central Gulf of Alaska, these temperatures are reached from early February to March, depending on latitude, but may not be attained until late June in the northern Gulf of Alaska.

Reported parturition times for *S. melanops* range from January-May off north-central California (Wyllie Echeverria 1987), and February to April off British Columbia (Westrheim 1975; Hart 1973), consistent with our offshore observations. Taking the average gestation period of 37 days at 10°C for *S. melanops* (Boehlert and Yoklavich 1984), if fertilization happened on the continental shelf and the females then proceeded directly offshore to spawn on the shortest path to the collection sites (and thus swimming directly against the prevailing current), then they would have had to travel at a minimum speed of 31.3 cm/sec, or ca. 0.6 body lengths/second, disregarding currents. Such swimming speeds are close to the optimal one body length/second values of directed swimming.

As the prevailing on-shore current velocity in the area of Station Papa is on the order of 50 cm/sec (Dodimead and Pickard 1967), or one body length/sec, and since spawning certainly occurs in nearshore waters, the required swimming speeds needed to reach the capture locations suggest that mating in *S. melanops* probably also occurs off the continental shelf as well as in inshore regions. The alternative interpretation, that some fish having a strongly directed offshore migration after insemination, is inconsistent with our knowledge of the coastal biology of *S. melanops*, the swimming speeds needed to reach the vicinity of Station Papa, and the occurrence of substantial numbers of spawners in coastal waters.

Adult *S. melanops* are preferentially distributed at depths of 8-55 m (Niska 1976), with a benthic juvenile stage following a pelagic larval period that extends for some 4-6 months (LaRoche and Richardson 1980). As pelagic larvae of *S. melanops* have previously only been collected as far offshore as 266 km (the maximum extent of larval surveys; LaRoche and Richardson 1980), the offshore distribution of *S. melanops* may therefore be more extensive than previously thought. This would be consistent with past speculation that at least some species of *Sebastes* have much more extended offshore distributions than current data would indicate (Moser and Boehlert 1991), and raises the interesting question as to whether offshore spawning by these individuals can contribute to the overall reproductive success of the population.

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