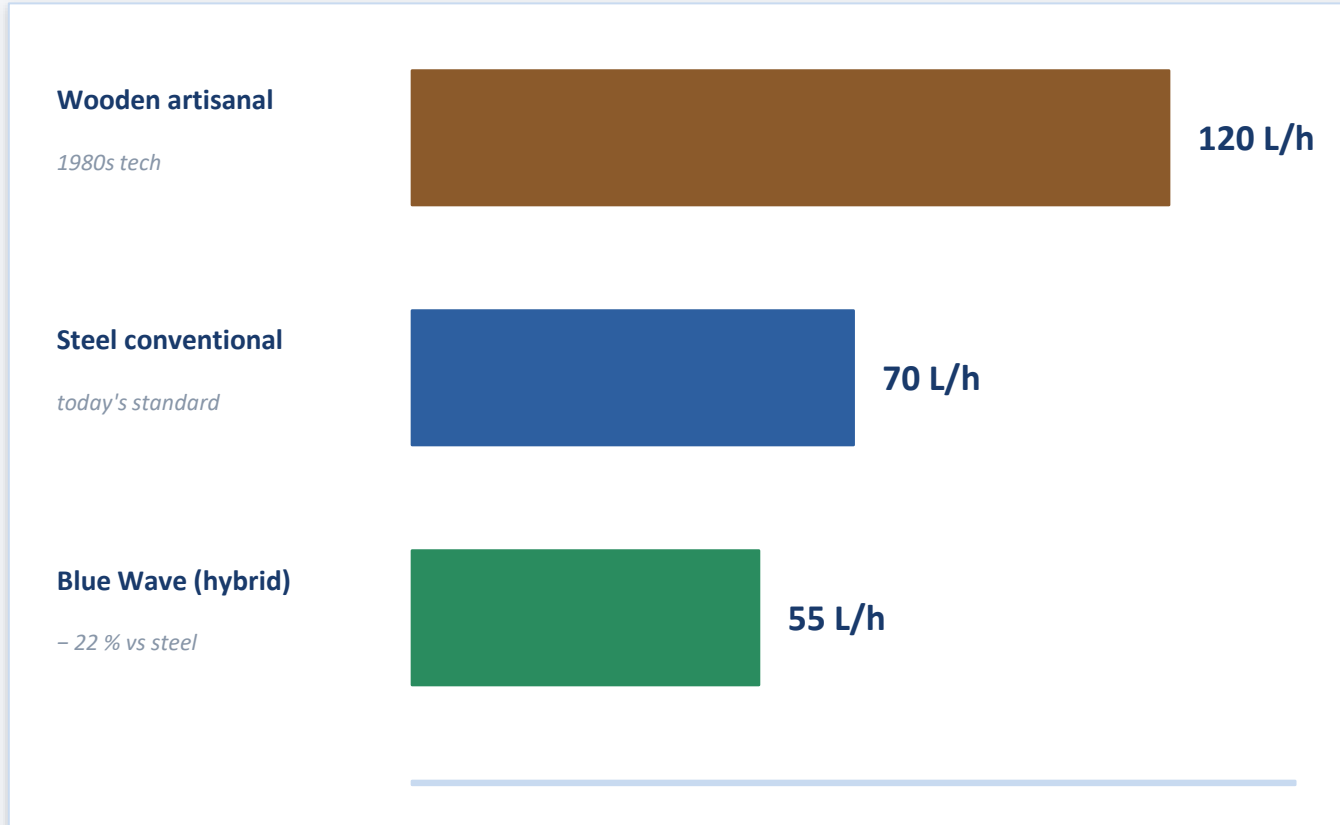
≈ 55 L / hour

WHILE TRAWLING

Source: All L/h figures from Souss Massa Shipyard operational data (April 2026). Blue Wave's 22 % saving vs steel matches the > 20 % saving recorded on the Agadir → Le Guilvinec delivery crossing (Catalogue Souss Massa 2026).

# How much each boat burns — and what it costs in a year

## LITRES OF DIESEL BURNED PER HOUR



L/h = litres of diesel burned every hour at sea while trawling. Lower is better.

## OVER ONE FISHING YEAR

(estimated for 200 sea days × 12 h/day)

<b>Wooden boat</b>	<b>288 000 L</b>	≈ 518 000 €	910 t CO <sub>2</sub>
<b>Steel conventional</b>	<b>168 000 L</b>	≈ 302 000 €	531 t CO <sub>2</sub>
<b>Blue Wave</b>	<b>132 000 L</b>	≈ 238 000 €	417 t CO <sub>2</sub>

≈ 65 k€ saved vs steel · ≈ 281 k€ vs wood

Blue Wave emits 114 t less CO<sub>2</sub> than a steel trawler — and 493 t less than a wooden boat — every year.

Annual figures: 200 sea days × 12 h, marine diesel at 1.80 €/L (April 2026), factor 3.16 kg CO<sub>2</sub> per litre. All L/h figures = Souss Massa Shipyard operational data. Real-world figures vary with captain, weather, fishing zone.

## Over 30 years at sea — the big picture

*A well-built steel trawler works for 30 years. Over that lifetime, Blue Wave's efficiency adds up to a fortune in fuel saved — and a real climate impact.*

## vs. CONVENTIONAL STEEL TRAWLER

*Today's standard*

**1.08 million L**      **≈ 1.94 M€**      **3 420 t CO<sub>2</sub>**

FUEL SAVED

COST AVOIDED

CO<sub>2</sub> AVOIDED

## CLIMATE EQUIVALENT

**≈ 740 cars off the road for one year**

*over the trawler's full working life*

## vs. WOODEN ARTISANAL BOAT

*1980s technology*

**4.68 million L**      **≈ 8.42 M€**      **14 790 t CO<sub>2</sub>**

FUEL SAVED

COST AVOIDED

CO<sub>2</sub> AVOIDED

## CLIMATE EQUIVALENT

**≈ 3 200 cars off the road for one year**

*over the trawler's full working life*

*30 years × 2 400 h/year × diesel @ 1.80 €/L · CO<sub>2</sub> factor 3.16 kg/L · car equivalent ≈ 4.6 t CO<sub>2</sub>/year per average passenger car. Source: CNSM operational data, ADEME factor for road transport.*

## Like a hybrid car — but for a trawler



*In a hybrid car (like a Toyota Prius), the engine charges a battery, and the wheels are turned by an electric motor. Blue Wave does the same thing — except that her electric motor turns a propeller instead of wheels, and she has no battery: the diesel generators feed the motor directly.*



### 1. Diesel generators

Two small diesel engines stay at their best speed (1,500 rpm) and turn alternators that produce electricity.

They only run when needed — like a car engine that switches off at red lights.



### 2. Onboard electricity

All that electricity (725 kW total — enough to power 250 homes) is sent through a smart switchboard that decides where it goes.

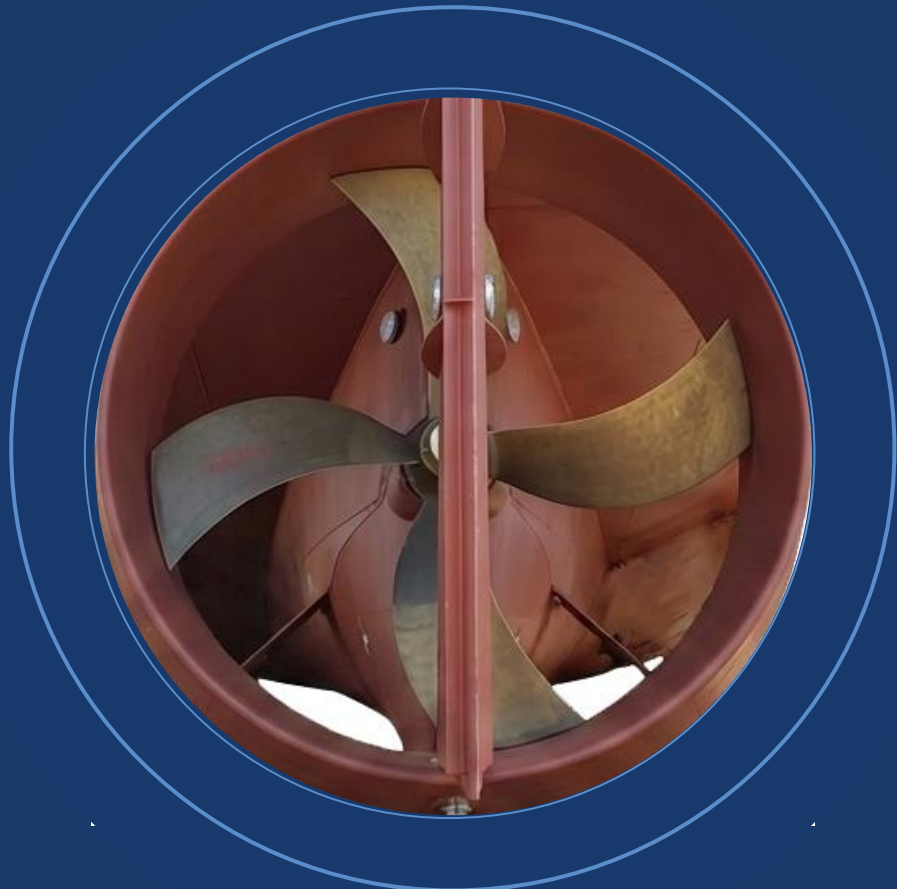


### 3. Electric motor → propeller

A 500 kW electric motor turns the propeller directly — no gearbox, no clutch.

The captain controls speed simply with a dial.

# Why a slow, big propeller is more efficient than a fast, small one



Ø 2.4 m · 4 BLADES · 175 rpm

Wageningen 19A — surrounded by a duct ("Kort nozzle") that boosts thrust at low speed.

## THE OAR ANALOGY

Two ways to row a heavy boat:

### Small oars, fast strokes

*Tires you out, splashes a lot of water around — and the boat barely moves. This is what a small, fast propeller does.*

### Big oars, slow strokes

*Each pull moves a lot of water gently — the boat advances strongly without effort. That's exactly what Blue Wave's big slow propeller does.*

## WHAT THIS PROPELLER DELIVERS



### More thrust at low speed

*Crucial when towing the trawl net — the boat pulls steadily without straining.*



### Less cavitation

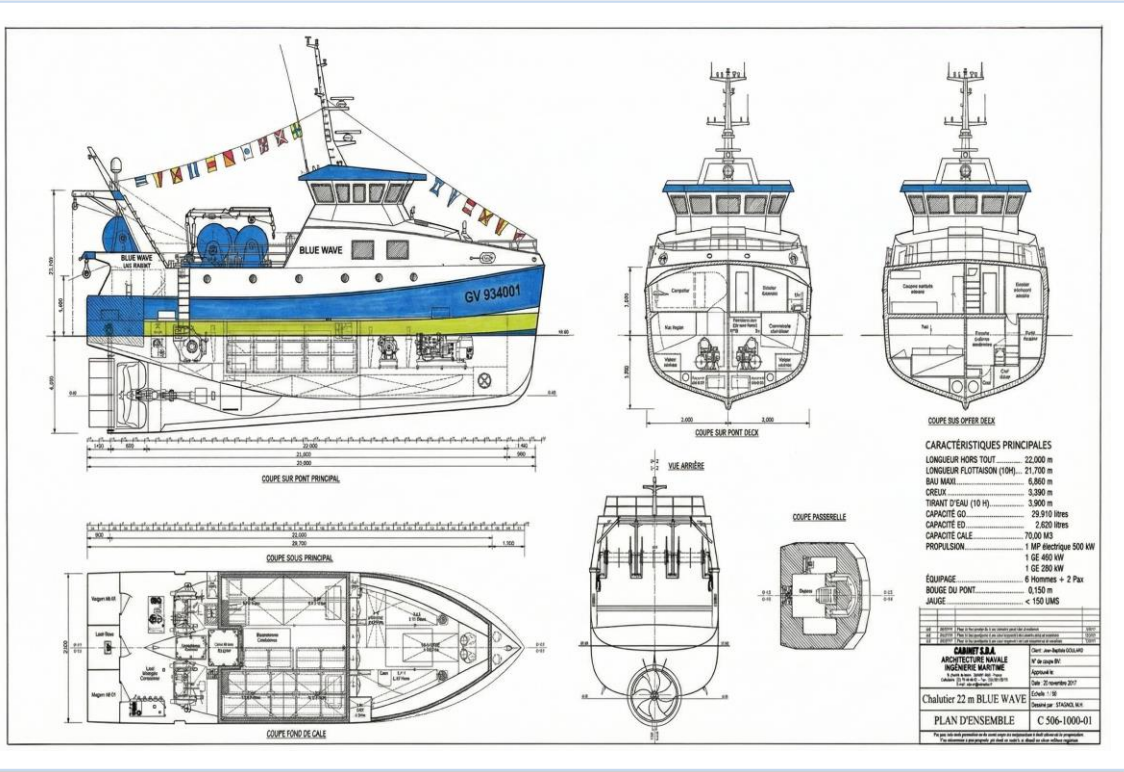
*Fewer bubbles → less noise → less harm to fish stocks and to the propeller itself.*



### Higher overall efficiency

*98.5 % of the engine's power reaches the water (vs ~92 % with a gearbox).*

# Everything runs on electricity — even the winch



BLUE WAVE — GENERAL ARRANGEMENT (CABINET S.D.A.)

## WHAT THE 725 kW POWER STATION RUNS



### Propulsion (500 kW)

The big electric motor that turns the propeller.



### Hydraulic winches & cranes (~180 kW)

Pulling in the trawl net, lifting the catch — all powered by an electric pump. No more diesel hydraulic packs running hot in the engine room.



### Lights, instruments, kitchen, freezers

Everything the crew uses on board — fed by the same network.



### At quay: shore power (250 A)

Plug into the dock's electricity at port → engines off, no fuel burned overnight.

## ONE PRODUCER, MANY USERS — THIS IS WHAT MAKES THE BOAT EFFICIENT

Imagine a house with one big solar inverter feeding the heating, the cooking, the lights and the EV charger — instead of one separate generator for each room. That's Blue Wave: a single, smart electrical network powers every machine on board, only when it's actually needed.

## CONCLUSION

# Blue Wave — proven at sea.

**– 22 %**

**FUEL BURNED**

*vs. conventional 22 m steel trawler*

**– 54 %**

**FUEL BURNED**

*vs. wooden artisanal boat*

**≈ 65 k€**

**SAVED PER YEAR**

*vs. steel — at 1.80 €/L diesel*

**≈ 281 k€**

**SAVED PER YEAR**

*vs. wood — at 1.80 €/L diesel*

*Blue Wave is not a prototype. She is a real fishing boat, working today, proving every day that a Moroccan-built, eco-efficient trawler is no longer a promise — it's reality.*



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