

UNDERWATER SWIMMING BEHAVIOR OF AMERICAN BLACK OYSTERCATCHER CHICKS

K. H. MORGAN

*Environment Canada
Canadian Wildlife Service
5421 Robertson Road, P.O. Box 340
Delta, British Columbia, V4K 3Y3, Canada*

Abstract.—American Black Oystercatcher (*Haematopus bachmani*) chicks are precocial, abandoning the nest within 1–3 d of hatching, although fledging occurs at about 40 d. At the approach of a predator or other danger, oystercatcher chicks usually crouch and remain motionless until the danger has passed. While studying oystercatcher breeding biology in Skidegate Inlet, British Columbia, two unrelated chicks were flushed from their nesting island and evaded capture by swimming underwater, away from our rescue boat. This paper presents the first published description of underwater swimming by immature American Black Oystercatchers.

NADO BAJO EL AGUA POR PARTE DE POLLUELOS DE *HAEMATOPUS BACHMANI*

Sinopsis.—Los polluelos del ostrero *Haematopus bachmani* son prococes y abandonan el nido entre 1–3 días luego de haber nacido, aunque no vuelan hasta que tienen unos 40 días de edad. Cuando un depredador se aproxima, éstos, por lo general, se agachan y se mantienen inmóviles, hasta que pasa el peligro. Mientras se estudiaba la biología reproductiva de estas aves en Skidegate Inlet, Columbia Británica, se tuvo la oportunidad de observar en dos ocasiones separadas, a polluelos evadir nuestra captura nadando bajo el agua. Este trabajo ofrece la primera descripción de nado bajo el agua, por parte de polluelos de ostrero.

American Black Oystercatchers (*Haematopus bachmani*, hereafter oystercatchers) are common breeders along the coast of British Columbia, nesting primarily on small, sparsely vegetated islands (Vermeer et al. 1989). The breeding range of this shorebird extends from the Aleutian Islands to southern Baja California (Marchant et al. 1986).

Young oystercatchers are precocial, abandoning the nest within 1–3 d of hatching. Although fledging occurs at about 40 d (Hartwick 1974), the interval between hatching and true independence is considerably longer. In British Columbia, Drent et al. (1964) observed that many chicks remained with their parents for up to 16 wk.

Upon hearing an adult give an alarm call at the approach of a predator or other danger, oystercatcher chicks usually crouch with their heads and bills partially hidden by available cover, or run quickly to a more substantial hiding spot (Cramp and Simmons 1983). The chicks normally remain motionless until an “all-clear” call is given.

METHODS AND RESULTS

During a study of oystercatcher breeding ecology in Skidegate Inlet, Queen Charlotte Islands, British Columbia (Vermeer et al. 1992), a field assistant and I visited all known nesting islands, every 2–3 d. Dates of laying and hatching were noted for all eggs that were found.

On 17 Jul. 1990, we re-visited Hallet Island (53°12'54"N, 132°14'24"W),

a small islet supporting four nesting pairs of oystercatchers. Typical of our visits, the boat-landing caused considerable alarm. All of the attendant adults flew from the island, calling as they circled, until they eventually landed some distance away. In marked contrast to the typical cryptic behavior of pre-fledglings, on this occasion two (out of six surviving) chicks flushed from the island and flew out over the inlet. Neither chick was proficient at flying, and both splashed-landed on the water approximately 50 m offshore and about 30 m from each other.

Due to the high number of Bald Eagles (*Haliaeetus leucocephalus*) and Peregrine Falcons (*Falco peregrinus*) in the vicinity, we decided that a boat rescue was necessary. As our boat approached the first chick, it surface-paddled away from us, using its feet in a manner similar to a gull. When we were within 2 m of the chick, it dove head first beneath the surface. Being positioned in the bow of the boat and because of the clarity of the water, I was afforded an excellent view of the bird's movements. Following the eventual capture and subsequent release of the birds, I made detailed notes of what had occurred.

The method of swimming was very similar to that of Common Murres (*Uria aalge*), as described by Johnsgard (1987). The dive phase was accomplished with almost no upward spring at all; instead, the wings were opened quickly and swept synchronously downward, forcing the bird underwater. The dive's angle was steep, and was aided by only two or three kicks of the feet. Attaining a depth of approximately 1 m, the chick swam horizontally for about 10 s, during which time, it travelled roughly 3–4 m. As the oystercatcher swam, the wings appeared never to be raised above the back, and during the downstroke, they appeared to be down-tilted. The wing was rotated as a single unit, with a noticeable twist to the wrist. The humerus swung posteriorly in roughly a horizontal plane, which resulted in the forearm and hand moving posteromedially. At the completion of this phase, the forearm and hand were swung back medially, and the wing was then raised for another propulsion stroke. Other than the initial kicks to attain a swimming depth, no further movements of the bird's feet, as either paddles or rudders, were observed.

After returning to the surface, the chick commenced paddling again. Each of the four times we approached to within about 2 m of the bird, it repeated the same diving and swimming behavior. The duration of each subsequent dive decreased, however, suggesting the development of fatigue. On the fifth attempt, we succeeded in rescuing the bird, and then went after the other chick. This bird proved to be as elusive as the first and larger chick, diving and swimming competently.

After capturing the second chick, we returned to the island and examined both birds. They appeared healthy, and apparently unscathed by their adventure. Immediately upon release, the birds flew to the beach on the opposite end of the island.

The exact ages of the chicks were not known; however, based upon hatching dates, one was 45–48 d, and the other was 33–36 d old. The age difference indicates that the two were not from the same clutch, and

suggests that this behavior may be a common method of predator avoidance.

DISCUSSION

Bent (1929) reported that American Black Oystercatchers are good swimmers, and are capable of long, deep dives. Hayes and Bennett (1985) were the first to report diving by American Oystercatcher (*H. palliatus*) chicks. They observed (from shore) an estimated 5-wk-old chick swim away from them and when about 15 m from land, dive out of sight. The chick reappeared 10–15 s later, about 5 m from where it had submerged. Cramp and Simmons (1983) similarly noted that chicks of the closely related Eurasian Oystercatcher (*H. ostralegus*) can swim well and will dive when pursued. None of these authors provide descriptions of the methods used for underwater propulsion.

Diving by chicks has also been reported in the American Avocet (*Recurvirostra americana*, Gibson 1971, Sordahl 1982), Black-necked Stilt (*Himantopus mexicanus*, Sordahl 1982), and Spotted Sandpiper (*Actitis macularia*, Pettingill 1976). Sordahl (1982:320) noted that avocets and stilts propel themselves underwater mainly with shallow synchronous wingbeats, although "they often kick their legs vigorously as well."

The main predators of open-nesting marine birds in Skidegate Inlet are Raccoons (*Procyon lotor*), River Otters (*Lutra canadensis*), Northwestern Crows (*Corvus caurinus*) and Bald Eagles (K. Morgan and K. Vermeer, pers. obs.). Flying from the land to the water undoubtedly increases the chances of avoiding a terrestrial predator. It is unlikely, however, that a chick remaining on the surface of the water is less vulnerable to an aerial predator than it is on land. The tendency for a chick to dive should depend largely on its diving ability, as well as the available alternatives for escape. Remaining on the water and diving may be a better strategy than flight from certain predators (Sordahl 1982).

Stettenheim (1959) suggested, on the basis of anatomical evidence, that alcids may have evolved from an undifferentiated shorebird ancestral stock that was as closely related to gulls as to the more typical shorebirds. He also postulated that this ancestral stock may have been waders (rather than plunge-diving birds), which initially used diving to escape from danger and only later began to forage by that means. The ability of various shorebird species to swim underwater may support Stettenheim's speculations.

To my knowledge, this is the first detailed description of swimming by immature American Black Oystercatchers. Undoubtedly, videotaping eventually will provide better descriptions of the swimming maneuvers of oystercatchers. Suggestions for future study include determining if adult oystercatchers ever utilize underwater swimming to avoid predators, and whether these maneuvers serve any additional functions.

ACKNOWLEDGMENTS

I would like to thank B. A. York for his capable field assistance. M. Dunn, F. E. Hayes, T. A. Sordahl and K. Vermeer greatly improved earlier drafts of this paper. The Canadian Wild-

life Service, Pacific and Yukon Region, of Environment Canada, supported the writing of this paper.

LITERATURE CITED

- BENT, A. C. 1929. Life histories of North American shore birds, part 2. U.S. Natl. Mus. Bull 146.
- CRAMP, S., AND K. E. L. SIMMONS, EDs. 1983. Handbook of the birds of Europe, the Middle East and North Africa. The birds of the Western Palearctic. Vol. 3. Waders to gulls. Oxford Univ. Press, Oxford, England. 913 pp.
- DRENT, R. H., G. F. VAN TETS, F. TOMPA, AND K. VERMEER. 1964. The breeding birds of Mandarte Island, British Columbia. Can. Field-Nat. 78:208-263.
- GIBSON, F. 1971. The breeding biology of the American Avocet (*Recurvirostra americana*) in central Oregon. Condor 73:444-454.
- HARTWICK, E. B. 1974. Breeding ecology of the Black Oystercatcher (*Haematopus bachmani* Audubon). Syesis 7:83-92.
- HAYES, F. E., AND G. H. BENNETT. 1985. Escape diving by an American Oystercatcher chick. J. Field Ornithol. 56:415-416.
- JOHNSGARD, P. A. 1987. Diving birds of North America. Univ. Nebraska Press, Lincoln, Nebraska. 292 pp.
- MARCHANT, J., T. PRATER, AND P. HAYMAN. 1986. Shorebirds: an identification guide to the waders of the world. Houghton Mifflin Co., Boston, Massachusetts. 412 pp.
- PETTINGILL, O. S., JR. 1976. Observed acts of predation on birds in northern lower Michigan. Living Bird 15:315-325.
- SORDAHL, T. A. 1982. Antipredator behavior of American Avocet and Black-necked Stilt chicks. J. Field Ornithol. 53:315-325.
- STETTENHEIM, P. R. 1959. Adaptations for underwater swimming in the common murre (*Uria aalge*). Ph.D. thesis. Univ. Michigan, Ann Arbor, Michigan.
- VERMEER, K., K. H. MORGAN, AND G. E. J. SMITH. 1989. Populations and nesting habitat of American black oystercatchers in the Strait of Georgia. Pp. 118-122, in K. Vermeer and R. W. Butler, eds. The ecology and status of marine and shoreline birds in the Strait of Georgia, British Columbia. Canadian Wildlife Service, Special Publication, Ottawa, Ontario.
- , ———, AND ———. 1992. Black Oystercatcher habitat selection, reproductive success, and their relationship with Glaucous-winged Gulls. Col. Waterbirds 15:14-23.

Received 4 Oct. 1993; accepted 12 Jan. 1994.