An Annotated Bibliography of the Cunner, *Tautogolabrus adspersus* (Walbaum)

FREDRIC M. SERCHUK and DAVID W. FRAME

SEATTLE, WA
May 1973
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An annotated bibliography of the cunner
*Tautogolabrus adspersus* (Walbaum)

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ABSTRACT

This annotated, indexed bibliography of the cunner contains 347 entries including references on taxonomy, distribution, life history, physiology, behavior, commercial and sport fisheries, and related fields. It may be considered current through June 1972.

INTRODUCTION

The cunner, *Tautogolabrus adspersus* (Walbaum), also known as the chogset or bergall, is commonly found around wharves and docks and on rocky bottoms along the northeastern coast of North America. It is distributed from Newfoundland southward to the mouth of the Chesapeake Bay, with a major center of abundance in the Massachusetts Bay area. In these northern waters, cunners are most numerous in shallow inshore areas, although they are frequently taken near wrecks and shoals up to 30 miles at sea. There is little evidence in support of seasonal migration patterns and individuals remain near their natal areas during their formative years.

At one time, the cunner was a favorite fish of New England anglers. During the 1880's between 200,000 and 300,000 pounds of cunner were taken in the New England commercial harvest. However, since the turn of the century, commercial catches have been negligible because of poor demand.

Though not regarded as a sport fish, the cunner supplies a fishery to thousands of youngsters and tourists who frequent the Northeast coast. Until the 1960's (Clark, 1960; Deuel and Clark, 1965), no record of the number of cunners caught by anglers had been kept. Its importance to anglers, however, was recognized by Bigelow and Schroeder (1953)

¹ Contribution No. 35 of the Massachusetts Cooperative Fishery Unit jointly supported by the U.S. Bureau of Sport Fisheries and Wildlife, the Massachusetts Division of Marine Fisheries, the Massachusetts Division of Fisheries and Game, and the University of Massachusetts.

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who observed that the total cunner caught "is so considerable that this must be classified as a useful little fish from the recreational standpoint."

This bibliography has attempted to include all known literature on cunner through June 1972. Many of the references have been obtained from standard indexes and abstracts including the Zoological Record, Biological Abstracts, Aquatic Biology Abstracts, Sport Fishery Abstracts, the Current Bibliography for Aquatic Sciences and Fisheries, A Preliminary Bibliography with KWIC Index on the Ecology of Estuaries and Coastal Areas of the Eastern United States (U. S. Fish Wildl. Serv., Spec. Sci. Rep. - Fish. No. 507) by R. L. Livingstone, and Fish of the Gulf of St. Lawrence, An Unabridged Bibliography (Tech. Rep. No. 261 Fish Res. Bd. Canada) by V. M. Srivastava. Except for a very few entries, each citation annotated was personally examined. Portions of the original remarks have been included when possible ambiguities could result from interpretation, when the entire (rare) article is quoted, or when the findings appeared to have particular significance.

We are particularly indebted to Miss Virginia Brandenberg and her staff at the Marine Biological Laboratory Library, Woods Hole, Massachusetts for unfailing assistance throughout this project. Mrs. Ann Hall, Librarian at the National Marine Fisheries Service Laboratory, Beaufort, North Carolina, kindly provided editorial advice. Many state and federal agencies supplied information upon request and we gratefully acknowledge their cooperation.

A subject index has been included to assist in a search of the literature on the cunner. All the references within this bibliography have been included in the index, although the index may not necessarily be complete on all the subjects within any one article. In addition, an addendum has been prepared for the inclusion of references overlooked in preparation of the main body of this communication.

The authors would be most appreciative if articles on the cunner which are not included in this bibliography could be brought to their attention.
CITATIONS

Abbott, C. C.
"This is a numerous species, found about the coast generally, and not prized as an article of food. It has many common names, as nibbler, connor, etc." p. 809.

Agassiz, A.
Traces the development of the tail, with special attention to the presence of the embryonic caudal lobe.

Agassiz, A.
The embryology and larval development is described.

Agassiz, A.
A discussion of coloration and chromatophore presence is presented. Experimental evidence suggests that "to retain a condition of coloring brought about or modified by surrounding influences, the young fish must remain exposed to them for a considerable time, and the modification will be more or less permanent, or of a greater or less degree, according to the age of the fish." p. 191.

A detailed description of the embryonic development of the cunner "from the moment of fecundation onward."

A general account of embryonic development of the cunner is presented.

Detailed observations on the "early history of the periblast" are given and eggs are referred to as undergoing typical teleost embryonic development.

Embryology of the cunner is described and figured.

Alexander, A. B.
Catch and market statistics are scattered throughout the text. "The cunner fishery from Boston in 1902 was carried on near islands in Boston Harbor by 9 fishermen with 3 boats. The catch was taken with hoop nets, or fyke nets, and amounted to 38,400 dozen, or 57,600 pounds of cunners, valued at $3,840. The boats made two trips a week during eight months of the year, and averaged 200 dozen cunners to a trip. The fish were of small size,
weighing about 2 ounces each, and sold for an average of 10 cents a dozen. These boats are the last of the ‘Irish market boats,’ being about 4 tons each and similar to those used in Ireland...” p. 290.


Nineteen juvenile cunners were collected by beach seine from Hercers Island in Great South Bay. July 24 - October 16, 1962.


A short account of the natural history of the cunner in St. Margaret’s Bay is given.


Cunner is listed as the common name of *Tautogolabrus adspersus* (Walbaum).


The retinal structure of the eye is documented. Results indicate that the normal pattern of topographical specialization of cones is absent. This lack of a distinct retinal area is compensated by specific ocular behavior.


Cited in Newman (1914) as attempting to hybridize cunner with cod.


“While at Georgetown, I came upon a pair of spawning cunners (*Tautogolabrus*), and hatched out a few dozen of their eggs. I find that the eggs are about one-half millimeter in diameter, having increased very slightly, if any, after coming from the fish; are exceedingly transparent, perfectly free, adhering neither to each other nor to any other object at any time; they are slightly buoyant in sea water, and slowly rise to the surface, where, if in still water, they remain suspended until hatched. Both impregnated and unimpregnated eggs rise at first, but after the lapse of a few hours, the unimpregnated lose their buoyancy and sink to the bottom. The yolk is more buoyant than the outer shell and rises to the upper side of the latter, which it very readily fills. The embryonic disk forms on the lower side of the yolk. I kept my eggs in vials in my tent, renewing the water from time to time, and think the average temperature maintained was 60° Farenheit; possibly a little higher. Under these circumstances the eggs hatched in three days. In the natural place of deposit the water is undoubtedly considerably colder, possibly 10° and the eggs would then be four or five days in hatching.”


Cunner was one of 23 species of fish, other than salmon, which were taken in the trap nets and weirs.


A cunner possessing a malformed snout is cited.


“Here, as on the other parts of the coast, the Burgall is extremely abundant. They are seen as early as the middle of May, and remain till the last of October, and in
storms are washed up on the beach of the Sound, through the whole winter. Among their numerous varieties of color, i, the last season, saw several specimens which had their entire surface banded with alternate vertical lines of black and light brown, presenting the appearance so singular, that at first I supposed them to be of a distinct species. I have found the dorsal fin rays sometimes 18-10, at others 18-11 and at still others 17-11." p. 263.


The current recreational use of the cunner in Maine is deemed "extensive."

Baird, S. F.


Reference is made to the cunner as a predator of fish eggs and young fry. p. xxix.

Baird, S. F.


The cunner is listed.

Baird, S. F.


The distribution is given as Newfoundland to Cape Hatteras. Citations are scattered throughout the text.

Bauchot, M. L.


This gives brief descriptions of specimens in the museum collection.

Bean, T. H.


Bean, T. H.

1884. List of the fishes collected by the U. S. Fish Commission at Wood's Holl (sic), Massachusetts, during the summer of 1881. Rep. U. S. Comm. Fish Fish. for 1882, 10: 339-344.

Cunner is listed.

Bean, T. H.


Tautog and cunner are more abundant in inlets.

Bean, T. H.


"A single example, 4 1/4 inches long, was seized at the Beesley's Point, August 11, in the grass near the river mouth. The species is called 'bengal' at Somers Point, probably a corruption of bergall." p. 137.

Bean, T. H.


"Cunner.-Found throughout the year. Hardy in the aquarium. Individuals have been kept three years or longer. The food is chiefly hard clams." p. 368.

Bean, T. H.


The natural history is briefly described. The range is given as Labrador to New Jersey. "At Woods Hole, Mass., where the fish remain in eel grass in winter,
thousands perish from cold every year.” p. 449.

Bean, T. H.

The habits and occurrences are described. This account is an amplification of Bean (1901).

Bean, T. H.

This report contains a taxonomic description, synonymy, and general account of the habits of the cunner and is the same as that given in Bean (1903a).

Bevelander, G.

The character of the cunner respiratory epithelium was found to be that of the prevalent flat squamous type. The mucous cells examined were noted to be large and numerous in the interlamellar areas and very numerous on the free surface of lamellae.

Bevelander, G.

The branchial glands in the cunner were found to consist of loosely packed, flask-shaped patches of cells. These cells “present a wide variety of shapes, but are for the most part modified columnar cells, which are elongated but extremely irregular.” p. 218.

Bigelow, H. B.

Data on the larval and postlarval stages taken in the plankton hauls are listed.

Bigelow, H. B.

The newly spawned eggs of the yellowtail flounder and cunner are likely to be confused but “the two can usually be distinguished by size, the former averaging .9 mm, the latter .75-.85 mm in diameter.” p. 226. “Eggs of the cunner (Tautogolabrus adspersus) were taken at seven localities always close to land. . . The absence of its eggs at the off-shore stations was to be expected, from its general distribution.” p. 267.

Bigelow, H. B.

The various reasons for an absence of pelagic larvae are discussed; i.e., larval drift, low larval survival, poor egg viability. “Some of the cunner (Tautogolabrus) larvae produced in St. Marys Bay, which Huntsman (1922) has found to be an important site of reproduction for this fish, must likewise find their way into the Bay of Fundy either around Brier Island or through the passages; but so few of them survive the conditions they encounter in the Bay of Fundy, that none have been recorded from all the winter and summer towing which has been done from the St. Andrews station.” p. 73.


This is the best general description (p. 473-478) of the life history.


The ecology of this species is documented (p. 280-286).
Bowers, G. M.

Bowers, G. M.

Breder, C. M., Jr.
A few fish, taken by seine, were recorded in 1920 and 1921.

Breder, C. M., Jr.
Fish were taken in Sandy Hook Bay in 1924.

Breder, C. M., Jr.
The cunner was one of eight labrids whose locomotive movements were studied.

Breder, C. M., Jr.
This species occurs in New York Harbor.

Breder, C. M., Jr.
A brief description (p. 204) of the distribution and habits is presented.

Breder, C. M., Jr., and D. E. Rosen.
This report discusses spawning and sexual dichromatism (p. 509).

Breder, J.
Fish were abundant on the "Schaefer Reef."

Brice, J. J.
"The eggs of the cunner or chogset (Ctenolabrus adspersus) are of the same size and character as those of its near relation, the tautog, and are deposited during the same season. In water having a mean temperature of 56° F, they have been hatched in 5 days, in the tidal cod-jar. On account of the small size, great abundance, and comparatively little commercial value, the propagation of the cunner has not been regularly undertaken." p. 223.

Briggs, P. T., and J. S. O'Connor.
Catch statistics of cunners taken over bottom types in Great South Bay are scattered through the text. Cunners prefer natural bottoms rather than sandfilled areas.

Brook, G.
The embryology of Trachinus is compared with the cunner embryology investigations of Kingsley and Conn (1883).

Brook, G.
Reference is made to the cunner embryology work performed by Kingsley and Conn (1883) and Agassiz and Whitman (1885).
Brunel, P., and J. Bergeron.
' The cunner is cited (p. 32).

Bulloch, D.
' Cunners were noted as the first fishes to appear around the wreck.

Bumpus, H. C.
1898. The breeding of animals at Woods Hole during the months of June, July, August. Science, 8(20): 850-858.
' "The cunner, Tautogolabrus adspersus, spawns during June and early July, and the bright colored young are abundantly found throughout the latter part of the summer. . . The auftrieb is not rich in surface vertebrates during the summer. . . In early July, young swellfish, cunners, sticklebacks, tautog, sandeels, silversides, hake and sand dabs (occur)." p. 852.

Bumpus, H. C.
' The cunner is listed.

Clark, H. A.
' Catch statistics are scattered throughout the text. "Sea perch, or cunners, were taken in much larger quantities a few years ago than at present; 38,000 dozen were sold in Boston during 1879. The market could dispose of many times this amount if they were taken, but for some unexplained cause the supply has largely decreased during the past few years." p. 196-197.

Clark, J. R.
' Cunner fishery statistics are included in tables throughout text.

Clark, J. R.
' Teams of divers observed cunners occurring in the waters of long Island, N. Y. (Huntington, Jones Beach, Island Park, Rockaway) and coastal N. J. (Raritan Bay, Long Branch, Elberon, Deal, Allenhurst, Barnegat Light Township).

Cockerell, T. D.
' A description of labrid scales, with a key for identification, is provided. Cunner scales are described as smaller than 7 mm, possessing very poorly developed apical radii, and possessing very thick apical skin.

Cole, C. F.
' Reference is made to Lebida (1969) on the eggs and larvae in the Weweantic River Estuary. Cunner eggs were among the most abundant eggs found with "the great bulk of tautog and cunner spawning apparently. . . at the mouth of the estuary."

Collins, H. H., Jr.
' A brief description (p. 495) of the habitat, food, range, and spawning period of the cunner is provided.

Collins, J. W.
The cunner is listed throughout text in tables of catch statistics.


Catch statistics of the cunner are listed.

Colton, J. B., Jr., and R. R. Marak.

Identifying characteristics of the cunner eggs, prolarvae, and postlarvae are discussed. (p. 23).

Cooper, A. R.

"I have also noticed that the skin of a number of fishes taken in Passamaquoddy Bay, notably Tautogolabrus adspersus (Walb.), Cunner, is greatly infected with small pigmented cysts, similar to those described (Tocotrema lingua) which in all probability would be found to contain larvae of this species: Linton describes the species from the cunner." p. 190.

Cooper, A. R.

Cunner is noted as a host for cestode Abothrium rugosum.

Cornish, G. A.

Cunners were noted to be abundant about the wharfs during the summers of 1901 and 1902. One specimen was found in the stomach of Raja ocellata.

Cornish, G. A.

Summer observations were made on the ichthyofauna (including cunner).


The procedures for procuring, handling, and observing cunner eggs for laboratory use are described.

Cox, P.

Cunners were observed along the coast of the Gulf of St. Lawrence.

Cox, P.


Craigie, E. H.

Sex-ratio data was obtained from the file records of the Atlantic Biological Station. Only 356 males were recorded from 811 cunner observed (44%).

Cuvier, M. Le B., and M. A. Valenciennes.

General and taxonomic descriptions are given (p. 237-240).

Dannevig, A.

The occurrence, distribution, and abundance of cunner eggs obtained in 1914-15 is documented.

Davis, R. E., and J. E. Bardach.
Laboratory experiments were conducted on cunner, tomcod, killifish, scup, and flounder. Results indicated that no pre-light or pre-feeding activity occurs in cunners. Individuals seldom fed and would not tolerate companions in the aquarium.

Dawson, A. B.
"Cunner. The erythrocytes of this fish very closely resemble in their staining reactions those of the two preceding forms (Toadfish and Tautog). Fewer immature cells were noted than in the tautog, and in general the reticulation patterns are very meager. The primary granules also appear as basophilic bodies with Wright's stain." p. 55.

Dawson, A. B.
Cunners were found to possess almost all (99+) mature erythrocytes in their circulatory systems. These results were almost identical to those obtained for the toadfish, tautog, sea bass, pipefish, sand dab, weakfish, and sharksucker.

Dean, B.
The larval development of the cunner is described and figured (p. 224-226).

De Camp, M.
Concentrations of cunners were noted to surround the wreck 'Mohawk' located off Manasquan Inlet, N. J. on September 16, 1962.

De Kay, J. E.
A description of the taxonomic features, color, habitat and range of the cunner (Ctenolabrus ceruleus and Ctenolabrus unirotatus) is given. "The Bergall has various popular names: 'Nibbler', from its vexatious nibbling at the bait thrown out for other fishes; 'Chogset', a name derived from the Mohegan dialect, but its purport unknown; 'Burgall', I suppose to be of Dutch origin, as its use seems to be confined to the neighborhood of New York. It is also called 'Blue-Fish', on account of its prevailing color. At Boston, it is often called 'Blue Perch' and generally among the eastern fisherman, 'Cunner', or 'Connor'. This last name is applied to a Ctenilabrus on the coast of Sussex and Hampshire in England, from whence I presume it was derived." p. 173.

Denton, S. F.
The natural history is described.

De Sylva, D. P., F. A. Kalber, Jr., and C. N. Shuster, Jr.
Two cunners were caught by hook and line off Cape Henlopen on July 8, 1958 (p. 37).

Deuel, D. G., and J. R. Clark.
Angling statistics are listed.

Dew, C. B.
1970. A contribution to the life history of the cunner, Tautogolabrus adpersus
An investigation of the “age and growth, length and weight relationships, spawning period, age at maturity, sex ratio, and nocturnal and winter habits of the cunner in Fishers Island Sound.”

Dexter, R. W.
The cunner is listed (p. 356) as belonging to the “permanent influents” of the Ipswich Bay bottom community.

Dexter, R. W.
Cunners are noted to be a “permanent influent” in five different marine biological communities. The food webs of each of these systems (depicting the interaction of the cunner) are illustrated.

Edwards, R. L.
Catch statistics are given.

Cunner is listed in catch statistics.

Ehrenbaum, E.
Reference is made to the fact that the egg and larval development of the cunner is similar to that of the European labrid, Labrus rupestris.

Eisler, R.
An intermediate hemoglobin value of 8.31 gm. per 100 ml is listed.

The distribution and abundance of adults as well as eggs and larvae was studied. No significant differences were noted in abundance for any cunner stage due to the operation of the electrical power facility.

Field, I. A.
An account of the uses, foods, characters and distribution, and possible destructiveness of the cunner.

Fish, C. J.
The occurrence of larvae in the Woods Hole region is documented and graphically represented. “In the summer the most abundant fish larvae, were Tautogolabrus adspersus and Tautoga onitis. Both have pelagic eggs which appear in June and remain until August.”

Fish, C. J., and M. W. Johnson.
The distribution of cunner eggs and larvae obtained from tow net collections is briefly cited.

Fish, M. P.
An account containing sections on the recorded sounds, mechanisms involved, and significance of the cunner as a soundmaker (p. 53-55).
The biological origin of sound produced by fishes is discussed. The sound produced by the cunner consists of a low thump caused by the air bladder.

Fish, M. P., and W. H. Mowbray.
The distribution, habits, size, sound production and sonic mechanism of the cunner is discussed (p. 136).

Fiske, J. D., J. R. Curley, and R. P. Lawton.
Cunner is listed and discussed as one of the species obtained from the Westport River.

Fiske, J. D., C. E. Watson, and P. G. Coates.
Cunner is listed as a species taken in the North River area.

Fiske, J. D., C. E. Watson, and P. G. Coates.
Cunner is listed and discussed as one of the species of finfish obtained from Pleasant Bay.

Fletcher, G. L., R. J. Hoyle, and D. A. Horne.
Experiments indicate that yellow phosphorus is lethal at very low concentrations.

Forbes, J. C.
The average tensile strength was about 38 ounces. This was higher than any of the six fish species tested, except for the muttonfish.

Fortin, P.
The distribution and habits of the cunner are discussed.

Fowler, H. W.
A taxonomic description and brief account (p. 343-344) of the habits of the cunner is provided.

Fowler, H. W.
A detailed description (p. 180-181) of the cunner is provided.

Fowler, H. W.
"At Corson's Inlet and Barnegat Pier Dr. Phillips has taken this fish. He says they are plentiful early in the season till late, and are never much over six, and mostly three or four inches in length. It is occasionally eaten, though the flesh is not as firm eating as that of the tautog. It is a great bait-stealer." p. 386.

Fowler, H. W.
The fish occurs at Hunter's Island, New York and Corson' Inlet, New Jersey.
Fowler, H. W.
The cunner is listed as an addition to the New York Aquarium's collection of fishes attained from New Jersey waters.

Fowler, H. W.
The cunner is listed as occurring at Boston Harbor, Nantucket, and Woods Hole.

Fowler, H. W.
The cunner is listed.

Fowler, H. W.
The cunner is listed as occurring at Atlantic City and Corson's Inlet.

Fowler, H. W.
The fish occurs at the Longport stone jetty, Atlantic City.

Fowler, H. W.
The cunner is listed.

Fowler, H. W.
The cunner is listed as one of the species occurring along the New Jersey coast.

Fowler, H. W.
The cunner is listed.

Freeman, B. L.
The occurrence of the cunner in Buzzards Bay and statistics of the fishery are cited.

Gibbons, E.
Techniques for fishing for cunner and preparing them as food are discussed.

Gibbons, N. E.
Bacterium found within cunner included E. coli, E. grunthali, and B. immobilis.
"These fish live largely on refuse, and there is ample opportunity for contamination from human sources." p. 295.

Gibbons, N. E.
Cunner slime possessed bacteria of the genera Micrococcus, Achromobacter, and Flavobacterium. Cunner faeces contained bacteria of the following genera: Micrococcus, Achromobacter, Flavobacterium, and Proteus.

Gill, T.
The cunner is listed.

Gill, T.
1865. Synopsis of the fishes of the Gulf of St. Lawrence and Bay of Fundy. Canadian Nat. Geol., New Series 2: 244-266.
The cunner is listed.

Gill, T.
The cunner is listed.
Gill, T.
This provides the same account as in Gill (1905).

Gill, T.
Describes the confusion of the common name "perch". "In England the name is specifically applied to a well known fresh-water fish (Perca fluviatilis). The immigrants to New England found a fish almost undistinguishable from it, and properly gave it the same name..." p. 167.

Golvan, Y. J.
Tautogolabrus is listed as one of the many genera in the family Labridae (p. 122).

Goode, G. B.
Cunner specimens are listed. Distribution of the cunner is given (p. 36) as "Newfoundland to Cape Hatteras."

Goode, G. B.
1884. The chogset or cunner — Ctenolabrus adspersus, p. 273-274. In G. B. Goode [ed.], The fisheries and fishery industries of the United States, Sec. 1, Pt. 3, No. 87.
A popular account of the habits and life history of the cunner.

Goode, G. B.
The account of the cunner given in Goode (1884) is repeated here.

Goode, G. B.
"On certain ledges along the New England coast the rocks are covered with dense growths of scarlet and crimson seaweeds. The cod-fish, the cunner, the sea-raven, the rock-eel and the wry-mouth, which inhabit these brilliant groves, are all colored to match their surroundings; the cod, which is naturally lightest in color, being most brilliant in its scarlet hues, while the others, whose skins have a larger original supply of black, have deeper tints of dark red and ruddy brown. These changes must be due to the secretion of a special supply of red chromatophores. It has occurred to me that the material for the pigimentary secretion is probably derived indirectly from the algae, for, though the species referred to do not feed upon these plants, they devour in immense quantities the invertebrate animals inhabiting the same region, many of which are likewise deeply tinged with red." p. 212.

Goode, G. B., and T. H. Bean

Gordon, B. L.
A brief description of the habits of the cunner is given.

Gordon, B. L.
The fish is mentioned as "very common around rocks, wharves and jetties" p. 71.

Gorham, F. P.
The cunner is listed as one of the 18
marine fishes that were "affected by the disease during the spring and summer of 1898, and the list includes all the fish, with two exceptions, which were kept in the aquaria of the Fish Commission at Woods Hole, Mass., from March to September." p. 33.

Graham, J. J., and H. C. Boyar.  
Cunner larvae were captured in the Sheepscot - Boothbay - Damariscotta region of Maine during August - October, 1961-62.

Grant, L. J., ed.  
The tautog and cunner are often observed to swim together (p. 206).

Gray, I. E., and F. G. Hall.  
The fish possesses an average blood sugar level of 25.2 mg sugar per 100 cc of blood. "The results indicate that the blood sugar level of the cunner is similar to that of relatively inactive and sluggish fishes such as the "sand-dab, Lophopsetta maculata and the puffer, Spheroidea maculatus." p. 220-221.

Greeley, J. R.  
"Cunner. The young of this resident species were found to be moderately common and widely distributed, the 27 collections representing both the north and south shore regions. Early July to late August specimens were represented, the smallest being 15 millimeters. Several juvenile individuals, probably one year old, were taken but adults were not seined as they are in deeper water than could be covered by shore seining." p. 88.

Green, J. M., and M. Farwell.  
SCUBA diving observations as well as laboratory experiments demonstrated that cutters remain torpid under rocks in shallow water when winter temperatures fall below 5° C.

Gregory, W. K.  
The cranial structure is figured. "In Tautogolabrus (Fig. 129), as in other labrids, the ascending processes of the premaxilla are longer than the aveolar branch. The latter is attached at its distal end to the lower end of the maxilla, which in turn is fastened to the side of the mandible. Hence, a lowering in the mandible draws the premaxillae downward and forward." p. 256.

Gregory, W. K., and F. La Monte.  
"Apparently nature grew reckless when she colored the Wrasses and Parrot Fishes, for these are among the most bizarre sights that bewilder the eye of the visitor to undersea gardens in tropical waters. Only the Cunner and the Tautog, among the northern outliers of the family, have been toned down into sobriety and somberness in the chilly waters of New England. The cunner retains the loose, protruding lips and retracting forehead of its tropical ancestors, but the tautog has acquired a short, stiff mouth, a prominent chin, and a generally determined countenance". p. 57.

1971. Occurrence of thiaminase in some common aquatic animals of the United States

The cunner was analyzed for the presence of thiaminase. Reference is made to the work of Lee (1948) from which the results on the cunner were taken.

Gross, A. O.
Cunner is cited (p. 19) as a food item of the night heron.

Günther, A.
The taxonomic description with synonymy is given (p. 90-91).

Günther, A.
The author lists (p. 527) the cunner (Ctenolabrus burgall) as being common on the North American coast.

Günther, A.
The fish is noted (p. 376) as occurring on the North American coast.

Halkett, A.
The cunner is cited (p. 89).

Hall, F. G.
1930. The ability of the common mackerel and certain other marine fishes to remove dissolved oxygen from sea water. Amer. J. Physiol., 93: 417-421.
Investigations concerning the lowest oxygen tension at which marine fishes are capable of removing dissolved oxygen demonstrated that cunners could remove dissolved oxygen at an oxygen tension of 14.8 mm Hg.

Hall, F. G., and I. E. Gray.
The hemoglobin concentration results of four cunners are presented. The results indicate that the cunner was in the intermediate range of hemoglobin concentration of the 15 teleost species tested, - lower than bonito, mackerel and menhaden but higher than goosefish, toadfish and sanddab.

Haugard, N., and L. Irving.
Laboratory experiments on cunner acclimated in tanks containing waters of 18-22° C (summer temperature) and 1-3° C (winter temperature) indicated that the rate of oxygen consumption of the “winter fish” was a little higher than that of the “summer fish” at all temperatures below 15° C. “Since the difference is small, the depression of metabolism caused by the low temperatures in winter probably leaves too little physiological activity to enable the cunners to stay in their summer habitat... The information about the winter habits of the cunner seems to agree with the experimental observations.” p. 25.

Heller, A. F.
Two fish were examined for parasites. Specimens of the nematode species, Contracaecum aduncum, were found internally.

Herman, S. S.
The numbers of eggs and larvae of the cunner collected in plankton hauls in 1957 is documented; “More cunner eggs were collected during the study than any other
species, 12,592 eggs being taken from early May through September.” p. 42. Reference is also made to the great difficulty encountered in distinguishing cunner eggs from tautog eggs.

Herman, S. S.
This report contains the results of Herman’s plankton work cited above. Tables (p. 106-107) list the number, occurrence, abundance, and characteristics of the eggs and larvae obtained in the plankton sampling.

Hildebrand, S. F., and W. C. Schroeder.
The authors discuss the general life history of the cunner (p. 320-321). Only one fish had ever been taken in a Chesapeake locality.

Holmes, E.
Ctenolabrus burgall is listed.

Howe, A. B.
The cunner is cited as one of six species of fish which was found in the stomachs of tomcod (p. 31, 33).

Hunter, G. W., III, and E. Wasserman.
Background responses under a constant source of illumination were studied in the cunner. “The cunner has a melanophore system controlled by adrenergic and cholinergic sets of nerve fibers. . .”

Huntsman, A. G.
The distributions of the cunner in the Gulf of St. Lawrence and in the Bay of Fundy are compared. It is concluded that the “absence of heavy tides makes the Gulf of St. Lawrence, and in particular the Magdalen shallows, an important spawning ground for many species of fishes with pelagic eggs, and the presence of heavy tides prevents the Bay of Fundy serving in a similar capacity. . .” p. 66.

Huntsman, A. G.
Analysis of the relationship of total length to scale length in the cunner is presented. The conclusion is reached that in the cunner “there is to be found a lack of correspondence in the rates of growth of the scales and of the body, as judged by their anterioposterior diameters (for the scale, particularly of the anterior field). The scale begins its growth later, grows relatively more rapidly than the body during the first half of life, and less rapidly than the body during the second half.” p. 91.

Huntsman, A. G.
“Very common and of all sizes in St. Mary Bay which must be a successful breeding place and centre of dispersal. Known to the fishermen in Annapolis basin, but not common, and taken only on lines, no small specimens seen... The eggs have been taken in Passamaquoddy Bay, but no larvae have been found...” p. 15.

Huntsman, A. G.
The disparity between the absence of cunner fry in the Bay of Fundy and the “prodigious quantity” of cunner found in the Magdalen shallows was investigated. It
was concluded that since the Bay of Fundy main mass of water does not rise above 50° F in summer, it is not warm enough for the successful development of the cunner eggs.

Huntsman, A. G., W. B. Bailey, and H. B. Hachey.
A discussion on the occurrence of cunner eggs, larvae, and adults is given. Fish were abundant with lobsters in the warm shallow water along the northern part of the east coast of Newfoundland.

Huver, C. W.
Cunner is cited as one of the fish species that is taken in the sportsmen’s catch in Fisher’s Island Sound near shore at Groton Long Point.

Hyman, L. H.
A detailed study of the susceptibility of the developing eggs of the cunner, cod, and killifish to toxic solutions.

Sympathetic innervation to melanophores in fish was investigated using a catecholamine histochemical fluorescence method. Catecholamine-containing fibers were observed to be in close anatomic proximity to the conjunctival and dermal melanophores of the cunner (Tautogolabrus adspersus). Catecholamines released from these adrenergic fibers are capable of causing aggregation of pigment with blanching of skin color.

James, J. F.
The cunner is listed.

Jerome, W. C., Jr., A. P. Chesmore, and C. O. Anderson, Jr.
The fish occurs in the Beverly-Salem Harbor area.

Jerome, W. C., Jr., A. P. Chesmore, and C. O. Anderson.
A brief discussion of cunner taken from the Annisquam River - Gloucester Harbor is given.

Johansen, F.
The most comprehensive and complete account of the occurrence, habits, development, and life history of the cunner available.

Johansen, F.
The fish is noted as occurring in Conception Bay.

Johansen, F.
Six specimens of cunner, ranging between 14 1/2 - 27 cm in length, were noted at the pier at Port Daniel on August 8, 1922.

Jones, J. M.
An account of the biology and economic importance is provided.
JONES, J. M.  
The cunner is "very common during the summer months in harbours and bays." p. 91.

JORDAN, D. S.  
The cunner is listed (p. 885).

JORDAN, D. S.  
A taxonomic description and synonymy is provided. The habitat of this species is given as "Atlantic coasts of North America, from Labrador to New York." "This little fish is exceedingly abundant about rocks and wharves near shore in the regions where it is found. It reaches a length of about 10 inches, being too small to have much value as food..." p. 624. The fish is also noted as being a pest to fishermen by "nibbling" bait from hooks.

JORDAN, D. S.  
"With this, [Tautoga onitis] and still more abundant, is the cunner or chopset, Tautogolabrus adspersus, greenish-blue in color, the flesh being also more or less blue. This fish is too small to have much value as food, but it readily takes the hook set for better fishes." p. 387.

JORDAN, D. S.  
The four parts are as follows: Part I, 1917, pp. 1-161; Part II, 1919, pp. 163-284; Part III, 1919, pp. 285-410; Part IV, 1920, pp. 411-576. Tautogolabrus is listed (p. 318) as one of the genera described by Günther (1861).

JORDAN, D. S.  
Tautogolabrus is listed (p. 221) as one of the genera in the family Labridae.

JORDAN, D. S.  
The abundance of the cunner on the coast of New England is noted (p. 598).

JORDAN, D. S.  
The taxonomic description is given (p. 186). Distribution of the cunner is cited as Newfoundland to Virginia.

JORDAN, D. S., and B. W. EVERMANN.  
The fish occurs on the "Atlantic coasts of North America, from Labrador to Sandy Hook." p. 411.

JORDAN, D. S., and B. W. EVERMANN.  
The taxonomic description and synonymy is given (p. 1577).

JORDAN, D. S., and B. W. EVERMANN.  
The fish is referred to (p. 476-477) as "one of the best known fishes on our North Atlantic Coast from Labrador to Sandy Hook."

JORDAN, D. S., B. W. EVERMANN, and H. W. CLARK.  
1930. Checklist of the fishes and fish-like
C. 670 pp.)
The taxonomic synonymy of the cunner is listed (p. 424).

A brief description of the cunner is provided (p. 599). The distribution of the species is given as Newfoundland to Cape Hatteras.

Kendall, W. C.
The localities in New England where cunner (Ctenolabrus ceruleus) occur are listed (p. 109).

Kendall, W. C.
Kendall notes that Jordan and Evermann (1896) list the cunner as occurring in Labrador and that his list is based upon their observations.

Kendall, W. C.
The localities in Maine where cunner were cited are reported (p. 55-56).

Kidder, J. H.
Experiments on the internal temperatures of fishes were performed. A thermometer inserted in the stomach of cunner read 1.2°F above ambient water temperature.

Kingsley, J. S., and H. W. Conn.
A detailed account of the development of the cunner egg.

A description of the spawning, eggs, embryology, and larval development of the cunner is provided. Also contained within this report are figures of the developing eggs and larvae of the cunner, as well as a key to the fish eggs which occur within the Woods Hole region during July and August.

Seven cunner examined yielded no signs of blood parasites.

Lebida, R. C.
Cunner eggs were obtained from plankton tows in June 1966. Cunner and tautog eggs comprised the bulk of eggs identified from plankton net hauls. Nearly all (98%) of the cunner eggs obtained were from the lower portion (high salinity) of the Weweantic Estuary.

Lee, C. F.
Reference is made to the work of Yudkin (1945) in which the cunner was investigated for thiaminase occurrence.

Legendre, V., [ed.].
The French and English names of the cunner, (tanche-tautogue; cunner) and several references to Canadian publications citing this species are provided (p. 78).


"A record sized, male specimen, 44 cm (17 1/4 in.) long and weighing 3 1/4 pounds, was caught off Head Harbour, Campobello N. B., September 9, 1953." p. 512.


A complete natural history of the cunner is given (p. 269-270). Included within this account is information pertaining to the description, common names, distinctions, size range, and biology and economics of the cunner. References are provided for reports relating to the Canadian distribution of the cunner.


"There is a great variety of coloring in the burgall, and this has doubtless induced Dr. DeKay to constitute his new species, 'uninotatus;' specimens of which may always be taken in any large collection of the true species, and of which we doubtless have but one, as indicated by Dr. Storer." p. 66.


The nematode, cestode and trematode parasites of the cunner are enumerated. Also listed are the various food items found in cunner stomachs; - seaweed, hydroid stems, bryozoa, tunicates, small crustaceans of various kinds (Caprella, shrimps, etc.) and univalve mollusks.


The cunner is noted (p. 1199-1200) as usually possessing small distomes encysted in the skin and in the fins. These parasites are considered as unlikely to infect humans since they are usually removed in preparing the fish for cooking.


Cunners are frequent hosts of the cyst stage of Tocotrema lingus.


The trematode Cryptocotyle lingua is noted to be found "Encysted in gills, fins, and skin of Ctenolabrus adspersus, Tautoga onitis, and other species of fish." p. 19.


The cunner is commonly parasitized by the trematode metacercariae of Cryptocotyle lingua.

Linton, E. 1940. Trematodes from fishes mainly from
Cunner is listed as a host for the following parasites: Cymbeaphalus vitellusos, Lepocreadium trullaforme, Hemiuorus appendiculatus, Lecithaster confusus, and Cryptocotyle lingua. An expanded account of C. lingua infection of the cunner is presented (p. 156-157).

Linton, E.
The cestode Bothriocephalus is listed as a parasite of cunners.

Loeb, J.
Cited in Phillips (1940) as working with cunner eggs.

Loeb, J.
Attempts were made to hybridize cunner eggs with sperm of scup and mummichog and mummichog eggs with cunner sperm. None of the crosses succeed in hatching.

Loomis, F. B., and D. B. Young.
Thirty-two cunners were found in a shell heap on Flagg Island and one cunner on a shell heap on Seaward Island.

Lugger, O.
Cited in Hildebrand and Schroeder (1928) as recording the occurrence of the cunner in Worcester and adjoining counties, Maryland.

Lux, F. E., and F. E. Nichy.
"Cunners were caught from September to early December in 1961 and from late March through November in 1962. ... They were rare or absent during the coldest months. This species spawns in spring and early summer, and the fish 30 to 59 mm. long in 1961 were judged to be young of the year. In 1962, the 0-group fish appeared in catches in early July at lengths of 17 to 27 mm and were present through November. Cunners caught from late March through June in 1962 probably were 1-group fish; however, from July to early September fish older than 1-group also appeared to be present." p. 9-10.

McAllister, D. E.

McConnaughey, B. H.
"A few exceptional species (wrasses) are found outside the tropics and become larger than most species. The blackfish, or tautog (Tautoga onitis), of the United States Atlantic coast and the burgall, or cunner (Tautogolabrus adspersus), which extends as far north as Labrador, are examples." p. 151.

McErlean, A. J.
Observations of one cunner held in an aquarium with six tautog for two weeks yielded information on cunner territoriality. A detailed description of the animal’s behavior is provided.

McKenzie, R. A.
"Called ‘blue-perch’ by many, this species
is common throughout the tidal parts of the Miramichi." p. 827.

McClane, A. J.
The general life history and distribution is presented together with fishing techniques.

McClane, A. J.
A description of the fish, its life history and its angling value is presented.

Mackmull, G., and N. A. Michels.
Experiments utilizing the cunner demonstrated “that intraperitoneally injected carbon reaches various organs and tissues, a) as free ink granules, b) by direct infiltration of carbon-filled cells, i. e., macrophages derived from the peritoneal cavity, and, c) by migration of carbon-filled macrophages from vascular channels. Direct absorption of free carbon particles from the peritoneal cavity is accomplished chiefly by the mesentary and intestine, the muscular coat of the latter being frequently invaded by bay-like projections of carbon.” p. 31.

Marak, R. R., and J. B. Colton.
Cunner eggs and larvae were obtained in plankton tows using a meternet and a “Hardy plankton sampler” from May 25, 1953 to June 3, 1963.


Four cunner eggs were obtained on May 28, 1955 from the surface plankton using a “Hardy plankton recorder”.

Marak, R. R., J. B. Colton, Jr., D. B. Foster, and D. Miller.
Cunner eggs and larvae were obtained from surface plankton hauls during the spring of 1956. Both a surface-towed meter net and a continuous Hardy plankton recorder were utilized in the plankton operations.

Meek, A.
The observation is made that cunner eggs are pelagic and that, in this respect, they resemble the eggs of related wrasses such as the “goldsinny rainbow wrasse, and tautog.” p. 307.

Mélanchon, C.
1958. Les poissons de nos eaux. Troisième édition, avec addenda. La Société zoologique de Quebec, Quebec. 258 pp.
The cunner is cited (p. 230).

Merriman, D.
Seine-hauls at Bushnell Beach, Pine Orchard, Connecticut during the latter part of July and early August, 1943 and 1944 yielded cunners in only two sets.

Merriman, D., and R. C. Sclar.
The eggs and larvae of the cunner are discussed. Attention is focused upon abundance, spawning period, distribution, etc. A key to the eggs and larvae of Block Island Sound is provided.
Merriman, D., and H. E. Warfel.  
Cunner is listed in tables concerning the occurrence of fish species in one-hour trawl hauls taken during 1943-1946.

Mitchill, S. L.  
Cunner is cited (p. 23-24) as Tautoga niger and Tautoga coerulea.

Mitchill, S. L.  
A description of the cunner (Labrus chogset and Labrus chogset fulva) and its habits are presented (p. 402-403).

Moenkhaus, W. J.  
"The eggs of Fundulus heteroclitus can very easily be impregnated by Tautogolabrus adspersus. The eggs of the former cleave ordinarily in about two hours after the addition of sperm. Those of the latter under similar conditions, cleave in about fifty minutes. In the hybrid, however, the rapid sperm is unable to alter the rate of cleavage and vice versa. This law is strikingly illustrated in the cross between Batrachus tau and Tautogolabrus." p. 36.

Morgan, T. H.  
Reference is frequently made to the embryology of Ctenolabrus.

Morris, M.  
1914. The behavior of the chromatin in hybrids between Fundulus and Ctenolabrus.

The cytology of hybrids developing from mummichog eggs and cunner sperm is discussed in depth with particular attention devoted to the behavior of the chromosomes.

Morrow, J. E., Jr.  
The cunner is listed as a food item found in the stomachs of longhorn sculpin collected in February 1944 (p. 89).

Murawski, W. W.  
The distribution and occurrence of cunner eggs and larvae obtained by plankton nets during 1968-1970 is documented.

Nalbant, T. T.  
Cited in Zoological Record. Cunner was one of the species of fish collected. In Romanian with French and Russian summaries.

Needler, A. W. H.  
Small cunners, locally called 'perch', were common throughout the bay and were seined from the mouth of the bay to the creeks. None larger than 13.5 cm were taken.

Nelson, J.  
A taxonomic description of the cunner is listed (p. 743).
Newman, H. H.
References and reviews the work of Appelöf (1894) on teleost hybrids. Appelöf attempted to cross the cod and the cunner.

Newman, H. H.
Newman performed the following hybrid crosses: cunner sperm with the eggs of Fundulus heteroclitus; Fundulus diaphanus; Cyprinodon variegatus; Gasterosteus aculeatus; Apeltes quadracus; Menidia menidia notata; Stenotomus chrysops; and cunner eggs with the sperm of F. heteroclitus; F. majalis; A. quadracus; M. menidia notata; M. beryllina cerea; Poronotus triacanthus; and S. chrysops.

New York State Conservation Department.
"Cunner. A small, colorful fish abundant over rocky bottoms and around docks and piers. Hardly anyone fishes for them; nearly everyone catches them. Take 'em or leave 'em." p. 22.

Nichol, J. A. C.
The cunner is listed as exhibiting an oxygen consumption of 108–126 cc. O₂/kg-hour at 18° C. The rapidity with which color changes are accomplished is also noted.

Nichols, J. T.
The cunner is listed.

Nichols, J. T.
An account (p. 80-81) of the habits of the cunner and a description of the fish are provided.

Nichols, J. T., and C. M. Breder, Jr.
A brief account (p. 129) of the distribution, habits and life history of the cunner is presented.

Norman, J. R.
Tautogolabrus is listed (p. 353).

Norman, W. W.
Cunner eggs were used as experimental material to ascertain the effects of increased temperature on the segmentation of the protoplasm.

Ogren, L., and J. Chess.
A mortality of marine organisms was noted off the coast of southern New Jersey in the fall of 1968. Cunners were noted to be affected in the area of the wreck 'Delaware.' "They were lying on the upper part of the wreck, curled or pressed into crevices. They exhibited blotchy pigmentation, gaping mouths, and erect fins. Some of these cunners would swim in a disoriented manner when disturbed. No live cunner were found on the 'Delaware' three weeks after the first stress symptoms were observed. The absence of large numbers of dead fish suggests that the majority of cunners moved off the wreck." p. 5.

An immunodiffusion technique is described which enables eggs of the cunner
and tautog to be distinguished within three hours.

Orton, G. L.
The pattern of larval development of the señorita, Oxyjulis californica, is noted to be similar to that of the cunner.

Osburn, R. C.
“Certain fishes that habitually browse around ledges, rocks, wharves, etc., and which have teeth adapted for cutting off and crushing the shells of their prey, are known to include Bryozoa in their diet with some regularity. Thus, the cunner, Tautogolabrus adspersus, and the blackfish or tautog, Tautoga onitis, feed on bryozoa along with other hardshelled organisms.” p. 452.

Parker, G. H.
Cunner was one of ten species of fish examined “to ascertain whether the right nerves or the left nerves are more usually dorsal at the chiasmata of symmetrical teleosts...” p. 222.

Parker, G. H.
The distribution of fish in a large wooden tank was studied after allowing a 4300 g iron ball to strike the outside end of the tank. Cunner showed a tendency to move toward the sound center.

Parker, G. H.
The sounds of a motor boat altered the behavior of cunners. They ceased feeding while the running boat stood 6 ft. away from baited lines.

Pearce, J. B.
“Some preliminary work with the cunner (Tautogolabrus adspersus) indicates that changes occur in the blood tissues of this fish when it is exposed to elevated temperatures. As temperatures are increased the percent of red blood cells decreases. Further research is necessary to substantiate these findings. Again, however, cunner are usually found in depths lower than those predicted by consulting engineers to be adversely heated by discharged waters.” p. 229.

Cunner eggs, larvae, juveniles and adults were collected as part of a general investigation of the ichthyofauna. Labrid eggs were collected between April and August and were the most abundant pelagic eggs collected in the estuary. No differences in vertical distribution of either the eggs or larvae were apparent although both stages were noted to be more common in the lower estuary.

Perley, M. H.
The occurrence of the cunner in Canadian waters is documented (p. 190).

Perlmutter, A.
“Several thousand eggs were taken from
May through September... (although) the height of spawning is reached in June... During July and August, the Griek trawl, picked up two size groups of cunners. One group, from 15 to 34 mm, represented young of the year whereas the second group from 45 to 89 mm probably were in their second year.” p. 28.

Perlmutter, A.
A short description of the color, distribution, general information, and economic importance of the cunner is provided (p. 393-394).

Philips, F. S.
The respiration of the cunner egg during the first several days of development and its sensitivity to NaCN and NaN3 were investigated. The results indicate that cunner eggs are quite sensitive to anaerobic conditions and cease development almost immediately upon exposure to respiratory poisons. These findings corroborate observation of Loeb (1895).

Pinney, E.
Investigation of the developmental and cytological processes occurring in hybrid crosses between the cunner and Fundulus, Menidia, and Stenotomus.

Pinney, E.
1922. The initial block to normal development in cross-fertilized eggs. I. Crosses with the egg of Fundulus. II. Reciprocal crosses between Ctenolabrus and Prionotus. J. Morphol., 36(3): 401-420.
An additional investigation of the behavior of chromatin in teleost hybrid eggs. A tabular summary of the data on the crosses performed is presented. “The first cleavage mitosis depends upon certain specific physical conditions of the substratum, namely the egg protoplasm.” p. 402.

Prince, E. E.
“The young forms (cunner) exhibit the transverse bars, eight or nine dark ochre bands richly spotted with black dots, extending from the head region to the base of the tail, when the fish is barely half-an-inch long.” p. 89.

Provancher, A.
A description of the cunner and an account of its occurrence is provided.

Putnam, F. W.
The cunner is listed.

Radcliffe, L.
Tables of catch and market statistics are given throughout text.

Ransom, B. H.
The cunner is listed as a host for the cyst stage of Cryptocotyle lingua.

Rathbun, R.
“The eggs of the cunner are buoyant and very transparent; about 26 are contained
in a linear inch. About 50,000 eggs of this species obtained May 22, 1890, were hatched at Woods Hole on the 5th day, with a loss of only 5,000. The tidal cod jar was used, the temperature of the water being 56° F.” p. 160.

Ravenel, W. DeC.

The cunner is listed (p. 55) as one of the salt-water fishes exhibited at the aquarium at Central Station in Washington, D. C. during the fiscal year ending June 1900.

Ray, C., and E. Ciampi.
“The cunner (bergall), Tautogolabrus adspersus is the most northern wrasse... It reaches 15 inches and ranges from Labrador to the Chesapeake.” p. 256.

Reid, M. E.
Plankton tows were accomplished during the summer of 1971 at Miramichi Bay and Passamaquoddy Bay, New Brunswick; Cheticamp, Shelburn, and St. Mary Bay, Nova Scotia. Differences in spawning season and abundance of cunner eggs and larvae between the various localities is attributed to water temperature.

Richards, C. E., and M. Castanga.
Juveniles clung to tiles placed in mid-marsh areas for oyster drill studies and they remained on the tiles even though lifted from the water.

Richards, S. W.
Eggs and larvae were sampled using a Clarke-Bumpus sampler from March 1954 to November 1955. Eggs and larvae were obtained from May - September 1954, and June-August 1955. The delayed appearance of specimens in 1955 was attributed to the time of sampling rather than temperature. No significant difference in sizes of cunner eggs was noted from various localities in L.I.S., but the average cunner egg diameter decreased through the summer.

Richards, S. W.
Trawl hauls were taken in L.I.S. from June 1955 to July 1957. Cunner were obtained seasonally at both stations, usually in the warmer months but never in midwinter.

Richards, S. W.
“Twenty-four cunners, zero to fourth year, caught in spring, summer and fall, ate 18 identifiable prey, of which crustaceans, primarily motile amphipods, were the most important. Small cunners exhibited less over-all evidence of bottom feeding than did the larger specimens. Occasional polychaetes did not form an important segment of the diet, and small numbers of copepods were consumed only by the 0-year class. Occasional mysids (2-3 mm), shrimps (5.6-16.0 mm), crabs, and mollusks were primarily eaten by the older cunners. Ten percent of the total caprellids was consumed by 11 cunners, while hydroids, in which caprellids live, were eaten only by cunners from 94 to 138 mm. Very small cunners were apparently able to select the amphipods from the hydroids, whereas the older cunners were not able to do so. The only specimen of Orchomenella was eaten by a cunner 37 mm long. Empty stomachs occurred infrequently and at no particular season.” pp. 55-56.
Richards, S. W.

Data on the food found in cunner stomachs is presented (p. 78, 98).

Richardson, J.

Cunner (Labrus coricus) is listed (p. 208) as a North-American labrid.

Rosenbaum, S.

The aquarium behavior of the cunner is described as “same habits as blackfish, but is a smaller fish. Quite timid as it gets larger and correspondingly more difficult to feed.” p. 35.

Ryder, J. A.

Larval flukes were found in the skin, fins, and gills. A discussion on the pathological affects produced by these cysts (presumably metacercaria of Cryptocotyle lingua, — see Stunkard, 1930) is provided. Attention is focused on the development of pigment cells adjacent to the cysts.

Safford, V.

Experiments were conducted to determine how the respiratory changes at the gills influence the exchange of oxygen and carbon dioxide at the swimbladder. The swimbladder of the cunner was found to lose 82% of the oxygen content normally contained therein when fish were subjected to asphyxiation with little carbon dioxide in the water.

Sands, B.

One cunner possessed 0.22 ppm mercury.

Sargent, P. E.

The 35 to 40 giant ganglion cells lying in the dorsal fissure of the spinal cord of the cunner are described.

Sargent, P. E.

The Reissner’s fibre in the cunner is described.

Sargent, P. E.

A description of the torus longitudinalis of the cunner is provided.

Sargent, P. E.

The optic reflex apparatus of the cunner is described with accompanying figures (p. 212-215).

Schaefer, R. H.

Only two cunners were obtained in seining operations at Fire Island, New York, between July 1961 and November 30 in 1961, between May 1 and October 31, in 1962, and between May 1 and November 30 in 1963.

Scholander, P. F., C. L. Claff, C. T. Teng, and V. Walters.

Cunner was one of 15 species of New England marine fishes analyzed for nitrogen tension in the swimbladder.

Scholander, P. F., and L. Van Dam.

Analysis of the gas composition of the swimbladder is presented. The relation of gas composition in the swimbladders of cunners to total pressure is illustrated.

Schöpf, J.D.

The cunner is cited (p. 155).

Schroeder, W. C.

The cunner is listed as one of the many species taken in the haul samples.

Schwartz, F. J.

A single specimen captured in a crab pot at Parnell Bay in Chincoteague Bay November, 1959 is listed.

Schwartz, F. J.

The cunner is noted as a common summer and winter species (125-490 mm) found browsing on the pilings and jetties of Ocean City.

Scott, W. B. and M. G. Scott.

The cunner is listed.

Serchuk, F.

Various aspects of the life history of the cunner are described. Emphasis is placed upon age and growth of adults, the distribution, seasonal occurrence and abundance of egg and larval stages, and the occurrence and extent of trematode metacercarial parasitism on all life stages.

Sharp, B. and H. W. Fowler.

Cunner is listed.

Shepard, D. C.

"The pigment of the pelagic cunner egg is interesting because in similar embryos Orton (1953) and others have observed melanophores forming in the crest region well before any pigment cell migration." p. 213. Details of embryo pigmentation are described.

Sherwood, G. H. and V. N. Edwards.

"Barrels of cunner were killed by the extreme cold of February, 1901, and were seen floating on the surface with tautog." p. 30.

Sindermann, C. J.

"Cercariae of Cryptocotyle invade and encyst in the fins and integument of herring, cunner, Tautogolabrus adspersus,
and a number of other inshore western Atlantic species, causing the formation of conspicuous cysts or 'black spots'.” p. 53.

Smith, G. M.
Cunner was one of many species investigated which failed to exhibit definite penetration of colored fluids into the lateral line canals.

Smith, H. M.
The fish is found "throughout the fishing season" in pound nets catches. The largest examples weigh 1½ pounds. "Small examples were abundant in the dense vegetable growth which adheres to poundnet poles, ropes, anchors, etc. At Bradley Beach an old rope, covered with Ulva lactuca lactuca and U. enteromorpha compressa, when pulled up had hundreds of small cunners on it, which were landed in the boat..." p. 378.

Smith, H. M.
Cunner seasonal mortality is described in addition to breeding habits and distribution.

Smith, J. V. C.
1833. Natural history of the fishes of Massachusetts, embracing a practical essay on angling. Allen Ticknor, Boston. 399 pp.
Cunner life history is discussed (p. 259-261). Baird (1873) states of this publication "an exceptionally and even ludicrously erroneous and worthless compilation..."

Smith, J. V. C.
Cunner, Labrus coriceps, is listed.

Smith, J. Capt.
Smith comments on the abundance of fishes in New England and notes, "And in the harbors we frequented, a little boye might take of Cunners and Pinacks and such delicate fish, at the ships sterne, more than sixe or tenne can eate in a daie; but with a casting net, thousands when wee pleased..."

So, B. K. F.
Cunner was one of 28 species examined for haematozoa. None of the 26 cunners examined contained blood protozoa.

Speidel, C. S.
1922. Further comparative studies in other fishes of cells that are homologous to the large irregular glandular cells in the spinal cord of the skates. J. Comp. Neurol., 34(3): 303-318.
Cunner is listed as one of the many species of fish which were examined for Dahlgren cells. The cells found in the cunner exhibited lobulation of the nucleus and large cell body size.

Stafford, J.
The cunner is cited as a host for Dermocystis centolabri (p. 682).

Stafford, J.
Distomum sp. was encysted in skin of cunner.
“Upon page 259, we have a description of the cunner, or marine perch as it is often called; and it is surprising that after the author observes, 'since the commencement of this little volume, no one species has given us more trouble and perplexity in the classification than this;' to find it arranged in a wrong genus, with the sage remark, 'to all appearance the perch or cunner is the tautog in miniature; and if it were black it would be supposed to be the young of that fish!' And this too, while the preoperculum of the former is strongly denticulated throughout, and the edge of that of the latter is perfectly smooth!’ - p. 345.

Storer, D. H.

The taxonomic description and synonymy of the cunner is given (p. 386).

Storer, D. H.

A taxonomic description with synonymy and remarks is provided (p. 108-110). The cunner, is noted to be a common species taken from the middle of June until late in October, and brought to market in immense quantities.

Storer, H. R.

"Cuvier received specimens (of cunner) from Newfoundland; Dr. Storer next mentioning it as in the waters of Maine, whence it ranges southerly as far as New York. It is so plentiful in the Gut of Canso, that by sinking a basket with a salt fish tied therein for bait, we continually
caught them by the score; and by putting a few hundred into the ‘well’ of our little sloop, we kept ourselves, the dogs, and a hawk (Falco Sancti Johannis) well supplied with fresh fish wilt at sea.” p. 264.

Stroud, R. H.

Cunner is listed as a species which is considered by some biologists to be estuarine-dependent at some critical stage in its life history.

Stunkard, H. W.

Experiments were performed with trematode life stages obtained from cunners. Host relations and specificity of the trematode are presented on the basis of experimental data.

Suckling, J. A.
Lateral line detectors. Indiana Univ. Press, Bloomington, Indiana.

Cunner is listed as one of many species of fish which have a “dorsal nerve present with commissures passing to lateralis nerve.” p. 49. “Preliminary histological studies on the lateralis nerve of Kaisuwonus pelamis and Tautogolabrus adspersus suggest that there are both large and small fibers present. The number appears to be the order of 1000 fibers in the lateralis nerve, before it becomes part of the vagus.” p. 51.

Sumner, F. B.

The cunner is not able to tolerate fresh water; the abruptness of transfer to low salinity and fresh water is not as important as the salinity level.


Cunner is listed as one of the species obtained during the survey. A chart illustrating the distribution of the cunner in Vineyard Sound and Buzzards Bay is provided as well as a description of the food, parasites, and habits (p. 759-760).


“In May 1967 an up-estuary gale caused the buildup of an extra-ordinarily deep freshwater layer in Bideford River, P.E.I.; salinities at 3 m fell to less than 10/o0.” A single dead specimen of Tautogolabrus adspersus, the cunner, was noted after this phenomenon.
Thompson, H.
Young forms are taken pelagically at Bay Bulls.


Threlfall, W.
Although metacercariae of Cryptocotyle lingua parasitize the cunner, specimens of the fish were not found in the stomachs of gulls.

Townsend, C. H.
The cunner is listed.

Townsend, C. H.
Catch statistics are listed throughout text.

Tracy, H. C.
A very brief account of the distribution, habitat, reproduction, food and size of the cunner is provided (p. 77-78).

Tracy, H. C.
A description of the distribution, habitat, reproduction, food and rate of growth of the cunner is given (p. 135-136).

Tracy, H. C.
Cunner was one of nine species of marine fish in which the development of the swimbladder was studied.

Tracy, H. C.
The spontaneous movements of the toadfish are compared to those of Fundulus and the cunner. “It would appear that the activity habits of these animals are not widely different at any stage of their existence, and are determined by some internal physiological mechanism, the earliest expression of which is found in the spontaneous movements of the embryo.” p. 411.

Tracy, H. C.
Observations are made in detail on the reactions, movements, and behavior of larval cunner. Larval cunner behavior is compared with that of the toadfish.
Tremblay, J. L.
The cunner is mentioned, p. 40.

Trumbull, J. H.
Usage of terms “cunner” and “bergall” for fish other than *Tautogolabrus adspersus* is discussed.

Unger, I.
A description of the occurrence of cunner in areas of artificial reefs.

Verrill, A. E.
A cunner was observed to be in the stomach of a "Peaked-nosed Skate" caught in Vineyard Sound (p. 521). This occurrence was also recorded in Baird (1886).

Vladykov, V. D. and R. A. McKenzie.
Lists the cunner (p. 100) as very common in coastal waters but devoid of economic importance.

Walbaum, J. J.
A taxonomic description of the cunner, *(Labrus adspersus)*, is provided (p. 254-255).

Warfel, H. E. and D. Merriman.
The cunner is listed as one of the species obtained from the Morris Cove area. "*Tautogolabrus adspersus* and *Opsanus tau* were apparently wanderers from rocky habitats where they are well known, although they have been reported from sand or muddy bottoms occasionally." p. 60.

Weis, J. S.
The results of bioassays on the cunner spinal axes are listed.

Wheatland, S. B.
The relative abundance of eggs and larvae obtained from L.I.S. is listed. Data pertinent to other characteristics of cunner eggs and larvae (size, number collected, etc.) is provided in tables. An excellent discussion of cunner eggs and larval distribution and abundance is given with explanations accounting for the decrease in cunner egg diameter observed through the spawning season.

Whitman, J. F.
Specimens of cunner from Canadian waters were exhibited at the Colonial and Indian Exhibition in London (p. 16).

Wicklund, R. I.
The spawning behavior of the cunner was observed in their natural habitat at Shrewsbury Rocks, New Jersey. "Cunner spawning was observed. . .after 1200 hr and before 1700 hr of June and July,
1963. Prespawning behavior took place within small aggregations of 3 to 15 cunners which became more active than usual, milling and darting about. Chasing next ensued, one fish, pursued by several others, moving in small circular paths in and out of rock crevices and over rises on the bottom. The spawning act took from two to three seconds. In each instance, a group of fish made a quick turn upward to converge at a point one to two meters above the bottom, where the fish either contacted or merely touched each other. Then they immediately swam down and glided in a curving path toward the bottom away from a white cloud, presumably milk and eggs which they had discharged at the apex of the upward spawning movement."

Wilbur, C. G.
At a given temperature larger fish have slower heart beats than smaller fish. "A few average values in beats per minute for fish arranged in order of decreasing size: Roccus, 20; Oppsansus, 40; Prionotus, 50; Tautogolabrus, 60; Fundulus, 100."

Williams, G. C.
The cunner is listed (p. 343) as a species often taken by anglers near Waquoit Bay.

Williams, G. C.
Observation indicated that the eggs of cunner and tautog could be correctly identified from each other by the use of monthly egg-diameter frequency distributions.

Williams, G. C.
The distribution of cunner eggs was strongly vertically stratified with most of the eggs obtained from the upper five meters of water.

Williamson, W. D.
"'Cunner' is a brown coloured, scaled salt water fish, as large as a white perch, and is a good pan-fish. It has a horny or thorned back, and is found in Casco bay and westward; and weighs from 1 to 6 pounds."

Yudkin, W. H.
Assays for the presence of thiaminase were conducted on the cunner and three other marine species. No thiaminase was present in any of the fish tested.

Zube, E. H. and C. A. Carlozzi, eds.
The tautog (Tautoga onitis) and cunner (Tautogolabrus adspersus) were commonly caught while sampling in Nantucket and Madaket Harbors. Their diet consist of shrimp, amphipods, mussels, crabs, etc. (p. 55-58).
Most of the entries below were listed in Fish of the Gulf of St. Lawrence, An Unabridged Bibliography, (Technical Report Number 261, Fisheries Research Board of Canada) by V. M. Srivastava. The publications referred to have not been seen by the authors and are not included in the index. Although not annotated, they are presented in the interest of completeness and to inform the reader that additional information, albeit obscure, is available.

Bergeron, J.

Bergeron, J.

Bergeron, J.

Bergeron, J. and G. LaCroix.

Bergeron, J. and V. Legendre.

Fortin, P.
1863. List of the cetaceae, fishes, crustacea and mollusca, which now inhabit and have inhabited the Canadian shores of the Gulf of St. Lawrence and are objects of fishing operations, whether on a large or small scale, and which are used as bait, etc... Ann. Rept. of Pierre Fortin, for 1861-1862, Quebec 109-124.

Gauthier, M.

Halkett, A.

Kennedy, V. S. and P. M. Powles.

LaCroix, G.

LaCroix, G. and J. Bergeron.

Lacroix, G. and L. Legendre.

Scarrat, D. J. and A. J. Wilson.

Van Vliet, W. H.

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  Walbaum, 1792.
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  Kidder, 1880.
Tide (effects of)
  Huntsman, 1918a.
  Merriman, 1947.
Thiaminase
  Greig and Gnaedinger, 1971.
  Lee, 1948.
  Yudkin, 1945
Virginia
  Lugger, 1877.
Vision
  Anctil, 1969.
  Parker, 1903.
  Sargent, 1904.


