

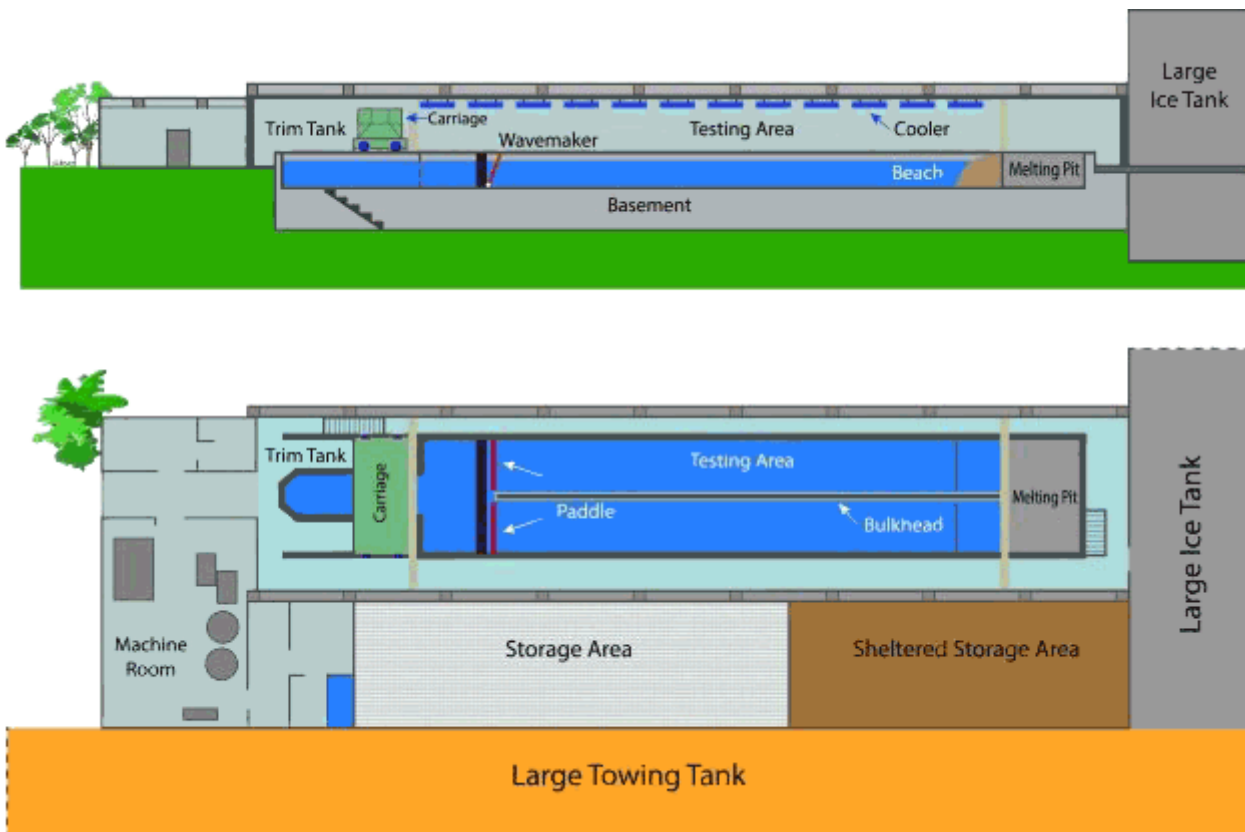


The Hamburg Ship Model Basin

Setting the Standard in Ship Optimisation

ARCTIC ENVIRONMENTAL TEST BASIN

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HSVA operates the largest refrigerated Arctic Environmental Test Basin (AETB) worldwide. The basin is 30 m long, 6 m wide and 1.2 m deep. Air temperature can be regulated between -15°C to $+15^{\circ}\text{C}$, allowing the simulation of typical arctic ice conditions such as level ice, broken ice, frazil ice and pancake ice, pack-ice, rafted ice and pressure ice ridges. In addition to the ice-making facilities (ice growth rate ~ 2 mm/h), special features like current generator, air blowers and a mobile wave generator can be provided on request. Underwater video cameras allow visual observation and documentation of scenarios underneath the ice cover. Various types of experiment for the investigation of ice properties (ice strength, friction, ice crystals, etc.) are carried out in HSVA's refrigerated ice laboratory.

Special features of the Arctic Environmental Test Basin are:

- Simulation of real Arctic conditions
- Generation of propagating waves
- Generation of current
- Generation of wind

- Controlled lighting for optimum algae growth

The following ice conditions can be simulated:

- Frazil ice and pancake ice (produced by operating the wave generator)
- Level ice
- Broken ice
- Pancake ice
- Rafted ice
- Pressure ice ridges

The Arctic Environmental Test Basin is suitable for a wide range of investigations:

- Study of physical ice growth processes
- Investigations on microstructure of ice
- Study of sedimentological processes
- Penetration and distribution of oil in ice
- Biodegradation of oil polluted ice
- Weathering of oil
- Study of marine biological processes in the ice
- Sea ice ecology
- Modelling of oil spill fate
- Development of oil spill combat techniques and methods

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