The Reproductive Strategy and Tactics of Female Winter Flounder (*Pseudopleuronectes americanus*): A Review of Biotic and Abiotic Processes

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This presentation reviews the published literature for evidence that winter flounder, like most flatfishes (Pleuronectiformes), are iteroparous, have group-synchronous ovary organization, have determinate fecundity, and are batch spawners. At the southern part of their range, winter flounder mature usually as three-year-olds and they may live to 16- years-old. Although they are iteroparous (i.e., repeat spawners), females may not spawn every year ('skipped spawning'), so that estimates of spawning stock biomass probably overestimate reproductive potential. Histological examination of gonads demonstrates group-synchronous oocyte development; pre-vitellogenic oocytes may be set up 2-3 years in advance of spawning. Oocyte atresia is fairly low, so estimation of the number of vitellogenic (i.e., yolked) oocytes should closely approximate annual realized fecundity. Laboratory studies indicate that females spawn, on average, 40 batches of eggs per spawning season. There is considerable evidence that food consumption affects at least three aspects of reproduction: the initiation of maturation; the occurrence/prevalence of 'skipped spawning'; and the number of vitellogenic oocytes produced. Feeding rates are also affected by temperature, and because winter flounder can be found across a wide latitudinal range this abiotic factor can therefore influence the reproductive output of this species. We will present some preliminary data related to these processes as they pertain to the southern stocks of winter flounder: Gulf of Maine, Georges Bank, and southern New England.