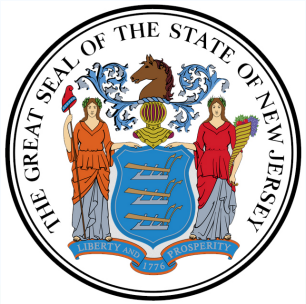
Understanding More About Lake Lowering

Lakes and the Law

- Deal Lake, like all public lakes, is owned by the state and is a regulated water body.



- Basis is in the interest of the commonwealth in protecting common access to the ocean and rivers for use and transport.

Lakes and the Law

- When one buys a property on navigable lake or river front, one buys a front on a public highway.

Lakes and the Law

Regulates, protects and manages all non private lakes in NJ

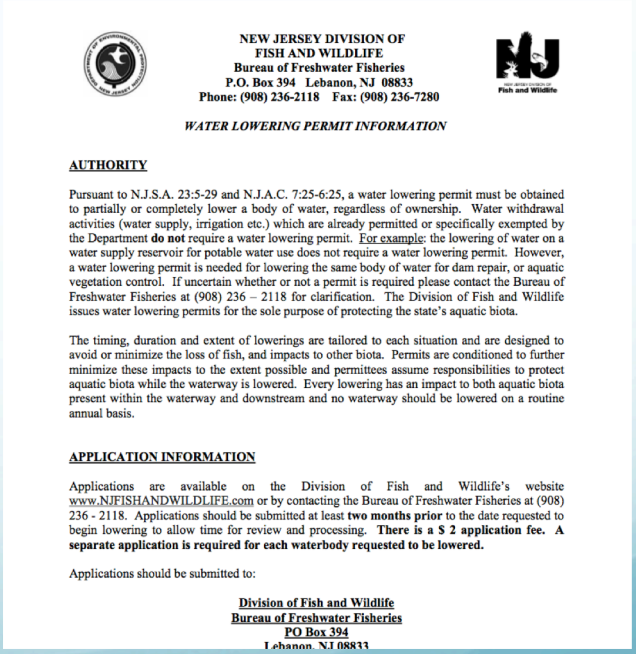
NJ Div. of Fish and Wildlife

Issues permits related to the long-term protection and wise use of the state's freshwater aquatic resources .

The primary reason that the DEP has these regulations and stipulations is due to the environmental impact that lake lowering has on fish and all aquabiota.

Lake and the Law

- **The DEP requires that any manipulation of the water levels must meet with the state's approval via a PERMIT.**
- **Application approvals are based on whether fish, turtles, plants and other aquatic biota will be adequately protected. Certain variables are particularly important in determining the impact of a lowering on aquatic biota.**
- **These variables are :**
- **TIME of year,**
- **Duration**
- **Extent of drawdown**
- **Depth from which the water is released.**
- **Rate of Water Release**



NEW JERSEY DIVISION OF
FISH AND WILDLIFE
Bureau of Freshwater Fisheries
P.O. Box 394 Lebanon, NJ 08833
Phone: (908) 236-2118 Fax: (908) 236-7280

WATER LOWERING PERMIT INFORMATION

AUTHORITY

Pursuant to N.J.S.A. 23:5-29 and N.J.A.C. 7:25-6:25, a water lowering permit must be obtained to partially or completely lower a body of water, regardless of ownership. Water withdrawal activities (water supply, irrigation etc.) which are already permitted or specifically exempted by the Department **do not** require a water lowering permit. For example: the lowering of water on a water supply reservoir for potable water use does not require a water lowering permit. However, a water lowering permit is needed for lowering the same body of water for dam repair, or aquatic vegetation control. If uncertain whether or not a permit is required please contact the Bureau of Freshwater Fisheries at (908) 236 – 2118 for clarification. The Division of Fish and Wildlife issues water lowering permits for the sole purpose of protecting the state's aquatic biota.

The timing, duration and extent of lowerings are tailored to each situation and are designed to avoid or minimize the loss of fish, and impacts to other biota. Permits are conditioned to further minimize these impacts to the extent possible and permittees assume responsibilities to protect aquatic biota while the waterway is lowered. Every lowering has an impact to both aquatic biota present within the waterway and downstream and no waterway should be lowered on a routine annual basis.

APPLICATION INFORMATION

Applications are available on the Division of Fish and Wildlife's website www.NJFISHANDWILDLIFE.com or by contacting the Bureau of Freshwater Fisheries at (908) 236 - 2118. Applications should be submitted at least **two months prior** to the date requested to begin lowering to allow time for review and processing. **There is a $ 2 application fee. A separate application is required for each waterbody requested to be lowered.**

Applications should be submitted to:

Division of Fish and Wildlife
Bureau of Freshwater Fisheries
PO Box 394
Lebanon, NJ 08833

DLC applies annually to DEP for permit to lower Deal Lake

This DEP permit states at the top of the permit:

" The permit is issued for the purpose of protecting the state's aquatic resources both within and adjacent to the identified water ways and for no other purpose."

County:
Monmouth

This permit is issued for the purpose of protecting the state's aquatic resources, both within and adjacent to the identified waterway, and for no other purpose. It does not relieve the permitee from any liabilities to any persons or property affected by the lowering and does not authorize the permittee to conduct any construction or alteration activities in conjunction with the lowering. The New Jersey Department of Environmental Protection Division of Fish and Wildlife grants this permit in accordance with your application, attachments accompanying same application and applicable laws and regulations. This permit is subject to further conditions and stipulations enumerated in the supporting documents, which are agreed to by the permittee upon acceptance of the permit.

Deal Lake Commission
c/o Township of Ocean, 399 Monmouth Road
Oakhurst, NJ 07755

Is permitted to draw off the waters of Deal Lake, located off Ocean Avenue, Asbury Park for emergency water lowering. The lowering shall not exceed the maximum extent as measured from the crest of the spillway.

PERMIT CONDITIONS:

Permittee must notify the Division's Bureau of Freshwater Fisheries [(908) 236-2118] 24 hours prior to initial water lowering, and again within 24 hours of initial refilling.

During lowering the rate of release must be controlled such that there is no over-bank flow of the primary downstream channel.

Once lowered, a continuous release of water must be passed downstream to maintain aquatic biota in the watershed below the dam; amount of outflow should be the approximate equivalent to the amount of inflow into the impoundment (excluding storm flows).

Permittee assumes all responsibility for protecting aquatic biota affected by this lowering.

Refilling MUST commence by permit Expiration Date. During refilling water flow out of the impoundment must be maintained so that fish life downstream is protected.

Violation of any provision of this permit shall render this permit void.

Water may be lowered up to 18" below the crest of the spillway for emergency flood control, up to 72 hours in advance of rainfall event predicted to exceed 1", as determined by National Weather Service.

What the law says:

The DLC is not permitted to lower the lake from April to August, and after November 15 ..except under special circumstances (**dam safety concerns and catastrophic events**) N.J.S.A. 23:5-29 and N.J.A.C. 7:25-6:25

From the Dept of Fish and *" A waterbody should be full of water during the spring spawning and summer growing seasons... Lowering during these periods can harm fish populations by eliminating suitable spawning areas. Fluctuating water levels can also contribute to egg mortality (by exposure to air) and death of newly hatched and small fish as they become stranded in weed beds and shallow pools."*

Time of Year:

Water warms up in summer and so it holds less oxygen.

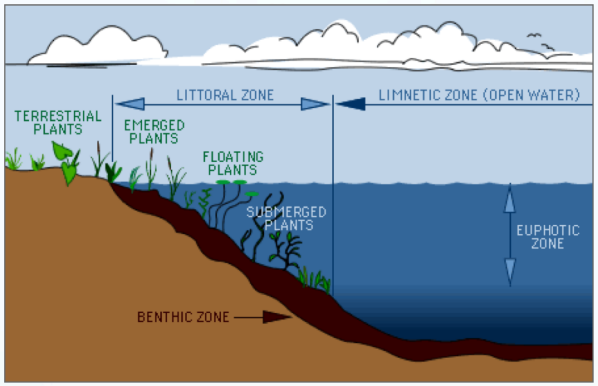
Fish are already experiencing stress from having less oxygen in the water.

If lake is lowered, conditions are exacerbated when fish are crowded due to reduced water volume.

"Therefor, except in extreme circumstances water lowerings are NOT approved to begin, or to extend over the summer months." (NJDFW)

Other Effects of Lake Lowering in Warm Months

- Light penetrates to algae in shallower water, helping algae to grow.



This causes PH levels to rise, as oxygen gets used up by algae. Lower oxygen= Raises PH. More base.

In **2-3** days of a lake lowering, algae bloom is possible, and fish kills can occur.

Turtles Frogs Impacted by Lake Lowering in WINTER

- **The Dept of Fish and Wildlife does not allow the DLC to lower the lake after Nov 15th because turtles and frogs are hibernating.**

- As **winter** starts, turtles and frogs move to shallow edges of the lake to hibernate, There, they burrow under the mud. If we lower the lake, turtles and frogs are then exposed to temperatures beyond what they can tolerate and can freeze and die.

Lake and the Law

- **Duration: (from Dpt Fish and Wildlife)**

"A body of water should not remain lowered any longer than is necessary to accomplish objective of lowering. Water levels should NEVER be raised and lowered repeatedly. "

Extent of Drawdown

"A stream, lake or pond should be lowered only as much as is necessary to accomplish the objective of the lowering. A pool of water which is capable of supporting the fish population should be maintained at all times."

"...Complete draining of a waterway should only be done when absolutely necessary. These types of lowerings require that fish be salvaged, collected and relocated...It also results in undesirable release of silt, detritus and debris downstream which can seriously effect water quality and damage critical habitat in the receiving water. "

"These lowerings also result on loss of recreational use of waterway..." (NJDFW)

Depth of Water Release
:
Rate of Drawdown

"When lowering, water must be released slowly at a rate which will prevent the stranding of fish in off-channel pools within the lake basin and avoids flushing fish downstream. The rate of release must be controlled such as there is no over-bank flow of the primary downstream channel. " (NJDFW)

Flume Control

The DLC is permitted to manage the lake level prior to a rain event that is predicted to be greater than 1 inch within a 24 hour period.

Currently, Deal Lake can handle a 1 inch rainstorm with no lowering of the lake from its normal height of about 2 inches above the dam height.

Flume Control

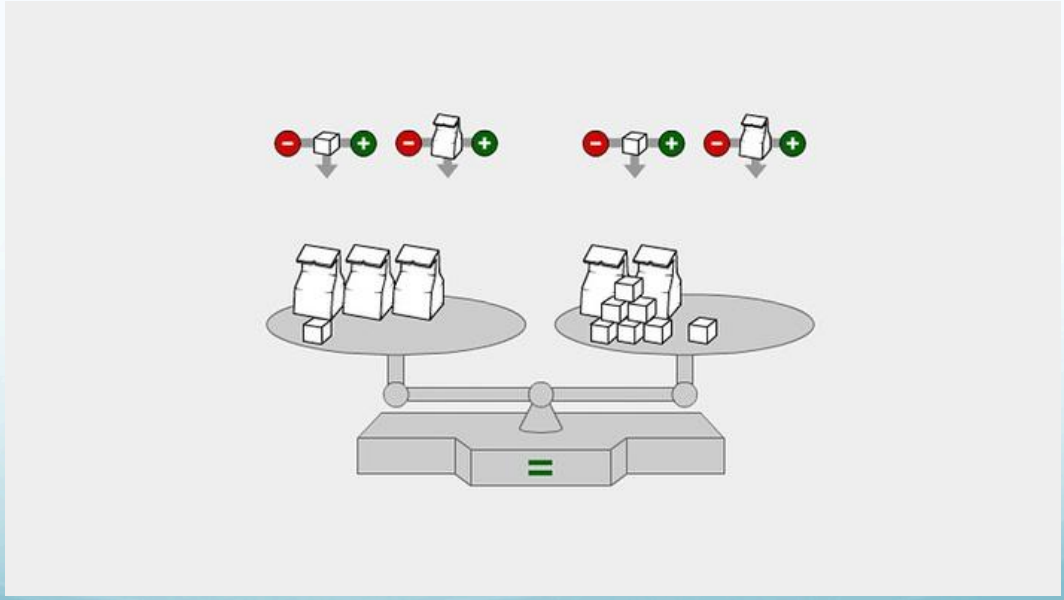
South gate photo

DLC Balancing Act

Considerations: The lake is not a swimming pool.

ALL lowering impacts lake life.

Q: What impact (s) will this lowering event have on Deal Lake?



Considerations for Lowering

1) Time of year? Remembering spawning times, algae, plants, release of debris, etc.

2) How much rain? For How Long?

3) How much wind? Directions of wind? Change in direction?

4) Moon? Tides, surge?

5) How much to draw down with the least amount of impact on lake and aquabiota. release of debris downstream.

6) How long to draw down?

Reasons Flume Must Close

Tidal Surge: Easterly or northeast winds will require the flume to be closed 2 hours before and after high tide. Caution must be taken during full moon and coastal flood warnings since the **tidal surge could cause more damage than the rain event**. The flume during these conditions MUST be closed.

Tidal Surge

- Any Tidal surge above 3.5 feet will result in rising lake levels from ocean water surge that can **NOT be controlled by the flume.** These waters pour in over the fixed concrete dam which is above the two sluice gates..

Flume with Tidal Surge

Gates Must Be Closed When

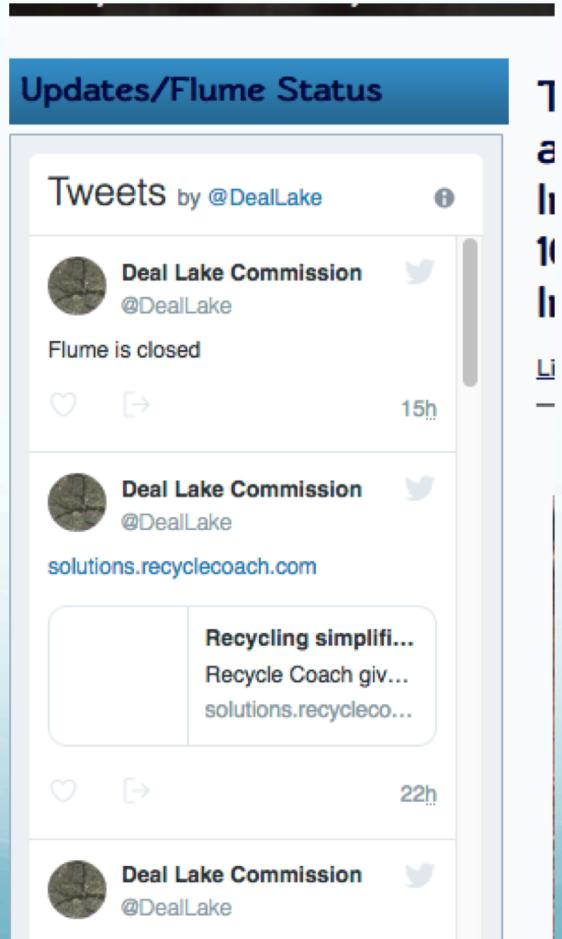
The gates will be closed when the lake level has dropped to where the risk of flooding has been minimized, high tides will adversely affect the lake, or has met the DEP lowering limit of 12 inches below dam height.

- *"A pool of water which is capable of supporting the fish population should be maintained at all times."*

Flume Operato

- The DLC chairman or his designee will call one of at least three trained operators to open one or both flume gates to facilitate the draw down. Each sluice gate (North/South) can lower the lake by ½ inch per hour. Operators have full authority to open gates if a Flash Flood alert is issued.

- Flume opening and closings can be followed on twitter or via our web site: www.Deallake.org



Are Things Getting Worse?

- **Yes.**...due to climate change – frequency and severity of major storms has increased over the past two decades.

- NJ experienced 50% more rainfall in 2018 than normal (66” vs 44”)

What Are We Doing About It?

- Electrification of the flume gates – will ease operation of flume gates and increase safety of opening and closing flume during storms
- Existing 319 Grant to do SW improvements
- Pending grant to install pumps (similar to New Orleans) to help more rapidly lower the lake and account for storm surge
- Educating homeowners as to what they can do to lessen flooding problems (Next Presentation)

Next…

We are working with municipal governments to improve storm water management:

LESS SEDIMENT and LESS RUN OFF

5.0 THE OBJECTIVES OF THE DEAL LAKE WATERSHED PROTECTION PLAN

5.1 Water Quality, Quantity and Recharge Objectives of the WPP

The identification of "drainage area-specific water quality, groundwater recharge and water quantity objectives" are outlined in this section in accordance with the with the goals of stormwater management planning as defined in N.J.A.C. 7:8-2.2 and the stormwater regulations for WPP as identified in N.J.A.C. 7:8-3.5. The objectives address "the elimination, reduction, and minimization of stormwater related impacts associated with new and existing land uses". Factors concerning environmental, social, and economic factors of the Deal Lake watershed have been taken into consideration.

TMDLs have been identified for two waterbodies within the Deal Lake watershed: Deal Lake (phosphorus) and Hollow Brook (fecal coliform). Deal Lake also appears on the NJDEP 2006 303(d) List of Impaired Waterbodies related to pH and pathogen impairments. As such, the drainage area objectives address these pollutants (phosphorus, pH, and fecal coliform) that threaten and impair the water quality of the Deal Lake watershed. The impacts of these contaminants, along with excessive sedimentation and the influx of large quantities of floatables have been repeatedly documented. The measures prescribed herein are intended to aid in satisfaction of the phosphorus and coliform TMDLs, reduce sediment and floatable loading and decrease secondary sediment transport to the lake caused by excessive scour of the lake's tributaries.

5.1.1 Water Quality Objectives

a. **Objective: Address regulatory measures that affect water quality**

What can you do to help?

- **Become informed**

We will be giving a presentation on aquascaping, and ways you can help to reduce run off on your property.

- **Become involved by taking action**:
- Help reduce your run off
- Help curb your CO 2 emissions and carbon footprint.
- Support leadership from cities and states on clean energy and climate change action.