

List of Research Equipment at the Archipelago Research Institute

Updated 13.6.2025



**UNIVERSITY
OF TURKU**

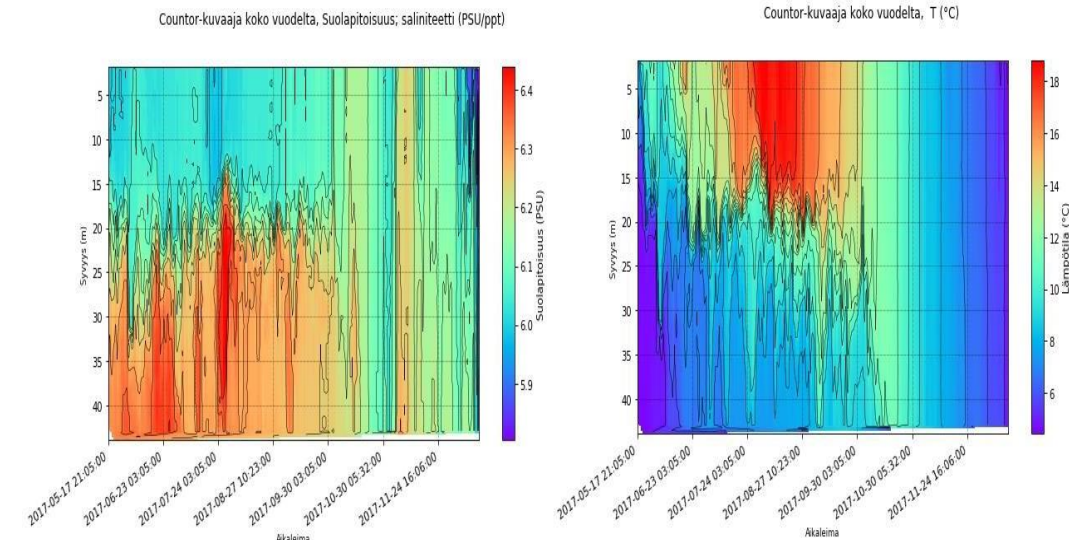
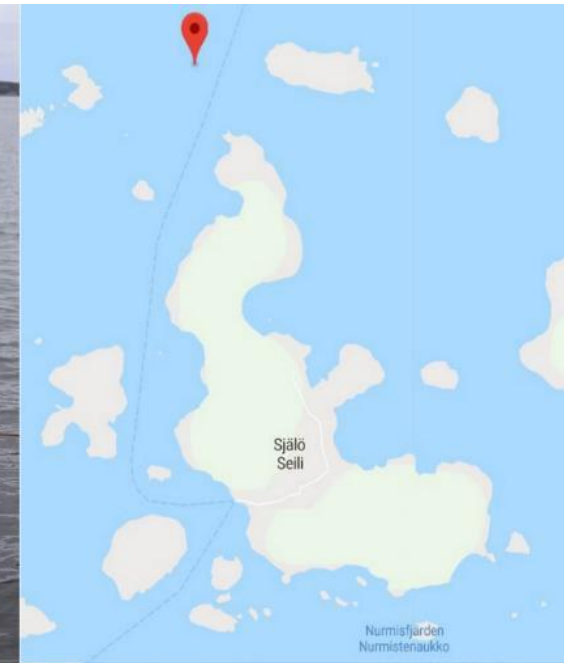


EMBRC
EUROPEAN
MARINE
BIOLOGICAL
RESOURCE
CENTRE



1. Automated monitoring buoy (ODAS)

- Monitoring station consists of a YSI 6952 buoy base and an updated EXO multiparameter sonde YSI 6000 (updated in 2024)
- Salinity, temperature, dissolved oxygen, turbidity, chlorophyll- α , and blue-green algae content measured daily
- 4 profiles (2-40 m depth) conducted every day, with the winch lowering the measuring device at one-meter intervals
- Operated during open water season, i.e. from spring, as soon as the ice permits, until early winter before the ice forms
- Data available since 2011
- A weather station measures air temperature, pressure, humidity, precipitation, wind speed, and direction (from 2015-today)
- Data and graphs can be accessed at https://saaristomeri.utu.fi/odas_en/



2. Vessels

r/v Aurelia

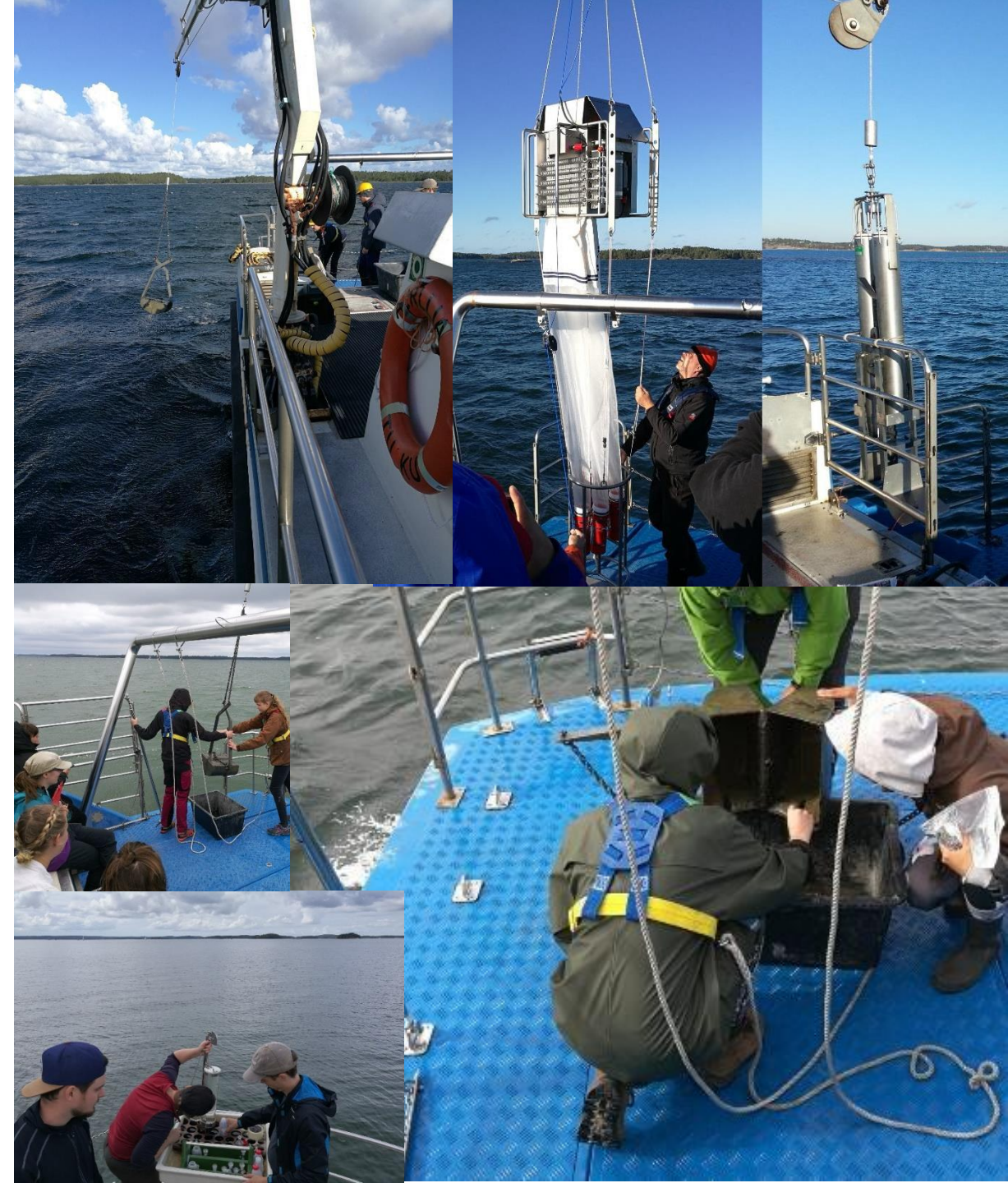
- Max. passenger capacity 40 persons (+ 2 crew). The vessel is hired only with crew.
- Built in 1991
- Overall length 18.1 m
- Beam 5 m
- Draft 1.5 m
- Maximum speed 15 knots
- Gross tonnage 5,8 t.
- Outdoor working space (16,4 m²)
- Sampling deck (15,5 m², lowered 0,7 meters closer to sea surface)
- Small laboratory/wet lab space (2,9 m²)
- Mess decks (9.2 (16 persons) and 5.1 m²)



2. Vessels

r/v Aurelia

- A-shaped beam
- Winch (Hiab, 500kg)
- Access to fresh- and seawater
- Equipped with a rowing boat
- Aurelia is used mainly for day trips, but can accommodate up to 7 persons
- Equipped with WC, fridge/freezer, drying cabinet, coffee/tea maker, 2 microwave ovens, toaster, gas cooker and utilities
- The station has various field equipment that are available for fieldwork onboard r/v Aurelia



2. Vessels

Motorboats

Minor Range 7600

- Acquired in 2023
- Available for boat transportations (e.g. Seili-Nauvo) and sampling trips in the vicinity of the Archipelago Sea
- Max. 8 passengers
- Length 7.5 m
- Power 160 hp
- Equipped with chart plotter, AIS and echo sounder
- Can accommodate 2 persons, if needed



2. Vessels

Motorboats and rowing boats

Faster 515 motor boat

- Aluminium boat with outboard engine (Suzuki 60 hp)
- Max. passengers 6
- Length 5.1 m
- Max. speed 25 knots
- Equipped with chart plotter/echo sounder
- Trailer available

Two rowing boats with outboard engine

- Two aluminium rowing boats, can be equipped with an outboard engine (6 hp)



3. Experimental research facilities

Indoor aquaria facilities

- Acquired in 2013-2015
- Semi-automated rearing and maintenance of marine organisms for observational and experimental studies
- Possibilities to manipulate water quality (e.g. salinity), temperature and lightning
- Replication of study units

The station has a total of 10 close-circulation aquarium racks, each with 12 (24 L) replicated aquaria, temperature regulation, filtration and advanced lightning

- 4 racks situated in the Seawater laboratory-building
- 6 racks located in the Main building
- Access to seawater via pipe from outside the island (26 m) in the Seawater laboratory
- Ion-exchanged water and aquarium salt available for artificial seawater



3. Experimental research facilities

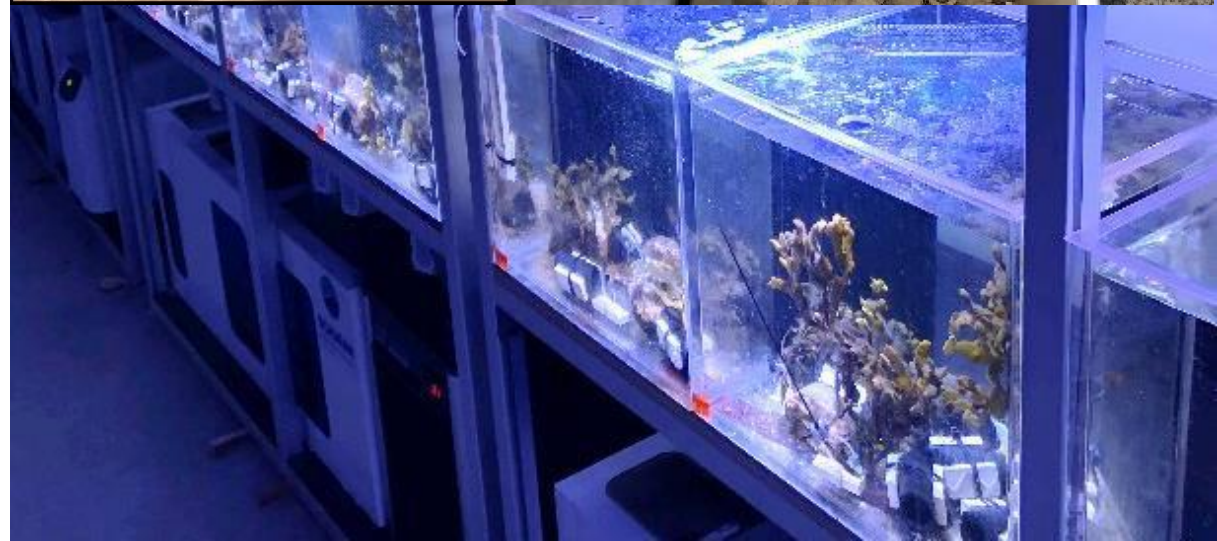
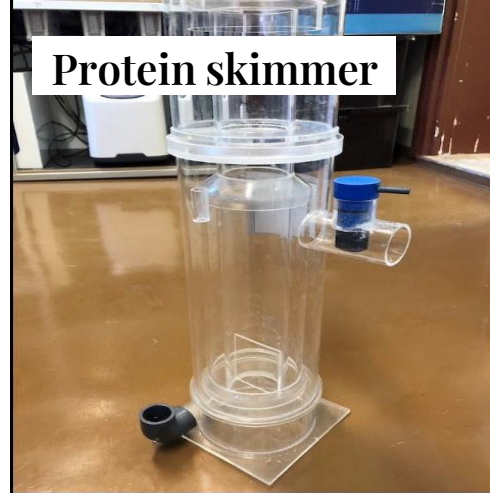
Indoor aquaria facilities

Each rack has a recirculating water system, in which seawater is pumped from a large head tank (~ 200 L) situated at the base of the rack to the aquaria, from where it returns to the head tank.

There, the water is filtered and cleaned first by an acrylic filtration unit equipped with a both the mechanical and biological filter, then by a protein skimmer, and finally by UV radiation.

Water filtration:

- Mechanical filtration: Filter socks
 - Two in each rack, 20 in total
- Biological filtration: ceramic filtration tubes
 - One container in each rack, 10 in total
 - allows bacteria to grow and filtrate the water biologically
- Sterilizing UV-light
 - one in each rack, 10 in total
- Protein skimmer (SCHURAN Jetskim 120)
 - one in each rack, 10 in total
 - removes proteins from the aquarium water



3. Experimental research facilities

Indoor aquaria facilities

Water cooling/heating

Each head tank is equipped with a chiller/heater (Teco TR15/TK2000H) to regulate the temperature. Air temperature can also be regulated in the aquaria rooms with an air heat pump (min. temperature +18 °C)

- **Teco SeaChill TR, aquarium chiller**
 - one in 5 racks, 5 in total
 - includes a sterilizing UV-light
- **Teco TK2000H, aquarium chiller**
 - one in 4 racks, 4 in total
- Min. temperature reachable ca.+10 °C

Aquarium lights

Lighting in each rack is provided by six LED lamps with advanced light:dark -rhythm and spectral adjustments and a maximum intensity of up to 1200 $\mu\text{mol m}^{-2} \text{s}^{-1}$ at the water surface (Ecosmart live with Reeflink).

EcotechMarine's Radion™ XR30w Pro lamp

- One light per 2 aquariums (60 in total)
- Programmable and possible to mimic a wide range of scenarios and wave lengths
- For more specifications: https://reeflabs.net/Ecotech_XR30PRO



Teco SeaChill TR,
aquarium chiller



Teco TK2000H, aquarium chiller



Radion XR30w lights

Mesokosmos- ulkoilmaan sijoitettu kokeellinen läpivirtausakvaariojärjestelmä



4. Mesocosm/Outdoor aquaria facility

- 8×5 m LxW wooden terrace with UV-protected PVC roofing (built 2022)
- 16 Movable flow-through aquaria tanks (4x4)
- Continuous flow of brackish water via pipe from Kirkkonieni bay at 26 m depth
- Automated surveillance system (live camera + sensors, 2024)
- Adjacent is a simple aquaria room with regular light and temperature regulation + a maintenance room for the brackish water plumbing system
 - Standard glass aquaria tanks and round glass fibre tanks available (various shapes and volumes, e.g. 150L)
- Adjacent to the mesocosm facility are two large climate chambers (temp. range +5 - +15 °C).



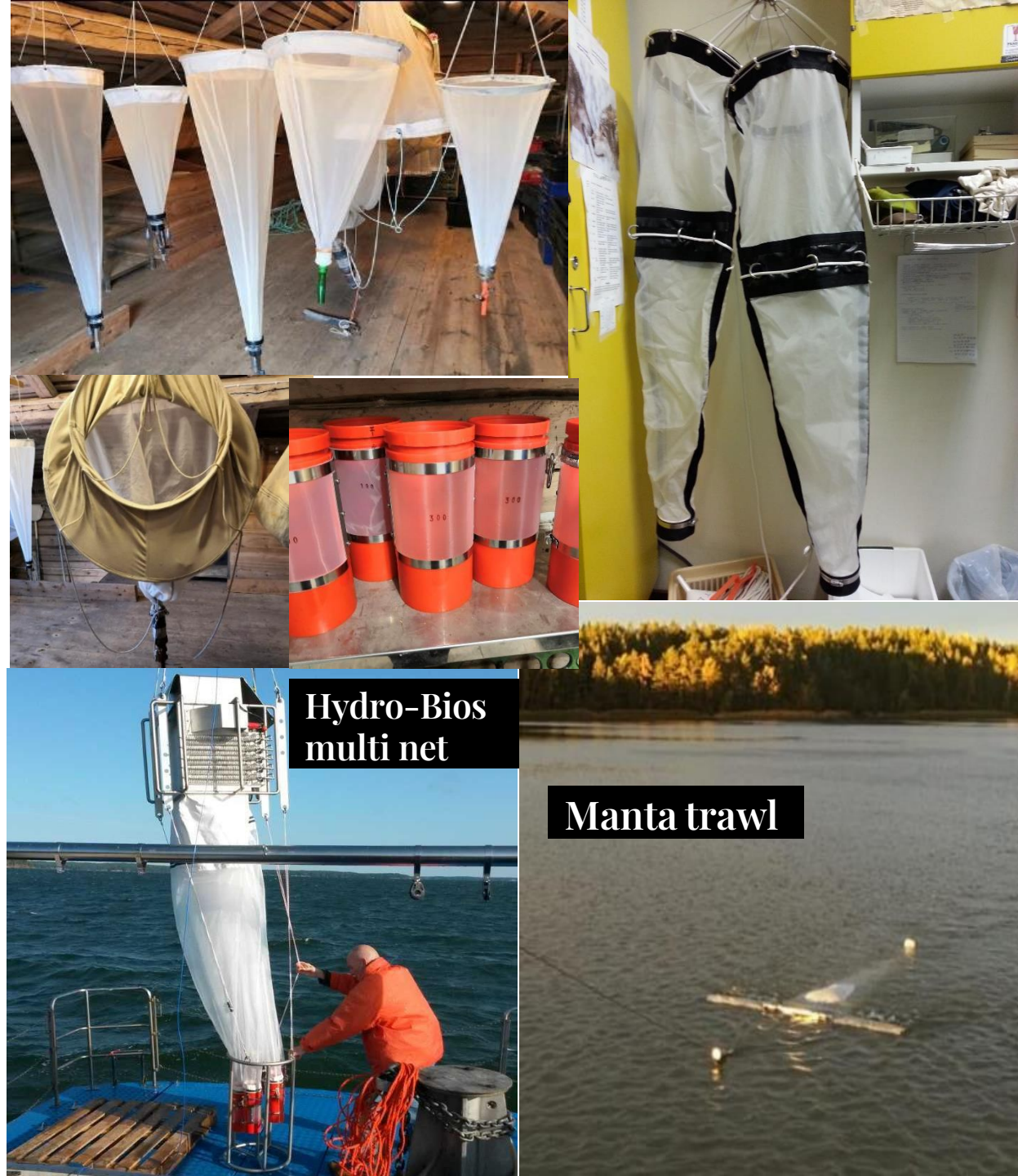
Aquaria room adjacent to the terrace area



Makasiini-building with working space and climate chambers

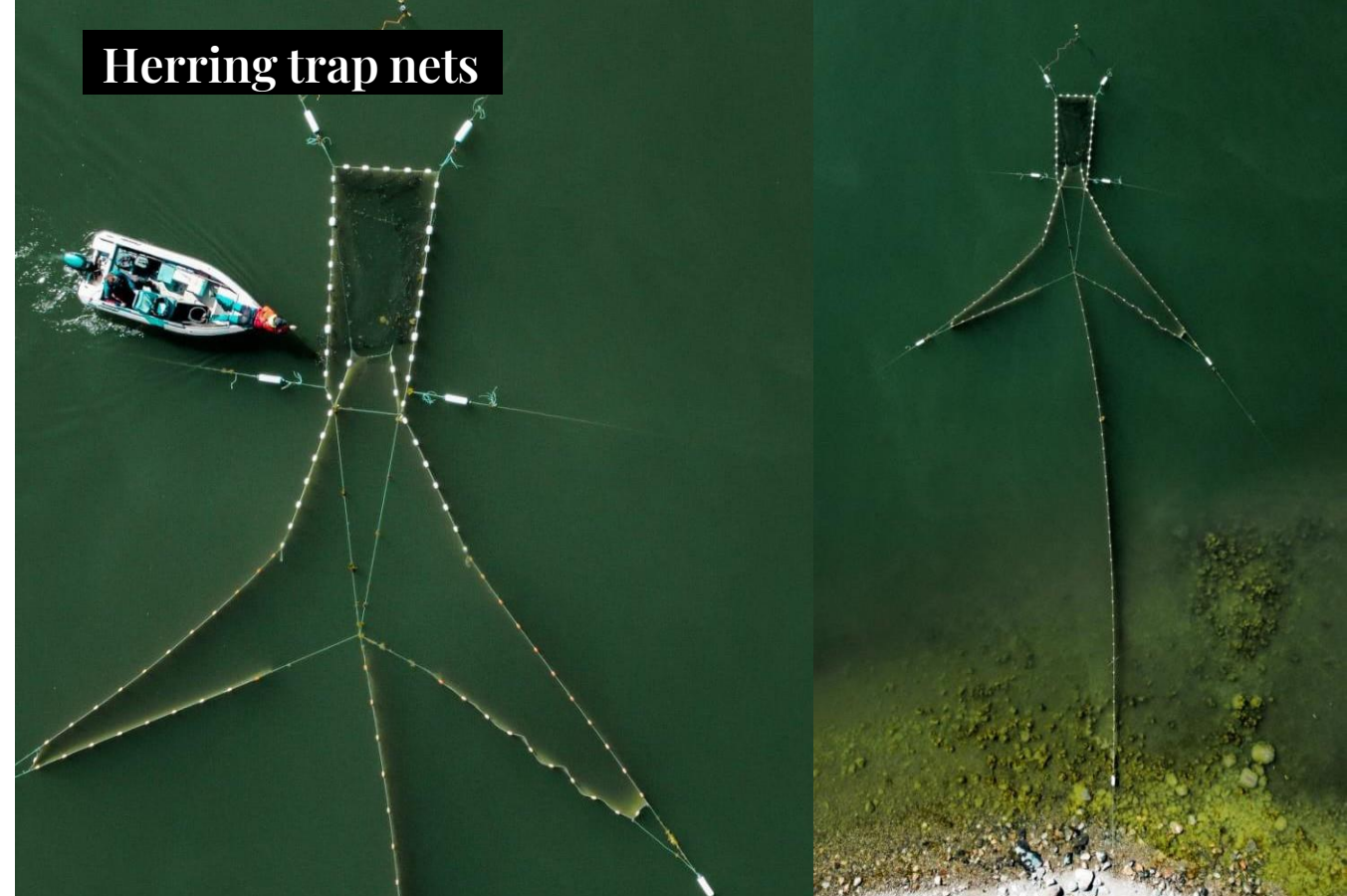
5. Field equipment

- Several standard zooplankton and phytoplankton nets (20, 50, 100, and 150 μm mesh sizes, \varnothing ca. 30 cm)
- 1 x Hensen plankton net (\varnothing 90 cm, 200 μm)
- 2 x closing plankton nets (\varnothing 30 cm, 150 μm)
- HYDRO-BIOS Multi Plankton Sampler MultiNet (100 μm)
 - See :
<https://www.hydrobios.de/images/datasheets/438%20120>
- Manta trawl (100 μm /300 μm)
- All nets equipped with polypropylene ropes, ~10-100 m-long reels available



5. Field equipment

- 2 x custom made herring research trap nets
- 2 x beach seine nets
- 3 larger beach seine nets
- Gill nets
 - Various lengths and mesh sizes suitable for all fish found regularly in the Archipelago Sea
 - Several Nordic and Coastal survey nets
- Littoral nets
- Gulf-V sampler with a flow-meter for sampling larval fish





Littoral nets
Gill nets of variable sizes



Beach seine
nets



Gulf V sampler

5. Field equipment

- RBRconcerto³ CTD++ (2019)
 - Conductivity, temperature, pressure (depth), dissolved oxygen and pH
 - New oxygen probe (Rinko) aquired in 2024
 - Equipped with a field laptop and Ruskin program and Matlab code to download and visualize the data
- YSI ProQuatro handheld multiparameter sensor (2022)
 - Measures a variety of combinations of conductivity, specific conductance, salinity, resistivity, total dissolved solids (TDS), temperature
 - 10 m and 30 m cables
- EcoSense ODO200 dissolved oxygen meter
 - 2 m cable
- 2 x EcoSense EC300A conductivity&salinity meters
 - 10 m cable



5. Field equipment

- Limnos water samplers (7.2 L, 3.6 L, 1.8 L)
- Ruttner water samplers
- 7 x hydrosopes
- Secchi disks (several round and rectangle-ones, various sizes)
- ONSET HOBO Pendant data loggers (2024)
 - Conductivity, salinity, DO, temperature
- Portable chlorophyll fluorometer (Waltz PAM 2500 (2018))
 - High-performance Field and Laboratory Chlorophyll
 - Product details:
https://www.walz.com/products/chl_p700/pam-2500/introduction.html



5. Field equipment

- GEMAX soft sediment corer with 2x Ø9cm tubes
- Sediment Limnos sampler
- Small Niemistö sampler with a sediment slicer
- Standard van Veen grabs, Small and Tall Ekman grabs
- Benthic dredges and harrows suitable for collecting mussel and plant samples
- Ca. 10-15 x Sediment trap stations, each equipped with stainless steel frame and fin, and 2 acrylic tubes
 - e.g. for PCB-, phytoplankton and microplastic studies
- Soft sediment samplers (e.g. Kautsky sampler)



Sediment traps



5. Field equipment

- Accessories:
 - Sieve sets (0.5 mm, 1 mm, 1.5 mm)
 - Sieve table
 - Waders
 - Several tubs, shovels
 - Polypropylene ropes (ca. 10-100 m reels),
 - URSUIT dry suits etc.



5. Field equipment

Underwater filming

- Underwater ROV camera (Deep Trekker Pivot, 2024)
 - Equipped with a 150 m cable, 1 camera
 - Transported in two Pelican cases



Product information and tutorials:

<https://www.youtube.com/watch?v=P3ImrjghQVc&list=PLCTnpG7aXT28-FU6it1E0SbU2KRLVbih9>



ROV Photon (2024)

- 150 m cable, 2 cameras
- Transported in one Pelican case
- [https://www.deeptrekker.com/products/under water-rov/photon](https://www.deeptrekker.com/products/under-water-rov/photon)

5. Field equipment

- Side scan sonar (Sonartech S-150Ai, 2018)
 - Size 1,026 × Ø89 (mm)
 - Weight: 16 kg
 - Single Frequency 900, 1,250 kHz
 - Dual Frequency 400 / 900, 400 / 1,250kHz
 - Maximum Depth 300 m
 - Beam Tilt 10, 20, 30 degree down adjustable
 - Altimeter Sensor 200 kHz, 20 deg



5. Field equipment

The field equipment at Seili is mostly catered to the needs of aquatic research, but the station also has various field equipment also for terrestrial research and teaching needs, e.g.:

- 1 x Burkard cyclone sampler
- 1 x Malaise trap net
- Jalas moth traps
- Tick nets
- Quadrats
- Trail cameras
- 5 x Binoculars (10x42)
- 2 x magnifying glasses 10x (loupe)
- 2 x Bat echo meters (Echo meter touch 2 & Magenta bat5)

Note! Please acquire well in advance for availability as most are currently being used in routine monitoring programs



6. Laboratory equipment

Microscopy

- Olympus CKX53 fluorescence microscope (2024) + camera SC-50 with c-mount adapter (2022)
- Olympus IX53 Inverted compound microscope (2019) + camera SC-50 with c-mount adapter (2022)
- Leica DM2000 compound microscope + screen and camera (2021)
- Olympus Field IMT-2 Inverted compound microscope
- Zeiss Stemi 508 stereo microscopes (10 pch) (2016)
- Zeiss Stemi 305 stereo microscope + camera (2016)
- Wild Heerbrugg M40/M40A Inverted microscopes (3 pch)
- + various older stereo- and compound microscopes (Olympus, Zeiss, Wild, Ilmonen etc.) available and microscope lights (e.g. cold lights)

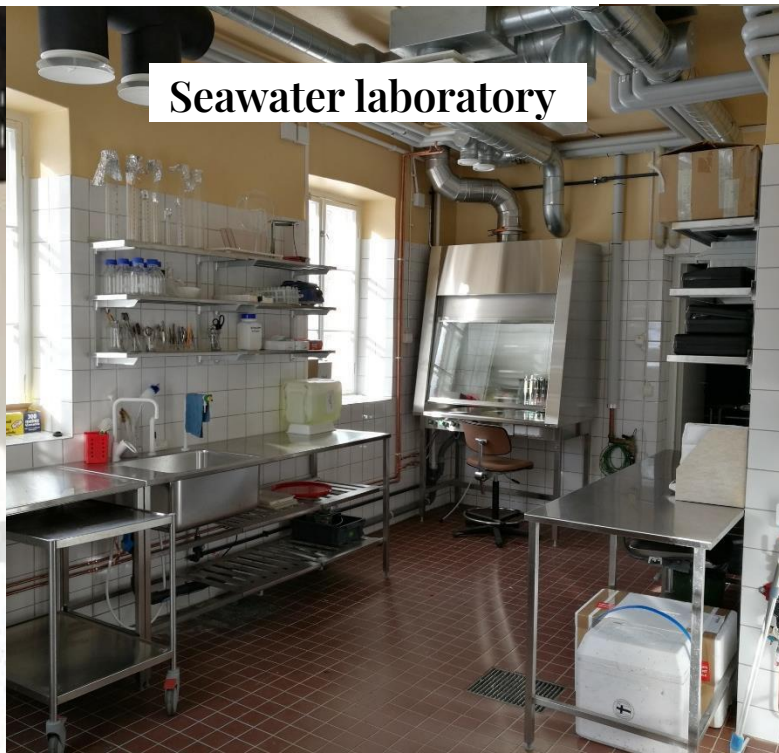


6. Laboratory equipment

- 4 x freezers (-20 °C) and 2 fridges (ca. +4-+6 °C)
- 2 x Ultra-low freezers (-65-80 °C)
- 2 cold rooms +5-+15 °C temperature range (makasiini-building, available only during summer)
- 2 cold rooms, +5-+15 °C temperature range (main building, year round use)
- Freezers and cold rooms are connected to a surveillance system
- Fume hoods (1x seawater laboratory, 4 x main building)
- Chemical storage cabinets
- 2 x drying cabinets



Cold rooms



Seawater laboratory



-20 C freezers and fridges



Ultra-low freezers

6. Laboratory equipment

- Ion exchangers (Silex 1C PE, Main building and Seawater laboratory)
- Mettler AT250 Analytical balance
- Mettler MA155Du Analytical balance (2024)
- Precision balance and 3 toploading balances
- Christ Alpha 1050 Freeze dryer
- Ecomet 30 manual single grinder-polisher
- Amsco Autoclave
- Microcentrifuge (VWR microstar 12, 2021)
- Hot plates and magnetic stirrers
- Ice maker (Porkka)
- 2 x shaking waterbaths (Julabo VLSB12 (2020) and SW-20C)
- Vortex mixer
- Soxhlet extraction apparatus used in lipid analyses
- Sartorius pipettes, e.g. 10 μ l and 100 μ l
- Drying ovens and incubator cabinet



6. Laboratory equipment

- 2 x Millipore vacuum filtration systems with accessories
- Basic titration equipment
- Large and variable supply of standard laboratory glass- and plasticware
- Laboratory lights and light tables

7. Diving equipment

Please note that the station does not actively maintain and borrow diving equipment. The following are currently available by request:

- Fixed (300 bar) and portable compressor
- 200 bar diving tanks (3x 10 L, 2x 7 L)
- A few extra diving masks, fins, gloves, wet suit, diving flags etc.

8. School groups

The following laboratory and field equipment have been acquired/are readily available for school groups visiting the island and using the infrastructure at seawater laboratory

Laboratory and classroom equipment for sample processing:

- Document camera (Ipevo V4K Pro), TV + camera&speakers, laptop
- Zeiss stemi stereomicroscopes (max. 15 pch)
- Light microscopes (1 pch)
- Microscope camera attached to stereomicroscope (1 pch, available by separate request)
- Buckets, trays, pipettes, tweezers, preparation needles, petri dishes and various other basic plastic and glassware to process samples
- Ionexchanged water
- Species identification books and manuals (mostly in Finnish)



Sea water
laboratory



8. School groups

The following are readily available, other equipment by separate request:

- Littoral nets (3 pch)
- Extendable arm 145-275 cm (2 pch)
- Limnos&Ruttner water samplers
- Ekman and van Veen sediment samplers and sieve sets (1 mm, 0,5 mm)
- Phytoplankton (65 μ m) and zooplankton nets (100 + 105 μ m) (3 pch)
- Binoculars (5 pch, 10x42)
- Tick net (1 pch)
- Secchi-disks (3 pch)
- Magnifying glas 10x (loupe, 2 pch)
- Bat detectors (Echo meter 2 & Magenta bat5)
- Buckets and trays (several)
- Waders (5 pch)
- Hydrosopes (7 pch)
- Salinity and dissolved oxygen meters (1+1 pch)



Get inspired.



TURUN
YLIOPISTO