

MACDUFF SHIP DESIGN

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FIS Fisheries Innovation & Sustainability

FIS is a coalition of experts driving strategic innovation for a prosperous & sustainable UK seafood industry.

Our remit is to facilitate, coordinate & leverage investment for innovation in UK seafood.

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www.fisorg.uk

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Fishing industry must be at centre of decarbonisation talks

FIS Vessels of the Future workshop in 2022 looked at what net zero commitments & 'just transition' meant in practical terms & identified that fishing industry "*needs support to drive change at pace & scale expected by customers*":

- Bring together all UK seafood sectors & experts - now Seafish Vessels of the Future Forum
- Stronger evidence base & benchmarking specific to UK fishing vessels
- Better understanding of regulation & policy to support and remove obstacles
- Better collaboration with ports & transport, with focus on infrastructure & skills
- Funding & finance tools to support business case for transition

"Failure to invest in solutions now could have catastrophic consequences when net zero deadlines arrive: if other marine industries push tech & infrastructure unsuitable for our vessels, we face costly compromises"

Urgent need to design concept vessels capable of running on alternative fuels and benchmark these against the status quo to see how far we are from making this a reality.

FIS commissioned Macduff Ship Design to lead a series of projects.

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Net Zero Vessel concept design project

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30/01/23 – Phase 1 published

17-18/03/23 – Clyde Fishermen's Trust events

12-13/05/23 – Skipper Expo

22/08/23 – Phase 2 published

Phase 3 in progress

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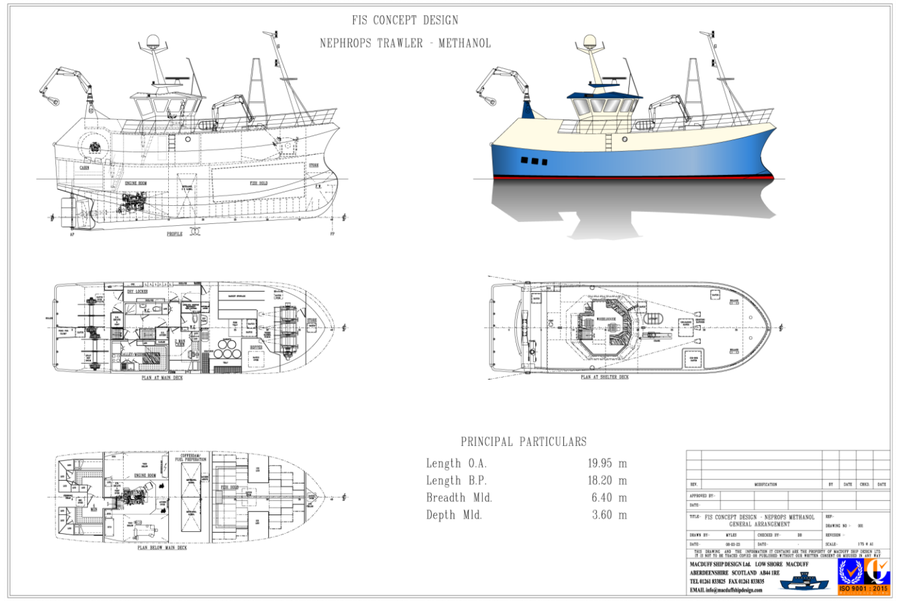
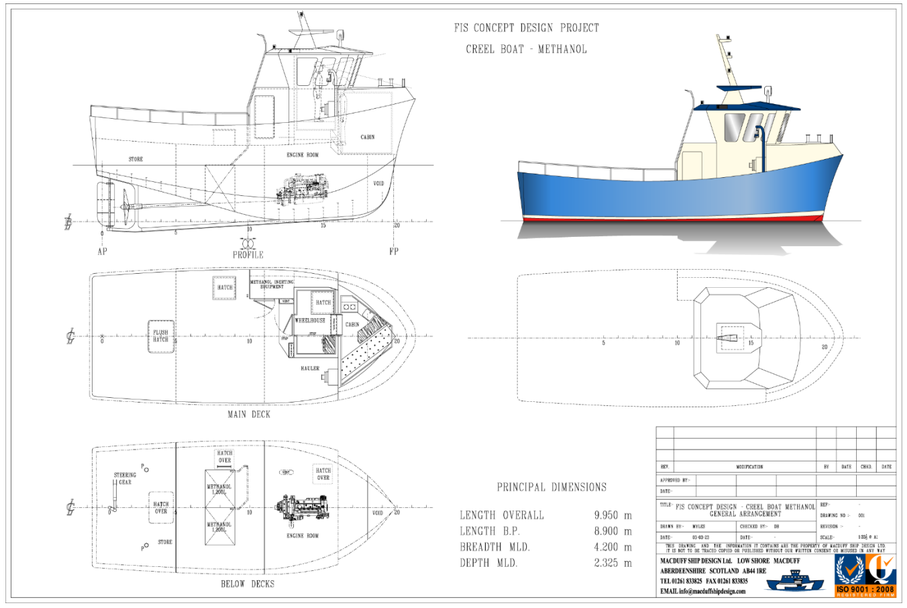
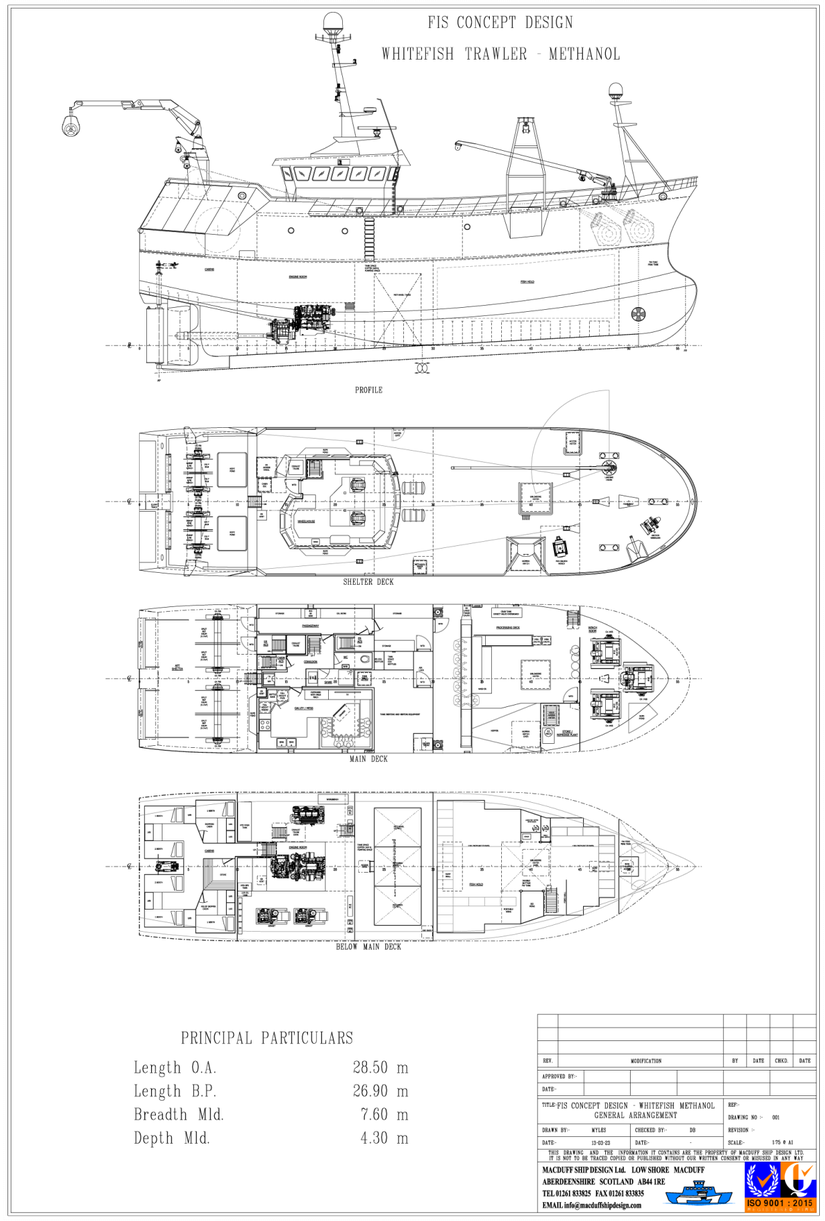
Phase 2 summary – Methanol







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Phase 2 summary – Methanol

- 3 designs completed for methanol
- Trawler designs had similar outcomes
- Technical & Regulatory Challenges could be overcome with investment
- Methanol vessel would be longer and higher GT (15-30%) as well as more expensive to build (25-40%) than equivalent diesel vessel
- Will there be enough net-zero methanol produced? Will the cost of fuel prevent the economic viability of this solution?

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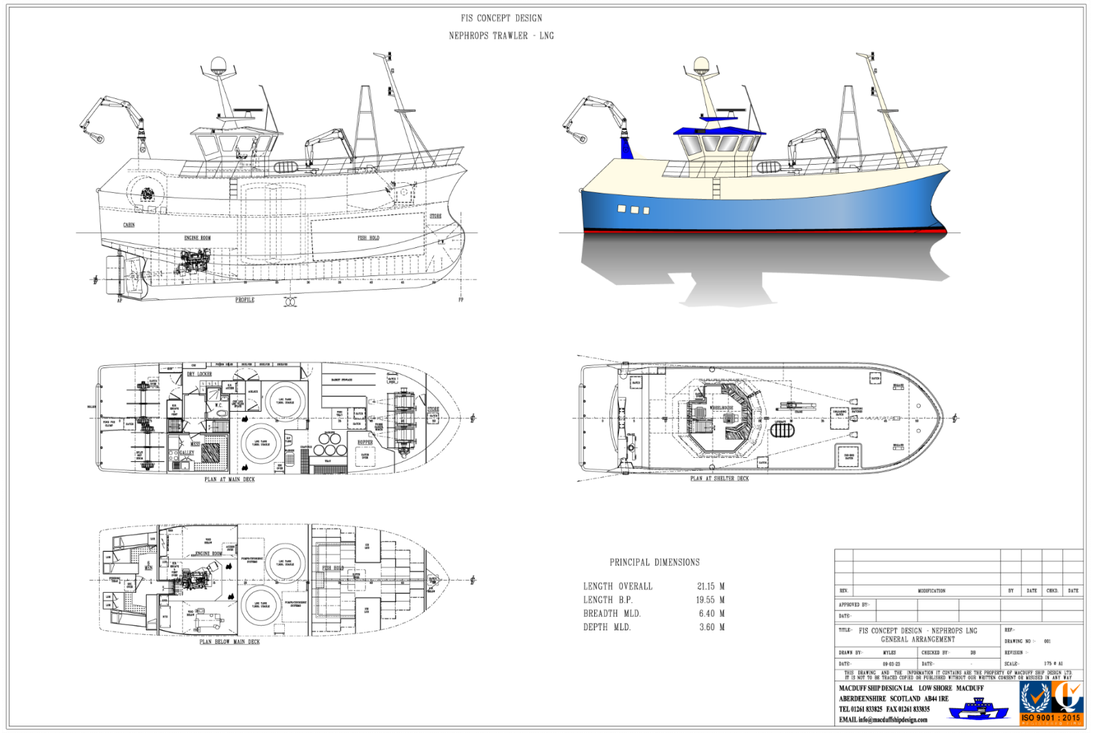
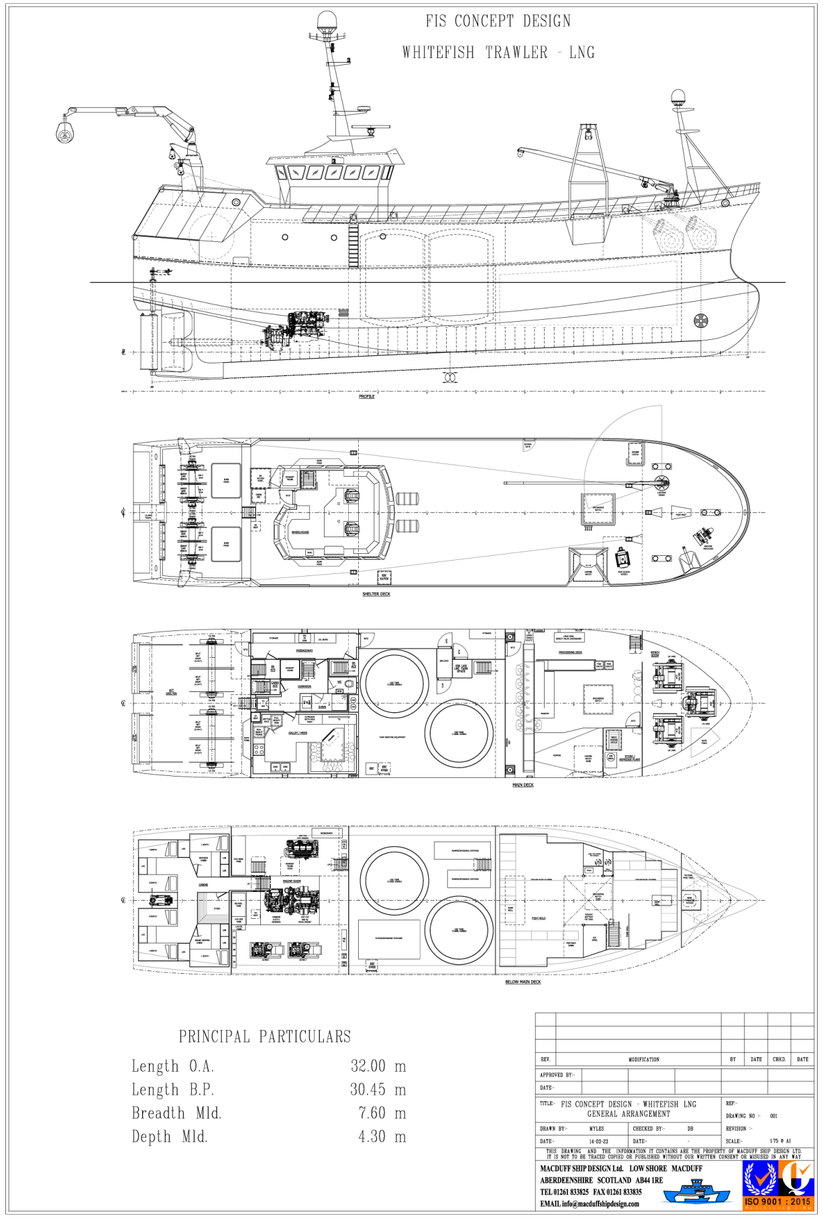
Phase 2 summary – LNG





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Phase 2 summary – LNG

- 2 designs completed for LNG (Liquified Natural Gas)
- Trawler designs had similar outcomes
- Technical & Regulatory Challenges could be overcome with investment
- LNG vessel would be longer and higher GT (25-40%) as well as more expensive to build (80-100%) than equivalent diesel vessel
- Ammonia vessels would be very similar but have some more difficult technical challenges
- Will there be enough net-zero LNG or Ammonia produced? Will the cost of these fuels prevent the economic viability of this solution?

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Phase 2 summary – What should we do next?

Review of hydrogen as alternative fuel for vessels similar to those in phase 2

Review more vessel types and sizes

Review harbour infrastructure and investigate plans for alternative fuel production

Data on power and fuel use allows for better more cost effective solutions to be developed

Build demonstrator vessels to get evidence for both fishing community and regulators

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Conclusions

These first net zero vessel designs show what could be possible **if** we can address current financial, regulatory & technical barriers.

They verify concerns raised in our initial project – that vessel owners trying to do the right thing will, for now, be at a critical disadvantage competing in a market with diesel vessels.

Early adopters must be able to access financial assistance, business advice & reg support.

Ports & harbour infrastructure, fuel supply chains, finance packages, skills training on & offshore all needed before designs can become a reality

Now working on hydrogen designs and helping skippers spread the word about their own electrification projects, and help regulators learn from these projects. MCA user panel to develop regs for prototypes

Data collection plan to measure efficiency across a range of vessels without modification

– but "all just talk" unless we actually build and test working vessels

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What do we need?

- Industry central to discussions on skills & training – “crewing issues affect this as it does everything else”.
- Funding schemes that work for us - can be too big or too little, or applicants need time to work out what they need: “There’s not an off the shelf solution when you start talking kit and costings.”
- Improved communication with regulators, funders and policy makers – on both retrofits and new builds.
- Regulation that helps rather than hinders adoption of new technology – regs around vessel length have “led to bathtubs” or designing “just under”.
- Talk with range of ports & harbours – fishing second fiddle to other clients? “Can’t they just switch port?”
- Think holistically to reduce emissions & save fuel – gear modifications, vessel health checks, market access, business advice, finance assistance & regulatory support.
- **All requires cross sector planning & finance to stay safe & competitive.**
- **Prototypes vital to identify pathways for each vessel type.**

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