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Overview of White Shark (*Carcharodon carcharias*) Research at Seal Island, South Africa.

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Predatory behavior, residency patterns, and social organization of White Sharks were studied at Seal Island in False Bay, South Africa, from 1997-2003. Of 2088 predatory attacks on Cape Fur Seals (*Arctocephalus pusillus pusillus*) recorded during the study period, frequency and success rate were analyzed according to 12 biotic and abiotic factors. Attacks were primarily on lone in-coming young of the year seals, were spatiotemporally clustered at the primary pinniped entry/exit point at the south terminus of the Island, and occurred almost exclusively during winter (May-September), mostly within two hours of sunrise. Predatory success rate averaged 47%, but increased to 55% under scotopic conditions and decreased to 40% under photopic conditions. Certain individual White Sharks exhibit idiosyncratic predatory behavior resulting in success rates up to 80%, suggesting some degree of trial-and-error learning. Using total pigmentation pattern, analyzed according to 68 discrete topographic regions, 262 individual White Sharks were catalogued and their residency patterns and intraspecific associations discerned from re-sightings data. Individuals were re-sighted as often as 28 times over the study period, suggesting a high degree of philopatry. Residence times for individuals ranged from 1-18 days, averaging 2-3 days. Known individuals appear to travel in loose groups of 2-6. Sixteen categories of overt agonistic behavior have been defined and documented, appearing to occur only between individuals of separate groups. Social hierarchy under baited contexts appears to be largely size-dependent; with individuals as little as 5% longer dominant over smaller conspecifics, but sex and degree of melanism may also be factors.

Key words: predatory behavior, residency pattern, philopatry, social organization, dominance hierarchy, agonistic display

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