

WP 6 SEA FARMS

Annual project meeting 25-26 October 2017

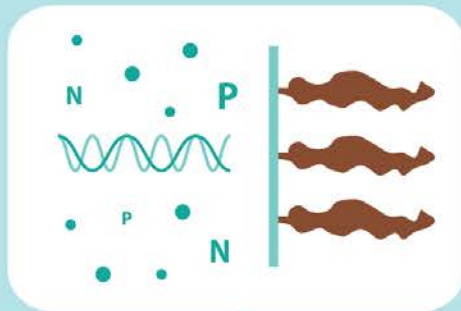
Andreas Myskja Lien, SINTEF Ocean

Production Biology



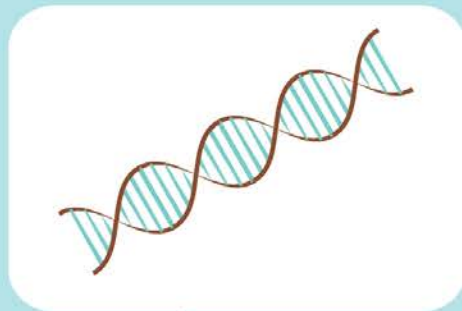
WP1

Seedling
Biology



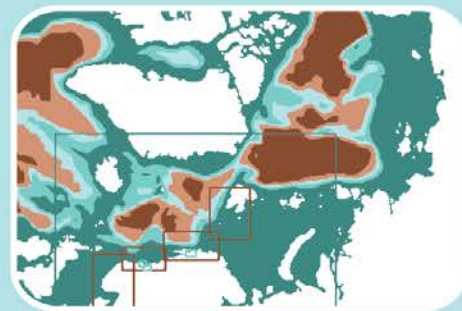
WP2

Sea
Cultivation



WP3

Genetics
and
Disease



WP4

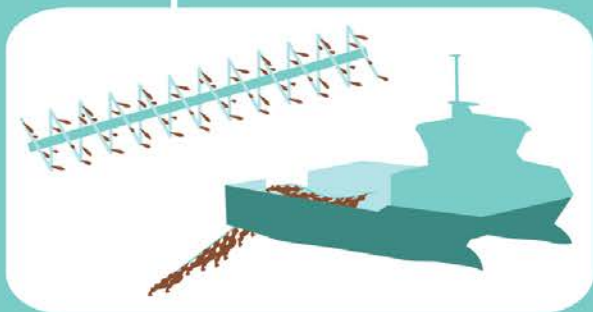
Marine
Modelling



Spores
Gametophytes

WP5

Seedling, Deployment
and Harvest
Technology



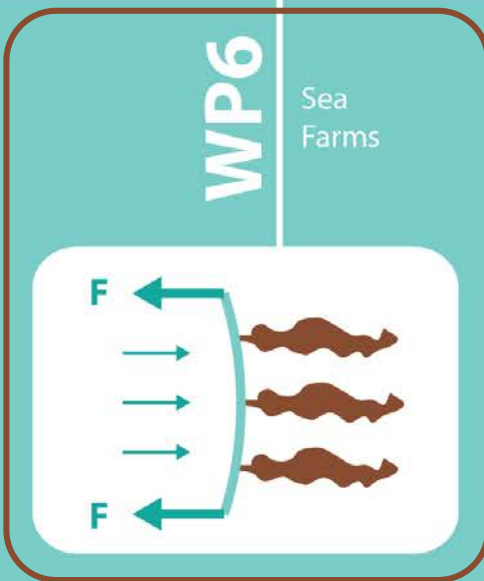
Technology



MACROSEA

WP6

Sea
Farms



WP7

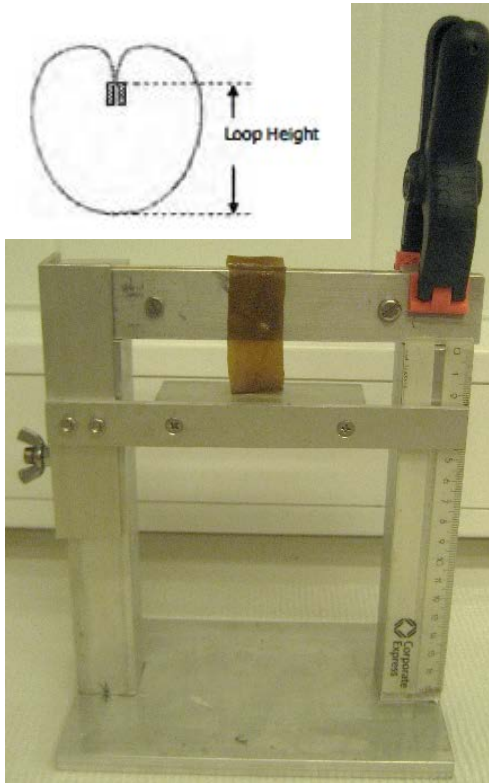
Management,
Coordination and
Dissemination



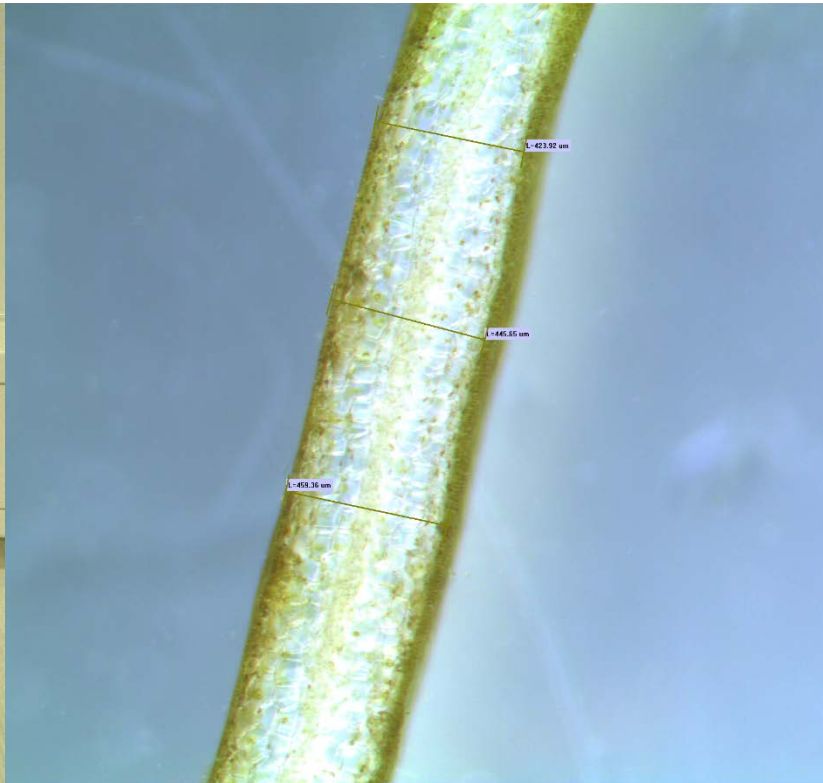
High quality
macroalgae



Mechanical properties (lab experiments)



Blade bending modulus
Heart loop test

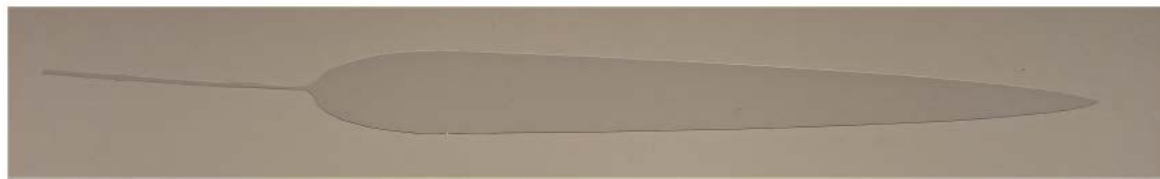
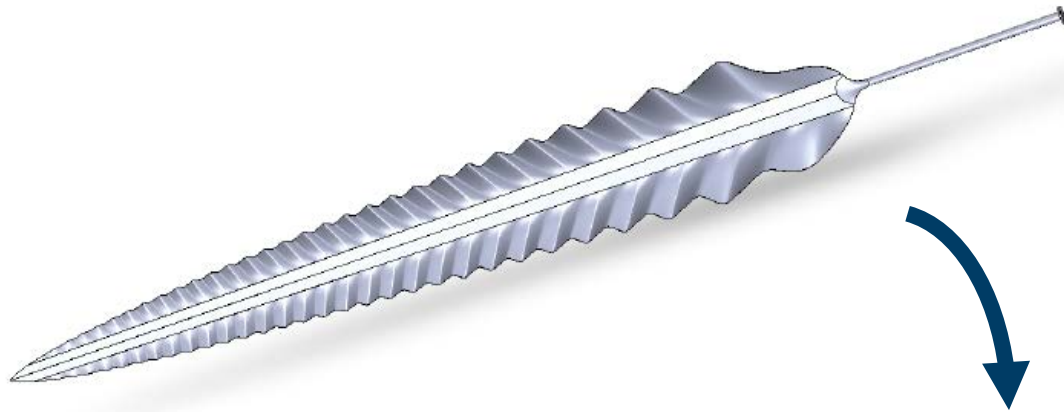


Material thickness
Stereo loupe

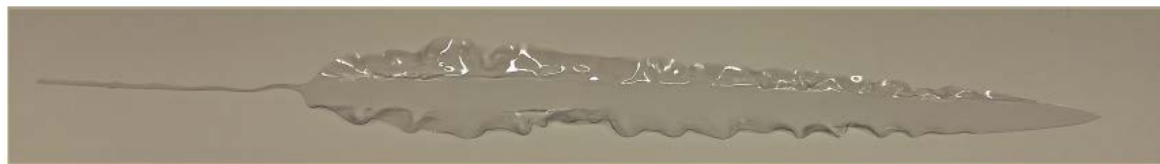


Stipe bending modulus
Three-point bending

Artificial seaweed



(a) Flat blade



(b) Undulate blade



Polyurethane cast → expensive!
Alternative: 4 mm PVC

Towing tank experiments

- NTNU Marine Cybernetics Laboratory



NTNU Trondheim
Norwegian University of Science and Technology
Department of Marine Technology – Group of Marine Structures

MASTER THESIS IN MARINE TECHNOLOGY

SPRING 2017

FOR

STUD. TECHN. CARINA NORVIK

DESIGN OF ARTIFICIAL SEAWEEDS FOR ASSESSMENT OF HYDRODYNAMIC
PROPERTIES OF SEAWEED FARMS



(a) Flat blade



(b) Undulate blade

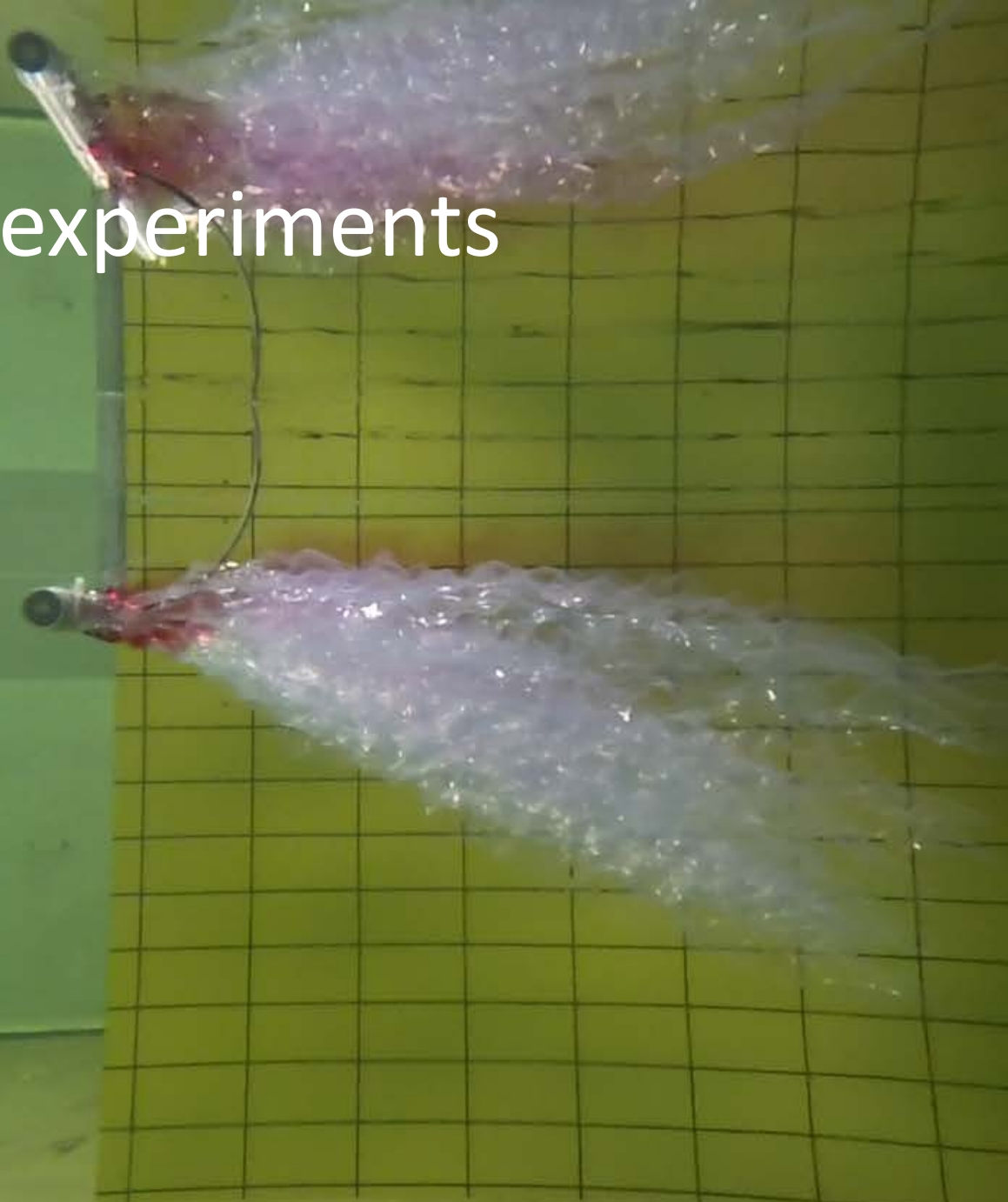


(a) Patch of flat blades

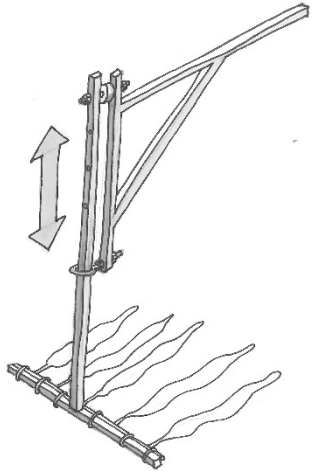
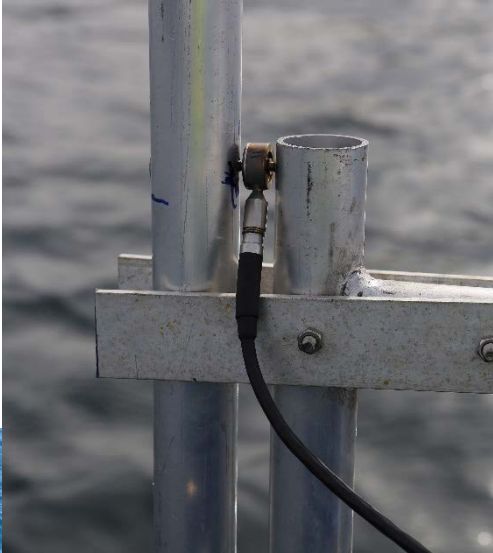
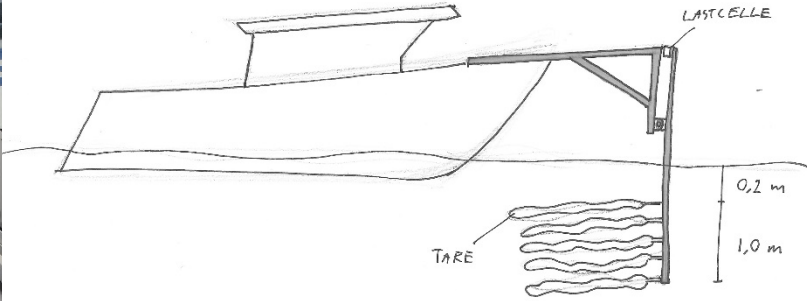


(b) Patch of undulate blades

Towing tank experiments



Live seaweed experiments 2016

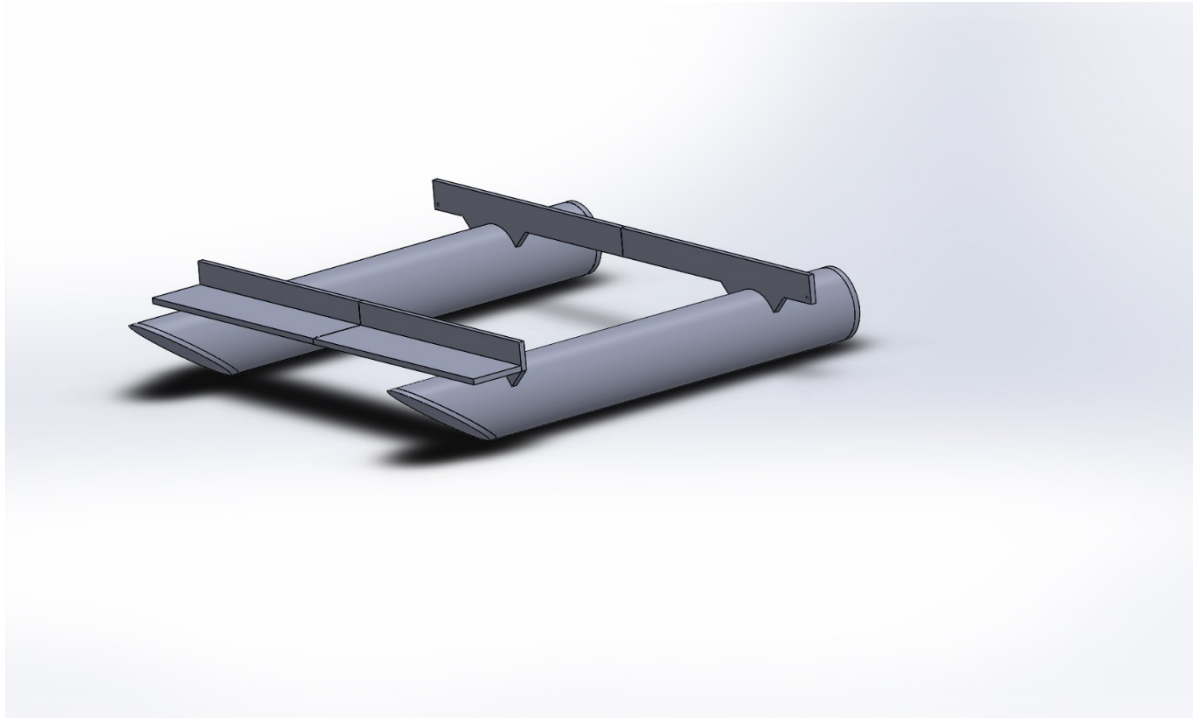
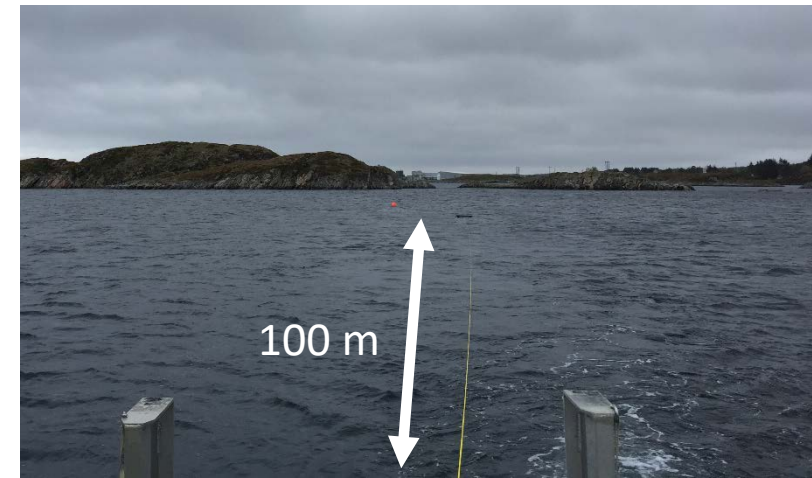


Need for more tests

- Additional tests with live seaweeds needed
 - Test rig did not transfer forces correctly because of hinge



Live seaweed experiments 2017



Planned activities

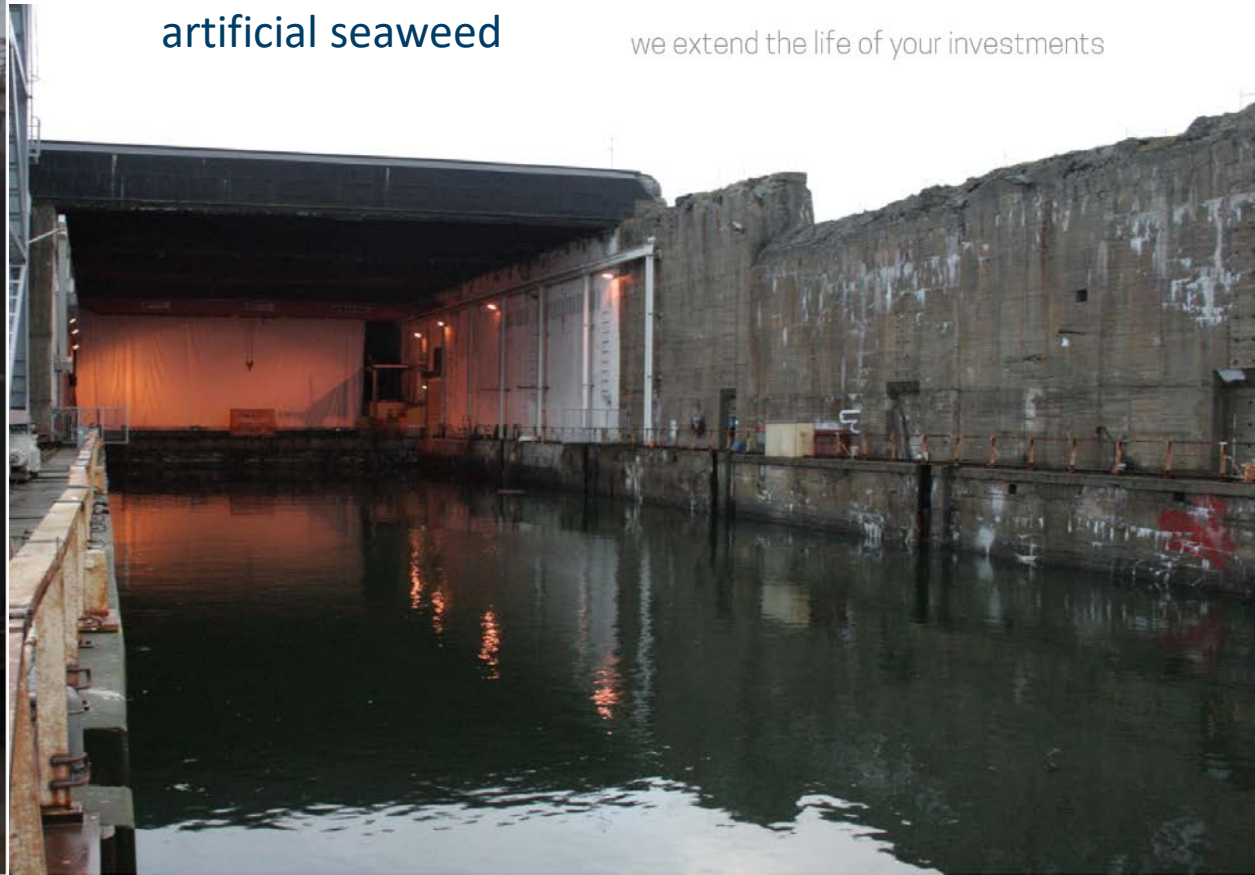
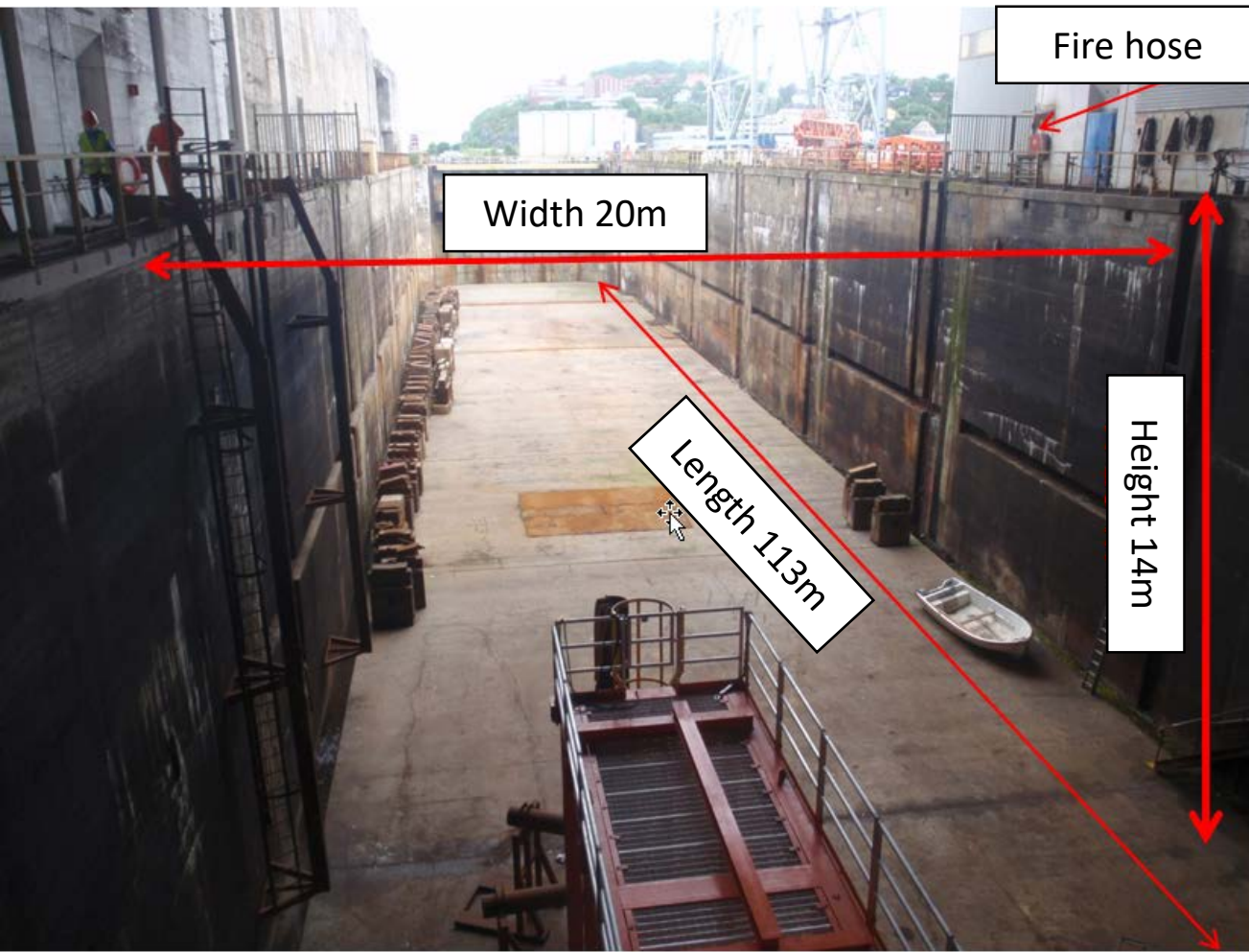
Dora subsea test centre towing experiments

- Spring 2018
- Live seaweed
- Compare live and artificial seaweed



PREZIOSO
Linjebygg

we extend the life of your investments



Numerical model

- Model development started based on conducted drag experiments
- Will be adjusted based on future experiments
- Simulate chosen cases

FhSim:

- Software for simulating and visualising marine systems and operations
- Developed by SINTEF Ocean
- Used for both research and as a basis for industrial tools and services





Technology for a better society