
Woods Hole Oceanographic Institution
Biology Department Seminar



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Redfield Auditorium – 12:00 Noon

The capital-income breeding continuum in fishes

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Some species spawn and feed in separate areas, during different seasons, by storing energy and drawing on it later for reproduction (i.e. capital breeding). Other species spawn using energy acquired locally, throughout a prolonged spawning season, allocating energy directly to reproduction (i.e. income breeding). Capital breeders tend to ovulate all at once and are more likely to be distributed at boreal latitudes. Income breeding allows small fish to overcome allometric constraints on egg production. Income breeders can recover more quickly when good feeding conditions are re-established, which is a benefit to adults regarding bet-hedging spawning strategies. Many species exhibit mixed capital- and income breeding patterns. Poor-feeding environments can lead to delayed maturation, skipped spawning, fewer spawning events per season or fewer eggs produced per event. These flexible processes of energy acquisition and allocation allow females to prioritize their own condition over their propagules' condition at any given spawning opportunity, thereby investing energy cautiously to maximize lifetime reproductive value. These findings have implications for temporal and spatial sampling designs, for measurement and interpretation of fecundity, and for interpreting fishery and ecosystem assessments.