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MAINTENANCE OF DOGFISH (Squalus acanthias) IN A PLASTIC LINED 12 FOOT DIAMETER POOL

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Dogfish were kept in a pool, 12 feet in diameter and 30 inches deep containing approximately 2100 gallons (8000 liters) with running sea water supplied at 5 to 7 gallons per minute. In a preliminary study 6-8 dogfish appeared to do well in this pool for 2-3 weeks. Initially, they tended to swim head on into the side of the pool. Later they swam along the side with less head bumping. The fish ate 1-3 inch pieces of frozen, defrosted herring. The fish tended to eat pieces lying on the bottom. Further, they tended to eat only pieces in the water a short time. The pool was in a shaded location. In the three weeks during which the weather was generally cool, the pool temperature varied from about 13-15°C. On the basis of this preliminary study the maintenance of apparently healthy dogfish in such a pool seems feasible and should be further studied.

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DIVISION OF ISOLATED FURROW FRAGMENTS OF INVERTEBRATE EGGS

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The establishment and functioning of the division furrow has recently been attributed to physical activity or changes in the physical properties of the cytoplasm in the polar and subpolar regions of the cell. In older experiments cells have shown their ability to continue division after having been cut into various shapes but in these cases the furrow region remained joined to peripheral cytoplasmic areas. The purpose of these experiments was to determine whether portions of the furrow region could complete division after complete isolation from the rest of the cell. Cleaving eggs of the sand dollar (Echinarachnius parma), the white jellyfish (Aurelia aurita), and Hydractinia echinata were used as experimental material. Several droplets of sea water containing the eggs were placed on the bottom of an operation chamber and then flooded with light paraffin oil. With a fine-tipped pipette, water was removed from the droplet so that the eggs were firmly held and flattened between the chamber bottom and the oil-water interface. Preparations were transferred to the stage of an inverted microscope and the cells were cut using Leitz micromanipulators and glass needles. Temperatures were maintained at 18°C or lower.

Cell fragments consisting only of furrow and some subfurrow material continued to divide and were eventually completely bisected. Previous results have shown that furrowing is accomplished by the cell surface or a region closely bound to it. These experiments show that surface in the furrow region that has undergone the necessary functional differentiation can engage in normal division activity after complete separation from the rest of the cell.

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