

New Jersey

Outdoors



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DIVISION OF FISH AND GAME

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Commercial Fisheries Act

Could Help New Jersey

NEW JERSEY's marine fisheries program would benefit greatly from a proposed federal bill to aid research and development of commercial fisheries.

Former Commissioner Adams of the Department of Conservation and Economic Development has strongly endorsed S. 627, the "Commercial Fisheries Research and Development Act of 1963". Senator Harrison A. Williams, Jr., of New Jersey is one of the co-sponsors of the bill which was introduced by Senator E. L. Bartlett of Alaska.

The bill would authorize appropriation of \$5,000,000 annually over a five year period. New Jersey would be eligible for a substantial share of this money, since the Garden State has an extensive commercial fishery.

Basic research regarding major species and their environment is the primary need in the opinion of Marine Biologist Paul Hamer. Little is known about the spawning habits of bluefish, fluke, or other important fish, and practically nothing about the environment requirements of young porgies, blues, fluke, flounders, striped bass, or other species.

Population fluctuations and their cause, such as the recent rise in stripers and drop in fluke, require study. It is known that restrictions on commercial gear have had little if any effect on striper abundance; also pollution abatement has not been a major factor in striper abundance since the main spawning and nursery areas are not seriously polluted. Most fishery scientists are convinced that it has been natural environment changes which have occurred during recent season which have had a marked influence on hatching success and survival of young fish. These need to be studied in considerably more detail.

Better management would result from such research. For example, proof of the theory that cosmic rays are a major cause of striper egg mortality could result in the release of harmless dyes in rivers to protect eggs at spawning time. The high spawning success of stripers in 1958 may have resulted from turbid water caused by heavy rainfall which would have cut down the effects from cosmic radiation.

(Continued on Page 18)

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Cover—"WITH ROD, BOAT & TENT"—*Johnson Motors*

More and more people are getting away from it all by
combining fishing, boating, and camping in one trip.

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Fish Scales -- What They Are and How We Use Them

By DONALD N. RIEMER and ROLAND F. SMITH

WHILE CLEANING your catch after a long, hard day's fishing you may have used some pretty uncomplimentary language in describing fish scales and wished that all fish were as naked as the catfish. To a fisheries biologist however, these scales can be very important; the fish's whole history may be etched on the scale surface. Because of fish scales scientists have been able to follow the fate of the 1958 year-class of striped bass and measure with accuracy the tremendous impact it has had on our sport fishery. Predictions of commercial fishery harvests several years hence are possible after a sample of fish scales has been "read".

To appreciate all this we must first understand exactly what a fish scale is, where it comes from, and how it grows. Scales are formed in, and are intimately associated with the skin. The skin itself is divided into two distinct layers; the outer epidermis and the inner dermis. The epidermis is a thin layer of living cells which is

constantly being worn away to be replaced from below. Beneath this is the thicker dermis composed of more complicated cells and containing small muscle fibers and tiny blood vessels and nerves. It is in this dermis that scales arise. This is quite unusual among vertebrates because the scales of reptiles, the feathers of birds and the hair of mammals are all epidermal in origin.

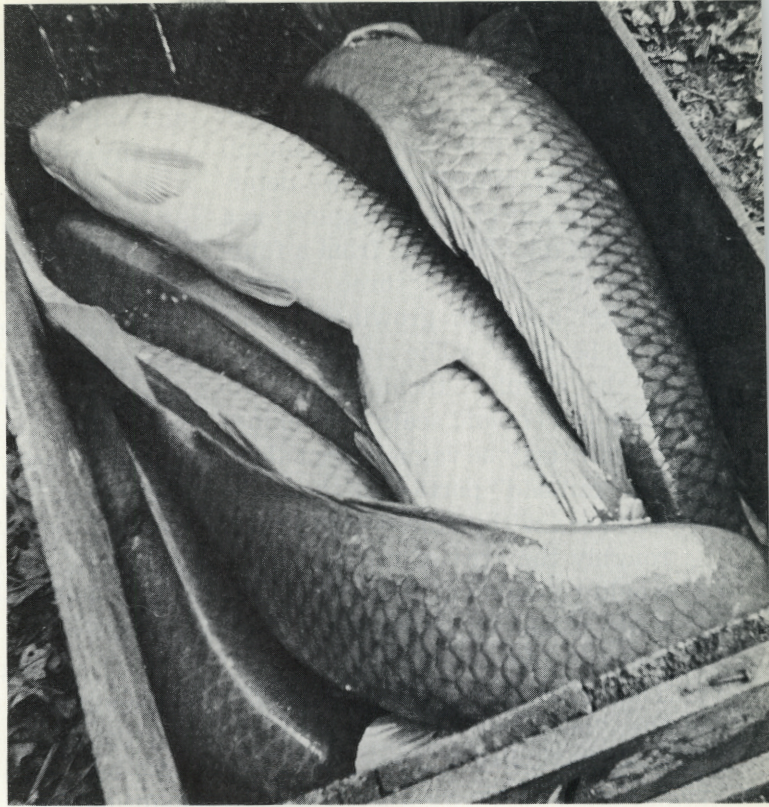
The Scale

All fish are born without scales. Soon after birth, however, the first scales form in the region first near the tail, then along the lateral line from which they spread out in all directions until the body is covered. The scales are formed by the deposition of lime salts in little pockets in the skin known as *dermal papillae*. In the beginning the scale is nothing but a little disk of the deposited lime in its own pouch in the dermis, which become the *focus* of the scale. But then the scale begins to grow. This is accomplished by the deposition of more lime salts in the form of a second, larger disk beneath the first. Our scale now has the appearance of a dime, (the first disk), sitting on top of a nickel, (the second disk), except that the

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*The next time
you catch a
mess of fish
look a little
more closely
at the scales*



whole thing is much thinner. Now more layers are added just as if we were to put a quarter and then a half-dollar underneath our pile of coins. In this way the scale continues to grow throughout the first summer of the fish's life.

If we were to look at our scale under a microscope at this time it would appear as a series of concentric rings because we would see the outer rim of each disk where it projected out from the smaller disk above it; (just like looking straight down on the top of our pile of coins). Each one of these rings is called a circulus, (plural-circuli). The edge of each disk

also has a ridge around it, just the way our coins have a raised rim around the edge. These ridges make the circulus easier to see under a microscope.

With the coming of winter there are drastic changes in the environment in which a fish lives. Among other things, there are changes in food supply, amount and intensity of light, and of course, temperature. These factors combine to cause changes in the growth of our scale. The new circuli being formed are crowded close together and are very irregular in shape. In some cases they even cross over each other. These crowded, ir-

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regular circuli form a distinct mark on the scale known as an annulus and it is from these annuli or "winter marks" that we determine the age of a fish. Figure I is a photograph of a scale from a four-year old bluegill; three "winter marks" and four growing seasons may be seen. (The arrows point to the annuli) Incidentally, this scale is a *ctenoid* scale—the spines (*ctenii*) may be vaguely seen along the "tail-end" portion of the scale. The area within the dotted line is roughly the area of the scale that would be exposed. The rest of the scale would be covered by other scales—like shingles on a roof. The radial lines going out towards the "head-end" are to give the scale flexibility.

Figure II shows a *cycloid* scale from a chain pickerel. It was trapped by biologists in early April, tagged and released; you will note that the third annulus has just been laid down and little growth has taken place beyond it. The fish (a female from Bear Pond) was just entering her fourth growing season.

This particular fish was caught by an ice fisherman the following January and a biologist happened to be present. Noting that it was a tagged fish he took scales. Figure III shows a scale taken at that time. Now we may clearly see the 3rd annulus, the growth increment during the 4th growing season and the 4th annulus just beginning to

be laid down. Checking the age of fish over a known growth period is one method of testing the accuracy and validity of the scale technique on any given species.

Figure IV portrays another type of *cycloid* scale characteristic of the herring family. This one happens to be a landlocked alewife from Lake Hopatcong. The reader can begin to recognize that different types of fish have characteristic scales. Sometimes it is possible to identify the scale down to species of fish from whence it came. This can be valuable in determining the type of fish eaten by birds, mammals or other fish, for example.

Aging By Scales

The idea of aging fish by counting the rings on their scales was first advanced in 1892 by a German named Hoffbauer who was working on carp. It is still the most widely used method of determining the age of fish even though it has some disadvantages. The primary disadvantage is the fact that radical changes in a fish's life may cause a mark to be laid down on the scales which is very similar in appearance to an annulus. Some of the changes which may cause such a false annulus to appear are the stocking of fish into natural waters from a hatchery, the movement of fish from fresh to salt water, sickness, or spawning. While this may cause confusion and error on the part of the novice, a well trained and experienced person can distinguish be-

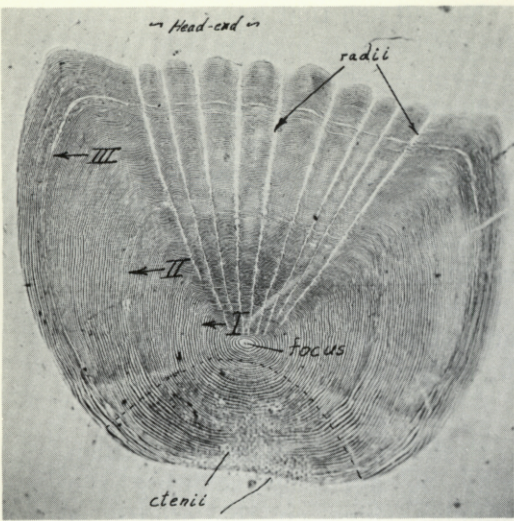


FIGURE I
Ctenoid scale—bluegill
Four years old

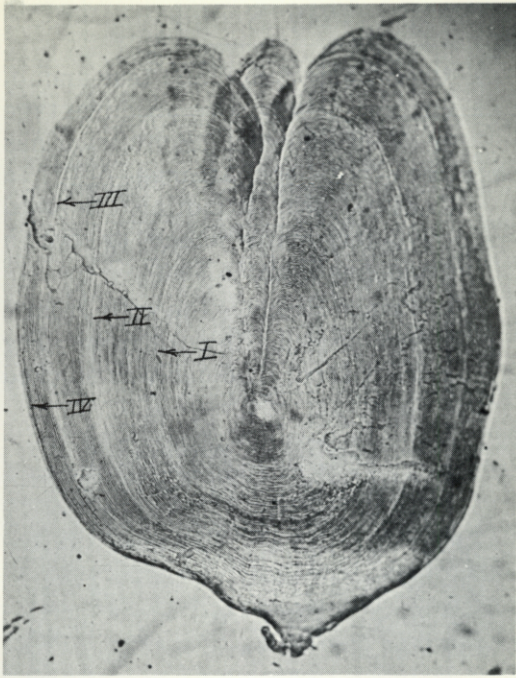


FIGURE III
Cycloid scale—pickerel
With fourth annulus



FIGURE II
Cycloid scale—pickerel
With third annulus

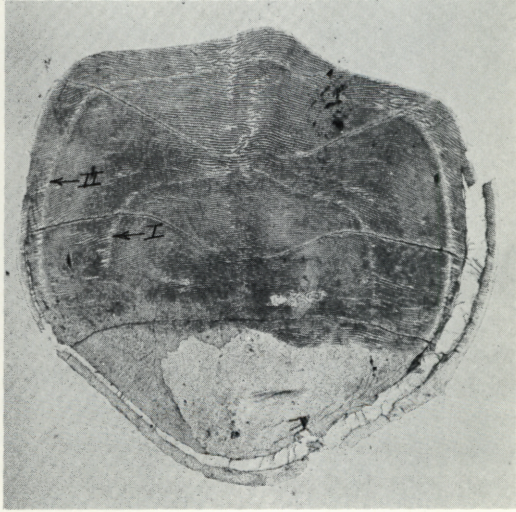


FIGURE IV
Cycloid scale—alewife
With definite annuli

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tween false annuli and true annuli. In fact, this can be an advantage in determining whether a trout has been hatchery stocked or is a "native" fish. It can also be used to determine whether or not a trout has been to sea.

Figure V shows the scale from a brown trout taken from Big Swartswood. The fish was stocked

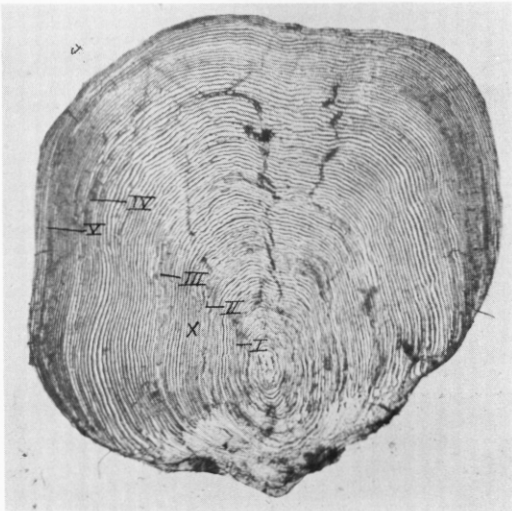


FIGURE V
Scale from a brown trout

after the second annulus was laid down, possibly at about the point marked "X". The fish's growth was good but not exceptional during the remainder of that season, but the space between the 3rd and 4th annuli dramatically illustrates the rapid growth rate that occurred in the 4th growing season. This is quite typical of brown trout growth in Big Swartswood, Hopatcong and Greenwood Lakes.

Not all fish that have scales can be aged in this manner. Old, slow-growing species may be extremely difficult to age. The flat fishes are quite difficult to age by the scale method, thus the ear bone is commonly used. The fluke might not be too difficult to age if scientists could agree on what to call the 1st annulus. Here more detailed studies from known-age fish must be undertaken.

Scaleless Fish

Scaleless fish like the catfish may be aged by counting the annular rings on the *otolith*, a bone in the fish's internal ear, or on a cross section of the pectoral spine.

Eels spend the first two to four years of their lives as scaleless larvae and these years do not show up on the scale of the adult. Incidentally, the scales of eels are nearly microscopic in size and are embedded in the skin. For this reason they appear to have no scales at all, thus were included in the list of seafood forbidden to the ancient Hebrews. In contrast to the tiny scales of the eel, tarpons often have scales which are several inches across.

Types of Scales

Living forms of fishes have five distinct types of scales. Sharks, rays, and related forms have a type of scale called a *placoid* scale which is tooth-like in appearance and structure. The gars and sturgeons have heavy, plate-like, diamond-shaped scales that do not overlap. These are known as



Scientists can determine much from fish scales

ganoid scales. Most of our soft finned fishes such as the trout, pickerel, and minnows have a thin flexible *cycloid* scale (Figure II). Spiny-finned fishes such as bass, sunfish and perch have scales with little teeth on them which are known as *ctenoid* scales, (Figure I). Finally, there is a rare type of scale found on the lung fishes and many extinct species known as a *cosmoid* scale. The vast majority of all living fishes, however, have either *cycloid* or *ctenoid* scales.

In addition to telling us the age of the fish, scales can also tell us how fast a fish has grown at any

given period in its life. This can be done because the scale grows at the same rate that the fish does. Suppose we have a scale which has three annuli or "winter marks" on it. The fish was caught in early March and the third annulus has just been laid down at the very edge of the scale. We now take this scale and project its enlarged image on a screen with a specially built scale projector. We measure the distance from the center or focus of the scale, out to the third annulus and find this to be six inches. We also measure the distance from the focus to the second

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annulus and find this to be five inches. Similarly, it is two inches from the focus to the first annulus.

Now at the time the fish was caught he was measured and was found to be twelve inches long. We know that this twelve inches corresponds to the six inches on the scale to the third annulus. Since the ratio between the length of the fish and the radius of the scale remains constant throughout the life of the fish, we can calculate how long the fish was during his second winter. Since the scale was $1/6$ smaller at the second annulus, the fish was $1/6$ smaller, so he was ten inches long at the time this annulus was laid down. In the same way, we can calculate his length at the first winter to be four inches, ($1/3$ his present size).

Other Uses

Scales have other uses to the fishery scientist. The number and position of the scales on any one fish remain constant throughout the life of the fish. (If a scale is lost, a new one immediately grows in its place but none of the old annuli are reformed). The number of scales is also relatively constant within a species. Therefore, counts of scales on various portions of the fish's body can be useful in identifying fish.

Scales may occasionally be useful in helping to isolate races or sub populations if the scales from one sub population has certain

characteristics that other races, or sub populations, do not have. Such information may then be used to determine the extent to which any given sub population contributes to a particular sport or commercial fishery.

To Set Laws

The no-minimum size limit on pickerel in New Jersey was based, in part, upon a study of the age-composition of the pickerel in the angler's creel. Similarly, the recommendations to reduce the minimum size of bass from 12" to 9" was based on age-composition studies of bass populations which suggested that an apparently heavy natural mortality normally occurs between their 3rd and 6th growing seasons, or between 9 and 12 inches. Reducing the minimum size limit, therefore, permits the harvest of many bass that would not have survived to twelve inches.

Another example of the use of scales is with the shad population now on the increase in the Delaware River. The age-classes that survive best will be correlated with water conditions in the Delaware River. From this, fishery scientists will be able to develop a schedule of water releases from Tocks Island Reservoir that will be favorable to high shad survival.

The next time you catch a fish, take a close look at one of the scales and remember that it's a remarkable little item which is of great value to fisheries scientists and to your future fishing. #

The Role of Tidal Marshes In Estuarine Production

By EUGENE P. ODUM, University of Georgia

This timely contribution from the University of Georgia Marine Institute should help us all to understand and appreciate more fully our New Jersey tidal marshes

Part I

ESTUARIES and adjacent alluvial plains are among the most natural fertile areas of the world. In many parts of the world their productivity is important to the support of large human populations, yet strange to say, estuaries, marshes and river deltas in the United States are generally regarded as waste lands of value chiefly as convenient sewers for the dumping of the wastes of an industrial civilization. While the early settlements together with food growing and food gathering areas in North America were largely coastal, the centers of population and farming subsequently moved inland. With the rapid increase in human population now taking place, attention will again be focused on our coastal resources. The difficult problems which have already resulted from serious conflicts of interests in our culture make it mandatory that we make long-range plans based on sound principles.

The basic themes of this article

are as follows: (1) Because of the importance of tidal action in nutrient cycling and production, the entire estuarine system, including marshes, flats, creeks and bays, must be considered as *one* ecosystem or productive unit. (2) Emphasis on management must be on *utilization* rather than on *production*. (3) Something akin to the soil conservation district program (i.e., estuarine conservation districts), which involves the voluntary co-operation of private and governmental interests on a *large scale*, are needed, but the "*agronomic*" approach employed in land management must be considerably *broadened* to avoid serious mistakes.

Basic Research

About six years ago, the University of Georgia established a Marine Institute on Sapelo Island for the purpose of conducting basic research on the estuarine ecosystem. Supported by the Sapelo Research Foundation established by R. J. Reynolds, Jr., together

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with funds from state and Federal sources, the vast and as yet unpolluted tidal streams and marshes are being intensively studied by a

questions of what should be done and where and why? Much of what I shall have to say here is based on the data obtained to date at Sapelo. We think the general principles which are unfolding are



Estuaries are among the most naturally fertile areas

full-time resident staff supplemented by graduate students and staff members from the University of Georgia and other campuses. We hope that by the time human population pressure begins to be felt along the Georgia coast we shall have the necessary basic information to answer the inevitable

applicable throughout the Atlantic and Gulf coasts because we have been concerned with the two most basic areas of ecology; namely, the way in which energy flows in the system and the way in which vital nutrients are cycled. However, basic work of this sort needs to be done at many other points

along our coast before we can be sure how far our interpretations should be carried.

A point to be emphasized is that basic work which is functional in approach is almost immediately practical. Too often in the past it has been assumed that (1) describing the standing crop, that is, enumerating kinds and numbers of organisms present, and (2) measuring the amount of certain "magic" substances such as oxygen or phosphorus present in the water will somehow provide the answers to pressing practical problems. However, description alone, no matter how detailed, does not bring understanding. If we are to know how a system works we must go beyond the "standing state" and consider the rates at which organisms, oxygen, etc., are produced per unit of time. To illustrate a

that it was discovered how the blood system actually worked. So it is with estuarine systems—*function* as well as anatomy must be studied.

To visualize just how fertile estuaries may be, let us make some comparisons. As shown in *Table 1*, potential or "gross" production of major ecosystems of the world covers about three orders of magnitude. Many estuarine situations rank with coral reefs and intensive rice and sugar cane culture in ability to fix organic matter from sunlight. We now estimate that our Sapelo marshes and estuaries taken together have an estimated gross primary production of somewhere around 2,500 grams of dry matter per square meter per year. We think about 500 of these grams are used by the plants in their own respiration leaving about 2,000

Table 1. General Orders of Magnitude of Gross Primary Productivity in Terms of Dry Weight of Organic Matter Fixed Annually

<i>Ecosystem</i>	<i>gms/M²/year</i>	<i>lbs/acre/year</i>
Land deserts, deep oceans	Tens	Hundreds
Grasslands, forests, eutrophic lakes, ordinary agriculture	Hundreds	Thousands
Estuaries, deltas, coral reefs, intensive agriculture	Thousands	Ten-thousands

little better what is meant let us consider an analogy. The Greeks described the anatomy of the human heart and blood vessels very well, but it was not until circulation was studied in the living human and animal centuries later

grams net production average for each square meter of the system. It is important to recognize that there are these two kinds of production at the primary level. It is very easy to become confused because aquatic ecologists often talk

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about gross production while agriculturists usually deal in yields per unit time, or net production. It is also important that comparisons be made in terms of dry weights, or even better in terms of calories, of all organic matter produced per same unit of time per same unit of area!

Production

Returning to our estimate of 2,000 grams per square meter per year this would be approximately the same as 20,000 pounds or 10 tons of dry organic matter per acre. In terms of potential food energy usable by organisms, the net production of our estuaries is apparently of the order of 8,000 kilo-calories (since average production is about 4 calories per gram) per square meter, or about 32 million calories per acre per year! By comparison world average net production of wheat, for example, is now 340 grams/M²/year or about 1½ tons/acre/year including straw and roots as well as the grain. The highest yields of wheat and corn obtained in northern Europe, where land is tended with loving care, are around 1,400 gms/M²/ or 7 tons/acre which is less than our estimate of 10 tons for coastal estuaries. Going in the other direction towards the sea, gross productivity of continental shelf water seems to be of the order of 300 gms/M²/year while the open ocean is 100 grams or less. Thus, we see that estuaries tend to

be more fertile than either the uplands on the one hand or the sea on the other.

At this point we should emphasize the word "potential." The relationship of total production to "yield to man" is quite different in these various environments. More human food per acre, of course, is obtained from a wheat field than from the much more fertile estuary because only a very small fraction of the latter production reaches the human link in the food chain. If I had to single out one point for primary emphasis here it would be this: Where an environment is naturally low in fertility or has obvious limiting factors such as are present in a dry wheat field, the conventional agricultural approach of attempting to increase fertility with water, fertilizers and genetic strains is fine. However, where fertility is already high, the emphasis must shift from production to utilization.

Why So Fertile

Why are estuaries so fertile? We can see several major mechanisms that probably are important. First, the mixing of waters of different salinities produces efficient vertical mixing that results in a sort of "nutrient trap." Thus, valuable nutrients are not swept out but move up and down and cycle rapidly between organisms, water and bottom sediments. Secondly, the back and forth tidal flow is a favorable factor since food, nutrients and oxygen are continually supplied and waste

products removed automatically with the result that organisms need not waste their own energy in these processes. Other things being equal, a flowing system will be more productive than a standing system. Certainly, in future alterations and management of estuaries we don't want to destroy or lessen the efficiency of these two mechanisms.

Inflow

A persistent idea about estuaries is that inflow of river water and fertilizer washed in from the land makes an important contribution. This could well be a factor where land drainage is very rich but it is definitely not the case in Georgia. Dr. L. R. Pomeroy of our Sapelo staff has for several years now been making an intensive study of phosphorus. He has not only been measuring the amount present in both inorganic and organic form at all seasons and in various places but he has also been measuring the rate of turnover; that is, how fast phosphorous moves in and out of the major components such as organisms, sediments and water itself. In the Altamaha River just before it reaches the estuary, Dr. Pomeroy has found that the concentration of phosphorus is only about 0.1 microgram atoms per liter. This is a small amount; we suspect that at such a level phosphorus is limiting, which is to say growth will be restricted for lack of this vital element. When we reach the mouth of the river the phosphorus jumps up ten times to

1 microgram-atom. If we move to tidal creeks away from the influence of the large river the amount of phosphorus is even higher—up to 2 to 4 microgram-atoms/liter. In other words, the river, far from fertilizing the estuary, actually dilutes it with poorer water, and also mud and clay). We should also point out that the figures given refer only to dissolved inorganic phosphate which is instantly available to organisms. In addition to this, the estuaries have a tremendous reserve in particulate form—which is also available sooner or later.

Phosphorus

Thus, we have no hesitation in saying that phosphorus is not a limiting factor in our estuary. The fact that concentrations are so much higher in the estuaries than in either the rivers or the sea is, of course, indirect evidence of the efficiency of the nutrient trap which we mentioned earlier. One of our students, Dr. Edward Kuenzler, demonstrated in his doctoral thesis that the common horse mussel (*Modiolus demissus*), which is abundant in the marshes, is extremely important in the phosphorus cycle. In filtering water to obtain its food, huge quantities of organic particles are sedimented in the form of pseudofeces which sink to the bottom; the contained materials in the particles are thus retained in the marsh and made readily available to the algae and fiddler crabs. In other words, organisms as well as sa-

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linity differences are a part of the nutrient trap. As human beings we don't eat the mussels and fiddler crabs, but they are valuable in maintaining basic fertility. Too often we justify presence of non-economic forms only on the basis that they provide food for economic animals (racoons eat mus-sels, for example). Often such forms may be more *valuable in a less direct way*, as is the mussel, *in the maintenance of a biogeo-chemical cycle!*

Production Units

The next thing to emphasize is that the fertility of estuaries re-sults from the interaction of three different production units as shown in *Figure 1*. It is necessary

water systems, especially where much of the bottom is alternately exposed and covered by tides, the fertility may be based on the rich organic composition of the bottom rather than on the phytoplankton. At Sapelo the three distinct pro-duction units may be listed as fol-lows in order of their importance as food makers for the system as a whole: (1) The vast areas of *Spartina* or cord grass marshes, (2) the benthic or "mud algae" which grows throughout the in-tertidal sediments but especially on the creek banks and (3) the phytoplankton in the water. In another extensive shallow water estuary, Boca Ciega Bay, on the west coast of Florida, Pomeroy (1960) found that in water less than two meters deep, which con-

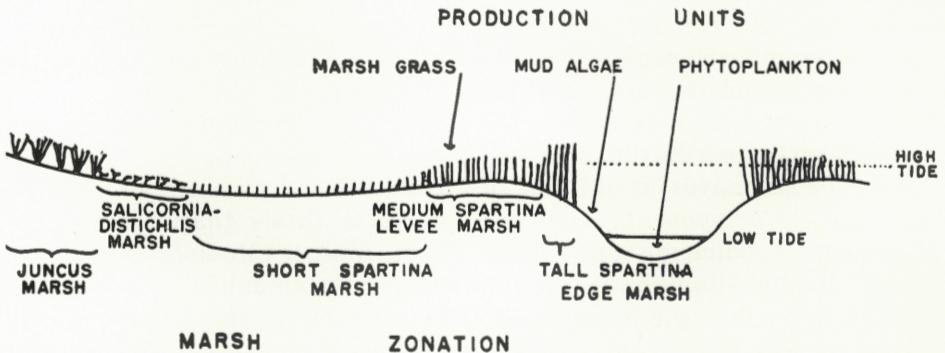


Fig. 1. Marsh fertility is the sum of three different production units

to point this out because in classi-cal limnology and oceanography all the emphasis is on phytoplank-ton (microscopic plant life in the water.) This is fine for deep lakes and oceans where light does not reach the bottom. In shallow

stituted 75 per cent of the bay, the benthic (bottom) plants were more important, while in deeper water the phytoplankton con-tributed more to primary produc-tion; the shallows were equally productive whether covered by

marine eel grass (*Thalassia*) or merely by benthic microflora.

The importance of the mud algae was a surprise to us. The tidal creek banks although barren of large plants are by no means deserts as they might appear at first glance. As is indicated by their green or golden brown color, the exposed sediments actually support an active community of diatoms, dinoflagellates and other algae together with associated heterotrophic microorganisms. Dr. Pomeroy, in his studies at Sapelo, put bell jars over the mud and measured oxygen and CO₂ changes finding an unexpected high rate of production. The mud algae proved to be a beautifully adapted community which functions at about the same rate throughout the year. In summer, photosynthesis occurs mainly when the tide is in; in winter, the opposite situation holds because most photosynthesis occurs when the tide is out and the sun warms the sediments.

This mud algae business illustrates another ecological principle which we often call the "inverse size-metabolism" law. This is to say that small organisms often have a higher rate of living and production per gram of standing crop than large organisms. One pound of mud algae may produce as much food as many pounds of grass. We say that algae "turn-over" more often than the grass. With large organisms such as fish, the standing crop—what there is at any one time, is indicative of

production; not so with small organisms; they are exported or consumed so fast that the mass present at any one time is small. Thus, the thin film of algae in and on the mud doesn't look like anything; only when we measure rate of gas exchange do we find out its true value.

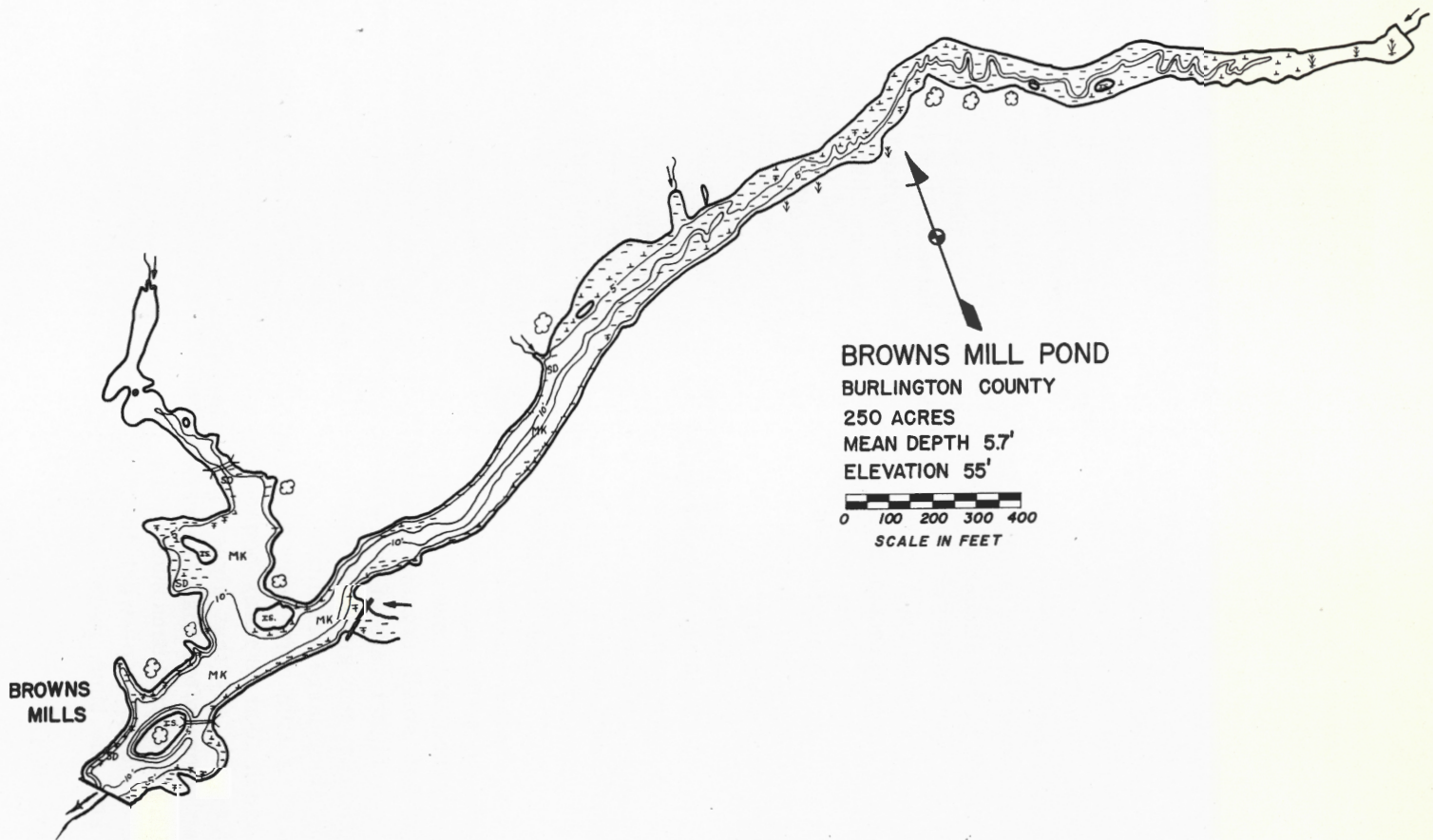
Important

We suspect that in each tidal cycle some of the algae are washed into the water or "exported" and thus temporarily become a component of the plankton where they are available to filter feeders, such as oysters, throughout the estuary. It may just be that a lot of the green stuff found in the stomachs of oysters and other filter and deposit feeders is benthic in origin and not planktonic. At least in the future we should look more closely into the composition of food used by our economic species. Bottom-produced algae as well as organic detritus-bacterial particles are undoubtedly more important than formerly thought.

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This is Part I of two parts



Browns Mill Pond (Mirror Lake)

BURLINGTON COUNTY

Location: In Browns Mills, five miles south of Wrightstown.

Physical features: Area—250 acres, elevation—55 feet, maximum depth—13 feet, mean depth—5.5 feet.

Chemical features: Oxygen—insufficient at lower depths in summer, pH—ranges from 4.3 to 6.0, mean of 5.3, alkalinity—1.04 ppm.

Biological features: Vegetation—heavier in shallow areas—light in water deeper than 4 feet. Water color—dark brown—typical cedar.

Fish and fishing: Pickerel—fair, not very large by North Jersey standards. Anglers report that many pickerel in 12- to 15-inch class are taken on spoons and spinners. The fishery for this species has improved in the last few years.

Largemouth bass—fair to good, again not many very large fish are taken. But the bass population has improved since the last write-up in 1954.

Calico bass—fair. Best fishing is in spring and early summer with shiners in shallow water.

Yellow perch—fair to good. Many large-size perch are taken shortly after "ice out" at the dams and in the gate holes. The rest of the year, they can be taken in the main body of the lake on most any bait.

Pumpkinseed—good. This species provides most of the fishing fun for the younger set. The fish bite readily and fight very well for their size. This species seems to be keeping at a near static population level.

Bullheads—fair to poor. Both of the two species present, the brown and yellow bullheads, are heavily fished. By these standards you would expect good growth as a result, but the growth rates are very poor.

Forage and miscellaneous species—Other sunfish reported present are the mud, banded, sphagnum, and blue-spotted sunfish. These are the indicators of the acid water that is present. Also, native to this lake are golden shiners, fusiform darters, chub suckers, pirate perch, mud minnows, and one species of madtom. The blue-spotted sunfish and chub suckers were taken in large numbers in seine checks this spring.

General: Although there is no boat livery on the lake, bank fishing and floating private craft are available. Numerous areas for swimming and picnicking are found around the lake.

Browns Mill Pond is the largest lake in Burlington County and third largest in South Jersey.

FRANK E. BOLTON,
Junior Fisheries Biologist.

. . . Fisheries Act

(Continued from inside front cover)

Effects of coastal developments on the environment of fish and necessary food organisms must be investigated. The need to preserve marshland, the effects of industrial and home development, the results of dredging, creation of new inlets and lagoons, and the effects not only of pollution but of programs of pollution abatement and weed and insect control require research.

Coastal currents and the manner in which they may carry both larval fish and pollutants must be investigated. Important larval fish nurseries could thus be set aside for special protection.

It is already known that management programs cannot be designed to treat one species as a single unit, so when considering a management program for, let us say fluke, we must know what such changes will have on other important fish species.

Maximum yields must be determined for major species, and methods must be worked out for the most beneficial allocation of yields between sport and commercial fishermen.

Once yield potentials are determined, development of more efficient gear could aid U. S. fishermen in competition with foreign fishermen on international waters. Improvement in marketing techniques would further aid them. Contrary to popular belief the seas

do not contain inexhaustible supplies of fish. Likewise, they are not a vast void in which every conceivable pollutant can be dumped year after year without adverse effect.

Although many management programs must await such basic research, some could be instituted immediately. These might include development of access facilities, creation of artificial reefs, charting of wrecks, enactment of sounder regulations, and increased patrolling to spot pollution sources and violation of fishing regulations.

To undertake these programs, New Jersey requires a highly skilled scientific staff with modern equipment. Garden State biologists must be able to hold their own in cooperative interstate and federal research in order to insure a fair share of fishery resources for our people.

Dr. Roland F. Smith, former Assistant Chief of Fisheries Management, felt that the bulk of the first year's money should go into equipment, with a limited increase in personnel. Particularly important is the acquisition of a vessel for offshore research.

Lester G. MacNamara, Director of the Division of Fish and Game, concludes, "This bill will make a vital contribution to improving our knowledge and management of fisheries resources. The end result will be enhanced opportunities for both commercial and sport fishermen." #

ON THE JERSEY SHORE

By JEAN MOFFETT

Down on the Jersey Shore
We made our home
 and never want to roam
We are as happy as can be
Just sitting under the big Salem Oak tree.
Now we were settled by the Dutch
 in the year of 1618
And we are one of the Original thirteen
Our people had to fight in hard battles
 in days gone by
But little Jersey came out with colors flying high.
Little New Jersey with so many things to do
And just filled with beautiful girls too
We pick Miss America and have famous
 boardwalks for you
An ocean so blue and a big moon too
We are all so happy to be a part of you.
Little New Jersey where we made our home
We are here to stay
 and never more will roam
We watch the big ships go out to sea
Everyone here is happy and busy as a bee
Just being a part of Jersey
 is enough for me.
New Jersey the great Garden State
Where everyone can enjoy a happy fate
Our girls are pretty
Our boys are strong
 and everyone is happy just marching along
In a great little State
New Jersey is known as the Pathway of the Revolution
And we were third to ratify the Constitution
Our Motto is Liberty and Prosperity
And as we work and toil
May God Bless our wonderful people and soil.
May God grant all people
The power to see
New Jersey as enjoyed by you and me
The lakes, the forests, the mountains, the parks
 and ocean so blue
New Jersey they all belong to you.

New Council Member—Joseph L. Alampi

Joseph L. Alampi brings the interest of an avid sportsman combined with training as a farmer to his new post on the Fish and Game Council. He will represent the organized federated sportsmen of the seven southern counties. He succeeds Earl L. McCormick, retiring chairman, who has served the two terms permitted by law.

The new councilman is currently Chairman of the Board of Directors of the N. J. State Federation of Sportsmen's Clubs, as well as former southern Region Vice-president. He has been extremely active in clubs on the State, region, county, and local levels. He has been a Board member for four years and Vice-Chairman for two.

Mr. Alampi organized the first Fish and Game Association in Williamstown in 1946. He served as Secretary-Treasurer 11 years. In 1962 he was named "Most Outstanding Sportsman of the Year."

In 1948 he organized the Gloucester County Federation of Sportsmen's clubs. He has served as Secretary-Treasurer since its inception, and has seen it grow from three clubs to 16 with several thousand members.

Recently he formed the United Hunting and Fishing Association in Franklinville. He is also an active member of the Indian Mills Deer Club. This club built its own clubhouse in Burlington County with complete modern facilities.

Mr. Alampi lives in Franklinville with his wife, the former Ruth



Harrison of Haddonfield. Their daughter Joanne is a student at Peirce Business College.

He majored in agriculture at Glassboro High School and attended the Rutgers Short Course. He received the State Farmer Degree at New Brunswick and the American Farmer Degree at Kansas City.

He has been active in 4-H Club work for more than twenty years, more than ten of them as a Leader. He was former President of the Gloucester 4-H Leaders Assoc.

Mr. Alampi is a member of the N. J. Civil Service Association, Gloucester County Council No. 22. He is employed as a Representative in the Bridgeton office of the N. J. Division of Employment Security.

He hunts small game and deer and pursues all kinds of fish. A sportsman all his life, he has never hunted outside New Jersey. He believes there is "plenty of sport right here." #

New Council Member—Lillian B. Godown

Being the only woman among a group of sportsmen will not be a new experience for Lillian B. Godown as she takes her seat as central region sportsmen's representative on the Fish and Game Council. For many years she was the only woman delegate to the State Federation.

She has served as the Federation's liaison Officer with the Fish and Game Council since May 1960 and has attended virtually all Council meetings since, as well as many prior to that date. She has sought to keep sportsmen informed through detailed reports of Council meetings in the Federation minutes. As Legislative Chairman since June 1960 she has attended many lengthy legislative sessions.

As Chairman of the Federation's Bow and Arrow Committee she was instrumental in establishing the bow and arrow safety program. The procedures established by her committee in January 1958 are still in effect. She is herself a bow safety instructor.

She has served the State Federation on the Conservation Convention Committee, the Resolutions Committee, the Bow and Arrow Hunter Safety Committee, and as Lobbyist. As liaison with the Conservation Council she discussed development of Island Beach State Park with legislators and worked to insure that bathing facilities at the park would not be drastically expanded to the detriment of other forms of recreation.

Mrs. Godown has been secretary for the Central Region of the Federation since 1956 as well as former Secretary of the Mercer County Anglers Association. She is a member of the State and National Field Archery Association.

Fishing is her favorite sport, and she enjoys all fresh water species from panfish to trout. She fishes exclusively with artificials.

She also hunts "round the calendar" as the seasons come, with both shotgun and bow and arrow. She has been successful with all kinds of small game. Squirrels are her favorite, "although it is a lazy sport." She has never hunted outside New Jersey, although she has fished in Maine and caught cutthroat trout at Yellowstone.

Her husband, Lester, is a Federation Officer, and all five children have grown up as outdoor sports enthusiasts. She is keenly interested in camping and all outdoor recreation and was one of the first twenty-five members of the "committee of 100" to establish a Mercer County Park Commission.

Besides her varied sporting interest she brings considerable business experience to the Council. She is sole owner of the Trenton Emblem Co. and Vice-President of the Edgely Brass Co. Mrs. Godown has been a member of the N. J. Manufacturers Association since 1947. Assuredly the sportsmen of New Jersey will benefit from the presence of this representative on the Council. #

New Council Member—Fred Space

Few sportsmen can equal the hunting achievements of Fred Space, the new farmer representative from northern New Jersey on the Fish and Game Council.

Mr. Space has travelled as far as Alaska and both the American and Canadian Rockies in quest of big game. He has made the coveted Boone and Crockett listings for several species. These include an Alaskan polar bear and caribou. He has also hunted grizzly and Kodiak bear in Alaska, moose, dall sheep, and big horn sheep in Canada, antelope in Wyoming, mountain goats, and mule deer.

He takes equal pride in a white-tail deer shot "right in my own back yard" at the edge of Stokes State Forest in 1950. This deer tied for the top of the Boone and Crockett listing for that year.

Making live photos of these animals is a hobby that he regards as even "more challenging." He also cooperated in filming of the Division's movie on the deer problem in New Jersey.

Trapping animals for his wild animal farm in Beemerville is another of his talents. He catches 25 to 30 rattlesnakes a year.

His main business is the operation of a 350-acre dairy and mink farm. He and his father, Ralph, have 75 head of registered Holsteins and produce some 13,000 mink for the market each year. The farm is one of the largest mink producers in the country and is operated on a strictly scientific



basis. Many of the garments made from these pelts are sold right at the farm. Mr. Space's experience should be valuable to the Council.

He was born on the farm he now operates and graduated from Sussex High School in 1946. As a youth he was one of the first co-operators in the program of raising pheasant chicks. Thus he got an early start in helping New Jersey sportsmen as well as farmers.

Mr. Space is married and the father of three children. He and his father are members of the Sussex County Board of Agriculture and the Farm Bureau. He has served on the Board's Fish and Game Committee.

The many mounted hunting trophies on Mr. Space's walls provide ample evidence that northern New Jersey farmers have elected a councilman who understands the interests of farmers and sportsmen alike. #

Lakehurst Station Receives Award

New Jersey's Lakehurst Naval Air Station was recently named the first winner of the Navy's Natural Resources Conservation Award.

Cooperation between the Air Station's Conservation Club and the Division of Fish and Game has gone on since 1954. It has resulted in an outstanding hunting and fishing program.

Habitat improvement has been carried on since 1958 under a program drawn up by Wildlife Managers George Howard and Norris Weeks. Planting of food patches, cutting of fire lanes and creation of impoundments are designed to benefit wildlife and concentrate animals, particularly deer and waterfowl in the 3,500 acres open to hunting.

Hunting on the Air Base grounds has been open to the public under registration procedure set up by naval security officers. Registration is limited to 150 hunters a day. Wildlife Manager Weeks has kept a record of the game killed by registered hunters.

Quail and pheasants raised by the Conservation Club are released on the base. Additional stocking is done by the State. State Quail Farm Superintendent Joseph Vaughn has furnished advice on the raising of birds.

The impoundments, designed primarily for waterfowl, are also open to public fishing. Federal rainbow trout are stocked in the two ponds.

Food plots for wildlife have been planted by the Club. The Club members have experimented with rabbit and duck breeding and found that rabbit respond to habitat improvement rather than artificial stocking. It is estimated that the 110 Club members spent more than 3,000 man hours on conservation projects in 1962.

Utilization by the public totalled 1,495 hunters in the 1962-63 season, and 1,708 in 1961-62. The drop is accounted for by the closing of the base to civilians during the latter part of the archery deer season because of the Cuban crisis and the registration of 109 hunters for the special one day deer season of January 31, 1962.

The 1962-63 harvest by registered hunters totalled 220 pheasants, 213 quail, 5 rabbits, 3 grouse, and 1 squirrel. Deer kill totalled 11 with firearms and 3 with bow.

Wildlife Management Chief George Alpaugh points out that the accurate record of hunters and their harvest on this controlled area is a very valuable tool in wildlife management.

Director Lester G. MacNamara of the Division of Fish and Game said, "This program has benefited our wildlife species, provided recreation for Air Station Conservation Club members and opened an important hunting area to New Jersey sportsmen. The official recognition by the Navy is well deserved."

#

Nation Had Over 19 Million Licensed Sport Fishermen in 1962

A total of 19,403,465 persons in 50 States purchased one or more sport fishing licenses during 1962, the Department of the Interior reported recently. The permits cost \$54,163,163.

The totals are based on information furnished the Department by 50 State fish and game departments as a basis for distributing Federal aid funds for fish-restoration projects. In 1961 the total licensed was 19,394,177 and the cost of permits was \$52,851,224.

Although the number of licensed sport fishermen is large, millions of other people go fishing, but are not required to purchase a license. Previous surveys of fishing and hunting by the Bureau of Sport Fisheries and Wildlife indicate there are more than 25 million sport fishermen 12 years or older in the United States. The unlicensed fishermen include most of those who fished in salt water along the coasts, and people who are exempt from license requirements because of age, veteran's status, or other reasons.

Some State fish and game departments require sportsmen to purchase separate licenses, stamps, permits, or tags for fishing for different kinds of fish or for fishing in different areas. Many States offer trip or short-term licenses good for from 1 to 15 days. Other States issue only one license which is legal for all types of fishing. In many States minors are not required to purchase fishing licenses. Only six States require a license to fish in marine salt waters. Thus, the total number of licenses issued does not exactly equal the number of fishermen in some States.

The accompanying table shows the number of paid fishing license holders, as certified by 50 State fish and game departments, and the number of licenses, stamps, permits, and tags purchases, and the revenue received.

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SUMMARY OF FISHING LICENSE DATA—1962

STATE	Paid Fishing License Holder ¹	Resident Fishing Licenses, Tags, Stamps Issued	Non-Resident Fishing Licenses, Stamps Issued	Total Fishing Licenses, Tags, Stamps Issued ²	Gross Cost to Fishermen
Alabama	413,159	518,284	27,659	545,943	\$ 786,820
Alaska	53,583	42,015	14,783	56,798	343,156
Arizona	212,266	245,560	37,265	282,825	807,707
Arkansas	456,663	298,841	157,822	456,663	1,183,070
California	1,485,809	3,192,002	303,740	3,495,742	6,247,472
Colorado	413,525	296,628	120,556	417,184	1,501,931
Connecticut	107,545	104,172	3,373	107,545	414,522
Delaware	11,141	10,226	915	11,141	18,396
Florida	502,610	385,704	135,223	520,927	1,068,498
Georgia	495,882	484,040	13,241	497,281	588,994
Hawaii	4,209	4,190	19	4,209	8,824
Idaho	239,374	159,730	80,673	240,403	1,007,136
Illinois	700,654	683,964	21,813	705,777	1,487,023
Indiana	754,431	726,290	34,209	760,499	1,013,848
Iowa	414,215	405,840	13,688	419,528	963,041
Kansas	271,362	261,919	9,857	271,776	827,360
Kentucky	316,090	247,257	69,713	316,970	1,021,961
Louisiana	223,031	202,297	22,304	224,601	272,429
Maine	229,019	153,647	76,545	230,192	758,381
Maryland	111,741	97,101	14,640	111,741	339,390
Massachusetts	183,924	140,957	4,946	145,903	578,165
Michigan	927,627	888,508	226,628	1,115,136	2,712,551
Minnesota	1,287,947	1,091,131	217,720	1,308,851	2,494,789
Mississippi	285,898	211,022	81,116	292,138	542,780
Missouri	691,005	746,863	137,903	884,766	2,509,597
Montana	235,709	183,594	47,544	231,138	459,883
Nebraska	221,301	204,919	16,382	221,301	468,054
Nevada	63,098	49,237	22,845	72,082	227,801
New Hampshire	121,192	83,029	45,933	128,962	444,981
NEW JERSEY	138,950	205,850	9,894	215,744	758,066
New Mexico	142,168	98,745	46,111	144,856	547,061
New York	727,246	678,346	48,900	727,246	2,379,985
North Carolina	319,277	433,336	44,067	477,403	933,267
North Dakota	72,719	50,194	4,076	54,270	125,411
Ohio	821,452	802,427	19,395	821,822	1,683,303
Oklahoma	462,695	381,957	83,459	465,416	1,036,088
Oregon	436,407	636,157	29,826	665,983	1,577,943
Pennsylvania	602,323	578,235	24,088	602,323	2,013,633
Rhode Island	15,207	21,315	505	21,820	51,555
South Carolina	272,192	281,892	21,382	303,274	599,124
South Dakota	148,443	109,075	43,226	152,301	293,822
Tennessee	649,743	708,714	179,573	888,287	1,128,527
Texas	832,913	832,913	.. ³	832,913	1,790,763
Utah	172,762	169,429	16,207	185,636	527,958
Vermont	101,028	70,107	32,004	102,111	240,066
Virginia	324,165	475,425	32,970	508,395	883,209
Washington	377,546	358,942	18,679	377,621	1,639,052
West Virginia	160,051	238,651	12,497	251,148	555,862
Wisconsin	1,060,000	693,615	377,854	1,071,469	3,620,729
Wyoming	132,168	70,899	65,655	136,554	679,179
TOTALS	19,403,465	20,015,191	3,069,423	23,084,614	\$54,163,163

¹ A paid license holder is one individual regardless of the number of licenses purchased.

² Period covered not identical to period covered by certification for all States.

³ Same license issued to both residents and non-residents.

COUNCIL HIGHLIGHTS

APRIL MEETING

The regular monthly meeting of the Fish and Game Council was held in Trenton on April 9. In addition to the members of the Council and the staff the following persons were present: Roy Williams, Edward Jackson, John Russack, Omar Swift, and William Gallner.

Aliens' Hunting Licenses

Councilman Frome questioned why, when the bill pertaining to aliens' hunting licenses was introduced, it did not contain a clause making it reciprocal with other countries. He and Councilman Kelly believed that when it was discussed at the March meeting it was decided to make this bill reciprocal. There was some discussion on this matter but no action was taken by the Council to change its previous stand on this bill.

Legislation

Councilman Charlesworth, Chairman of the Legislative Committee, presented a report, copy of which was sent to each Councilman, on the current status of pending legislation pertaining to fish and game. The Council took the following action:

A192—Motion passed opposing this bill.

A245—Councilman Charlesworth said he believed the Council should keep an eye on this bill and any other bills pertaining to condemnation proceedings.

A549—Motion passed opposing this bill.

A622—Council passed a motion that the Senate be informed that the Council opposes this bill unless the phrase "with the approval of the Fish and Game Council" is added to the bill.

S177—Motion was passed that the Council is opposed to this bill.

Wild Boar Preserve

Mr. William Gallner spoke to the Council on behalf of his client, Mr. Omar Swift, who is anxious to receive permission to establish a wild boar hunting preserve in southern New Jersey. The Council advised Mr. Gallner that there was nothing further they could do until a reply is received from the Attorney General in response to their request for an opinion on this matter. Mr. Gallner was assured that once this opinion is received from the Attorney General, and if it is favorable to Mr. Swift's request, the Council will act as quickly as possible in setting up the procedure necessary to granting Mr. Swift's license.

Semi-wild Pheasant Releases

Director MacNamara advised that a letter had been received from a semi-wild operator questioning the value of spring releases of birds on

semi-wild preserves and requesting the Council to consider whether these releases are necessary. Mr. MacNamara stated that one of the reasons for the spring releases was an attempt to get natural reproduction, some of which would revert to the benefit of the average sportsman. However, a certain number of birds are released prior to October which would accomplish the same purpose and make some birds available through drift. He suggested the Council consider this further so it can be included in the amendment to the semi-wild license law if it is decided that a change should be made.

Councilman Sheppard stated that releasing the birds in the fall rather than in the spring might encourage more Sunday hunting and it was questionable whether this would be beneficial.

A copy of the letter in question is to be sent to each Councilman for his consideration before the next meeting.

Fishing Seasons

Councilman Sheppard suggested the Council give consideration to again having an open and closed season on warm water fishing with the thought that the anticipation of opening day may result in the sale of more licenses. Councilman Kelly felt this would be a backward step and would not have the expected result on license sales because, for the past five years since there has been no closed season, the sales of fishing licenses have increased rather than decreased.

Federation Resolution

The following resolution received from the State Federation of Sportsmen's Clubs was read:

"Resolution

With the encroachment of industrial development, housing projects, posting of lands by private owners and municipalities, the availability of open acreage for the purpose of hunting is diminishing at a rapid pace.

To add to the hunters' plight, funds made available by the Green Acres Program for State and County Parks is engulfing the remaining open lands.

With the ever increasing hunting pressure the necessity to provide more open land should also increase, however, in contrast to this we now find that the average hunter is rapidly being squeezed into limited areas. This automatically increases the danger of accidents.

Many State and County Parks are not used to any great extent by the general public during hunting season. In view of this, few feel that specific areas could be set aside and opened to hunting

. . . Council Highlights

without jeopardizing the safety of its few visitors. The County and State Federation of Sportsmen's Clubs would be more than willing to aid in the posting of such areas.

In support of the above, we recommend that members of the State Federation of Sportsmen's Clubs, Fish and Game Council, and the Director of the Division (Commissioner of the Department) of Conservation and Economic Development meet and work out a plan whereby hunting would be allowed on designated areas within State-owned parks.

In addition to the above, members of the County Federation will appoint a committee to meet with their respective County Planning Boards and do likewise in regard to County Parks."

The resolution is to be referred to the Commissioner for his consideration.

Delaware Basin Meeting

Chairman McCormick advised he will attend a meeting with the Delaware River Basin Commission and asked whether there were any questions to be cleared up concerning reservoirs. Director MacNamara pointed out that we want to be sure that hunting and fishing will be permitted.

Opening of Trout Season

Councilman Kelly reported that the opening day of trout season was very successful. Many fishermen he spoke with in Union and Middlesex counties were quite pleased. He believed that, in general the season could be regarded as quite satisfactory.

Tax Relief Bill

Councilman Canale called the Council's attention to a bill, SCR16, which is designed to give tax relief to farmers in the matter of assessing their lands as farmland rather than as potential development areas. Councilman Frome advocated the passage of this bill and said the Council and the sportsmen should push this legislation. No action was taken by the Council at this time.

License Agent Action

Councilman Charlesworth advised Director MacNamara that there was a license agent in Cumberland County who ante-dated a license and should have his license agency revoked and his license picked up. Mr. Charlesworth also felt that his certification as a bow and arrow instructor should be revoked. Director MacNamara reported that the

licenses had been picked up from this agent but that no action had been taken in regard to his bow and arrow instructor's certificate. Mr. Charlesworth said he would like to see this done.

Surplus Chick Distribution

Councilman Sheppard reported that he and Director MacNamara had given consideration to the surplus chick program and felt that a maximum of 500 chicks should be set as the amount which may be given to bonafide clubs, and individuals should not receive more than 200 chicks. The birds are to be subject to inspection. At the time of receiving the birds the applicants must give information on where the birds are to be raised so that they can be inspected. The applicants are to sign a statement agreeing to these regulations. A motion was passed by the Council approving the distribution of surplus chicks under the above arrangements.

Wildlife Management Report

George Alpaugh, Chief of the Bureau of Wildlife Management, reported that personnel of his bureau had investigated the oil break in the Tidewater Oil Co. line on March 17 and found very little damage to wildlife evident at the time of the investigation. He said it is possible that, as the pollution affects vegetation, this may have a deleterious effect on wildlife. He also reported that the deer census in northern New Jersey has been completed and Mr. Wright is presently working on the statistical data for this census.

Coastal Patrol Report

Newman Mathis, Acting Chief of the Coastal Patrol, reported that at the present time all boats and motors are in A-1 condition. The vessel *Kathleen F.* has been overhauled and is ready for patrolling on the Hudson River during the shad season. He reported that he was not encountering any particular enforcement problems. He also said that to date, a few shad had been caught in the Delaware.

Fisheries Management Report

Robert Hayford, Chief of Fisheries Management, reported that the Kamploops trout eggs received from Washington have all hatched and are growing in a normal manner. He said that we have received 10,000 trout from the federal hatchery at Leetown, W. Va., many of which were in the 12-inch size range. We will pick up another 43,000 from the Pittsford, Mass., federal hatchery. Our total trout distribution for the season should be about 550,000. He called attention to the present condition of many of our streams which are very low. If they continue to drop, this will have an effect on our stocking, particularly in the

smaller streams. He also reported that within the next week work is expected to start on the first ponds at Pequest and by this summer we should have some ponds completed and have fish placed in them.

Public Relations Report

Jules Marron, Supervisor of Public Relations, reported on the activities of his section during the month.

Pompton Lakes Bow Hunting

Mr. Jackson inquired what action had been taken concerning the ordinance prohibiting bow and arrow hunting in the Borough of Pompton Lakes. Director MacNamara advised that he and Chief Coffin had attended a meeting with officials of Pompton Lakes and informed them of the policy of the Attorney General in this regard. They agreed to amend their present regulations.

Pompton Lakes Access

Mr. Jackson inquired on the status of the access to Pompton Lakes. He was advised that Chief Hayford has been exceptionally busy with preparations for the opening of the trout season but now that the season is under way, he will take steps to pursue this matter further and will investigate all means of access which have been suggested as having possibilities.

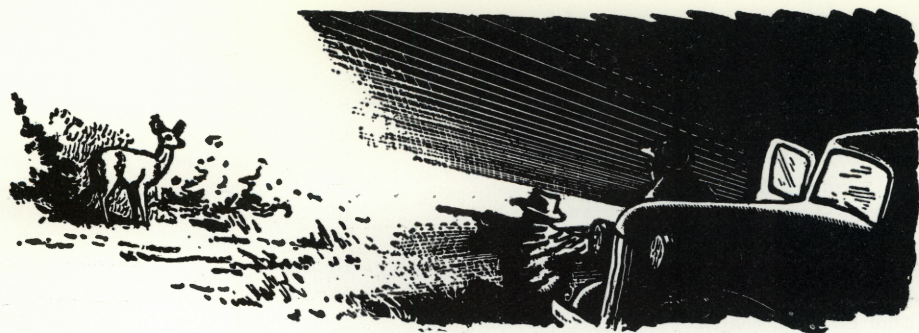
Councilman Sheppard suggested that since this is a private lake, it might not be to our advantage to obtain an access site.

Mr. Hayford said that the question of a long-term lease on the Elks property was not acceptable to the Elks since their future plans call for the erection of a new building on the site. #

ANIMAL CROSSING

By ROBERT NEVINS

The trees, water, air, and the land,
are all at the mercy of the modern man.
A deer lies dead beneath a tree,
he was hit in the road, by a car you see;
Hundreds of animals are hit by cars—
roads and highways their bodies mar.
Slow up a bit and use less haste,
and be prepared to use the brake.
For every animal hit in vain,
that person should really be ashamed.



VIIOLATORS ROUNDUP

MARCH, 1963

<i>Defendant</i>	<i>Offense</i>	<i>Penalty</i>
Raymond Dziadul, 69 Bayview Ave., Jersey City	Hunt no license	20
John Jos. McKay, 321 Wyckoff Ave., Brooklyn, N. Y.	Hunt no license	20
David J. Marsh, 99 Maple St., West Orange	Fish no license	20
Raymond Bury, Jr., 7 Robert Ct., West Orange	Fish no license	20
Stanley Springsteadah, 421 Smith St., Millville	Hunt on revoked list	100
Stanley Springsteadah, 421 Smith St., Millville	Ill. Poss. parts of deer	100
Republic Wire Co., 500 Blair Road, Woodbridge Twp.	Pollution	500
Harry Conklin, 8 Liberty St., Morristown	Loaded gun in auto	20
Chester Sawatski, 66 Courter Ave., Wayne	Tipups illegal season	50
James C. Mazzoline, R.D. 2, Lebanon	Loaded gun in auti	Jail 10 days
James C. Mazzoline, R.D. 2, Lebanon	Uncased firearm	Jail 15 days
Henry Dembowski, 2416 Central Ave., Union City	Gun on Sunday	20
Kenneth J. Fiedler, Co. C. U.S.A. SCS Regt., Fort Monmouth	Gun on Sunday	20
Paul Carola, 70 Wales Ave., Jersey City	Illegal poss, pheasant	20
Robert Sigel, 1918 Chestnut St., Philadelphia, Pa.	Hunt no license	20
Robert Sigel, 1918 Chestnut St., Philadelphia, Pa.	Hunt closed season	20
Cross Pile Gun Club, Red Valley, Cream Ridge	Illegal poss. deer	100
Cross Pile Gun Club, Red Valley, Cream Ridge	Illegal poss. deer	100
Cross Pile Gun Club, Red Valley, Cream Ridge	Illegal poss. deer	100
Everett W. Mooney, 305th A.R.S., McGuire AFB	Hunt deer closed season	100
Everett W. Mooney, 305th A.R.S., McGuire AFB	Uncased gun	Prob. 100
Everett W. Mooney, 305th A.R.S., McGuire AFB	Hunt deer with rifle	Prob. 100
Everett W. Mooney, 305th A.R.S., McGuire AFB	Illegal missile	20
Deck Buford, 1611 F.M.S., McGuire AFB	Illegal missile	20
Deck Buford, 1611 F.M.S., McGuire AFB	Hunt deer with rifle	Prob. 100
Deck Buford, 1611 F.M.S., McGuire AFB	Uncased gun	Prob. 100
Deck Buford, 1611 F.M.S., McGuire AFB	Hunt deer closed season	Prob. 100
Deck Buford, 1611 F.M.S., McGuire AFB	Hunt aid of lights	20
Bonino Lamanteer, 28 E. Commerce St., Bridgeton	Tag not displayed	Prob. 5

JULY, 1963

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. . . Violators Roundup

<i>Defendant</i>	<i>Offense</i>	<i>Penalty</i>
Richard Oliver Jones, 251 Branch Village, Camden	Fish no license	20
Clyde E. Hopkins, 511 Brickyard Rd., Titusville	Uncased firearm	100
Douglas Thomson, Jr., 8 Oak St., Weehawken	Loaded gun in auto	20
Wm. Slimm, 246 Henry St., Trenton	Illegal missile	100
Franklin Sheppard, 47 Bismark Ave., Trenton	Illegal poss. 2 pheasants	40
Wm. Nichols, Main St., Belleplain	Uncased firearm	100
Woodrow W. French, 234 Shore Rd., Seaville	Hunt aid of lights	20
Jack French, 247 Shore Rd., Seaville	Hunt aid of lights	20
Frank Houston, 832 Rebecca Pl., Elizabeth	Illegal poss. deer	100
Frank Houston, 832 Rebecca Pl., Elizabeth	Loaded gun in auto	20
Frank Houston, 832 Rebecca Pl., Elizabeth	Shoot from auto	20
Frank C. Novack, 21 Tuttle St., Dunellen	Fail to tag deer	100
John Concannon, Jr., 306 Pershing Ave., Carteret	Hunt deer closed season	100
John Concannon, Jr., 306 Pershing Ave., Carteret	Hunt on Sunday	20
Joseph Domasica, 17 Third St., Fords	Hunt on Sunday	20
Joseph Domasica, 17 Third St., Fords	Hunt deer closed season	100
Titanium-Zirconium Co., Pt. Breeze-Locktown Rd., Flemington	Pollution	1000
Wayne A. Dreyer, Box 655, Ocean View	Illegal firearm	20
Anthony Completo, 5 Spruce St., Absecon	Uncased shotgun	100
Curtis B. Thatcher, Box 16, Delaware	Tag not displayed	5
Joseph Klemm, Jr., 57 E. Main St., Moorestown	Angle closed waters	20
Samuel Storti, P.O. Box 146, Browns Mills	Angle closed waters	20
Robert Mazewski, 113 Waldo Ave., Jersey City	Gun on Sunday	20
Edward Carney, 144 St. Pauls Ave., Jersey City	Gun on Sunday	20

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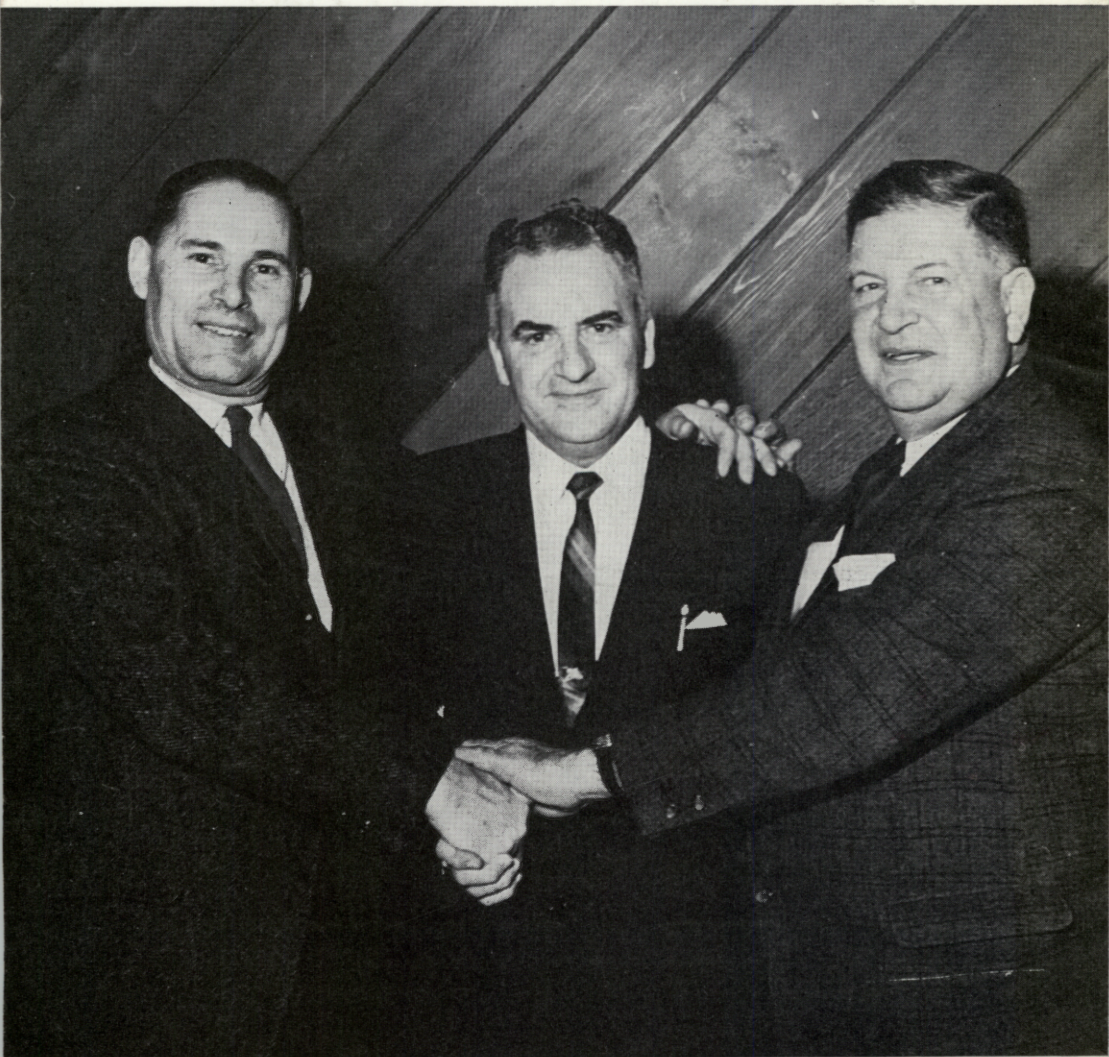
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THREE COUNCIL MEMBERS RETIRE

Former Fish and Game Council Chairman Earl L. McCormick flanked by former Councilmen Henry J. Kelly (*left*) Harry Frome (*right*). The three Council members retired this year after serving the farmers and sportsmen of New Jersey the maximum two terms, or eight years