TEcoNaut: Strengthening skills in new materials and entrepreneurship for the future of european boat building

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USING DEEP TECH TO FACILITATE THE ECO TRANSITION IN THE NAUTICAL SECTOR

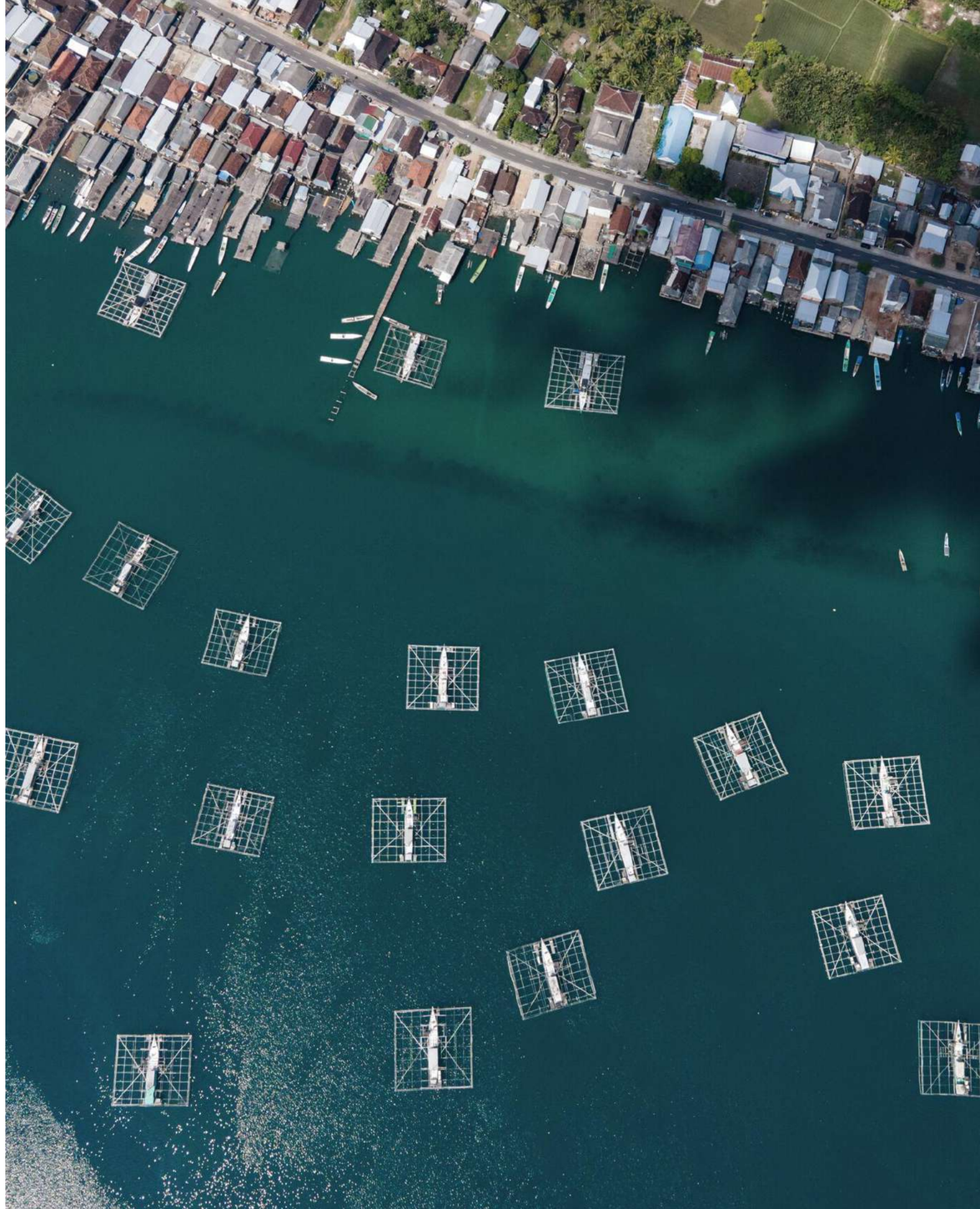
Co-funded by the European Union

Welcome & Housekeeping

- The webinar will last approximately **60 minutes**, including **15 minutes for Q&A**.
- All participants are muted upon entry to ensure good audio quality.
- We encourage you to submit questions at any time using the **Q&A or chat function**. We will address as many questions as possible during the discussion session.
- The webinar is being **recorded**, and the recording and presentation materials will be shared with registered participants afterwards.
- If you experience any technical issues, please use the chat and a member of the team will assist you.
- Please, contact mpc@europeanboatingindustry.eu to receive TEcoNaut newsletter

Agenda:

I. Welcome & introduction to TEcoNaut
II. The green transition and skills needs in european boatbuilding presentation of the TEcoNaut Online Course and training resources
III. Sustainable materials and innovation in boatbuilding: case studies from the industry
IV. Presentation of the TEcoNaut Entrepreneurship Guide
V. Next steps in the project: how the industry and other stakeholders can benefit in the next months
VI. Q&A session



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The Green Transition and Skills Needs in European Boatbuilding

By Luca Jendrek, Sea Teach

Sustainability challenges

- Over 6.5 million boats in European waters
- Using 72.000 tons of composite materials (fiberglass-reinforced plastics (FRP), resins, foams, and composite materials)
- Limited recycling, and high costs
- There is a need for green skills and knowledge
- There is also a growing demand for more sustainable boats (consumers)
- VET and HE curricula on boat building are not yet including subjects on how to build eco-boats

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Project researches

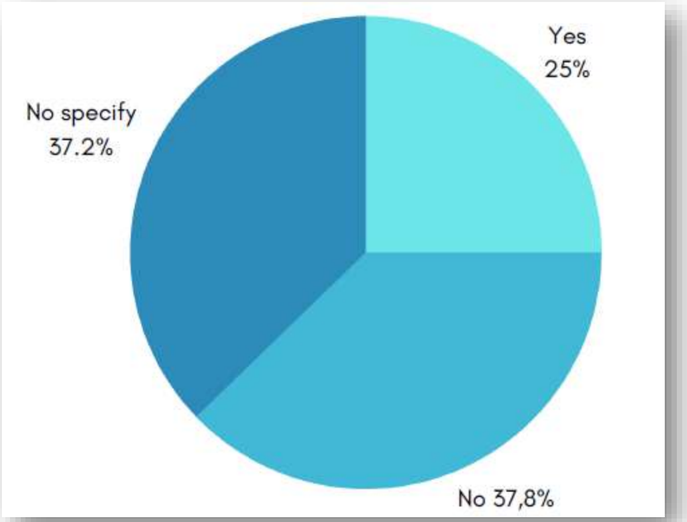
1. Skills identification and Assessment
2. Curriculum assessment
3. New deep-tech skills (interviews)

Available on website: www.teconaut.eu/downloads

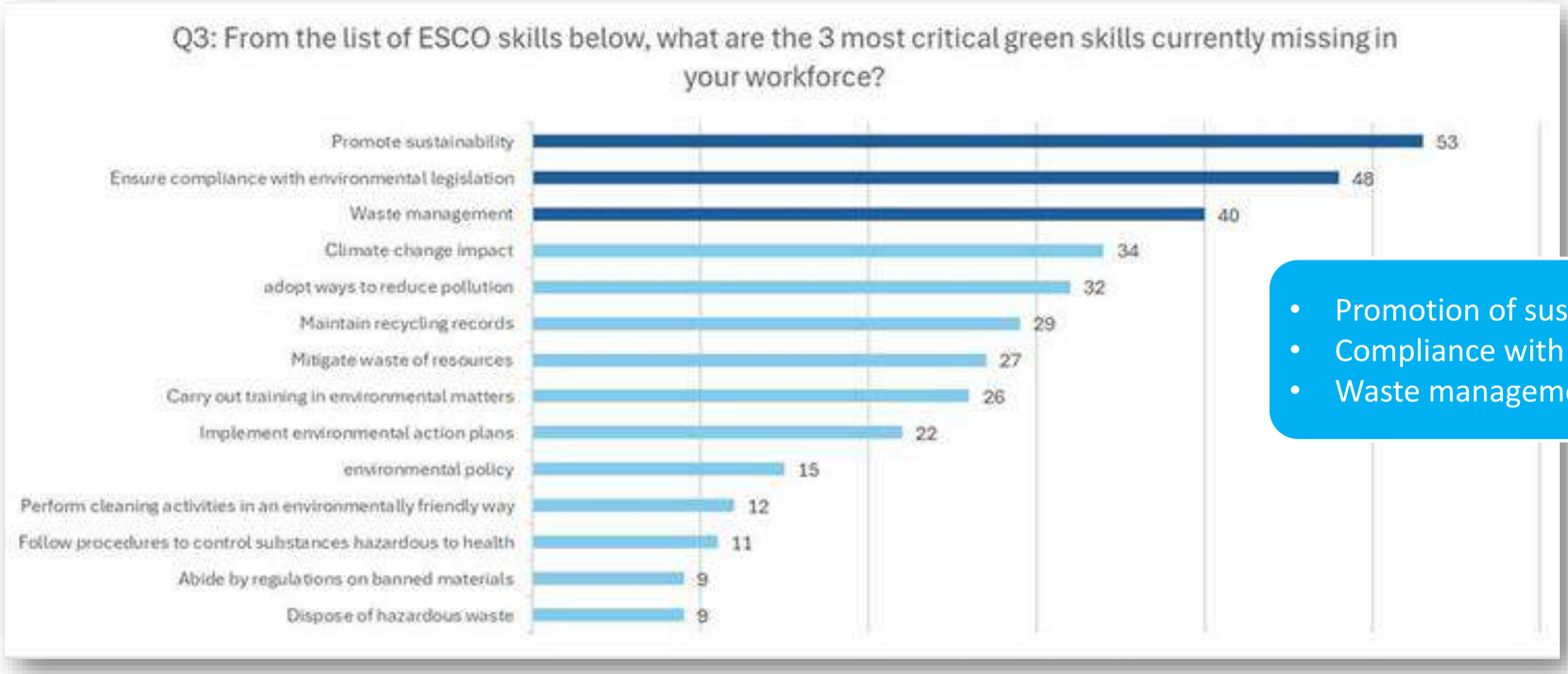
www.teconaut.eu

Key findings

- 22-25% of curricula include sustainable/green content (141 curricula, 16 countries)
  - Netherlands, France, Spain, Poland, Italy, Switzerland, Germany, Greece and Cyprus with detected green skills, but still minor presence
- Lack of advanced technologies, digital skills
- 70% agrees that green transition is important/extremely important
- 70% agrees that sustainability relates to materials



Inclusion of green skills in assessed curriculum



- Promotion of sustainability
- Compliance with env. legislation
- Waste management

Missing green skills from ESCO list

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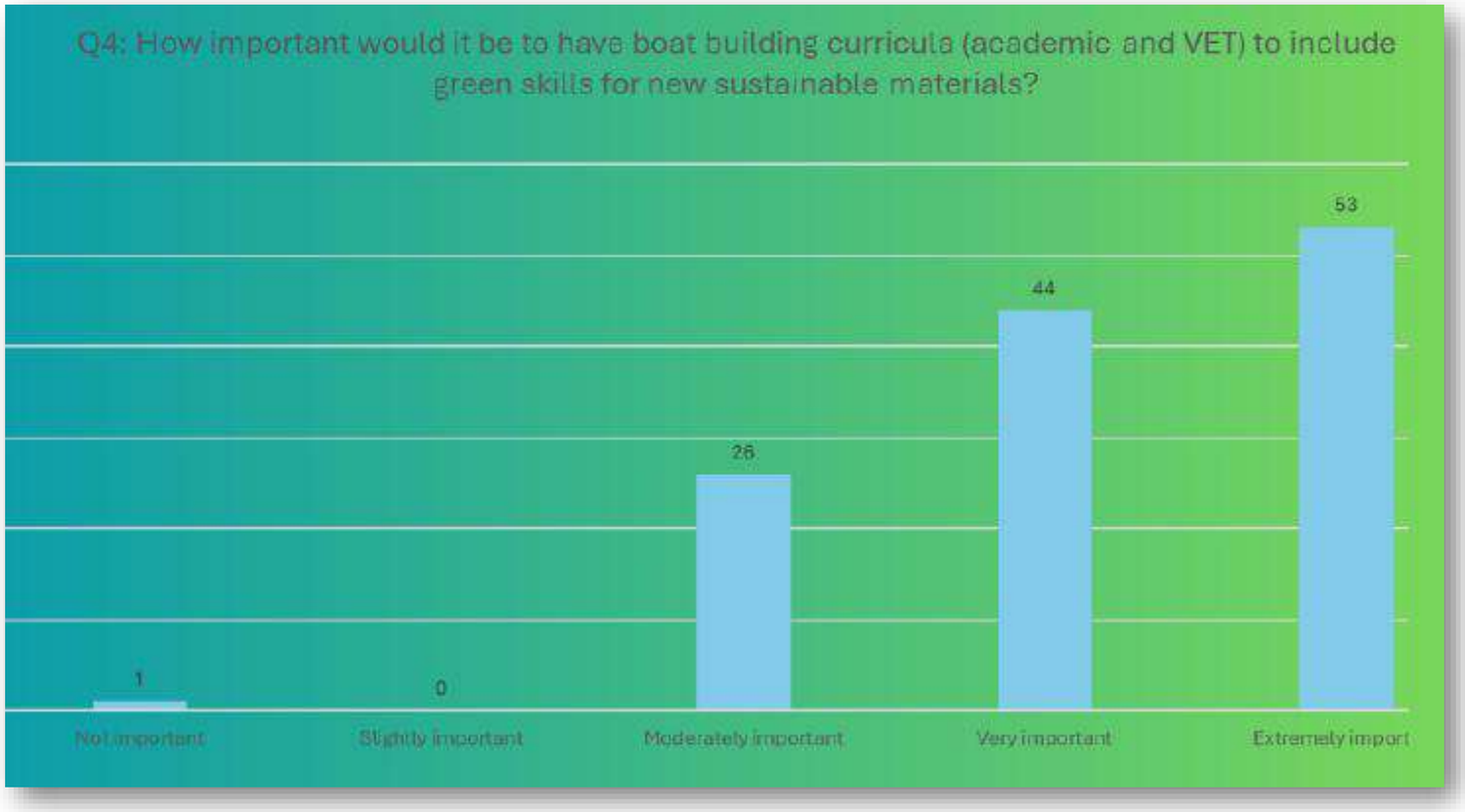
Key findings

- Other skills being important in the transition but missing:
  - Advanced application of bio-based resins
  - LCA implementation
  - Recycling strategies
  - Fundraising
  - Customer education, communication
  - Knowledge of ESCO, ISO
  - Monitoring and auditing



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TEcoNaut Online Course and Training Resources

By Luca Jendrek, Sea Teach

About the course

- 140-hour course, in 6 languages
- 5 units
- Aiming for VET students (level 4)
- Contains theory and hands-on work, assessment
- Advised to carry out with trainers in workshops

Sustainable materials in the boat-building sector

This course provides participants with a deep understanding of circular economy principles, sustainable materials, and innovative manufacturing techniques for boat building. It focuses on enhancing environmental performance and durability while preparing participants to lead the development of eco-friendly and efficient maritime solutions backed by a strong business case.

UNIT 1: INTRODUCTION TO SUSTAINABILITY IN BOAT BUILDING.

- 1.1 Introduction to sustainability in boat building
- 1.2 Environmental impact and waste management
- 1.3 Innovations and future perspectives

UNIT 2: SUSTAINABLE MATERIALS, PROPERTIES AND PERFORMANCE.

- 2.1 General material properties and performance
- 2.2 Raw Materials and sustainable components
- 2.3 Bio-based composite and Eco-Friendly Solutions

UNIT 3: APPLICATION TECHNIQUES IN MANUFACTURING AND REPAIR WORK.

- 3.1. Sustainable manufacturing methods
- 3.2. Retrofitting and repair strategies for boats

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About the course

- Topics covered:
  - Introduction to sustainability in the boatbuiliding sector
  - Sustainable materials, properties and performance
  - Application techniques in manufacturing and repair work
  - Life cycle assessment and business case
  - Career planning, opportunities and challenges

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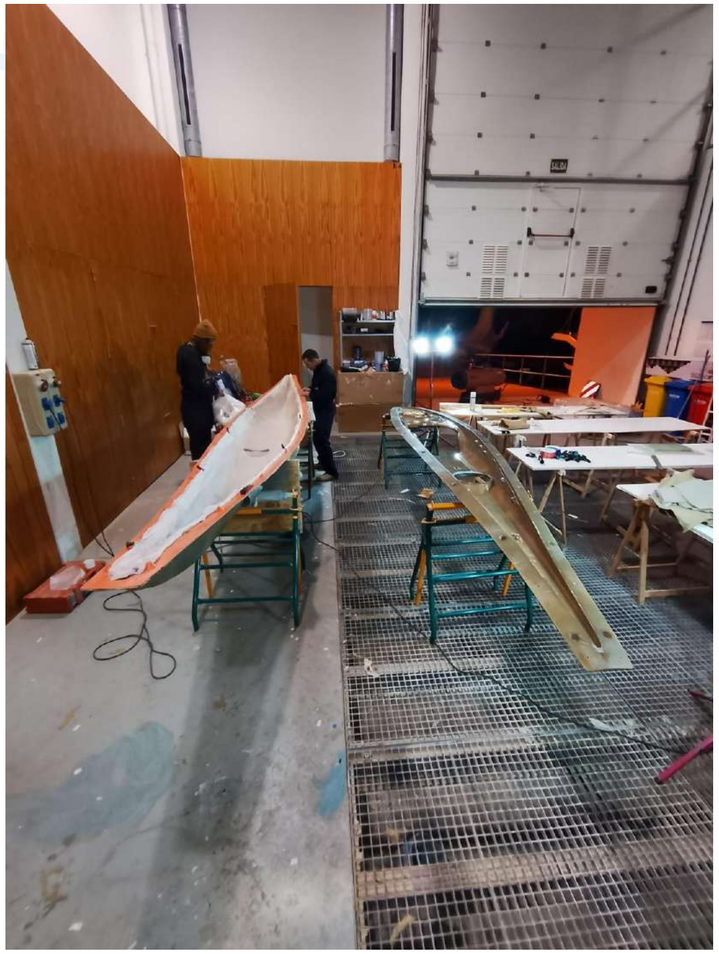
Hands-on activities



Centre de l`mar (Menorca)

Golcuk VET (Turkey)

- Practical work in workshops
- Unit 2 and 3:
  - Sustainable materials, properties and performance
  - Application techniques in manufacturing and repair work

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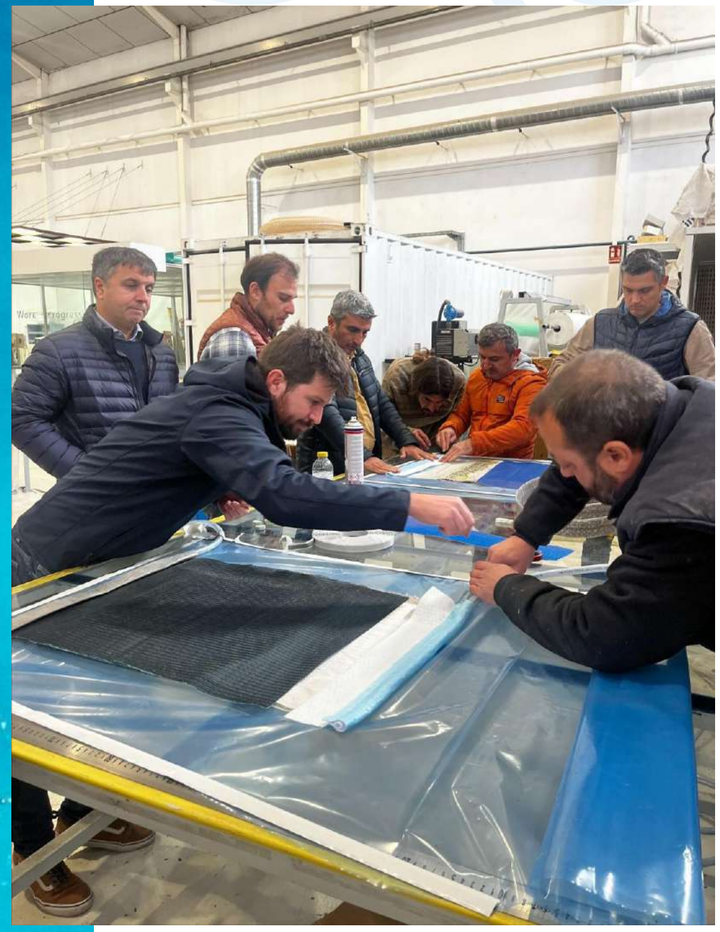
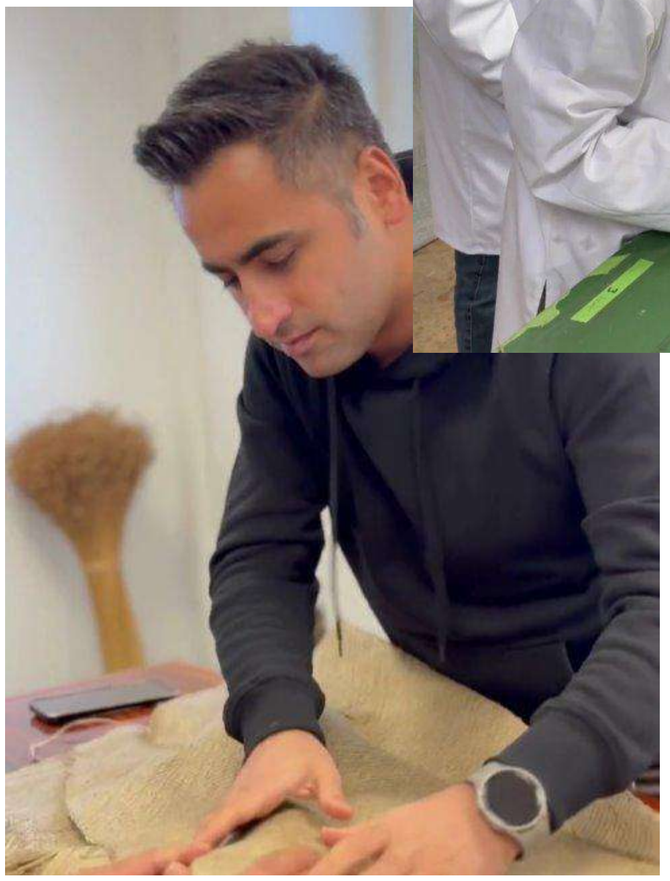
Exchange-workshop



Astondoa (Spain)

Innovation Yachts (France)



Greenboats (Germany)

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Teachers handbook

- Soon will be available in 6 languages
- Aligned with the course
- Support material for trainers

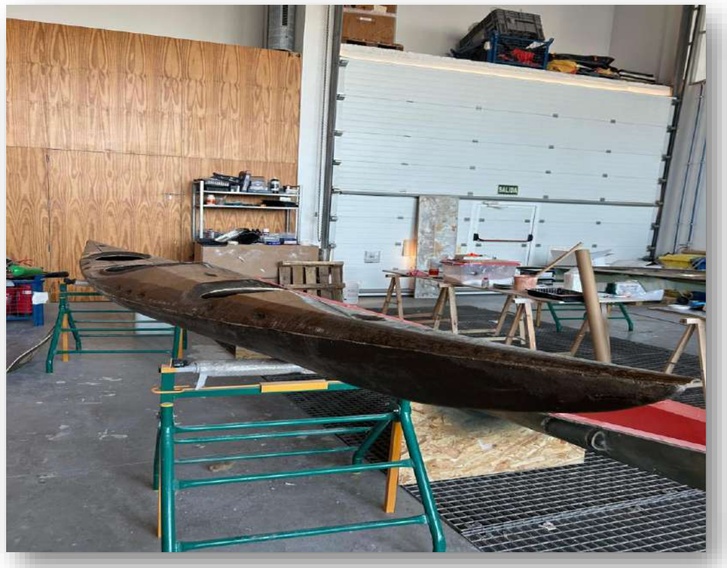
- Topics covered:

  - Course outline and support information
  - Training guidance (teaching approaches, tips)
  - Extensive list of materials and equipments
  - Level-up educational materials (presentations, videos)

Piloting and evaluation

- Piloting in two VET centres:
  - Centre de l`mar (Menorca, Spain)
  - Golcuk TR (Golcuk, Turkey)

  - Students and trainers
  - Full completion of the course
  - Evaluation by participants, External Advisory Board and External Evaluator



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Sustainable Materials and Innovation in Boatbuilding

Case studies from

- Annie Samson, Innovation Yacht
- Loris Schimanski, Greenboats

Innovation Yachts

Location: Vairé, France,
near to Les Sables d'Olonne

City of the
Vendée Globe

Austrian founders, Norbert Sedlacek Koch, finished the Vendée Globe in 2009

A bit of history

- Norbert and Marion looked for a recyclable and high-end quality building material

- Material: pure basalt or mixed volcanic stone fibres
  - Good mechanical properties
  - Hydrophobic
  - Available resources

- First: laboratory level, goals:
  - Find a complete and recyclable composite solution for boatbuilding
  - No threat on workers' health

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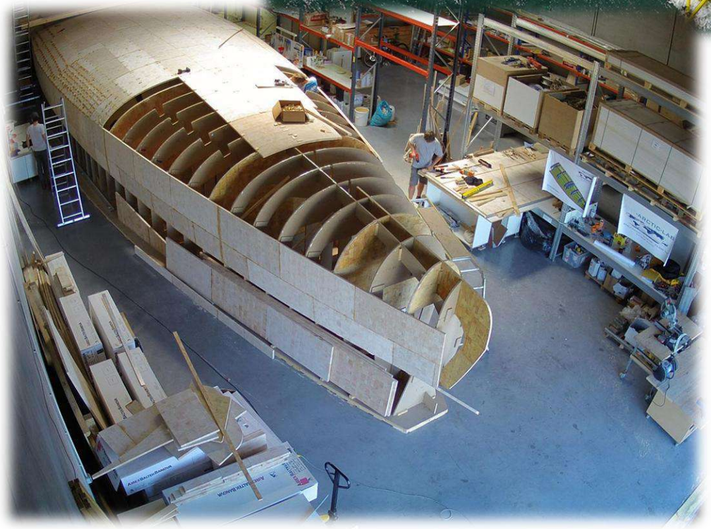
INNOVATION YACHTS

A bit of history

- **2012-2014: Fipofix, first prototype:**
  - Open16, proof of principle
  - Two nonstop, singlehanded North Atlantic crossings
  - Three records

- **2016: Innovation Yachts foundation**
  - 2016-2018: IY Open60AAL construction



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INNOVATION YACHTS

A bit of history

- **2021: Launching LBV35**
  - Conception and construction, fully recyclable
  - Ocean Tribute Award 2023

- **2023-2024: Launching Volcat16**
  - Conception and construction, fully recyclable
  - Sailing version and Motored (electric) version

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Materials and Innovation

- **All along: development with partners**

  - Isomatex → pure mineral fibre, Tenron®

  - bto-epoxy → bio-based epoxy, even in hardener, no substances listed as carcinogen

  - 3A Composites → controlled and FSC certified plantations of balsa

INNOVATION YACHTS

ANT ARCTIC LAB Project

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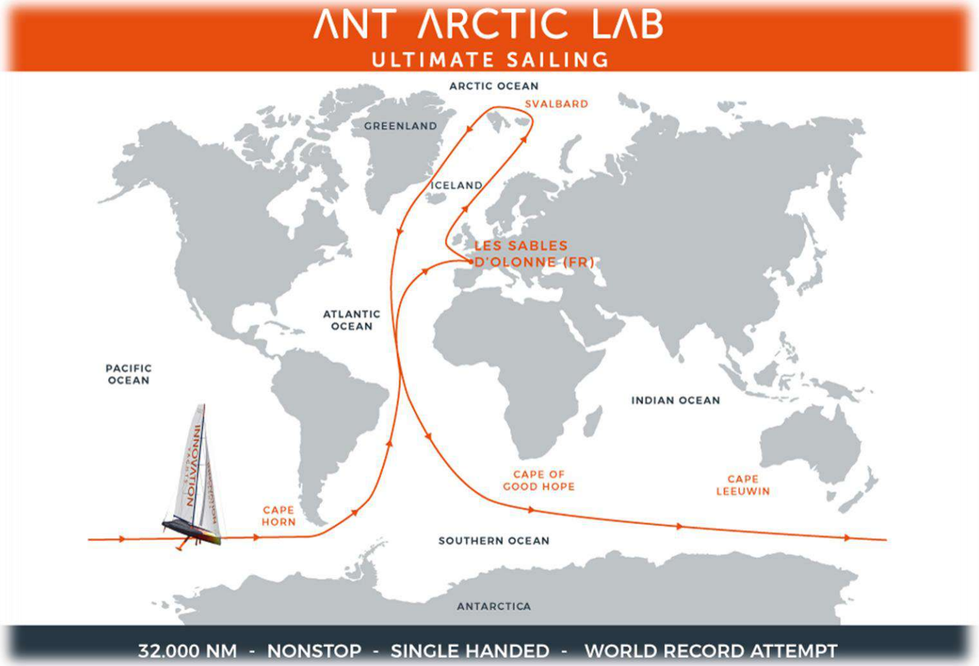
IY Open60AAL – Norbert Sedlacek

- Floating laboratory: engines, air quality measurement tests, solar panels, …
- World first, record attempt, all oceans, nonstop, singlehanded, without assistance



INNOVATION YACHTS

ANT ARCTIC LAB Project

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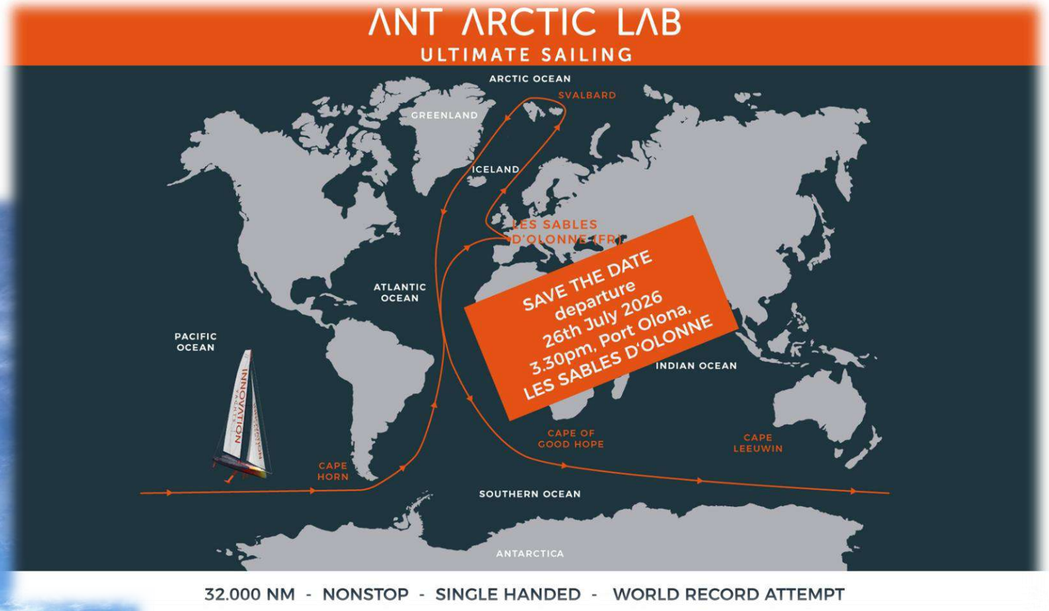
IY Open60AAL – Norbert Sedlacek

- Spread the word, promote materials and technology
- Involve people and increase awareness about future of boatbuilding, sustainability
- New attempt: 26 July 2026



INNOVATION
YACHTS

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„Development never stops!“

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GREENBOATS: Natural Fiber Composites

Our Focus:

-Lightweight solutions, tested in the hardest possible field: boatbuilding

-Testing every available option to conventional boatbuilding materials

-Building competitive an esthetic solutions with a lighter footprint

Healthier for the crew

Why we first started:
-Conventional lightweight solutions are very harmful for boatbuilders

-What is good for the body is good for the environment

A truly european product, from the field to the sea

Our supply chain:

-Flax 100% Made in France

-Woven in Germany

-Put into work in Germany

Boatbuilding as the perfect testing ground for new materials

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No place like the sea:

-Testing our products in IMOCA Class Boats for The Ocean Race or the Vendée Globe in the toughest conditions

-Working together with Olympic classes like ILCA to have a bigger impact

World Sailing AWARDS

11TH HOUR RACING SUSTAINABILITY AWARD

GREENBOATS®

Circular applications beyond boatbuilding

Lightweight NFC Solutions:

Our panel-based NFC solutions are requested in every industry that requests long lasting light solutions with a minimal impact on the environment. Examples are:
-RV and Expedition vehicles
-Wind turbine industry
-Aeronautical industry

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Presentation of the TEcoNaut Entrepreneurship Guide

By Marina Palumbo Cardella, EBI

Make disruptive materials your skill Entrepreneurship guide

Whu this guide

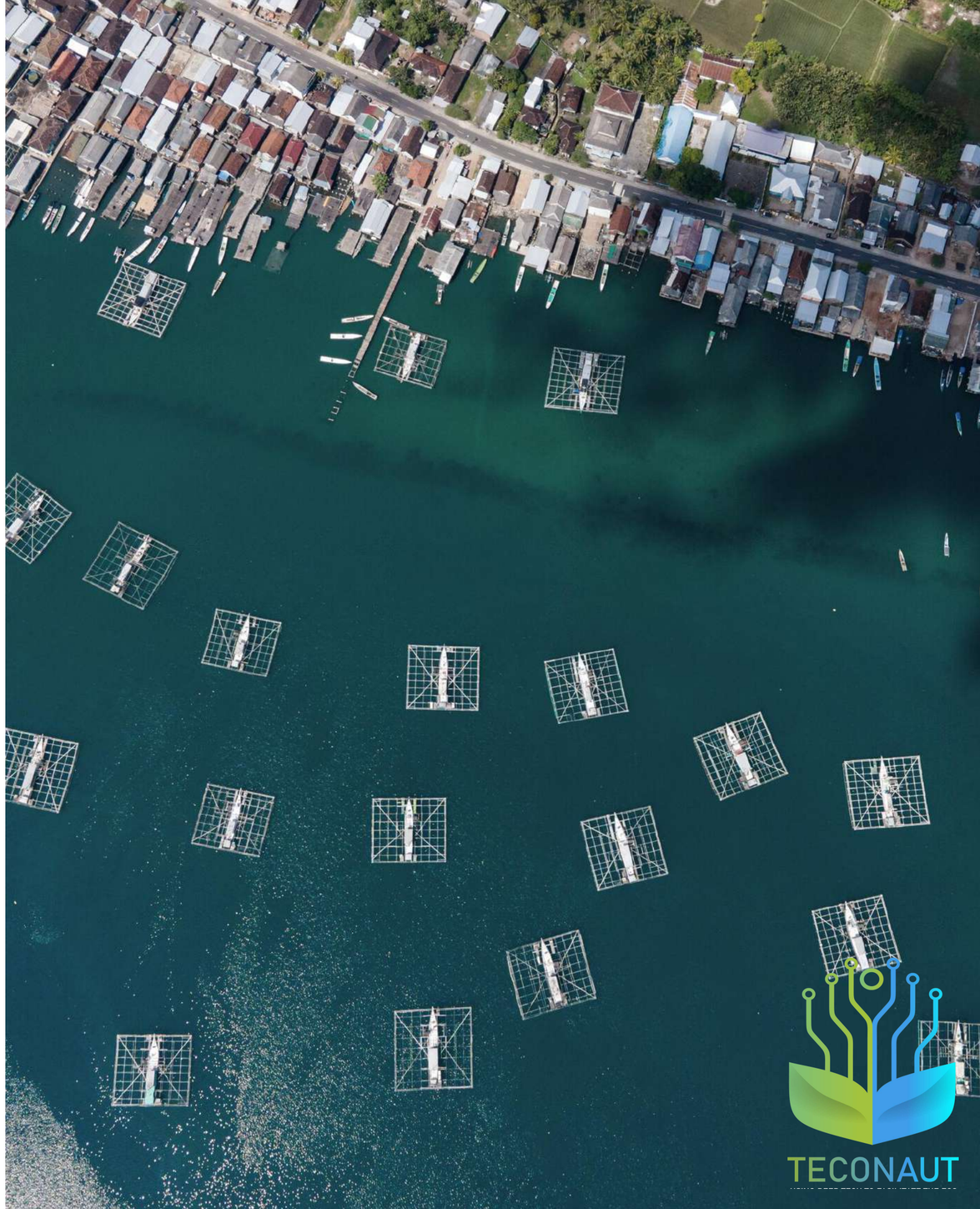
Key message: The future of boatbuilding will dependability to combine new materials, new skills, and new business models.

The European boating industry is undergoing a profound transformation.

Key drivers include:

- Sustainability and circularity requirements
- New advanced and bio-based materials
- Evolving EU regulations and market expectations
- Increasing demand for new skills and competencies

The challenge is no longer only technological.
The real challenge is turning innovation into practical skills, business opportunities, and competitive advantage.



Understanding the Transition

New Materials are creating new opportunities: material innovation is becoming a strategic business decision, not only a technical one.

Important: there is no best material!

Examples include:

- Bio-based composites (flax, hemp)
- Recyclable thermoplastics
- Advanced mineral fibres
- Nanomaterials and smart coatings
- Hybrid material solutions

Material selection requires balancing:

- Performance
- Cost
- Manufacturability
- Environmental impact
- Regulatory requirements

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Skills: the critical factor

The transition depends not only on technology, but on people capable of implementing change.

TEcoNaut research identified significant skills gaps across the boating sector.

Priority skills include:

- Sustainable material selection
- Life Cycle Assessment (LCA)
- Eco-design
- Circular economy practices
- Environmental compliance
- Recycling and waste management
- Systems thinking and interdisciplinary collaboration

Industry signal

- Only around 22–25% of current curricula include sustainability topics
- Nearly 80% of companies consider green skills and sustainable materials important for education and training

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From Skills to Entrepreneurship

Sustainability is not only a challenge for the boating industry. It is an opportunity for innovation, entrepreneurship, and long-term competitiveness.

The green transition creates opportunities across the boating value chain.

Emerging opportunities

- Sustainable material development
- Recycling technologies
- Lifecycle assessment services
- Environmental footprint tools
- Retrofit and upgrading services
- Eco-designed products
- Sustainability consultancy

TEcoNaut resources

✓ Entrepreneurship Guide
✓ Free online course (translated in 7 languages)
✓ Technical tutorials and case studies
✓ Industry examples from green boat building companies.

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Next steps in the project: how the industry and other stakeholders can benefit in the next months

By Luca Jendrek, Sea Teach

Co-funded by the European Union

Next steps in the project

- Traineeship program from university students
- Pitch competition
- Entrepreneurship guide
- Eco-boat building companies directory
- Project representation at:
  - Polboat Yachting Festival
  - Barcelona Boatshow
  - Valencia Boatshow
  - Mets`26

Final event: boot Düsseldorf, January 2027

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Q&A session

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