

Model tests with a Fish Farm Cage System have been carried out at BSHC in the period December 2001-January 2002.

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The model of the Fish Farm Cage System was manufactured to a scale of 1:16. The floating parts of the Fish Farm Cage System were manufactured of plastic pipes and plastic materials. Each element of the mooring system was simulated by twin pulley rope systems. The rope system included rubber elastic elements, calibrated to simulate forces from the chain parts of the mooring lines and the corresponding weights, when lines become tight. A special measuring platform was designed and manufactured to join the model of the Fish Farm Cage System to a PMM (Planar Motion Mechanism). This set-up enables changing of the model position towards the wave front direction by rotation of the supporting shaft of the PMM.

The model tests included:

- Towing tests at calm water with velocities in the range from zero to the maximum speed, corresponding to current velocity of 1,5 m/sec with measuring of the line forces on the mooring system;
- Seakeeping tests in regular waves at four wave directions and zero towing speed with measurements of the line forces on the mooring system, bending moments at the cage corners, shearing forces on the hinge axes and bending moments in selected points along the pipelengths - totally 14 line forces, 12 bending moments and 2 shearing forces in the hinges were measured.

The experimental data obtained support the following conclusions:

- Forces on the fish nets, induced by the current, significantly prevail the forces from waves;

- The fish nets play an important role in reducing the amplitudes of the fish cage oscillations under wave action. This leads to strong wetness of the fish farm gangways under the action of the waves.

