
**Stomach Contents of American Mergansers, *Mergus*
mergamser Linnaeus, Caught in Gill Nets Set in
Lake Carl Blackwell, Oklahoma¹**

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While conducting commercial fishing operations during the winter of 1957-58, a total of 96 American mergansers were caught in gill nets set in Lake Carl Blackwell, Payne County, Oklahoma. Analyses of gross stomach-contents were made on 89 of these ducks and the results are reported herein. Comparisons with other food studies of American mergansers and comments on the feeding habits of this bird in warm waters are included.

Adult American mergansers are known to feed extensively on fishes and several studies have been made to determine the exact composition of their diets. Munro and Clemens (1937) studied the feeding habits and food of the American merganser and its relationship to the fisheries of British Columbia. Salyer and Lagler (1940) studied the food of this duck in relation to fish management in Michigan. Beach (1937), White (1936), Leonard and Shetter (1937), Coldwell (1939), Alcorn (1953) and others have reported on the foods and feeding of the American merganser. With the exception of Alcorn's work in Nevada, all of the previous studies were conducted in northern areas where the major food items are salmonid and other cold-water fishes.

Diving water birds such as common loons, scaup and old-squaw ducks are frequently caught in gill nets, trammel nets and other types of commercial fishing gear (Scott, 1938; Lagler and Weinert, 1948; and Schorger, 1947). Although no other accounts of mergansers being caught in nets have been noticed, this is probably of frequent occurrence.

Six unsexed birds were taken from one gill net on December 19, 1957 and 59 birds, 24 females and 35 males, were taken from two nets on January 18, 1958. On January 26 one net contained 31 birds (sex not recorded). All of these nets were 6 by 300 feet and were set on the bottom in water ranging from 25 to 35 feet in depth. The net-webbing was three and one-half inch and four inch bar-mesh measure.

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Schorger (1947) reported that old-squaw ducks caught in nets in the Great Lakes did not struggle in the net, but died quiescently. The net-caught mergansers were sufficiently entangled in the nets to indicate struggling rather than quiescence after swimming into the nets.

One of the two nets on January 18 and the net on January 26 had floated to the surface, the latter containing a bird which was still alive. This individual may have become entangled shortly before, or after the net was buoyed to the surface. Other than having a bruised leg it appeared in good condition, and swam away when released.

The esophagus and stomach was removed from each of the 59 and 30 birds recovered on January 18 and 26 respectively, and preserved in formalin. Later, the contents of each stomach was examined and the number and species of each identifiable fish-food item recorded. Total length measurements were taken on all fishes that were sufficiently intact. No volumetric measures or micro analyses of stomach contents were made.

A total of 304 fishes were recovered from 45 of the 89 stomachs. The percentage of total food items, the frequency of occurrence and the average size and size range for each of the food species recovered are presented in Table I. Twenty-one of the stomachs were completely empty and 22 otherwise empty stomachs contained an average of 2.6 pairs of otoliths per stomach. The majority of these otoliths probably were from the freshwater drum, *Aplodinotus grunniens* Rafinesque, but they were not used in the computations because the presence of a digestive-resistant structure from one food item would tend to bias diet information.

TABLE I. Contents of 45 American merganser stomachs from Lake Carl Blackwell, Oklahoma.

Food Item	Total Number	Percent of Total Food	Frequency of Occurrence (%)	Average Size; Range in ()*
Gizzard Shad	229	75.3	91	106 (79-202)
Freshwater drum	16	5.3	22	140 (85-210)
White crappie	25	8.2	22	98 (74-165)
Channel catfish	2	0.7	4	72
Unidentified fish remains**	32	10.5	40	—

*Total length in millimeters

**Includes a fragment of elasmobranch skin

The greatest number of fish taken from a single stomach was 22 gizzard shad, *Dorosoma cepedianum* (LeSueur), 20 of which were measured and averaged 93 millimeters in total length. The greatest variety of fishes from a single stomach was 10 gizzard shad, 2 freshwater drum, 6 white crappie, *Pomoxis annularis* Rafinesque, 1 channel catfish *Ictalurus punctatus* (Rafinesque), and 2 unidentified fish. The largest single fish recovered was a freshwater drum 210 mm. total length. This is slightly smaller than the 10-inch largemouth bass, *Micropterus salmoides* (Lacépède), and the 12-inch carp, *Cyprinus carpio* Linnaeus, reported by Alcorn (1953) and the 15-inch brown trout, *Salmo trutta* Linnaeus, reported by Salyer and Lagler (1940).

One food item of particular interest was a piece of skin of an elasmobranch fish approximately two centimeters square taken from a stomach obtained on January 26, 1958. The placoid scales were readily recognizable, indicating the source of the skin. The presence of elasmobranch remains probably indicates that the merganser had recently returned from the Gulf Coast.

Munro and Clemens (1937) classify the American merganser as "mainly a predator feeding upon all species of fish which can be captured in relatively shallow water." According to Salyer and Lagler (1940) American mergansers in Michigan streams feed by swimming along the surface with their head submerged looking for prey. White (1936) stated that in Nova Scotia the feeding of this bird is entirely by sight. Most of the waters in the regions mentioned contain little turbidity as compared with Lake Carl Blackwell. Here the recovery of American mergansers from nets set in 35 feet of water presents an interesting problem. To find mergansers at this depth is not surprising since diving ducks have been found at much greater depths (Schorger, 1947). However, it is doubtful that these birds can rely entirely on the sense of sight in pursuit of food, if that is why they are at these depths, in turbid waters. Perhaps they perceive the presence of fish, particularly fish moving in schools such as the gizzard shad, in turbid water situations by hypersensitivity to motion in water. This aspect requires further study before positive statements can be made.

From the literature reviewed it appears that the feeding of American mergansers may be detrimental to important game and commercial fish populations. Munro and Clemens (1936) indicated that under certain conditions these ducks devour great quantities of salmon eggs in British Columbia. White (1936) indicated extensive feeding by this bird upon trout and salmon in Nova Scotia. Beach (1937), Leonard and Shetter (1937) and Salyer and Lagler (1940) stated that American mergansers occasionally inflict serious losses to Michigan's better trout waters such as the Au Sable River. The latter authors pointed out that in the lower non-trout-producing portions of such streams and in the bays, estuaries and large open waters the food of these ducks is essentially nongame fishes. They suggested that American mergansers in these conditions may be beneficial. Though no stomach analyses were made, Bennett (1947) stated that American mergansers were largely responsible in preventing overpopulation and stunting of black bullheads, *Ictalurus melas* (Rafinesque), in Dad's Lake, Nebraska. Alcorn (1953) found that 76 percent of this bird's diet in Churchill County, Nevada was rough fishes.

In the present study 80.6 percent of the fishes recovered from American mergansers were rough or forage species. Most southern streams and impoundments contain large fish populations frequently consisting of numerous stunted individuals. American mergansers in this region, therefore, should tend to be more beneficial than detrimental to fisheries by helping to prevent overpopulation.

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