

ABSTRACT

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Behavioural interactions of predators and spawning chokka squid off South Africa: Towards quantification.

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The interaction of a suite of predators on mating and spawning chokka squid *Loligo vulgaris reynaudii* was studied at inshore (<50m) spawning grounds off South Africa. This study provides the first detailed records a predator-prey interactions of squids on their spawning grounds and is one of the first attempts to quantify the interactions between mating animals and their predators. The squids are focused on mate choice and reproduction while they aggregate over egg beds and they may be more vulnerable to predation than at other times. Their vulnerability to different predators in the field is examined and the tactics used against different predatory species is illustrated using recordings made with underwater video cameras. Predators recorded included two cephalopods (*Octopus vulgaris* and *L.v.reynaudii*), five teleosts (*Pagellus bellotii natalensis*, *Spondylisoma emarginatum*, *Pachymetopon aeneum*, *Chimerius nufar* and *Pomatomus saltatrix*), seven chondrichthyans (*Squalus megalops*, *Mustelus mustelus*, *Carcharias Taurus*, *Dasyatis brevicaudata*, *Gymnura natalensis*, *Poroderma africanum*, and *P. pantherinum*) and three marine mammals (*Arctocephalus pusillus*, *Tursiops aduncus* and *Delphinus delphis*). Analysis of behavioural interactions between predators and prey showed that predator disruption of egg laying may be quantified. Marine mammals caused the most acute disruption, whereas other taxa had more chronic disruption effects because they spent more time on the spawning grounds. During November 1995, the suite of predators changed during the course of a two-day period of underwater video recording, possibly because of an increase in water temperature. The hypothesis that predators would be concentrated around a spawning aggregation was tested by surveying the spawning grounds using an underwater camera towed by a boat navigating with differential GPS. The results supported the hypothesis because predators were focused on the main spawning sites. Nocturnal dispersal of the squids away from the spawning grounds and the use of several spawning sites along the coast could reduce predation by making the location of spawning sites difficult to predict for the predators.