Garden State Valleye By Craig Lemon, Superintendent, Hackettstown Hatchery and

Scott Collenburg, Senior Fisheries Biologist

The popularity of Walleye (Sander vitreus) fishing has grown throughout the United States over the last twenty years, and New Jersey is no exception.

The largest member of the Perch family, Walleye offer great sport and are often kept for consumption. The continued success of New Jersey Division of Fish and Wildlife's Walleye Program has provided tremendous opportunities for local anglers and is a vital component of fishing in the Garden State.

Native to drainages east of the Rocky Mountains and west of the Appalachians, Walleye are not indigenous to New Jersey. However, Fish and Wildlife's sustained stocking effort has produced excellent fisheries in selected, suitable waters. The relatively small size and depth of most New Jersey lakes and reservoirs results in warmer water, limiting waterbodies suitable for stocking.



Five impoundments (Canistear Reservoir, Greenwood Lake, Lake Hopatcong, Monksville Reservoir and Swartswood Lake) are currently Walleyestocked and have become attractive fisheries.

The Delaware River also supports a popular Walleye fishery. Incidental Walleye are occasionally caught elsewhere. These fish are a consequence of escapement and anglers illegally moving the fish from one waterbody to another.

Walleye Biology

Walleye are considered a coolwater fish species with an optimal water temperature of 69-75°F significantly warmer than trout but cooler than warmwater fish like Largemouth Bass. Walleye tolerate a wide range of environmental conditions but are generally most abundant in moderate to large lakes or rivers characterized by cool temperatures, shallow to moderate depths, clean, rocky substrate with moderate turbidity and nutrient conditions. Mark-and-recapture studies conducted on Walleye in Swartswood Lake, Monksville Reservoir and the Delaware River to assess the potential for natural reproduction have shown limited success. Variable reproductive success is a chronic problem with Walleye, even in optimal habitat. Routine stocking is necessary to sustain fisheries due to habitat, spawning and recruitment limitations.

Mature Walleye congregate and perform spawning behavior, even though their efforts do not result in viable young. In New Jersey, Walleye spawning behavior can occur anywhere between late February to mid-April, with peak spawn observed when water temperatures are 43–54°F. Moving water is necessary to clear away fine sediment, cleanse and aerate eggs. No parental care is given to the eggs.

In June and July, Walleye can be found among inshore habitat with fine substrate, but by late summer they will move to deeper areas over rocky habitats, on the outside edge of weed beds, near points with drop offs or over open-bottomed flats.

Yellow Perch are a major prey item of Walleye and when young-of-the-year are abundant, Walleye will feed on them exclusively. However, Walleye are opportunistic and will feed on the young of many panfish, game species and minnows. Walleye grow faster, and have higher relative weights, in lakes with an Alewife population. All waterbodies currently stocked with Walleye in New Jersey have abundant Alewife and Yellow Perch populations.

Hatchery Production

Walleye stocking began by private fishing clubs in several New Jersey lakes in the early 1900's with Greenwood Lake and Lake Hopatcong producing the most prominent fisheries. Fish and Wildlife's modern-day propagation of Walleye began in 1989, with 2.2 million eggs shipped from New York and Ontario. Next, 1.2 million fry were stocked in the then-new Monksville Reservoir. The remainder were set up in hatchery ponds and grown to 2 inches, with 55,000 fingerlings stocked in Monksville Reservoir.

Eggs were obtained from the PA Fish and Boat Commission until 1992. In 1993, Fish and Wildlife collected Walleye broodstock from Monksville Reservoir which were brought back to the Hackettstown State Fish Hatchery and spawned. From 1995-2000, broodstock were taken from Monksville Reservoir and supplemented with eggs from the PA Fish and Boat Commission, if needed.

The 1999 construction of a new intensive fish culture facility at the Hackettstown Hatchery set the stage for developing a consistent rearing program. From 2000 to 2019, all Walleye broodstock came from Swartswood Lake, Since the COVID-19 pandemic began, eggs have been procured from Pennsylvania.

Walleye broodstock collection begins annually around April 1 when fish travel to their spawning grounds. New Jersey's primary broodstock source is Swartswood Lake in Sussex County. Hatchery staff set a trap net near the mouth of Neldon Brook, checking it daily until the target number of 50 gravid (egg-bearing) females is reached, representing five million eggs. Mature Walleye are transported back to the hatchery, held in 2,000-gallon tanks at 52°F and checked daily for ripeness.

The process starts with a dozen ripe females and approximately three times as many males. The fish are rinsed in clean water, then the eggs and milt are manually stripped into a bowl. Using a goose feather, eggs are gently stirred for two minutes; a cup of water is added to initiate fertilization.

Hatching begins on day 15. The sac fry swim up and out of the jar and are captured in a 250-gallon trough below. The tiny fry suspend and congregate under the lights. Screens must be covered with nylon leggings to prevent escapement. After two days, most fry have hatched.

One-half million fry are moved to a 4-acre hatchery pond that was previously fertilized to create phytoplankton and zooplankton blooms on which the fry will feed. Water chemistry is monitored daily to alert hatchery staff as to when fertilizer should be applied or if water flow needs to be adjusted. After 40 days, hatchery staff samples the pond with a 40-foot seine to confirm that the Walleye have grown to 1.5-inch fingerlings. The pond and fingerlings are monitored closely until healthy, 1.8–2.0-inch pond fingerlings are achieved.

Around day 50, 100,000 Walleye fingerlings are stocked into five inland waters: Canistear Reservoir, Greenwood Lake, Lake Hopatcong, Monksville Reservoir and Swartswood Lake, with surplus fish stocked in the Delaware River. Additional 2-inch Walleye are retained in three, 1-acre growout ponds with 17,500 fish per pond.

Hatchery staff will stock these ponds with approximately 1,800 pounds — or 3.6 million — minnow fry to feed the Walleye until they become 4-inch advanced fingerlings. It is estimated to take three pounds of forage to produce one pound of Walleye. The number of Walleye available for stocking varies from year to year due to fluctuating survival rates in hatchery ponds, with a good return rate of 65%. The annual target for Walleye is 24,000.

Since Fish and Wildlife's Walleye Program began, the hatchery has stocked over 10 million 2-inch pond fingerlings and 1 million 4-inch advanced fingerlings. Hatchery staff have handled 23 females during trap netting that tipped the scales over

10 pounds. The largest in 2004 weighed 13.6 pounds, equaling the current state record catch. The average Walleye size has increased over the years from 18 inches/2.39 pounds in 2000 to 20.3 inches/4.1 pounds recently. Females went from 19.3 inches/3.03 pounds in 2000 to 22.9 inches/6.2 pounds in 2019. Measurements were taken during spawning when fish are their heaviest.

Walleye Management

New Jersey's established Walleye lakes and reservoirs are limited by habitat, dictated by geology and topography. High-quality, Walleye-supporting waterbodies are geographically limited to the northern area of the state. Central and southern waterbodies are typically smaller, shallower and warmer, making them less suitable for Walleye. Our fisheries biologists are currently exploring additional waterbodies for potential future stocking. Those at the top of the list include Splitrock Reservoir (Morris) and Manasquan Reservoir (Monmouth).

New Jersey's annual Walleye stocking rate is 20 fish/acre at a ratio of 80% pond fingerlings (2 inches) and 20% advanced fingerlings (4 inches). Stocking rates utilized by other states vary, dependent on fingerling size, individual lake management plans, habitat considerations, prey availability and past stocking success. In New Jersey, stocking rates may be altered if negative findings are documented such as poor growth or condition, adverse effects to other competing species or other undesirable impacts. Reduced stocking rates may also be implemented when new waters are added to the program.

A thorough assessment of New Jersey's stocking program was conducted from 2014 to 2017. To assess these populations, fisheries biologists utilized night electrofishing, along with trap netting on some waterbodies. Results from these spring assessments indicate abundant Walleye populations in all waterbodies sampled, with the highest abundance in Canistear Reservoir. For more detailed information on the most recent assessments of New Jersey's Walleye lakes and reservoirs, please refer to the 2018 report Assessment and Management of New Jersey's Stocked Coolwater Fishes.

Angler sentiment for Walleye is high. Fish and Wildlife's 2015 Warmwater/Coolwater Angler Survey revealed that among respondents, 28.2% of New Jersey anglers target Walleye; 70.3% fish for them only in New Jersey. The Walleye population in the Delaware River is considered strong based on angler catch rates, but that fishery has not been fully evaluated. Survey respondents demonstrated that the Delaware River was targeted the most and had the highest level of satisfaction among anglers.

The statewide regulation allows for three Walleye with a minimum length of 18 inches. In 1996, a catch and release season (March 1 to April 30) was established on all waterbodies except the Delaware River.

Although Walleye populations are not supported through natural reproduction, Walleye are afforded similar protections from harvest during their spawning period due to the species' tendency to congregate then in large numbers in shallow river areas. These protections prevent species exploitation such as overharvest or unsportsmanlike take. Recently, consideration is being given to the removal of the catch and release season on certain waterbodies based on reports and studies conducted in other states documenting that exploitation of Walleye is not the major driver of Walleye abundance or population size structure.

See Walleye regulations on pages 22, 24 and 26.

Fishing Tips

Five million

incubating Walleye eggs.

Walleye fishing in New Jersey is excellent throughout the entire year. Walleye are light-sensitive, so anglers will find the greatest activity during low light conditions — overcast days, dawn, dusk and at night. Lakes and rivers with high turbidity can provide excellent daytime opportunities.

In the spring, lake-dwelling Walleye move from deep wintering areas into the shallows to spawn. They can be found at moderate depths (15–30 feet) during the summer months but may move shallower during low light conditions. In the early fall, when water temperatures begin to drop, Walleye will move into the shallows to feed. As fall temperatures continue to decline, Walleye return to deeper areas for the winter.

Live bait and artificial lures are equally productive in both lakes and rivers. Live minnows, herring and nightcrawlers fished on 1/8- to 3/8-oz. jigs retrieved or drifted along the bottom are very effective. Artificial baits, including crankbaits, jerkbaits and jigs, are excellent choices for both lakes and rivers.



2022 REGULATIONS

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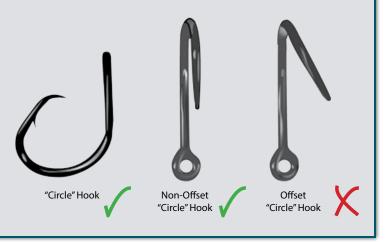
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Striped Bass Circle Hook Requirement

To reduce Striped Bass release mortality, non-offset (inline) circle hooks must be used when fishing for Striped Bass with bait in all waters. Bait is defined as any marine or aquatic organism live or dead, whole or parts thereof. This restriction shall not apply to an artificial lure with bait attached. A circle hook is a non-offset hook where the point is pointed perpendicularly back towards the shank. Non-offset means that the point and barb are in the same plane as the shank. Striped Bass caught using an unapproved take method must be immediately returned to the water.



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License Information

2022 REGULATIONS=

Regulations in red are new this year.

Licenses

- A valid New Jersey fishing license is required for residents at least 16 years and less than 70 years of age (plus all non-residents 16 years and older) to fish the fresh waters of New Jersey, including privately owned waters. See below for the moneysaving Buddy Fishing License.
- For fishing-related license and permit fees, see page 1. See below for Purchasing a License.
- Resident anglers age 70 and over do not require a fishing license. A driver license or other acceptable proof of age containing date of birth and physical description will serve as the actual fishing license. Non-residents 70 and over must purchase a license.
- License must be visibly displayed on outer clothing.

 Line 1.1.6.
- License and trout stamp are both valid from date of purchase through Dec. 31.
- A person must have an established domicile (principle residence) in New Jersey for at least the previous six months to obtain a resident fishing license.
- Farmers and immediate family members who live on the farm do not need a license to fish on their own farm, but must obey all fishing regulations.
- Anyone convicted of a second fish or wildlife violation in this or another state within a period of five years will have his or her New Jersey sporting licenses revoked for a minimum of two years.
- New Jersey is a member of the Interstate Wild-life Violator Compact. Under the Compact, information about suspension of sporting license privileges for people convicted of wildlife violations in New Jersey will be shared with participating member states. It is an individual's responsibility to first contact the licensing authority in the state where they intend to fish, hunt or otherwise take wildlife to determine their eligibility before making a purchase or engaging in those activities. Individuals with wildlife violation convictions or license suspensions received outside of

New Jersey may call the Compact Administrator at 609-259-3347 to determine his or her license eligibility in New Jersey.

Trout Stamps

A valid fishing license and trout stamp are both required to fish for or possess trout and salmon for all anglers (residents and non-residents) 16 and over, and residents under the age of 70. No trout stamp is required for *residents* age 70 years and over.

Purchasing a License

Licenses may be purchased online at https://nj.aspirafocus.com/internetsales or at license agents such as sporting goods or bait and tackle stores. Call first to confirm agent's system is active. Visit NJFishandWildlife.com for details, or call 609-292-2965.

Replacement — Lost License or Stamp

Replace a license, permit or stamp at any license agent or online at Fish and Wildlife's internet license sales site, https://nj.aspirafocus.com/internetsales also linked through our regular website at NJFishandWildlife.com. For fishing licenses or trout stamps originally purchased online, a reprint can be made free of charge on plain paper. Durable stock duplicates can be ordered online for \$2 per item.

Special Licenses

Servicemen and Servicewomen

A person on active duty in the United States armed services, regardless of their current residency, may buy a New Jersey resident fishing license. Active duty military ID must be shown to the license agent as proof of entitlement.

New Jersey National Guard

Only New Jersey National Guard personnel in good standing are entitled to free sporting licenses, permits and stamps. These privileges are not available using Fish and Wildlife's website. However, the NJ Dept. of Military and Veterans Affairs can issue fishing licenses through their DMAVA website at www.nj.gov/military/iasd/fishing.html. For all other free sporting licenses, call 609-530-6866, email robert.greco@dmava.nj.gov, or write to: NJ Dept of Military and Veterans Affairs, Attn: MSG (Ret.) Robert Greco (RSB-RALV), PO Box 340, Trenton, NJ 08625-0340.

Veterans Licenses, Stamps and Permits Free hunting and fishing licenses, stamps and permits are available for resident veterans with a service-connected disability.

For the purposes of this program, legislation defines disabled veterans as "...any resident of New Jersey who has been honorably discharged or released under honorable circumstances from active service from any branch of the Armed Forces of the United States and who has been declared by the United States Department of Veteran Affairs, or its successor, to have a service-connected disability of any degree..."

Newly applying disabled veterans can obtain their hunting and fishing licenses and stamps by mailing the application and all required documentation to: NJ Division of Fish and Wildlife, Attn: Disabled Veteran Licensing, MC 501-03, PO Box 420 Trenton, NJ 08625-0420.

Fish and Wildlife offices no longer accept Disabled Veteran Certifications in person. For information and updates, go to NJFishandWildlife.com/dvinfo.htm.

All licenses, stamps and permits for which the veteran is eligible will be free of charge. This does not give preferential treatment in any lottery. For questions call 609-292-2965.

Disabled Veteran Applicants:

1. Documentation of current benefits for a serviceconnected disability and proof of honorable







Summary of Fishing Regulations

2022 REGULATIONS

discharge (copy of your DD-214, VA card or monthly check stub) must be presented to obtain a disabled veteran certification.

- 2. Applicant must provide a hunter education course certificate applicable to the license for which they are applying or a previously issued resident archery or firearm license or rifle permit. Resident licenses from other states are accepted if the license indicates the sporting arm for which it was valid. Non-resident licenses from other states are not acceptable.
- To obtain the free disabled veteran deer/turkey permits one must first have a free disabled veteran hunting license.

For the Blind

Residents with total blindness may obtain a free license. Call 609-292-2965 for an application.

Summary of General Fishing Regulations

The season, size and creel limits for freshwater species apply to all waters of the state, including tidal waters.

- Fish may be taken only in the manner known as angling with handline or with rod and line, or as otherwise allowed by law.
- When fishing from the shoreline, no more than
 three fishing rods, handlines or combination
 thereof may be used (except on the Delaware
 River. There is no rod limit when fishing from
 a boat except for the Delaware River.) For the
 Delaware River the three rod limit applies
 both to boat and shoreline anglers (see page 25).
- Only one daily creel of any fish species may be in possession. Additional fish may be caught once the creel is reached if immediately returned to the water unharmed.
- Separate stringers or buckets must be used for each angler's catch.
- Boats may contain only the combined daily creel limit for each legal angler on board.
- A fishing license does not authorize trespassing on private property. Permission must first be obtained from the landowner.

It Is Unlawful To:

- Fish within 100 feet (or as posted) of any fish ladder entrance or exit from March 1 through June 30.
- Spear fish in fresh waters except as specified for Delaware River, page 25.
- Possess a fishing device with more than nine hooks in total, or more than three treble hooks, except for the Delaware River; see page 25.
- · Use set lines.
- Use cast nets in freshwater lakes or trout stocked waters. See Baitfish Regulations, page 27 for other exclusions.
- Foul hook or snag any species of fish. This does not apply to fish taken through the ice.

Bow and Arrow Fishing

Carp (including bighead, common, grass), eels, flathead catfish, American shad (Delaware River only), gizzard shad, snakeheads and suckers or hybrids

Water Supply Reservoirs Open To Fishing By Permit Only

Permits must be obtained from the specific reservoir owner listed below. A valid fishing license is also required.

Waterbody		County	Type of Fishing	Fee	Permit Source
Newark-Pequannock Watershed Reservoirs	Echo Lake Clinton Reservoir	Passaic	Boat & Shoreline	Yes	Newark Watershed reservoir permits available in person only at these locations:
	Oak Ridge Reservoir	Morris			
	Canistear Reservoir	Sussex			City of Newark 223 Echo Lake Road, Newfoundland, NJ 07435 973-697-1724
Oradell Reservoir Woodcliff Lake			ergen Shoreline only	Yes	United Water Company 461 From Rd. Paramus, NJ 07652
Lake Tappan Reservoir Lake Deforest		Bergen			Suez Watershed Application 201-767-9300 x3208 www.suezwatershed.com

of these species—may be taken at any time by use of a bow and arrow (with a line attached to the arrow) when in possession of a valid fishing license. Crossbows may be used when bowfishing except for Greenwood Lake. Crossbows must have a stock length of at least 25 inches, a minimum draw weight of 75 pounds and a working safety. Crossbows must be uncocked during transport or when not actively fishing. They may not be permanently mounted. NOTE: some municipalities have banned the discharge of bow and arrow, tethered arrow or not. As such, anglers are strongly urged to check with the waterbody owner and/or municipality prior to engaging in bowfishing. See regulations for the Delaware River and Greenwood Lake, pages 24–26.

Emergency Closures

It is illegal to fish or attempt to catch or kill fish by any manner or means in any waters for which the Director of the Division of Fish and Wildlife, upon approval by the Fish and Game Council, issues an emergency closure notice. Such notification is effective and/or rescinded immediately upon public notification. Emergency closures shall be based upon imminent threat to the well-being of the fishery resources, and/or its users, and may include any exceptions to the total ban of fishing that the Director deems practical.

Ice Fishing

No more than five devices per person may be used when fishing through the ice. Legal devices include:

- Ice supported tip-ups or lines with one single pointed hook attached, or one burr of three hooks that measure not more than ½-inch from point to shaft.
- 2. An artificial jigging lure with not more than one burr of three hooks that measure not more than ½-inch from point to point.
- 3. An artificial jigging lure with not more than three single hooks measuring not more than 1/2-inch from point to shaft.
- 4. An artificial jigging lure with a combination of the hook limitations described in 2 and 3 above.

Natural bait may be used on the hooks of the artificial jigging lures. All devices that are not hand-held must bear the name and address of the user and cannot be left unattended.

See separate regulations for trout-stocked waters and Greenwood Lake.

Potentially Dangerous Fish

The possession or release of live, potentially dangerous fish is prohibited. These species include Asian swamp eel, bighead, grass (diploid) and silver carp, blue and flathead catfish, round goby, brook stickleback, green sunfish, oriental weatherfish, snakehead and warmouth. All black bass except for largemouth and small mouth bass are considered potentially dangerous. Anglers MUST destroy these species if encountered while fishing and should submit specimen(s) or photos to a Fish and Wildlife Bureau of Freshwater Fisheries biologist for verification. To reach a regional biologist, call 908-236-2118 (north), 609-223-6076 (central) or 856-629-4950 (south). These non-native species are likely to cause environmental harm to the state's fisheries resources by outcompeting preferred game fish species. Common carp are an invasive species but are NOT classified as a potentially dangerous fish and do not have to be destroyed.

Sale of Fish

It is illegal to sell any freshwater fish species except under commercial permits as prescribed in the Fish Code. Artificially-propagated trout, if properly tagged, may be sold for food purposes.

Stocking Fish

A permit is required to stock fish or fish eggs into any waters of the state, public or private, at any time. Applications are available online at NJFishandWildlife.com/fishperms.htm or by contacting the Bureau of Freshwater Fisheries 908-236-2118. It is ILLEGAL to stock carp or koi into any waters. No trout may be used as bait or stocked within the PEQUEST RIVER DRAINAGE except by the Pequest Trout Hatchery.

Tagging Fish

No person may tag or mark and then release a fish without first obtaining a fish stocking permit or by special permit issued by Fish and Wildlife. Contact the Bureau of Freshwater Fisheries 908-236-2118 for application information.

Waste of Fish

Fish of any species which are purposely killed become part of the angler's daily limit and must be removed from the waters from which they were taken, then either used or otherwise disposed of properly.

