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LIFE HISTORY ASPECTS OF *LEPTOCLINUS MACULATUS* (STICHAEIDAE: LUMPENINAE) IN NORWEGIAN ARCTIC WATERS

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The species daubed shanny (*Leptoclinus maculatus*) is among the most abundant fish species in the epibenthic ichthyofauna of the Arctic waters of Norway, particularly in Svalbard fjords. Both larvae and adults have been found in relative high abundances along the ice edges inside fjords as well as the ice edge of North-East Svalbard, and thrive at temperatures below 0°C. This species is likely an important component of Arctic food chain leading up to seabirds, but the life history of this species is still largely unknown. This study has resolved several life history aspects, including sex, size and age distribution, growth, age at maturity and reproduction. Samples of *L. maculatus* were obtained from: Kongsfjorden, Isfjorden and its side-branches, Smeerenburgfjorden, Hinlopenstredet and Storfjorden. We also sampled specimens from the north-east ice edge of Svalbard, the southern Spitsbergen and the Barents Sea south to Bjørnøya. The sampling extended from April to October, and the material was pooled since there were no significant differences among areas or month of sampling except for reproduction. *Leptoclinus maculatus* is sexually dimorphic in size, growth and age of maturity. The populations are generally dominated by males. Length-weight relationship revealed that the males grow to a larger size than females (124 mm versus 113 mm), and both sexes have a positive allometric growth. There was no differences in age distribution between the sexes, but size-at-age analysis (von Bertalanffy growth function) showed that males are larger than the females at the same age and achieve a longer asymptotic length than the females. Age at maturity is about 4 years for males and 6 years for females. The gonadosomatic index of females increased from <5% in May to 20% in October. Histological investigations have shown that vitellogenesis and maturation phase occur in female ovaries at the end of October. Thus, spawning seems to take place in early winter, likely from November to January. Like most benthic fishes, *L. maculatus* has low fecundity and possesses large eggs. Differences in size-at-age and growth are likely to be caused by differential investment into reproduction, with females producing large, lipid rich eggs. During oogenesis, the quality and quantity of lipids in female gonads changed seasonally where increasing of phospholipids and triacylglycerols in ovaries (main classes of structural and energetic lipids) were important for growth and development of embryos. Both ovaries and liver were rich in lipids and raised from late winter to autumn from 32.7±2.1% to 78.5±4.3% and from 32.7±5.2% to 57.5±5.2% in the respective tissues. Triacylglycerols were the dominant neutral lipid during all seasons. The larvae migrate to the upper water layers, where they live pelagically for two years feeding on zooplankton in the summer and utilizing lipids stored in a large lipid sac during winter. When the lipid sac is depleted, the juveniles descend to the bottom and start a benthic life.