

2006-2007

Fish Smart, Eat Smart

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



**New Jersey Department of Environmental Protection
New Jersey Department of Health and Senior Services**



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The New Jersey Department of Environmental Protection and the New Jersey Department of Health and Senior Services can provide more information on the advisories and the health effects of chemical contaminants in the fish. To stay current with advisory updates and to request additional information, please contact the NJDEP Division of Science, Research and Technology at 1-609-984-6070 or check the website www.FishSmartEatSmartNJ.org or the NJDHSS at 1-609-588-3123.

Introduction

Fishing provides enjoyable and relaxing recreation. Many people enjoy cooking and eating their own catch. Fish are an excellent source of protein, minerals and vitamins, are low in fat and cholesterol and play an important role in maintaining a healthy, well-balanced diet. The American Heart Association recommends people eat fish regularly. Fish are also one of the few foods that are rich in the omega-3 fatty acids needed for proper development of the brain and nervous system in the fetus and infants, and may reduce the risk of heart attack. Fish are an excellent substitute for other protein foods that are higher in saturated fats and cholesterol. Health professionals recommend that you include fish in your diet.

However, certain fish may contain toxic chemicals, such as polychlorinated biphenyls (PCBs), dioxins and mercury from the water they live in and the food they eat. Therefore, it is a good idea to follow a few precautions in consuming recreationally caught fish and crabs, particularly if you eat them often. The purpose of this booklet is to provide information to you on how to reduce your risk by avoiding or limiting consumption of certain fish, and to guide you in preparing the fish you eat from local waters in ways that reduce your exposure to PCBs, dioxins and mercury.

Since 1982, when research began to show elevated levels of potentially harmful contaminants in certain fish and crabs in some New Jersey waters, fish consumption advisories were adopted to guide citizens on safe consumption practices. Fish consumption advisories are developed through a scientific process that includes collecting samples of fish from waters throughout the state and analyzing them for various chemical contaminants, such as dioxin, PCBs and mercury. The contaminant levels in the fish are then evaluated using federal guidelines for protecting human health. Chemical contaminants such as dioxin and PCBs are classified by the U.S. Environmental Protection Agency as probable cancer-causing substances in humans. Elevated levels of mercury can pose health risks to the human nervous system, particularly to developing fetuses.

The New Jersey Department of Environmental Protection (NJDEP) and Department of Health and Senior Services (NJDHSS) provide advice on consuming those species of fish in which high levels of dioxin, PCBs and mercury have been found. Since levels of contaminants may vary from one location to another, and from one fish species to another, the advisories are also separated by site. So be sure to check which guidelines refer to your fishing location.

Health Effects from Consumption of Contaminated Fish and Crabs

General Advice

Exposure to low levels of some contaminants in the environment may have long lasting health effects on people. Mercury, PCBs and dioxins are among the major contaminants found in some New Jersey fish in portions of the state. These contaminants can be especially harmful to women of childbearing age, pregnant women and nursing mothers. Trace amounts of these contaminants may remain in your body for a period of time after eating. Should you become pregnant during this time, these contaminants can be passed along to your fetus, potentially affecting the development of the nervous system. Children are also at risk of developmental and neurological problems if exposed to these chemicals.

Mercury

Mercury is a toxic metal that has been commonly used in a number of products (e.g., thermometers, electrical switches). There are many sources of mercury in the environment, natural and man-made; primary sources include burning of fossil fuels such as coal, incineration of wastes, and metal processing/manufacturing.

Mercury discharged to the environment can end up in local water bodies. Mercury accumulates in fish muscle tissue through the aquatic food chain from the food that fish eat. Above certain levels, mercury can damage the nervous system, particularly in unborn and young children, resulting in learning and developmental delays. Regular consumption, of even low amounts of mercury may cause subtle effects on the central nervous system in both children and adults. In addition, long-term consumption of fish with elevated levels of mercury by adults and older children may result in adverse health effects, including neurological damage.

For more information go to www.epa.gov/mercury.

PCBs

Polychlorinated biphenyls (PCBs) were commercially produced for industrial application in heat transfer systems, hydraulic fluids and electrical equipment. They were later incorporated into other uses such as printing inks, paints and pesticides. The manufacture of PCBs was stopped in 1979 as a result of evidence that PCBs build up in the environment and cause harmful effects. PCBs tend to stay mostly in soil and sediment, but are also found in the air and water.

Once they enter the food chain, they have a tendency to absorb into fat tissue. PCBs build up in fish to levels that are hundreds of thousands of times higher than the levels in the surrounding water. When people consume fish that have already accumulated PCBs, the PCBs then accumulate in their bodies.

PCBs have been shown to cause cancer in animals, and there is evidence that PCBs may cause cancer in exposed humans. PCBs have also been shown to cause a number of serious health effects besides cancer in humans and animals, including effects on the nervous system of the developing fetus, the immune system, and the reproductive system. Studies have shown that unborn and young children are most at risk to PCB exposure. Because PCBs take a long time to leave the body after they accumulate, women who plan to become pregnant should follow the more restrictive consumption advice before becoming pregnant.

For more information go to www.epa.gov/ebtpages/pollmultimediapollpolychlorinatedbiphenylspcbs.html.

Dioxin

Dioxin is the most toxic member of a large chemical family of related dioxins and furans. Dioxin is an unwanted industrial byproduct formed through numerous processes, including production of chlorinated phenol products such as herbicides, the incineration of municipal solid waste, and creation of paper products using bleach. Most of what we know about dioxin has been obtained through animal toxicity testing in the laboratory and representative wildlife species. Dioxin produces a number of effects in animal testing, including suppression of the immune system, impaired reproduction, birth defects in some species tested, a skin condition called chloracne, alterations in liver function, and cancer. The federal Environmental Protection Agency (EPA) has classified dioxin as a probable human carcinogen.

For more information go to www.epa.gov/ebtpages/pollchemicalsdioxins.html.

General Consumption Guidelines

Fish Species: Contaminant levels may vary from species to species. If possible, eat smaller amounts of several different types of fish rather than a large amount of one type that may be high in contaminants. Try to focus your consumption on those species of fish that have lower levels of contaminants, such as fluke or flounder.

Fish Size: Smaller fish of a species will usually have lower chemical levels than larger fish in the same location because contaminants tend to build up in the

fish over time. It is advisable to eat smaller fish (of legal size) more often than larger fish.

High-risk Individuals: Infants, children, pregnant women, nursing mothers and women of childbearing age are considered to be at higher risk from contaminants in fish than members of the general public. People within this category should be particularly careful about following the advisories, because of the greater potential for PCBs, dioxin and mercury to affect the development of the fetus, infant, and young child.

Preparation and Cooking Methods for Fish and Crabs under Advisory

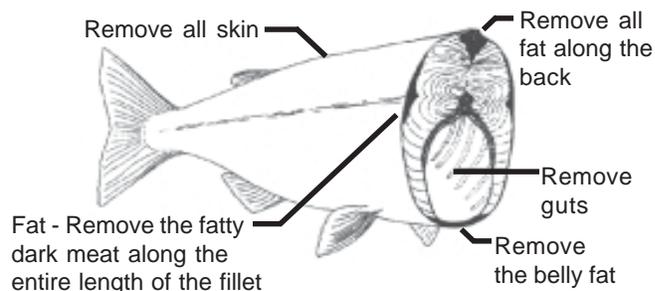
The best way to reduce exposure to contaminants in fish is to learn what fish species are affected and either limit or avoid consumption. However, if you must eat those species under advisories, there are steps you can take to reduce your exposure. Contaminants tend to concentrate in the fatty tissue of the fish you catch. Proper cleaning and cooking techniques, which remove some of the fat from the fish, can significantly reduce levels of PCBs, dioxins and other organic chemicals. **Please note, however, that these techniques will not reduce or remove unsafe levels of mercury from these fish.** Mercury occurs in the flesh. There is no way to remove mercury through cooking. The best way to reduce mercury exposure is to select those species of fish which are known to have lower levels of mercury.

Fish Preparation Methods

Proper fish cleaning and cooking techniques may reduce PCB levels by approximately 50 percent when compared to raw fish fillets. A meal size is considered to be an uncooked 8 ounce fillet.

Eat only the fillet portions. Do not eat whole fish or steak portions.

The following diagram illustrates those body portions. Many chemical contaminants, like PCBs and pesticides (but not mercury), are stored in the fatty portions of fish. To reduce the levels of these



chemicals, skin the fish and trim any of the dark meat (lateral line), back strap and belly flap.

Do not eat the heads, guts or liver, because PCBs usually concentrate in those body parts. Also, avoid consumption of any reproductive parts such as eggs or roe.

Fish Cooking Methods

Use a cooking method such as baking, broiling, frying, grilling, or steaming that allows the fats and juices to drain away from the fish. When possible, cook the fish on an elevated rack that allows fats and juices to drain to the pan below.

Avoid batter, breading or coatings that can hold in the juices that may contain contaminants. The juices should be thrown away since they contain the PCBs and other chemicals that were in the fat. Do not pour these juices over the fish as a sauce or to moisten the fish. Butter, margarine or other liquids can be added to the fish for this purpose once the juices have been poured off.

After cooking, **discard all liquids and frying oils.** Do not reuse.

Do not use heads, skin, trimmed fatty portions in soups, stews, chowders, boils, broth or for fish stock. If you make stews or chowders, only use skinless fillet parts.

Raw fish may be infested by parasites. Cook fish thoroughly to destroy the parasites. This also helps to reduce the level of many chemical contaminants.

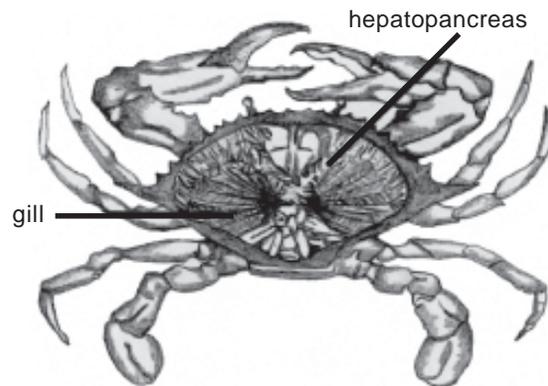
Crab Preparation Methods

Eating, selling or taking (harvesting) blue crabs from Newark Bay Complex and the tidal Passaic River is prohibited. The Newark Bay Complex is located in northeastern New Jersey. It includes the Newark Bay, tidal Hackensack River, Arthur Kill, Kill Van Kull and tidal tributaries. (See chart on page 8.) If blue crabs are taken from water bodies other than the Passaic River/Newark Bay Complex, the following preparation techniques can be followed to reduce exposure to some contaminants.

The highest levels of chemical contaminants are found in the hepatopancreas, commonly known as the tomalley or green gland. It is the yellowish green gland under the gills. This material is found next to the lump meat (backfin) portion of the crab. Chill and break the crabs immediately before cooking. Care must be taken to remove all of the hepatopancreas before cooking.

There is no specific cooking method available to reduce the chemical contaminant levels in blue crabs. The following steps for proper preparation is key to reducing your exposure to harmful chemical contaminants.

- 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, bisques or soups.



Federal Advice on Fish Consumption

The following is provided as general information and advice from the federal government.

Fish and shellfish are an important part of a healthy diet. Fish and shellfish contain high quality protein and other essential nutrients, are low in saturated fat, and contain omega-3 fatty acids. A well-balanced diet that includes a variety of fish and shellfish can contribute to heart health and children's proper growth and development. So, women and young children in particular, should include fish or shellfish in their diets due to the many nutritional benefits.

However, nearly all fish and shellfish contain traces of mercury. For most people, the risk from mercury by eating fish and shellfish is not a health concern. Yet, some fish and shellfish contain higher levels of mercury that may harm an unborn baby or young child's developing nervous system. The risks from mercury in fish and shellfish depend on the amount of fish and shellfish eaten and the levels of mercury in the fish and shellfish. Therefore, the Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA) are advising women who

may become pregnant, pregnant women, nursing mothers, and young children to avoid some types of fish and eat fish and shellfish that are lower in mercury.

By following these 3 recommendations for selecting and eating fish or shellfish, women and young children will receive the benefits of eating fish and shellfish and be confident that they have reduced their exposure to the harmful effects of mercury.

1. Do not eat Shark, Swordfish, King Mackerel, or Tilefish because they contain high levels of mercury.
2. Eat up to 12 ounces (2 average meals) a week of a variety of fish and shellfish that are lower in mercury.
 - Five of the most commonly eaten fish that are low in mercury are shrimp, canned light tuna, salmon, pollock, and catfish.
 - Another commonly eaten fish, albacore (“white”) tuna has more mercury than canned light tuna. So, when choosing your two meals of fish and shellfish, you may eat up to 6 ounces (one average meal) of albacore tuna per week.
3. Check local advisories about the safety of fish caught by family and friends in your local lakes rivers, and coastal areas. If no advice is available, eat up to 6 ounces (one average meal) per week of fish you catch from local waters, but don’t consume any other fish during that week.

Follow these same recommendations when feeding fish and shellfish to your young child, but serve smaller portions.

Additional information on mercury in seafood can be found at the FDA’s web site: <http://www.cfsan.fda.gov/~dms/admehg.html>

For more information on EPA freshwater fish consumption advisories, go to <http://www.epa.gov/ost/fish/>

2006-07 Fish Consumption Advisories for PCBs, Dioxin and Mercury

The following advisory table provides statewide, regional, and water body-specific advisory information for various fish species. The table includes PCB, Dioxin and Mercury Advisories. The table lists the recommended fish consumption frequencies for the **General Population** and **High-risk Individuals** for waters statewide and for specific water bodies.

High Risk Individuals: Includes infants, children, pregnant women, nursing mothers and women of childbearing age.

General Population: Includes all others not in the high-risk category. PCB advisories for the General Population are presented in meal frequencies (for example: one meal per month or four meals per year). This range is based on an estimated 1 in 10,000 risk of cancer during your lifetime from eating fish at the advisory level. This means that one additional cancer may occur in 10,000 people eating fish at the advisory level for a lifetime.

By using this advisory, you have the necessary information to make an informed choice on the number of meals of fish to consume. You can reduce your risk further by eating less than the advisory meal frequency, however, this needs to be balanced with the health benefits of eating fish.

The limits that follow each species assume that no other contaminated fish are being eaten. If you eat more than one species of fish listed in the advisory, the total consumption of fish should not exceed the recommended frequency as a guideline for consumption. The best approach is to use the lowest recommended frequency as a guideline for consumption. **Example: If you fish Union Lake, you can eat four meals of white perch or you can eat one meal of Largemouth Bass over the course of a month, but not both.**

If your specific fishing location is not mentioned within the advisories on the following pages, this does not mean the fish are free of contamination. Not all New Jersey waters or fish species have been tested, and not all fish species were found in all locations, or in some cases available data were insufficient to list a species for a specific water body. **Follow the statewide advisory for the listed species if your fishing area is not mentioned in the guidelines, or follow the statewide advisory of one meal per week for (general Population) or one meal per month (high-risk individuals) for freshwaters.**

2006-2007 FISH CONSUMPTION ADVISORIES

NOTE: 2006 Advisories marked in **Bold** are New or Revised

STATEWIDE FISH CONSUMPTION ADVISORIES

STATEWIDE ESTUARINE & MARINE WATERS

(All coastal waters except those under Waterbody Specific Advisories)

SPECIES	GENERAL POPULATION	HIGH-RISK INDIVIDUAL ⁽¹⁾
	EAT NO MORE THAN: ^(2, 3)	EAT NO MORE THAN: ^(2, 3)
STRIPED BASS	One meal per month	Do Not Eat
BLUEFISH (<u>greater than</u> 6 lbs/24 inches)	Four meals per year	
BLUEFISH (<u>less than</u> 6lbs/24 inches)	One meal per month	
AMERICAN EEL	Four meals per year	
AMERICAN LOBSTER	Do Not Eat the Green Gland (a.k.a., Tomalley or Hepatopancreas)	

GENERAL FRESHWATER ADVISORIES:

(For all freshwater fish species & waterbodies not covered by a consumption advisory)

General Population - Eat No More Than One Meal Per Week

High-risk Individual - Eat No More Than One Meal Per Month

STATEWIDE FRESHWATERS

(All freshwaters except PINELANDS REGION and those listed in Waterbody Specific Advisories)

SPECIES	GENERAL POPULATION	HIGH-RISK INDIVIDUAL
	EAT NO MORE THAN:	EAT NO MORE THAN:
LARGEMOUTH BASS	One meal per week	One meal per month
SMALLMOUTH BASS		
CHAIN PICKEREL		
YELLOW BULLHEAD	No restrictions	One meal per week
SUNFISH ⁽⁴⁾		
BROWN BULLHEAD		

NOTE: To reduce your exposure, eat those fish with the lowest meal restrictions. Do not combine meal restrictions. (For example, If you eat multiple species or catch fish from more than one area, the recommended guidelines for different species and different locations should not be combined.)

REGIONAL FRESHWATER ADVISORIES PINELANDS REGION

(All waters of the Pinelands Region except Waterbody Specific Advisories listed with a "P" notation)

LARGEMOUTH BASS	One meal per month	Do not eat
CHAIN PICKEREL		
BROWN BULLHEAD	One meal per week	
YELLOW BULLHEAD		
SUNFISH ⁽⁴⁾		One meal per month

WATERBODY SPECIFIC FISH CONSUMPTION ADVISORIES

ESTUARINE & MARINE WATERS

WATERBODY	SPECIES	GENERAL POPULATION	HIGH-RISK INDIVIDUALS
		EAT NO MORE THAN:	EAT NO MORE THAN:
<u>NEWARK BAY COMPLEX</u> Including Newark Bay, tidal Hackensack River, Arthur Kill, Kill Van Kull and tidal tributaries.	Blue Crab*	Do not harvest, ⁽⁵⁾ Do not eat	
	Striped Bass*	Four meals per year	Do not eat
	American Eel*	Do not eat	
	White Perch	One meal per year	
	White Catfish		
<u>TIDAL PASSAIC RIVER</u> Dundee Dam to Newark Bay and tributaries.	All Fish & Shellfish*	Do not eat	
	Blue Crab*	Do not harvest, ⁽⁵⁾ Do not eat	
<u>HUDSON RIVER</u> Downstream of NY-NJ border including the Upper New York Bay	Striped Bass*	Four meals per year	Do not eat
	American Eel*	One meal per year	
	White Perch		One meal per month
	Winter Flounder	Do not eat	
	White Catfish	Do not eat	
	Blue Crab	One meal of 7 crabs per week Do not eat green gland (hepatopancreas); Discard cooking liquid	

NOTE: To reduce your exposure, eat those fish with the lowest meal restrictions. Do not combine meal restrictions. (For example, If you eat multiple species or catch fish from more than one area, the recommended guidelines for different species and different locations should not be combined.)

WATERBODY SPECIFIC FISH CONSUMPTION ADVISORIES

ESTUARINE & MARINE WATERS

WATERBODY	SPECIES	GENERAL POPULATION	HIGH-RISK INDIVIDUALS
		EAT NO MORE THAN:	EAT NO MORE THAN:
<u>RARITAN BAY COMPLEX</u> Includes the Raritan Bay, tidal Raritan River (to Rte. 1 bridge) and the tidal portions of all tributaries.	American Lobster	One meal per week Do not eat green gland (hepatopancreas) Discard cooking liquid	
	Weakfish	One meal per month	Do not eat
	Striped Bass		
	White Perch	One meal per year	Do not eat
	Winter Flounder	One meal per month	
	Porgy	One meal per month	
	American Eel	One meal per year	Do not eat
	White Catfish	Four meals per year	
Blue Crab	One meal of 7 crabs per month Do not eat green gland (hepatopancreas); Discard cooking liquid		
<u>COASTAL TRIBUTARIES</u> Navesink River, Shrewsbury River, Shark River, Toms River & Mullica River.	American Eel	One meal per month	One meal per month
<u>LOWER (TIDAL) DELAWARE RIVER</u> Trenton, NJ to PA/DE line, including all tributaries to the head of tide.	Largemouth Bass	No restrictions	One meal per week
	Hybrid Striped Bass		
	American eel	One meal per year	Do not eat
	Channel Catfish		
	White Catfish		
	Striped Bass	One meal per month	Do not eat
	White Perch	Four meals per year	
White Perch	Four meals per year	Do not eat	
White Perch	Four meals per year		
<u>DELAWARE RIVER ESTUARY- DE/NJ/PA</u> border to C&D Canal	All finfish	Do not eat	

NOTE: To reduce your exposure, eat those fish with the lowest meal restrictions. Do not combine meal restrictions. (For example, If you eat multiple species or catch fish from more than one area, the recommended guidelines for different species and different locations should not be combined.)

WATERBODY SPECIFIC
FISH CONSUMPTION ADVISORIES

ESTUARINE & MARINE WATERS

WATERBODY	SPECIES	GENERAL POPULATION	HIGH-RISK INDIVIDUALS
		EAT NO MORE THAN:	EAT NO MORE THAN:
<u>DELAWARE ESTUARY & BAY</u> C&D Canal to the mouth of Delaware Bay	Bluefish (less than 14 inches)	One meal per month	
	Weakfish		
	Bluefish (greater than 14 inches.)	One meal per year	Do not eat
	Striped Bass	One meal per year	Do not eat
	White perch		
	American eel		
	Channel catfish		
White catfish			
<u>DELAWARE BAY TRIBUTARIES</u>	American eel	One meal per month	Four meals per year

WATERBODY SPECIFIC
FISH CONSUMPTION ADVISORIES

FRESHWATER ADVISORIES

WATERBODY	SPECIES	GENERAL POPULATION	HIGH-RISK INDIVIDUAL
		EAT NO MORE THAN:	EAT NO MORE THAN:
Alycon Lake (Gloucester Co.) (P)	Black Crappie	No restrictions	One meal per month
Assunpink Creek (Mercer/Monmouth Co.)	Largemouth Bass	No restrictions	One meal per week
<u>Atlantic City Reservoir - (Atlantic Co.) (P)</u> <u>No Fishing Allowed</u>	Chain Pickerel	Do not eat	Do not eat
	Largemouth Bass		
	Yellow Perch		
Batsto Lake (Burlington Co.) (P)	Chain Pickerel	One meal per week	Do not eat
	Largemouth Bass		
	Brown Bullhead	No restrictions	One meal per month
	Yellow Bullhead		

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WATERBODY SPECIFIC FISH CONSUMPTION ADVISORIES

FRESHWATER ADVISORIES

WATERBODY	SPECIES	GENERAL POPULATION	HIGH-RISK INDIVIDUAL
		EAT NO MORE THAN:	EAT NO MORE THAN:
Big Timber Creek (Gloucester Co.)	Channel Catfish	No restrictions	One meal per week
	Largemouth Bass		No restrictions
	White Catfish		
	Brown Bullhead		
Boonton Reservoir (Morris Co.)	Largemouth Bass	Four meals per year	Do Not Eat
	Smallmouth Bass	No restriction	One meal per month
	Rock Bass		
	White Catfish	One meal per week	No restrictions
	Brown Bullhead	No restrictions	
Bound Brook (Entire length including New Market Pond & Spring Lake) (Somerset Co.)	All fish species	Do not eat	Do not eat
Branch Brook Park Newark (Essex Co.)	Largemouth Bass	One meal per week	Do not eat
	Common Carp	One meal per month	
	Bluegill	No restrictions	One meal per week
Budd Lake (Morris Co.)	Northern Pike	No restrictions	One meal per week
	White Catfish		
Butterfly Bogs Pond (Ocean Co.) (P)	Chain Pickerel	One meal per week	Do not eat
	Brown Bullhead	No restrictions	One meal per week
Canistear Reservoir (Sussex Co.)	Chain Pickerel	No restrictions	One meal per month
	Yellow Perch		One meal per week
	Yellow Bullhead		
	Bluegill Sunfish		
Carnegie Lake (Mercer Co.)	Largemouth Bass	One meal per week	Do not eat
	Channel Catfish	No restrictions	One meal per month
	White Perch		No restrictions
	Bluegill Sunfish		
Cedar Lake (Cumberland Co.) (P)	Chain Pickerel	One meal per week	Do not eat
	Largemouth Bass		
Clementon Lake (Camden Co.) (P)	Chain Pickerel	One meal per week	One meal per month
	Largemouth Bass		
Clinton Reservoir (Passaic Co.)	Largemouth Bass	One meal per week	Do not eat
	Yellow Bullhead	No restrictions	One meal per month
	Rock Bass		
	White Sucker		
Cooper River, below Evans Pond (Camden Co.)	Common Carp	One meal per month	Do not eat
	Bluegill Sunfish	One meal per week	One meal per month

NOTE: To reduce your exposure, eat those fish with the lowest meal restrictions. Do not combine meal restrictions. (For example, If you eat multiple species or catch fish from more than one area, the recommended guidelines for different species and different locations should not be combined.)

WATERBODY SPECIFIC FISH CONSUMPTION ADVISORIES

FRESHWATER ADVISORIES

WATERBODY	SPECIES	GENERAL POPULATION	HIGH-RISK INDIVIDUAL
		EAT NO MORE THAN:	EAT NO MORE THAN:
Cooper River, Hopkins Pond (Camden Co.)	Brown Bullhead	One meal per month	Four meals per year
Cooper River Lake (Camden Co.)	Largemouth Bass	Four meals per year	Do not eat
	Common Carp		
	Brown Bullhead	One meal per week	One meal per month
	Bluegill Sunfish		
Cranbury Lake (Sussex Co.)	Hybrid Striped Bass	One meal per week	One meal per month
Crater Lake (Sussex Co.)	Yellow Perch	One meal per week	Do not eat
	Brown Bullhead		One meal per month
Crosswicks Creek (Mercer Co.)	Largemouth Bass	No restrictions	One meal per week
	White Catfish		
Crystal Lake (Burlington Co.)	Largemouth Bass	No restrictions	One meal per month
	Black Crappie		One meal per week
	Brown Bullhead		No restrictions
DeVoe Lake (Middlesex Co.)	Chain Pickerel	No restrictions	One meal per month
	Largemouth Bass		
Delaware & Raritan Canal @ Bound Brook (Somerset Co.)	Channel Catfish	One meal per week	Do not eat
Delaware River Upstream of Watergap (Warren/Sussex Co)	Channel Catfish	No restrictions	One meal per month
	Muskellunge		
	Smallmouth Bass	One meal per week	
	White Sucker	One meal per month	
Delaware River Watergap to Phillipsburg (Warren Co.)	White Catfish	One meal per week	Do not eat
	Channel Catfish	No restrictions	One meal per month
	Smallmouth Bass		One meal per week
	Walleye		
Delaware River Phillipsburg to Trenton (Hunterdon/Mercer Co.)	Channel Catfish	Four meals per year	Do not eat
	White Sucker	One meal per month	
	Largemouth Bass	No restrictions	One meal per month
	Smallmouth Bass	One meal per week	One meal per month
	American Eel	One meal per month	Do not eat
	Striped Bass	Four meals per year	
Double Trouble Lake (Ocean Co.) (P)	Yellow Bullhead	One meal per month	Do not eat

NOTE: To reduce your exposure, eat those fish with the lowest meal restrictions. Do not combine meal restrictions. (For example, If you eat multiple species or catch fish from more than one area, the recommended guidelines for different species and different locations should not be combined.)

WATERBODY SPECIFIC FISH CONSUMPTION ADVISORIES

FRESHWATER ADVISORIES

WATERBODY	SPECIES	GENERAL POPULATION	HIGH-RISK INDIVIDUAL	
		EAT NO MORE THAN:	EAT NO MORE THAN:	
East Creek Lake (Cape May Co.) (P)	Brown Bullhead	One meal per month	Do not eat	
	Yellow Bullhead			
	Yellow Perch			
Echo Lake Reservoir (Passaic Co.)	Largemouth Bass	No restrictions	One meal per month	
	Chain Pickerel		One meal per week	
	Bluegill Sunfish			
	Yellow Bullhead			
Evans Pond (Camden Co.)	Brown Bullhead	One meal per week	One meal per month	
Green Turtle Lake (Passaic Co.)	Chain Pickerel	No restrictions	One meal per week	
	Yellow Perch			
Greenwood Lake (Passaic Co.)	Largemouth Bass	No restrictions	One meal per month	
	Walleye		No restrictions	
	White Perch			No restrictions
	Bluegill Sunfish			One meal per week
	Yellow Bullhead			
Grovers Mill Pond (Mercer Co.)	Brown Bullhead	One meal per week	One meal per month	
	Chain Pickerel	No restrictions	One meal per week	
Hainesville Pond (Sussex Co.)	Largemouth Bass	No restrictions	One meal per month	
	Chain Pickerel		One meal per week	
Harrisville Lake (Burlington Co.) (P)	Mud Sunfish	One meal per month	Do not eat	
	Yellow Bullhead			
Lake Carasaljo (Ocean Co.) (P)	Largemouth Bass	One meal per week	Do not eat	
	Chain Pickerel		One meal per month	
Lake Hopatcong (Morris/Sussex Co.)	Largemouth Bass	No restrictions	One meal per month	
Lake Nummy (Cape May Co.) (P)	Chain Pickerel	One meal per week	Do not eat	
	Yellow Perch			
	Yellow Bullhead	No restrictions	One meal per month	
Lake Tappan (Bergen Co.)	Smallmouth Bass	No restriction	One meal per month	
	Largemouth Bass		No restriction	
	Bluegill Sunfish			No restriction
	Yellow Bullhead			One meal per week
	Common Carp			
Lenape Lake (Atlantic Co.) (P)	Chain Pickerel	One meal per week	Do not eat	
Linden Lake (Camden Co) (P)	Largemouth Bass	No restrictions	One meal per month	

NOTE: To reduce your exposure, eat those fish with the lowest meal restrictions. Do not combine meal restrictions. (For example, If you eat multiple species or catch fish from more than one area, the recommended guidelines for different species and different locations should not be combined.)

WATERBODY SPECIFIC FISH CONSUMPTION ADVISORIES

FRESHWATER ADVISORIES

WATERBODY	SPECIES	GENERAL POPULATION	HIGH-RISK INDIVIDUAL
		EAT NO MORE THAN:	EAT NO MORE THAN:
Little Timber Creek (Camden Co.)	Brown Bullhead	No restrictions	No restrictions
Manasquan Reservoir (Monmouth Co.)	Largemouth Bass	One meal per month	Do not eat
	Black Crappie	One meal per week	One meal per month
	Chain Pickerel	No restrictions	One meal per week
	Yellow Perch		
Maskells Mill Lake (Salem Co.) (P)	Brown Bullhead	One meal per week	One meal per month
	Chain Pickerel		
	Largemouth Bass		
	Black Crappie	No restrictions	
Merrill Creek Reservoir (Warren Co.)	Largemouth Bass	One meal per month	Do not eat
	Smallmouth Bass	One meal per week	
	Lake Trout	No restrictions	One meal per month
	Yellow Perch		
	Black Crappie		
	Bluegill Sunfish		
	Brown Bullhead		
One meal per week	One meal per week		
Mirror Lake (Burlington Co.) (P)	Largemouth Bass	One meal per week	One meal per month
	Brown Bullhead	No restrictions	One meal per week
Monksville Reservoir (Passaic Co.)	Smallmouth Bass	No restrictions	One meal per month
	Yellow Bullhead		One meal per week
	Bluegill Sunfish		
	Yellow Perch		
	White Perch	One meal per week	Do not eat
	Walleye		
Mountain Lake. (Warren Co)	Largemouth Bass	One meal per week	Do not eat
Mullica River (Burlington/Atlantic Co) (P)	Brown Bullhead	One meal per week	One meal per month
	White Perch	No restrictions	
	White Catfish		
New Brooklyn Lake (Camden Co.) (P)	Chain Pickerel	One meal per week	Do not eat
	Largemouth Bass		One meal per month
	Pumpkinseed Sunfish	No restrictions	
	Black Crappie		
	Yellow Bullhead		One meal per week
Newton Creek, North (Camden Co.)	Brown Bullhead	No restrictions	No restrictions

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WATERBODY SPECIFIC FISH CONSUMPTION ADVISORIES

FRESHWATER ADVISORIES

WATERBODY	SPECIES	GENERAL POPULATION	HIGH-RISK INDIVIDUAL
		EAT NO MORE THAN:	EAT NO MORE THAN:
Newton Creek, South (Camden Co.)	Largemouth Bass	One meal per month	Do not eat
Newton Lake (Camden Co.)	Bluegill Sunfish	One meal per week	One meal per month
	Brown Bullhead		
	Largemouth Bass	One meal per month	Four meals per year
	Common Carp		Do not eat
Oak Ridge Reservoir (Passaic Co.)	Largemouth Bass	One meal per week	Do not eat
	Chain Pickerel	No restrictions	One meal per month
	Brown Bullhead		No restrictions
Oradell Reservoir (Bergen Co.)	Largemouth Bass	No restriction	One meal per month
	Bluegill Sunfish		No restrictions
	Yellow Bullhead		
	Common Carp		
Overpeck Creek (Branch of the Hackensack River; Bergen Co.)	Largemouth Bass	Four meals per year	Do not eat
	Common Carp		
	American Eel		
Passaic River: Rt. 280 to confluence of Pompton R. to Two Bridges (Morris/Essex/Passaic Co.)	Redbreast Sunfish	One meal per week	One meal per month
	Northern Pike	One meal per month	Do not eat
	Common Carp		
	Black Crappie	No restrictions	One meal per month
	Yellow Bullhead		One meal per week
	Pumpkinseed Sunfish		
Passaic River: Elmwood Park to Dundee Lake (Passaic/Bergen Co.)	Largemouth Bass	One meal per week	One meal per month
	Yellow Bullhead		Four meals per year
	Brown Bullhead		
	Redbreast Sunfish	One meal per month	Do not eat
	Common Carp		
	Bluegill Sunfish		
	American Eel		
Pennsauken Creek, Forked Landing (Camden Co.)	Common Carp	Four meals per year	Do not eat
	Largemouth Bass	One meal per month	
	Pumpkinseed Sunfish		Four meals per year
	White Catfish		One meal per year
Pompton Lake (Passaic Co.)	Largemouth Bass	One meal per week	Do not eat
	Common Carp	One meal per month	

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WATERBODY SPECIFIC FISH CONSUMPTION ADVISORIES

FRESHWATER ADVISORIES

WATERBODY	SPECIES	GENERAL POPULATION	HIGH-RISK INDIVIDUAL
		EAT NO MORE THAN:	EAT NO MORE THAN:
Pompton River at Lincoln Park (Passaic/Morris Co.)	Largemouth Bass	One meal per week	One meal per month
	Northern Pike		Do not eat
	Rock Bass		
	Redbreast Sunfish		Four meals per year
	Black Crappie	No restrictions	One meal per month
	Yellow Perch		
	Common Carp	Four meals per year	Do not eat
Ramapo River @ Pompton Feeder (Morris Co.) Site formerly listed as Pompton River @ Pequannock R. (Passaic/Morris Co.)	Largemouth Bass	One meal per week	Do not eat
	Smallmouth Bass		
	Yellow Bullhead		
	Rock Bass		
	Pumpkinseed Sunfish		
	Redbreast Sunfish		
	Black Crappie	One meal per month	
Raritan River at Neshanic Station (Somerset Co.)	Largemouth Bass	No restrictions	One meal per week
	Smallmouth Bass		
	Redbreast Sunfish		
	Rock Bass		
Raritan River at Millstone River (Somerset Co.)	Channel Catfish	No restrictions	One meal per week
	Brown Bullhead		No restrictions
Rockaway River @ Powerville (Morris Co.)	Largemouth Bass	One meal per week	Do not eat
	Yellow Bullhead	No restrictions	One meal per week
	Bluegill Sunfish		
	Rock Bass		One meal per month
	Chain Pickerel		
Rockaway River at Whippany (Morris Co.)	Largemouth Bass	One meal per week	Do not eat
	Black Crappie	No restrictions	One meal per month
	Bluegill Sunfish		One meal per week
Round Valley Reservoir (Hunterdon Co.)	Largemouth Bass	No restrictions	One meal per month
	Lake Trout		One meal per week
Saw Mill Lake (Sussex Co.)	Northern Pike	No restrictions	One meal per month
	Brown Bullhead		No restrictions
Shadow Lake (Monmouth Co.)	Largemouth Bass	No restrictions	One meal per week

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WATERBODY SPECIFIC FISH CONSUMPTION ADVISORIES

FRESHWATER ADVISORIES

WATERBODY	SPECIES	GENERAL POPULATION	HIGH-RISK INDIVIDUAL
		EAT NO MORE THAN:	EAT NO MORE THAN:
Shepherd Lake (a.k.a. Sheppards Lake) (Passaic Co.)	Largemouth Bass	One meal per week	Do not eat
	Rock Bass	No restrictions	One meal per week
Speedwell Lake (Morris Co.)	Bluegill Sunfish	No restrictions	One meal per week
	Chain Pickerel		
	Common carp		
Splitrock Reservoir (Morris Co.)	Chain Pickerel	No restrictions	One meal per month
	Yellow Perch		One meal per week
	Bluegill Sunfish		No restrictions
	Brown Bullhead		
Spring Lake (Monmouth Co.) (P)	Largemouth Bass	One meal per week	Do not eat
Spruce Run Reservoir (Hunterdon Co.)	Northern Pike	One meal per week	One meal per month
	Hybrid Striped Bass	No restrictions	
Stafford Forge Main Line (Ocean Co.) (P)	Chain Pickerel	One meal per week	Do not eat
Steenykill Lake (Sussex Co.)	Largemouth Bass	No restrictions	One meal per week
Stewart Lake (Camden Co.)	Largemouth Bass	Four meals per year	Four meals per year
	Bluegill Sunfish	One meal per week	One meal per month
	Brown Bullhead		Do not eat
	Common Carp	One meal per month	
Strawbridge Lake (Burlington Co.)	Largemouth Bass	One meal per month	One meal per year
	Bluegill Sunfish		
	Common Carp	Four meals per year	Do not eat
	Brown Bullhead	One meal per week	Four meals per year
Sunset Lake (Cumberland Co.) (P)	Largemouth Bass	One meal per week	One meal per month
Swartswood Lake (Sussex Co.)	Smallmouth Bass	No restrictions	One meal per month
	Chain Pickerel		One meal per week
Union Lake (Cumberland Co.) (P)	White Perch	One meal per week	Do not eat
Wading River (Burlington Co.) (P)	Yellow Bullhead	One meal per month	Do not eat
	Chain Pickerel	One meal per week	
	White Catfish		

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WATERBODY SPECIFIC FISH CONSUMPTION ADVISORIES

FRESHWATER ADVISORIES

WATERBODY	SPECIES	GENERAL POPULATION	HIGH-RISK INDIVIDUAL
		EAT NO MORE THAN:	EAT NO MORE THAN:
Wanaque Reservoir (Passaic Co.)	Largemouth Bass	One meal per week	Do not eat
	White Perch		
	White Catfish	No restrictions	One meal per month
	Brown Bullhead		No restrictions
	Yellow Bullhead		One meal per week
Wawayanda Lake (Sussex Co.)	Largemouth Bass	One meal per week	Do not eat
	Yellow Bullhead		One meal per month
	Chain Pickerel	No restriction	
Weequahic Lake (Essex Co.)	Largemouth Bass	One meal per month	One meal per month
	Common Carp		Do not eat
	Bluegill	One meal per week	One meal per week
	White Perch	No restrictions	No restrictions
	Brown Bullhead		
Whitesbog Pond (Ocean Co.) (P)	Chain Pickerel	One meal per week	Do not eat
Willow Grove Lake (Cumberland Co.) (P)	Brown Bullhead	No restrictions	One meal per month
Wilson Lake (Gloucester Co.) (P)	Largemouth Bass	One meal per week	Do not eat
	Yellow Perch	One meal per month	
	Chain Pickerel		
	Pumpkinseed Sunfish		
Woodstown Memorial Lake (Salem Co.)	Black Crappie	No restrictions	One meal per month
	Largemouth Bass		

(1) High-risk individuals include infants, children, pregnant women, nursing mothers and women of childbearing age.

(2) One meal is defined as an eight-ounce serving

(3) Eat only the fillet portions of the fish. Use proper trimming techniques to remove fat, and cooking methods that allow juices to drain from the fish (e.g., baking, broiling, frying, grilling, and steaming). See text for full description.

(4) Sunfish includes bluegill, pumpkinseed, and redbreast sunfish.

(5) No harvest means no taking or attempting to take any blue crabs from these waters.

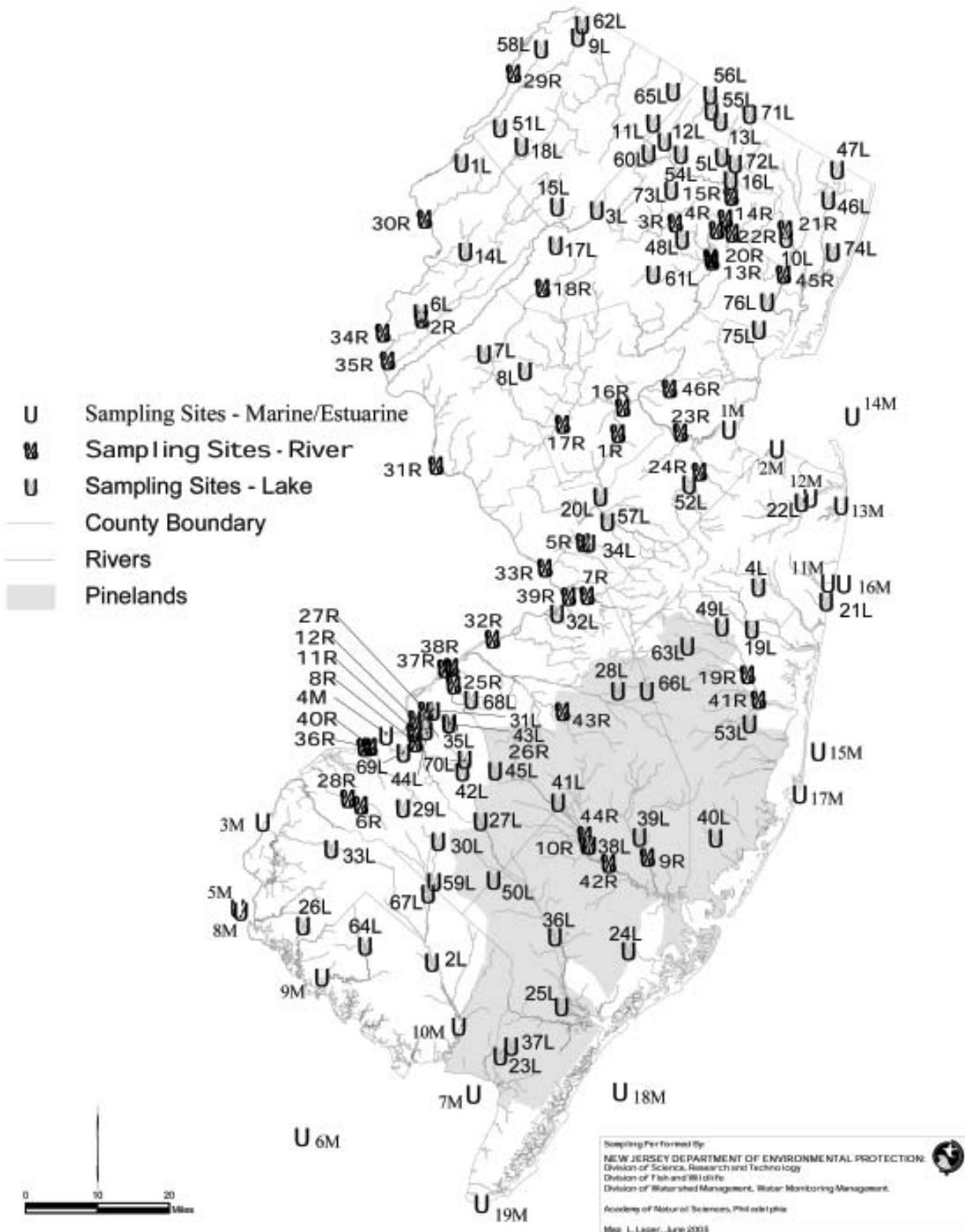
Note: Not all species were found or analyzed in all water bodies, or inadequate data were available to list some species.

(P) = Pinelands Area

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

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New Jersey Fish Tissue Sampling Sites



Lakes

1L Catfish Pond near Delaware Water Gap
2L Union Lake
3L Lake Hopatcong
4L Manasquan Reservoir
5L Wanaque Reservoir
6L Merrill Creek Reservoir
7L Spruce Run Reservoir
8L Round Valley Reservoir
9L Saw Mill Lake
10L Dundee Lake (Passaic River)
11L Canistear Reservoir
12L Clinton Reservoir
13L Monksville Reservoir
14L Mountain Lake
15L Cranberry Lake
16L Pompton Lake
17L Budd Lake
18L Swartswood Lake
19L Lake Carasaljo
20L Carnegie Lake
21L Spring Lake
22L Shadow Lake
23L East Creek Lake
24L Atlantic City Reservoir
25L Corbin City Impoundment #3
26L Maskells Mills Lake
27L New Brooklyn Lake
28L Mirror Lake
29L Alcyon Lake
30L Wilson Lake
31L Cooper River Park Lake
32L Crystal Lake
33L Woodstown Memorial Lake
34L Assunpink Lake
35L Newton Lake
36L Lenape Lake
37L Lake Nummy
38L Batsto Lake
39L Harrisville Lake
40L Stafford Forge Main Lake
41L Atsion Lake
42L Clementon Lake
43L Evans Pond
44L Haddon Lake
45L Marlton Lake
46L Oradell Reservoir
47L Tappan Lake
48L Boonton Reservoir
49L Butterfly Bogs
50L Cedar Lake
51L Crater Lake
52L De Voe Lake
53L Double Trouble Lake
54L Echo Lake

Rivers

1R Delaware and Raritan Canal
2R Merrill Creek
3R Rockaway River
4R Passaic River - Great Piece
5R Assunpink Creek
6R Rancocas Creek
7R Crosswicks Creek
8R Big Timber Creek
9R Wading River
10R Mullica River
11R Little Timber Creek
12R Newton Creek
13R Passaic River at Hatfield Swamp
14R Pompton River at Lincoln Park
15R* Ramapo River at Pompton Feeder
16R Raritan River at Millstone Creek
17R Raritan River at Neshanic Station
18R Raritan River, So. Branch, Clairemont Stretch
19R Ridgeway Branch of Toms River
20R Rockaway/Whippany Rivers
21R Passaic River at Elmwood Park
22R Passaic River at Pompton
23R Raritan River Upper at Rt 1
24R South River at Old Bridge
25R Pennsauken Creek at Forked Landing
26R Cooper River at mouth of Evans Pond
27R Cooper River at Cooper River Lake
28R Raccoon Creek at mouth near Swedesboro
29R Delaware River Upstream of Water Gap
30R Delaware River Phillipsburg to Water Gap
31R Delaware River at Byram
32R Delaware River mouth of Neshaminy Creek
33R Delaware River at Trenton
34R Delaware River at Easton
35R Delaware River at Raubsville
36R Delaware River at Paulsboro
37R Delaware River at Palmyra
38R Delaware River at Riverton
39R Delaware River at Crosswick Creek
40R Delaware River at Mantua Creek
41R Toms River
42R Mullica River between Green Bank and Batsto
43R Rancocas Tributary between Vincentown/Buddtown
44R Mullica River from Atsion to Pleasantville
45R Passaic River at Lyndhurst
46R Bound Brook

Marine/Estuarine

1M Raritan River at Rt 35
2M Raritan Bay Lower at Union Beach
3M Delaware River at Deepwater
4M Delaware River at National Park

Lakes

55L	Green Turtle Lake
56L	Greenwood Lake
57L	Grovers Mill Pond
58L	Hainsville Pond
59L	Malaga Lake
60L	Oak Ridge Reservoir
61L	Speedwell Lake
62L	Steenykill Lake
63L	Success Lake
64L	Sunset Lake
65L	Wawayanda Lake
66L	Whitesbog Pond
67L	Willow Grove Lake
68L	Strawbridge Lake
69L	Stewart Lake
70L	Linden Lake
71L	Sheppard Lake
72L	Ramapo Lake
73L	Split Rock Reservoir
74L	Overpeck Creek Lake
75L	Weequahic Lake
76L	Branch Brook Park Lake

* Change location name- Ramapo River at Pompton Feeder was listed as Pompton River at Pequannock River.

Marine/Estuarine

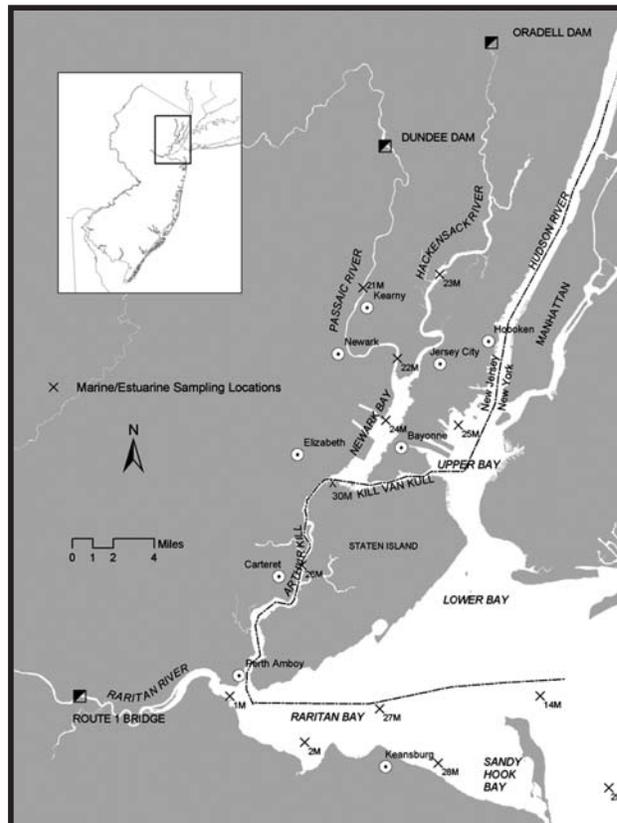
5M	Delaware Bay at Port Penn
6M	Delaware Bay at Bower's Beach, DE
7M	Delaware Bay West of Reeds Beach, SE of Thompsons
8M	Delaware River/Bay at Reedy Island
9M	Cohansey River at Greenwich
10M	Maurice River at Mauricetown
11M	Shark River at Belmar
12M	Navesink River at Fairhaven
13M	Shrewsbury River at Oceanport
14M	Atlantic Ocean just N of Sandy Hook
15M	Atlantic Ocean at Island Beach State Park
16M	Atlantic Ocean off Belmar
17M	Atlantic Ocean at Barneget Light
18M	Atlantic Ocean E of Sea Isle City, S of Ocean City
19M	Atlantic Ocean about 1 mile S of Cape May
20M	Barnegat Bay at Toms River
21M	Passaic River by Kearny
22M	Lower Passaic River
23M	Hackensack River
24M	Newark Bay
25M	Upper Bay
26M	Arthur Kill
27M	Mid-Raritan Bay
28M	E. Raritan Bay at Keansburg
29M	New York Bight
30M	Newark Bay Shooters Island

Northeast

New

Jersey

Waters



The NJDEP and NJDHSS can provide more information on the advisories and the health effects of chemical contaminants in the fish. To stay current with advisory updates and to request additional information, please contact the NJDEP Division of Science, Research and Technology at 1-609-984-6070 or check the website www.FishSmartEatSmartNJ.org or the NJDHSS at 1-609-588-3123.