

# A Guide to Health Advisories For Eating Fish and Crabs Caught in New Jersey Waters

## What you need to know about recreational fishing and crabbing

January 2001 Edition

Christine Todd Whitman, Governor • Robert C. Shinn, Jr., Commissioner, NJ Dept. of Environmental Protection

### IMPORTANT HEALTH INFORMATION

Fish are an excellent source of protein, minerals and vitamins and play a role in maintaining a healthy, well-balanced diet. Many people enjoy cooking and eating their own catch. However, since 1982, when research began to show elevated levels of potentially harmful contaminant's in certain fish and crabs in some New Jersey waters, advisories were adopted to guide citizens on safe consumption practices.

These advisories were developed with reference to federal guidelines for dioxin, PCBs, chlordane and mercury in the aquatic species in the water bodies listed in the charts. You should read both charts thoroughly before going fishing.

Dioxin, PCBs and chlordane are classified by the United States Environmental Protection Agency as probable cancer-causing substances in humans. Mercury can pose health risks to the human nervous system, particularly to developing fetuses.

To minimize exposure to these potentially harmful contaminant's and to protect your health, follow the guidelines below when preparing and eating the species taken from the areas mentioned. The following charts contain advisories and prohibitions in effect for specific fish and crabs in each water body as of January 1999. (See the note on the advisory updates.)

These charts also contain information about advisories issued by the states of Pennsylvania and Delaware that cover the Delaware River and the Chesapeake and Delaware Canal. These areas are common fishing spots for New Jersey residents.

### BOUND BROOK INTERIM FISH ADVISORY

In August 1998, NJDEP issued a final fish consumption advisory for the entire length of the Bound Brook and its tributaries, including New Market Pond and Spring Lake. This action follows an interim advisory issued in 1997, when as part of an EPA investigation of the Cornell-Dublier Superfund site in South Plainfield, NJ excessive polychlorinated biphenyls (PCBs) contamination was identified in the fish collected from the Bound Brook. This final NJDEP advisory warns the public "do not consume any fish from the waters described above". This final advisory extends beyond the Bound Brook to include Spring Lake (tributary to the Bound Brook) as a second round of fish testing conducted by EPA identified level of PCBs in excess of the FDA action level. All waterways have been posted accordingly and public information on these toxic contaminant's is available in this and other publications. Should you want any additional information concerning this matter, contact the agencies listed below.

### CATCH & RELEASE FISHING

Some fish have been tagged as part of ongoing scientific programs. If you capture a tagged fish, record the name and address of the tagging agency or program printed on the tag along with the number on the tag and the date and location of capture. Many programs offer small rewards for this information. For additional information on catch and release or tag and release, contact:  
US Fish & Wildlife Service 1-800-448-8322 NJ Division of Fish and Wildlife 609-748-2020  
American Littoral Society 1-800-8BAYKPR NJ Chapter Hudson River Fishermen's Assoc. 201-857-2400

### PREPARATION AND COOKING GUIDELINES FOR FISH UNDER ADVISORIES

You can reduce the level of PCBs, dioxins and most other chemicals (but not mercury) by properly cleaning, skinning and trimming species affected by most advisories and by following the cooking recommendations below. However, do not eat prohibited fish (see charts at right).

**FISH:** • Before cooking, remove and do not eat, the organs, head, skin, and the dark fatty tissue along the back bone, belly and lateral line (sides). • Avoid batter or breading, because they hold in the liquid which may contain contaminant's. • Bake or broil the fish on an elevated rack that allows fats to drain to the pan below; do not fry in a pan. • After cooking, discard all liquids. Do not reuse.

Other helpful guidelines to reduce exposure to contaminant's: • Eat smaller-sized fish (within state size regulations), instead of larger fish. Smaller, younger fish have lower levels of contaminant's than larger, older fish. • Eat a variety of fish from different locations.

**BLUE CRABS:** Eating, selling or taking (harvesting) blue crabs from Newark Bay Complex is prohibited. The highest levels of chemical contaminant's are found in the hepatopancreas, commonly known as the tomalley or green gland. It is the yellowish green gland under the gills. If blue crabs are taken from the water bodies other than Newark Bay Complex, the following preparation techniques can be followed to reduce exposure to some contaminant's: • Do not eat the green gland (hepatopancreas). • Remove green gland (hepatopancreas) before cooking. After cooking, discard the cooking water. • Do not use cooking water or green gland (hepatopancreas) in any juices, sauces or soups.

LOCATION	SPECIES	FISH AND CRAB ADVISORIES BASED ON PCB	DOXINS AND CHLORDANE CONTAMINATION
		GENERAL POPULATION	HIGH RISK INDIVIDUAL <sup>1</sup>
<b>NEW JERSEY STATEWIDE</b>			
Note: local advisories may be more specific for the same species. See below.	American eel bluefish (over 6 lbs.) striped bass*  American lobsters	do not eat more than once a week do not eat more than once a week consumption advisories vary by area; see below  do not eat green glands	do not eat do not eat consumption advisories vary by area see below do not eat green glands
<b>NEWARK BAY COMPLEX</b>			
This complex includes Newark Bay, Hackensack River downstream of Oradell Dam, Arthur Kill, Kill Van Kull, tidal portions of all rivers and streams that feed into these water bodies and	striped bass* American eel* blue crab*  bluefish (over 6 lbs.), white perch and white catfish	do not eat do not eat more than once a week do not eat or harvest <sup>2</sup> do not eat more than once a week	do not eat do not eat do not eat or harvest <sup>2</sup> do not eat
Passaic River downstream of Dundee Dam and streams that feed into this section of the river.	all fish and shellfish* blue crab*	do not eat do not eat or harvest <sup>2</sup>	do not eat do not eat or harvest <sup>2</sup>
<b>HUDSON RIVER</b>			
Hudson River includes the river downstream of NY-NJ border (about 4 miles above Alpine, NJ) and Upper New York Bay.	American eel* striped bass*  bluefish (over 6 lbs.), white perch and white catfish blue crab	do not eat more than once a week do not eat more than once a week do not eat more than once a week do not eat green gland (hepatopancreas) <sup>3</sup>	do not eat do not eat do not eat do not eat green gland (hepatopancreas) <sup>3</sup>
<b>RARITAN BAY COMPLEX</b>			
This complex includes the New Jersey portions of Sandy Hook and Raritan bays, the tidal portions of the Raritan River (downstream of the Rt. 1 bridge in New Brunswick) and the tidal portions of all rivers and streams that feed into these water bodies.	striped bass*  bluefish (over 6 lbs.), white perch and white catfish blue crab	do not eat more than once a week do not eat more than once a week do not eat green gland (hepatopancreas) <sup>3</sup>	do not eat do not eat do not eat green gland (hepatopancreas) <sup>3</sup>
<b>NORTHERN COASTAL WATERS</b>			
This area includes all coastal waters from Raritan Bay south to the Barnegat Inlet	striped bass*	do not eat more than once a week	do not eat
<b>CAMDEN AREA</b> See additional advisories below			
This area includes Strawbridge Lake, Pennsauken Creek (north and south branches) Cooper River and its drainage, Cooper River Lake, Stewart Lake and Newton Lake.	all fish, shellfish and crustaceans*	do not eat	do not eat
<b>LOWER DELAWARE RIVER &amp; BAY</b> NJ is honoring DE and PA advisories See additional advisories on other chart.			
Delaware River from Yardley, PA to the PA/DE border, includes all tributaries up to the head of tide	American eel striped bass* channel catfish*	do not eat do not eat more than one meal a month do not eat more than one meal every two months	
Delaware River from the DE/PA border south to C & D Canal	All finfish	do not eat	
Delaware River from the C & D Canal south to the mouth of Delaware bay	Striped bass Channel catfish White catfish American eel White perch	For species listed do not eat more than one 8-oz. meal per year	

\* Selling any of these species from designated water bodies is prohibited in New Jersey.

<sup>1</sup> High risk individuals include: infants, children under the age of 15, pregnant women, nursing mothers and women of childbearing age. They are advised not to eat any such fish or crabs taken from the designated regions since these contaminant's have a greater impact on the developing young.

<sup>2</sup> No harvest means no taking or attempting to take any blue crabs from these waters.

<sup>3</sup> Interim recommendation based on research showing elevated levels of chemical contaminant's in the blue crab hepatopancreas (green gland).

<sup>4</sup> The State of Pennsylvania and the State of Delaware do not differentiate advisories between General Population and High Risk Populations, but do recognize that certain sub-populations may be at a higher exposure and should take additional steps when consuming fish under their advisories. (Issued 6/99)

**AMERICAN LOBSTERS:** A recent regional study of the American lobster has shown elevated levels of PCBs, cadmium and dioxin in the green gland (tomalley or hepatopancreas). This finding is consistent with other lobster studies conducted in waters of the northeastern coastal states. Therefore, consumers are advised to remove and not consume the green gland of all American lobsters caught from Maine to NJ, as well as avoid products made from the lobster green gland. This advisory does not apply to other edible portions of the lobster.

#### ADVISORY UPDATES

Advisories on fish consumption can change to protect public health as new data are collected and reviewed by state and federal agencies. Also, these agencies on occasion offer different advice for fish consumption. New Jersey is working with other agencies and is committed to developing the most useful, consistent advice possible. For the latest information, call one of the numbers below.

#### A GUIDE TO MERCURY HEALTH ADVISORIES FOR EATING FISH FROM NEW JERSEY FRESHWATERS

Recent research on largemouth bass and chain pickerel prompted the Department of Environmental Protection and the Department of Health & Senior Services to issue consumption advisories due to elevated levels of mercury found in these species. Mercury, a toxic metal, accumulates in fish tissue through the food chain. Since larger fish feed on smaller fish, mercury collects in their tissue as well, so that larger fish at the top of the food chain—such as largemouth bass and chain pickerel—are more likely to have elevated levels of mercury.

It is very unlikely that the levels of mercury found in these fish would cause immediate health effects. However, repeated consumption of contaminated fish poses potential health effects. Of particular concern is the potential effect on the nervous system of developing fetuses.

Although data show elevated levels of mercury in certain fish, it does not affect the quality of the waters used for drinking and bathing.

The charts provide general and specific information on the statewide and the Pinelands area advisories. The Pinelands area covers much of the seven counties in the southeastern portion of the state: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester and Ocean counties. Some but not all of the water bodies covered under these general advisories have been tested. More testing is under way.

See recently issued advice below by the federal government regarding mercury in saltwater fish.

#### FEDERAL ADVICE ON MERCURY IN SALTWATER FISH

In the September 1994 issue of *FDA Consumer* magazine, the US Food and Drug Administration (FDA) issued advice on eating shark and swordfish based on elevated levels of mercury contamination. Pregnant women and women of childbearing age who may become pregnant are advised by the FDA to limit their consumption of shark and swordfish to not more than one 7-ounce meal a month. For the general population, the FDA advises that consumption of shark and swordfish be limited to no more than one 7-ounce meal per week.

Some evidence suggests, however, that shark and swordfish should be consumed less frequently. This information is based on a US Environmental Protection Agency June 1994 report and on average mercury levels in shark and swordfish as reported by the FDA. Based on this evidence, women of childbearing age would be advised to eat no more than one 8-ounce portion of shark or swordfish every two months. The general population would be advised to eat shark no more than twice a month and swordfish no more than three times a month. Children under seven would be advised not to eat shark and swordfish at all.

If you would like further information, please call the New Jersey Department of Health & Senior Services at (609) 588-3123. You may also consider discussing this matter with your family physician.

#### FOR MORE INFORMATION

Some of the advisories listed herein may be changing. For the most up-to-date information, please contact:

NJ Department of Environmental Protection  
Division of Science & Research (609) 984-6070  
Division of Fish & Wildlife (609) 748-2020

NJ Department of Health & Senior Services  
Consumer & Environmental Health Services (609) 588-3123

For background information on the advisories in the chart,  
local libraries can refer you to NJ Administrative Code 7:25-14, 18A

For information on Delaware Health Advisories, contact:  
DE Department of Health and Social Services (302) 739-5617

For information on New York health advisories, contact:  
NY Department of Environmental Conservation (518) 457-6178

For information on Pennsylvania health advisories, contact:  
PA Department of Environmental Resources (717) 787-9633

For information on health advice regarding saltwater fish, contact:  
US Food and Drug Administration Seafood Hotline at (800) FDA-4010

CONSUMPTION ADVISORIES FOR LARGEMOUTH BASS AND CHAIN PICKEREL FROM NEW JERSEY FRESHWATERS			
LOCATION	SPECIES	ADVISORY†	
NEW JERSEY STATEWIDE	bass and pickerel	GENERAL POPULATION	HIGH RISK INDIVIDUAL
For all freshwater bodies (except those listed below)		do not eat more than once a week	do not eat more than once a month
<b>PINELANDS AREA</b>	bass and pickerel	do not eat more than once a month	do not eat
For all water bodies (except those listed below)			
<b>SITE-SPECIFIC PINELANDS</b>			
Lake Lenape	bass pickerel	do not eat more than once a month do not eat more than once a week	do not eat do not eat more than once a month
Mirror Lake	bass pickerel	no restrictions no restrictions	do not eat more than once a month do not eat more than once a week
Stafford Forge	bass pickerel	do not eat more than once a month do not eat more than once a week	do not eat do not eat
Wading River	bass pickerel	do not eat more than once a month do not eat more than once a week	do not eat do not eat
<b>SITE-SPECIFIC STATEWIDE</b>			
Assumpink Creek	bass pickerel	no restrictions do not eat more than once a week	do not eat more than once a week do not eat more than once a month
Atlantic City Reservoir - No Fishing Allowed	bass pickerel	do not eat do not eat	do not eat do not eat
Big Timber Creek	bass pickerel	no restrictions do not eat more than once a week	do not eat more than once a week do not eat more than once a month
Canistear Reservoir	bass pickerel	do not eat more than once a week do not eat more than once a week	do not eat do not eat more than once a month
Clinton Reservoir	bass pickerel	do not eat more than once a week do not eat more than once a week	do not eat do not eat more than once a month
Cranberry Lake	bass pickerel	do not eat more than once a week no restrictions	do not eat more than once a month do not eat more than once a month
Crosswicks Creek	bass pickerel	no restrictions do not eat more than once a week	do not eat more than once a week do not eat more than once a month
Crystal Lake (Burlington County)	bass pickerel	no restrictions do not eat more than once a week	do not eat more than once a week do not eat more than once a month
Delaware River (Easton to Trenton)	bass pickerel	no restrictions do not eat more than once a week	do not eat more than once a month do not eat more than once a month
Delaware River (Trenton to Camden)	bass pickerel	no restrictions do not eat more than once a week	do not eat more than once a week do not eat more than once a month
See additional advisories above			
Lake Carasaljo	bass pickerel	do not eat more than once a week no restrictions	do not eat do not eat more than once a month
Lake Hopatcong	bass pickerel	no restrictions no restrictions	do not eat more than once a month do not eat more than once a month
Manasquan Reservoir	bass pickerel	do not eat more than once a month do not eat more than once a week	do not eat do not eat more than once a month
Merrill Creek Reservoir	bass pickerel	do not eat more than once a week do not eat more than once a week	do not eat do not eat more than once a month
Monksville Reservoir	bass pickerel	do not eat more than once a week do not eat more than once a week	do not eat do not eat more than once a month
Rockaway River	bass pickerel	do not eat more than once a week no restrictions	do not eat more than once a month do not eat more than once a month
Round Valley Reservoir	bass pickerel	no restrictions do not eat more than once a week	do not eat more than once a month do not eat more than once a month
Shadow Lake	bass pickerel	no restrictions do not eat more than once a week	do not eat more than once a week do not eat more than once a month
Spruce Run Reservoir	bass pickerel	no restrictions do not eat more than once a week	do not eat more than once a month do not eat more than once a month
Swartswood Lake	bass pickerel	do not eat more than once a week no restrictions	do not eat more than once a month do not eat more than once a week
Union Lake	bass pickerel	do not eat more than once a month do not eat more than once a month	do not eat do not eat
Wanaque Reservoir	bass pickerel	do not eat more than once a week do not eat more than once a week	do not eat do not eat
Wilson Lake	bass pickerel	do not eat more than once a week do not eat more than once a week	do not eat more than once a month do not eat
Woodstown Memorial Lake	bass pickerel	no restrictions do not eat more than once a week	do not eat more than once a month do not eat more than once a month

† One meal is defined as an eight-ounce serving.

• High risk individuals are pregnant women, women planning pregnancy within one year, nursing mothers and children under five years old.

## Improvements to our Channel Catfish Stocking Program

### **Bob Papson, Principal Fisheries Biologist**

New Jersey Division of Fish and Wildlife's already popular channel catfish program, which entails the stocking of approximately 90 waters statewide on a biennial basis with 85,000 fingerlings, has undergone beneficial changes for stocking.

First, stocking rate guidelines in place since 1986 will be upgraded, providing a more equitable distribution among lake size categories. Targeted will be small impoundments (2 to 74 acres) which comprise 78 percent of our waters and for which rates (number/acre) have varied tremendously. Rates will be based on 25 fish/acre, a reference point most commonly used throughout the country. However, waters greater than 74 acres will receive incrementally reduced rates. The acreage will be based on the percentage of total acreage with optimal habitat (depths less than 15 feet), not on total acreage as previously used.

Second, at the Hackettstown hatchery, with the operation of the newly constructed intensive culture (inside tank culture) facility, production of channel catfish fingerlings will be more efficient. Fingerlings will be stocked at a larger size (7-inch average) and earlier in the fall, allowing for greater survival.

Third, a portion of the annual channel catfish production (approximately 4,000) will be raised throughout the winter in the new intensive culture building and stocked in the spring at a length greater than 12 inches. These larger fish are slated for lakes less than 11 acres in size, many of which are urban ponds. These smaller lakes are less likely to have quality sustainable sport fisheries. Large catfish will make a greater contribution to these fisheries, including the benefit of immediate harvest (put and take fishery). There is a statewide 12-inch minimum size limit for channel catfish. These lakes will be stocked every year to assure adequate numbers of available fish.

Improvements to our channel catfish stocking program will provide a more equitable distribution among lake size categories and optimal use of this hatchery product providing the greatest benefit to anglers.

## Round Valley Reservoir Trout Study

New Jersey Division of Fish and Wildlife continues working on a cooperative project with Round Valley Trout Association.

The Round Valley Trout Association, working with the Musky Trout Hatchery in Asbury, stocked a strain of rainbow trout known as kamloops into Round Valley Reservoir earlier this year. The study is comparing the growth between the kamloops and the Wytheville strain the Division stocks. If you capture a tagged trout in Round Valley Reservoir and KEEP the fish, remove the tag and place it in the envelopes provided at the tagging receptacle. Complete the information on the outside of the envelope and place the envelope in the lower box. If you RELEASE the fish, DO NOT REMOVE THE TAG. Your cooperation is critical to the success of the project. For questions, contact the Lebanon Fisheries Laboratory at (908) 236-2118.



## New Jersey State Federation of Sportsmen's Clubs, Inc.



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NJSFSC Membership Director  
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\$14.00 monthly newspaper only.

The Federation is a statewide, non-profit, non-government, non-partisan organization of New Jersey citizens interested in the wise management of the state's natural resources, the conservation of its soils, waters, forests, fish, wildlife, and minerals, and the promotion of healthful outdoor recreation for all.

[www.NJSFSC.org](http://www.NJSFSC.org)

## Hook A Winner



## Program

Once again this year, the Division of Fish and Wildlife will be jaw tagging more than 1,000 brook trout for release in New Jersey waters. If you are a lucky angler who lands one of these fish, send your name, address, fish tag number and location of catch to the Pequest Trout Hatchery, 605 Pequest Road, Oxford, NJ 07863, Attn: Hook a Winner Program. In recognition of your catch, you will be mailed a certificate and award patch. In addition, your name will be forwarded to the New Jersey State Council of Trout Unlimited and entered into their drawing for one of 12 rod and reel combinations to be held during the celebration of National Fishing Week.

## 2000 Pequest Trout Hatchery

### Production

Jeff Matthews, Superintendent

The year 2000 was another banner year for trout production at the Pequest State Fish Hatchery. A total of 715,425 brook, brown, and rainbow trout were distributed throughout the state during the spring and fall stocking seasons. Since 1984 the hatchery has stocked 12,512,880 quality trout in the waters of New Jersey. The Pequest rearing facility has consistently met its production goals since trout propagation was shifted from the Hackettstown Hatchery. The following are production numbers and sizes of trout for 2000.

#### 2000 Spring Trout Stocking Summary

Total Fish 599,305      Total Pounds 284,623

#### Production

		<u>Broodstock</u>
Rainbow	240,860 Fish	Rainbow 2,135 Fish
	105,556 Pounds	3,760 Pounds
	10.7"	16.2"
Brown	120,245 Fish	Brown 2,010 Fish
	58,525 Pounds	5,222 Pounds
	10.5"	17.5"
Brook	232,275 Fish	Brook 1,780 Fish
	106,422 Pounds	5,138 Pounds
	10.6"	17.1"

#### 2000 Fall Trout Distribution

	<u># Fish</u>	<u>Pounds</u>	<u>Size</u>
Rainbow Trout Production	60,080	20,967	9.8"
Rainbow Trout Broodstock	1,415	4,033	19.3"
Rainbow Trout Surplus	12,540	1,265	6.5"
Brown Trout Surplus	12,085	798	5.4"
Brook Trout Surplus	16,425	1,380	6.2"

#### Sea Run Brown Trout Program

	<u># Fish</u>	<u>Pounds</u>	<u>Size</u>
Sea Run Brown Trout (Manasquan River)	29,205	8,550	8.8"

## Pequest Open House

Free!



March 31 & April 1, 2001

10 a.m. - 4 p.m.

Pequest Trout Hatchery & Natural Resource Education Center

R.t 46, Oxford, nine miles west of Hackettstown

Meet New Jersey Division of Fish & Wildlife biologists, staff and volunteers.

View our state-of-the-art electrofishing boat and fish sampling equipment.

Experience this wildlife and sporting-related event in scenic Warren County

Tour the trout hatchery or feed the fish at the fishing education pond. There is something for people of all ages and outdoor interests. Bring the whole family!



\* Rockport Pheasant farm Display

\* "Living History" encampment

\* Conservation organization booths

\* Wildlife artists

\*Youth air rifle & archery shooting ranges

For more information, visit our website at [www.state.nj.us/dep/fgw](http://www.state.nj.us/dep/fgw)

## New Acquisitions Provide More Access for Anglers

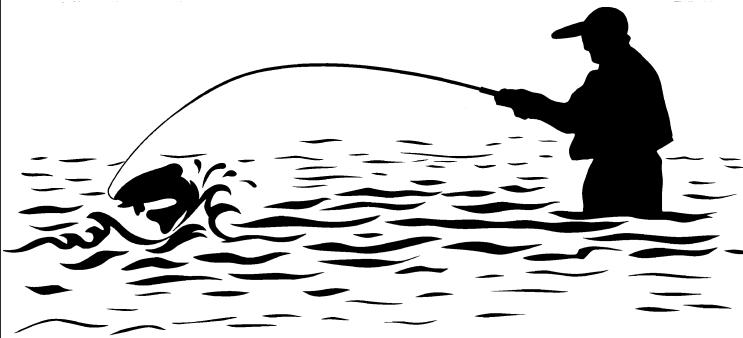
By Walter S. Murawski, Supervising Biologist

Several new fishing access areas were recently assigned to the Division of Fish and Wildlife by the Green Acres Program. These sites expand the opportunities where New Jersey anglers can enjoy their sport while respecting private property. Parking at several of these locations has not yet been developed. Each of the following new access areas is located on a stream site:

- On the South Branch of the Raritan River, a 423 acre parcel of property bordering Hunterdon and Somerset counties was assigned to the division by Green Acres. Leased to Hunterdon County, it will be part of the Raritan River Greenway, South Branch Reservation, Three Bridges Section, where angling will be permitted. The entrance area is located on Hunterdon County Rt. 613 in Three Bridges, Raritan Township.
- On the Pequest River in Belvidere, several sections have been added on Race St. beginning about 0.1 mile from Pequest Rd. and extending downstream. These areas are normally stocked by the Division of Fish and Wildlife.
- On the upper South Branch of the Raritan River, new access has been obtained through the acquisition of a 125 acre property in Washington Township, Morris County. This property, named South Branch Wildlife Management Area, is located on Bartley Road between Four Bridges and Bartley, about 0.1 mile downstream of the industrial complex.
- On the Musconetcong River in Mansfield Township, Warren County, the old Tri-County Fire House property is now a division access area. Providing direct stream access to a popular stretch of the river, it is located at mile marker 18 on Route 57.
- On the upper Paulinskill River, a fishing access section has been purchased by Green Acres and assigned to the division. It is located in Hampton Township, on County Route 519 about 4.5 miles north of Newton.

## New Jersey's FREE Fishing Days are Saturday and Sunday, June 2 & 3, 2001

On these two days residents and non-residents may fish the public waters of New Jersey without a license or trout stamp. All other regulations apply.



## Continue the Tradition

### Become a Hunter Education Instructor

The Division's Hunter Education Unit is now accepting applications for instructors. Call 609-629-0552 and leave your name and address. An application will be mailed to you.

Or visit our website:  
[www.state.nj.us/dep/fgw](http://www.state.nj.us/dep/fgw)

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# Species Spotlight: The Gizzard Shad

By Hugh M. Carberry, Principal Fisheries Biologist



Gizzard shad, *Dorosoma cepedianum*, also known as mud shad, are members of the herring family (Clupeidae) that includes American shad and river herring. Unlike their cousins, gizzard shad are not anadromous, living their entire lives in freshwater. Found in productive estuaries, lakes, and reservoirs throughout the state, gizzard shad are rarely caught by hook and line because they are herbivorous. Those hooked are usually inadvertently snagged by an angler.

## **Identification**

Gizzard shad can be distinguished from others in the herring family by a threadlike projection found at the back of their dorsal fin. Adults generally range in size from 6 - 8 inches but seldom exceed 15 inches. Their body is gray to blue on the back fading to silver on the sides. The bottom side is pearl in color and has a sharply serrated keel. Like most members of the herring family, gizzard shad have a forked tail

and a dark spot behind the upper part of the gill slit. Another distinguishing characteristic of gizzard shad is an extremely muscular stomach that resembles that of a chicken's gizzard.

## **Spawning**

Gizzard shad spawn during the spring when water temperatures reach 66-75°F. Spawning activity occurs at night or early morning in open water. Spawning sites are typically shallow, in close proximity to sand, gravel or vegetation. One ripe female can extrude as many as 300,000 eggs. Following fertilization, the highly adhesive eggs attach to the first thing they touch. Incubation time is temperature dependent but usually takes about three days.

## **Larval Development**

After hatching out, larval gizzard shad absorb their yolk sack. On the fifth day, they eat for the first time. Their main food source is young animal plankton (zooplankton). Young gizzard shad grow rapidly and migrate to pelagic areas (near the surface of open lake areas). At this life stage they range from the surface down to the cooler thermocline (a sharp change in water temperature), although their horizontal and vertical movements change in response to water elevation, turbidity, and storms.

## **Adults**

Adult gizzard shad are completely herbivorous, feeding on bottom microscopic plants (phytoplankton) and periphyton (small attached plants). The fine gill rakers of gizzard shad are used to strain water to catch food. Given that adult gizzard shad exist entirely on vegetative material, they form an important role in the food chain, converting plant material into fish flesh. Although gizzard shad can live upwards of 10 to 13 years, their normal life span is 7 years. Adult gizzard shad are subject to pronounced seasonal movement patterns. In the spring, summer, and fall, gizzard shad are found in shallower portions of a lake, at night seeking out shoreline cover. When morning arrives, gizzard shad leave these areas, moving to deeper sections of the waterbody where they roam throughout the day. During the winter, gizzard shad move to deeper sections of the lake where they continue to roam. This is where warmer water is found throughout the winter months. Gizzard shad are extremely sensitive to cold water.

## **Gizzard Shad Die-Offs**

Gizzard shad are an environmentally sensitive fish, subject to massive spring and winter die-offs. In the spring, stresses associated with spawning behavior lower their tolerance to infections from common water bacteria. Gizzard shad are also susceptible to winter die-offs due to their inability to tolerate cold water.

## **Abundance**

Gizzard shad, when present in a waterbody, are often the most abundant fish species by weight, comprising as much 45 percent of the total fish biomass. Depending on the lake's water quality, gizzard shad density can range from 100 to 300 pounds per acre. In an extremely productive waterbody it can be as high as 800 pounds per acre.

## **Fisheries Management Issues**

While gizzard shad play an important role in converting plant mass into fish biomass, they are highly prolific and grow rapidly. If not kept in check by larger predatory fishes such as largemouth bass and chain pickerel, they can dominate the fishery. One adverse impact which could result includes competition with juvenile panfish and gamefish that also feed on zooplankton during their early life history. Additionally, gizzard shad, where not kept in check, can grow up to 15 inches in total length. At that size, largemouth bass and chain pickerel cannot utilize them as forage. As a means of correcting this scenario, the Division of Fish and Wildlife may stock a larger predator such as northern pike or tiger muskie, creating a biological control for gizzard shad. This management strategy benefits anglers in pursuit of those popular sportfish.

## **References**

Price, Steve. 1994. "Understanding Baitfish Movements", Bassmaster Magazine. Volume 27, # 7, July- August. 102 p.

Raasch, S. Maynard. 1997. "Delaware's Freshwater and Brackish-Water Fishes". Dover Litho Printing Co., Dover Delaware. 174 p.

Scott, W.B. and Crossman, E. J. 1973. Freshwater Fishes of Canada Bulletin 184. Fisheries Research Board of Canada, Ottawa. 966 p.

## Don't Miss The Tenth Annual Governor's Surf Fishing Tournament

This year's tournament will be held Sunday, October 7th at Island Beach State Park. Last year, more than 1,000 adults and children registered for the event. The tournament generated more than \$10,000 in registration fees which will be used for a variety of conservation projects such as the construction of a beach access ramp, mobile fishing education carts and specialized wheelchairs for the disabled and elderly. The goal of the tournament is to foster a life-long commitment to marine conservation and the sport of surf fishing. The winner of the 2000 Governor's Cup was Joe Earley of Toms River, New Jersey with a 32 5/8" striped bass. The Division would like to thank the following organizations for their contribution to the Ninth Annual Governor's Surf Fishing Tournament: Atco Sports, Auto Parts & Sporting Goods of Woodbridge, Baker Manufacturing Co., Bimi Bay Outfitters Ltd., Brielle Bait & Tackle, Buck Knives Inc., Bullet Weights, Cabela's, Charlie Brewer's Slider Co. Inc., Clarke's Marine Supply Inc., Coleman Company, Delorme Mapping, F.J. Neil, Frank's Boat Rentals, G. Loomis Inc., Gifford Marine Inc., Imperial Schrade Corp., Leatherman Tool Group Inc., Luhr Jensen & Sons, Manns Boat Co., Morrison's Seafood Inc., Orvis (Paramus), Outdoor Technologies Group, Penn Fishing Tackle Mfg. Company, Rays Sport Shop Inc. (N. Plainfield), Scott's Bait & Tackle, Sportsman's Outfitters, Ultimus Lures, Water Gremlin Co., Wetlands Institute, Woolrich Inc., Wright & McGill Co. and YBC. For more information and registration forms contact: Division of Fish and Wildlife, 605 Pequest Rd., Oxford, NJ 07863 or call 908-637-4125.



## Sea Run Brown Trout Program

by Mark Boriek, Principal Fisheries Biologist

October 2000 marked the fourth annual stocking of this five-year sea run brown trout program. A total of 110,645 eight-inch brown trout have been stocked in the tidal freshwater and brackish portions of the Manasquan River. We anticipate these trout will migrate out of the estuary for one to two years, taking advantage of the abundant forage in the coastal waters. They will grow to a size of two to four pounds or larger, then return to the freshwater Manasquan in the fall of the year. Although it is doubtful the existing water quality and habitat will support successful reproduction, the urge to spawn will concentrate these fish in the freshwater portion of the Manasquan River creating an exciting new fishery.

To date there have been twelve confirmed catches of sea run browns in freshwater and five in saltwater. The largest, caught in the Manasquan River near the Garden State Parkway bridge, weighed seven pounds, one ounce and was 23 inches long. It had the characteristic silvery color and deep body of a sea run trout. Additionally, its clipped adipose fin indicated that it had been stocked in October 1997.

The Ernest Schweibert and Jersey Shore Chapters of Trout Unlimited provided financial support and assisted in clipping the adipose fin of this year's fish. Anglers are requested to report all catches of sea run brown trout to (908) 236-2118 or (908) 637-4173

### SEA RUN BROWN TROUT



The New Jersey Division of Fish and Wildlife has stocked brown trout in the lower Manasquan River. Fishermen are asked to report all catches of brown trout in tidal waters. These fish tend to develop a more silvery coloration, masking most of the body spots, after an extended time in salt water.

The future of this program depends on these fish being caught and reported.

#### WE NEED YOUR COOPERATION

Call the Pequest State Fish Hatchery (908) 637-4173  
or  
Lebanon Fisheries Lab (908) 236-2118



# WILDLIFE MANAGEMENT AREA REGULATIONS

Regulations for use of these areas are established by the Division of Fish and Wildlife with penalties of not less than \$50 nor more than \$200.

Information on these regulations and permit applications may be obtained by writing to the Division of Fish and Wildlife, PO Box 400, Trenton, NJ 08625-0400.

The division may revoke any permit or other authorization issued for violation or due cause.

THE FOLLOWING ARE PROHIBITED: CAMPING; SWIMMING; PICNICKING; DUMPING; CUTTING OR DAMAGING VEGETATION; ALCOHOLIC BEVERAGES AND FIRES.

## Restricted Hours

Wildlife Management Areas are closed from 9 p.m. until 5 a.m. unless engaged in lawful hunting, fishing or trapping activities.

Special permission may be granted for division approved activities.

## Motor Vehicles

No person shall operate an unregistered vehicle on roads under the control of the Division of Fish and Wildlife. All motor vehicles are restricted to established public roads and parking areas.

## Target Practice

Only bow and arrow, shotgun, muzzleloading shotgun, muzzleloading rifle and .22 caliber rimfire rifle shooting is allowed in designated hunter training ranges according to posted regulations at the training area. Other target practice is allowed only with permission from the Division of Fish, Game and Wildlife.

## Field Trials

Permits for use of Wildlife Management Areas for running of field trials may be granted by the division.

## Dog Training and Exercising

Dogs may only be trained between Sept. 1 and Apr. 30. Some areas with designated dog training areas allow dog training all year. All dogs must be licensed according to state law.

## Outboard Motors

Only electric motors are allowed on freshwater areas with the exception of Union Lake where outboard motors not exceeding 10 hp. may be used. On Prosptown Lake, only manually operated boats and canoes are allowed.

## Horseback Riding

This is allowed only on designated WMAs with written permission from the Division of Fish and Wildlife. For horseback riding permit information, call 609-259-2132.

## Rental of Division Facilities

Use of clubhouses or other facilities for outings, trap shoots, or other events will be authorized at a fee of \$100.00 per day; use for meeting purposes will be permitted at a \$50.00 daily fee.

## Fishing Tournament

Any club or organization that would like to use division Wildlife Management Areas for fishing tournaments must secure a permit from the division. An application must be submitted along with a \$17.00 fee to obtain a use permit for boat launches. Applications will be accepted in January at the division's Trenton office.

## Boat Ramp Maintenance Permit

Any vehicle used to transport or launch a vessel or water conveyance on the following WMAs must have affixed to the lower corner of the driver's side rear window a Boat Ramp Maintenance Permit or applicant's copy from a valid hunting, fishing or trapping

license. Boat Ramp Maintenance Permits may be purchased for a fee of \$15.00 from division offices at the Pequest Trout Hatchery Natural Resource Education Center, Northern, Central and Sourthern Region, Nacote Creek, Bivalve, Tuckahoe, Lebanon and Trenton offices. Boat Ramp Maintenance Permits may also be purchased through the mail from N.J. Division of Fish and Wildlife, PO Box 400, Trenton, N.J. 08625, Att: Boat Ramp Permit.

## 1. Round Valley Angler Access

2. Kingwood
3. Assumpink
4. Dennis Creek
5. Tuckahoe
6. Mad Horse Creek
7. Union Lake
8. Menantico Ponds
9. Prosptown Lake

## WMA Maps

Maps and information on lands administered by the Division of Fish and Wildlife Photocopied WMA maps on USGS base available free.

## State which individual maps you desire.

NJ Div. Fish & Wildlife  
P.O. Box 400  
Trenton NJ 08625  
609-984-0547

A statewide "Wild Places & Open Spaces" map is available for \$4 (includes first class postage) by writing to:  
NJ Div. Fish & Wildlife  
Wild Places Map  
P.O. Box 400  
Trenton NJ 08625  
609-292-9450

# New Jersey State Record Freshwater Sportfish

<b>Species</b>	<b>Lbs.</b>	<b>Oz.</b>	<b>Year</b>	<b>Angler</b>	<b>Where Caught</b>
Bass, largemouth	10	14	1980	Robert Eisele	Menantico Sand Wash Pond
<b>Bass, rock</b>	<b>1</b>	<b>5</b>	<b>1982</b>	<b>Eric Avogardo</b>	<b>Saddle River</b>
Bass, smallmouth	7	2	1990	Carol Marciak	Round Valley Reservoir
<b>Bluegill</b>	<b>3</b>	<b>0</b>	<b>1990</b>	<b>Dom Santarelli</b>	<b>Farm Pond in Pennington</b>
Bowfin	8	4	1988	Craig Raffay	Lake Tranquility
<b>Bullhead, brown</b>	<b>4</b>	<b>8</b>	<b>1997</b>	<b>Gary Schmidt</b>	<b>Lake of Woods, Ft. Dix</b>
Carp	47	0	1995	Billy Friedman	South Branch of Raritan River
<b>Carp (archery)</b>	<b>42</b>	<b>1</b>	<b>1987</b>	<b>John Puchalik</b>	<b>Delaware River</b>
Carp, grass	**Vacant**				(Minimum Weight 30 Lbs.)
<b>Carp, grass (archery)</b>	<b>49</b>	<b>3</b>	<b>1996</b>	<b>George Vash</b>	<b>Delaware Raritan Canal</b>
Catfish, channel	33	3	1978	Howard Hudson	Lake Hopatcong
<b>Catfish, white</b>	<b>10</b>	<b>5</b>	<b>1976</b>	<b>Lewis Lomerson</b>	<b>Raritan River</b>
Crappie, black	4	8	1996	Andy Tintel	Pompton Lake
<b>Crappie, white</b>	<b>2</b>	<b>10</b>	<b>1997</b>	<b>Bobby Barnard</b>	<b>Riverview Beach Pk., Pennsville</b>
Eel, American	6	2	1994	James Long	Round Valley Reservoir
<b>Muskellunge</b>	<b>42</b>	<b>13</b>	<b>1997</b>	<b>Bob Neals</b>	<b>Monksville Reservoir</b>
Muskie, tiger	29	0	1990	Larry Migliarese	Delaware River
<b>**Perch, white</b>	<b>3</b>	<b>1</b>	<b>1989</b>	<b>Edward Tango</b>	<b>Forest Hill Lake</b>
Perch, yellow	2	6	1989	Gene Engels	Holiday Lake
<b>*Perch, yellow</b>	<b>4</b>	<b>4</b>	<b>1865</b>	<b>Charles Abbott</b>	<b>Crosswicks Creek</b>
*Pickerel, chain	9	3	1957	Frank McGovern	Lower Aetna Lake
<b>Pickerel, redfin</b>	<b>1</b>	<b>13</b>	<b>1982</b>	<b>Gerald Humphrey</b>	<b>Lake Assumpink</b>
Pike, Northern	30	2	1977	Herb Hepler	Spruce Run Reservoir
<b>*Salmon (landlocked)</b>	<b>8</b>	<b>0</b>	<b>1951</b>	<b>John Mount</b>	<b>New Wawayanda Lake</b>
Shad, American	11	1	1984	Charles Mower	Delaware River
<b>Striped Bass</b>	<b>35</b>	<b>0</b>	<b>1995</b>	<b>Patrick Lilly</b>	<b>Delaware River</b>
Striped Bass, hybrid	16	4	1999	Bill Schmidt	Culvers Lake
<b>Sunfish, pumpkinseed</b>	<b>1</b>	<b>8</b>	<b>1987</b>	<b>Daryl Donalson</b>	<b>Farm Pond in Burlington County</b>
Trout, brook	7	3	1995	Andrew DuJack	Rockaway River
<b>Trout, brown</b>	<b>21</b>	<b>6</b>	<b>1995</b>	<b>Lenny Saccente</b>	<b>Round Valley Reservoir</b>
Trout, lake	24	14	1994	Carl Bird	Round Valley Reservoir
<b>Trout, rainbow</b>	<b>13</b>	<b>0</b>	<b>1988</b>	<b>Gene Rutkoski</b>	<b>Lake Hopatcong</b>
Walleye	13	9	1993	George Fundell	Delaware River

\* Denotes historical record

\*\* Denotes fish has been certified by the IGFA as a world record

For information concerning the New Jersey State Record Fish programs, contact the New Jersey Division of Fish and Wildlife, P.O. Box 400, Trenton, NJ 08625-0400.