

# SOUND OUTLOOK

A NEWSLETTER OF THE CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION  
EXPLORING LONG ISLAND SOUND – ISSUES AND OPPORTUNITIES

## Blue Ribbon Celebration for Connecticut's Nitrogen Credit Exchange Program

**A**t a ceremony held on October 29, 2007 at the Mystic Aquarium & Institute for Exploration, the U.S. Environmental Protection Agency (EPA) presented Connecticut with the agency's first *Blue Ribbon Water Quality Trading Leadership Award*. The award honors Connecticut's nationally recognized Nitrogen Credit Exchange Program and its role in improving the quality of the state's coastal waters in an economically beneficial way. Connecticut's exchange program was initiated in 2001 (see Issue No. 9 of *Sound Outlook* at [www.ct.gov/dep/lis](http://www.ct.gov/dep/lis)).




Water quality trading is an innovative approach to achieving water quality goals more efficiently and economically. Trading programs are applied within individual watersheds. They allow facilities facing higher pollutant control costs to meet their regulatory obligations by purchasing environmentally equivalent pollutant reductions (i.e., credits) from other sources that choose to pollute below their allotted limits and thus have credits to sell. Watershed-specific credit limits in Connecticut are based on the state's EPA-approved Total Maximum Daily Load (TMDL) for nitrogen discharge to the Sound (see information on the TMDL in Issue No. 3 of *Sound Outlook*). The net effect of the trading program will be the overall improvement of water quality in the LIS watershed at a lower total cost than would result from forcing every individual pollutant source to upgrade its equipment.

In the four years since Connecticut's Nitrogen Exchange program was established, a total of \$11.6 million worth of nitrogen credits has been purchased by an average of 45 municipalities each year. This includes \$11.4 million in credits sold by the 34 sewage treatment plants (out of 79 plants participating in the program) that have reduced their nitrogen outputs below assigned permit limits, with the remaining \$0.2 million provided by the State through the DEP-administered Clean Water Fund (CWF). In years when there is a surplus of credits for sale, the State Bond Commission purchases those excess credits and deposits them into the CWF. Then, in subsequent years when there are more purchasers of credits, the excess credits are acquired from the CWF, with the proceeds used to repay the bond money.

This innovative program is expected to save the State between \$200 million and \$400 million in wastewater treatment construction costs over the next decade. Connecticut's exchange program is a component of the Long Island Sound Nitrogen Removal Program, which has also seen the expenditure of more than \$450 million in sewage treatment plant upgrades since initiation of the 1990 "No Net Increase" agreement with New York and the U.S. EPA for nitrogen discharges to the Sound.

Connecticut is pleased to be recognized for this innovative approach to improving the water quality of Long Island Sound. For information about the Nitrogen Credit Exchange program visit the DEP web site at [www.ct.gov/dep/nitrogencontrol](http://www.ct.gov/dep/nitrogencontrol).

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This issue of *Sound Outlook* highlights several major initiatives through which DEP and other state, regional and federal entities are working to manage environmental concerns in *Long Island Sound* and nearby coastal waters, including point and non-point source pollution, nitrogen enrichment, and the impacts of climate change.

## Connecticut Reaches *No Discharge Area* Goal

Everyone wants a clean Long Island Sound to enjoy for swimming, boating, fishing and shellfishing. The establishment of No Discharge Areas in Connecticut coastal waters is a small part of the DEP's long-term effort to improve water quality in the estuary. At a celebration on July 26, 2007, Governor Rell announced completion of OLISP's five-year effort to win federal EPA approval of No Discharge Area (NDA) designation for coastal waters statewide. With federal approval of the NDA, it is illegal to discharge any sewage from any vessel anywhere in Connecticut's coastal or inland waters. A No Discharge Area is a designated body of water in which the discharge of both treated and untreated boat sewage is prohibited. Specifically, the federal Clean Water Act prohibits the discharge of untreated sewage from vessels within all navigable waters of the U. S., which include territorial seas within three miles of shore. All of Long Island Sound is landward of the baseline from which the three mile territorial sea is measured, that being an imaginary line drawn from



Pumpout station, Brewer Ferry Point Marina, Old Saybrook.

Watch Hill in Rhode Island to Montauk Point on Long Island. Therefore, federal law prohibits the discharge of untreated sewage from vessels in all of Long Island Sound. Within an adopted NDA, discharge of certain treated waste is also prohibited. Specifically,

boats with Type I and Type II Marine Sanitation Devices (MSDs) (known as "treat and discharge" systems) may not discharge treated effluent in a NDA. Only Type III marine sanitation devices (i.e. holding tanks) can be used legally in a

NDA. Portable toilets with integral holding tanks (not technically MSDs because they are not "installed") may also be used on vessels in a NDA. These combined prohibitions of untreated and certain treated discharges are intended to provide the greatest possible protection for Connecticut's water quality.

As early as 1977, DEP requested that EPA designate near shore areas of LIS as no discharge zones. That informal application, and a second more limited proposal in 1980, were both rejected due to the lack of existing pumpout facilities. The state Legislature weighed in on this issue in 1990 and 1991 with the passage of P.A. 90-173 and P.A. 91-333 establishing state No Discharge Zones in several harbors along Connecticut's coast. However, without federal approval, enforcement of this prohibition of vessel discharges within these zones was questionable.

The department endeavored to remedy that insufficiency by developing a pumpout plan and, in 1993 and each year since, applying for and receiving funding through the federal Clean Vessel Act (CVA) Program to establish pumpout facilities. Federal CVA funds are contributed by boaters and anglers through payment of federal excise taxes, import duties and tariffs. By 2003, a sufficient number of pumpouts were installed to qualify for designation of our initial federally approved NDA off of Stonington (see Issue No. 12 of *Sound Outlook* at [www.ct.gov/dep/lis](http://www.ct.gov/dep/lis)). With approval of the final NDA segment from Branford to Greenwich we now celebrate NDA status for all Connecticut waters.

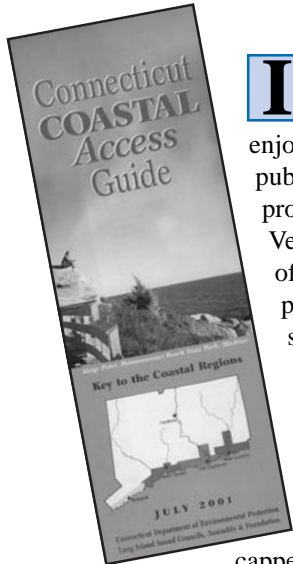
The more recent push to establish NDAs in Connecticut started with the recognition that Rhode Island had received federal approval of NDA designation for all of its coastal waters. It made little sense to have a line drawn down the Pawcatuck River at the state boundary with Rhode Island, on our side of which untreated or poorly treated sewage could be discharged legally, while on theirs it could not. That situation is now reversed in a sense, as Connecticut is encouraging the managers of New York state environmental programs to pursue extension of the Connecticut NDA to their side of the Sound.

For further information about No Discharge Areas or the Clean Vessel Act Program, contact Rick Huntley at 860-424-3609 or by email at [rick.huntley@po.state.ct.us](mailto:rick.huntley@po.state.ct.us).

If you did not receive this issue of *Sound Outlook* in the mail and would like to be placed on the mailing list, please send your name and address to: *Sound Outlook*, Connecticut DEP, Office of Long Island Sound Programs, 79 Elm Street, Hartford, CT 06106-5127; or email your address to [laurie.valente@po.state.ct.us](mailto:laurie.valente@po.state.ct.us).

# SPOTLIGHTED Coastal Access:

## Marinas Reduce NPS Pollution and Provide Public Access



**I**f you are a recreational boater, you can help to reduce nitrogen inputs to Long Island Sound and, at the same time, enjoy the fruits of another important DEP initiative – the coastal public access program. Parallel to the No Discharge Zone program highlighted on the opposite page, Connecticut’s Clean Vessel Act (CVA) Program provides for the siting and operation of pumpout stations at coastal marinas - the responsible pumping of vessel holding tanks removes a small but significant source of nitrogen input to the Sound. And, a number of coastal marinas that provide slips or moorings and free pumpout facilities for transient boaters also offer opportunities for shore-side public access, as described below. All of these sites are handicapped accessible, and are

described in the *Connecticut Coastal Access Guide*, available online at <http://www.lisrc.uconn.edu/coastalaccess>.

- Captain’s Cove Marina in Bridgeport offers a public wharf with waterfront shops and historic attractions. The site affords views of Black Rock Harbor, where the great variety of recreational and commercial vessels that ply this busy waterway may be seen. A picnic area is available, with opportunities for scenic and wildlife observation.
- Milford Landing Marina in Milford is located at the head of Milford Harbor. A waterfront path and footbridge lead to trails on the opposite shore. A picnic area is provided, and fishing and wildlife observation are popular activities at this site.
- The Marina at American Wharf in Norwich is open to the public, although some site amenities (e.g., pool) are reserved for marina patrons. The site features harbor views, with benches and shaded rest areas comfortable lingering on a summer day.
- Mystic Shipyard West in Groton features a 50-foot wide public right-of-way from Essex Street easterly to the Mystic River, where wildlife is visible year round and where historic boats may often be seen navigating to and from nearby Mystic Seaport Museum. This is a working shipyard, so public access is limited.



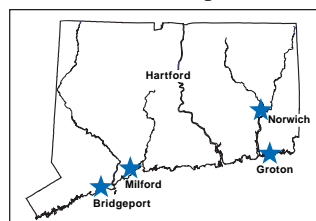
*Captain Cove Marina, Bridgeport*



*Milford Landing Marina, Milford*



*American Wharf Marina, Norwich*



Additionally, two of these facilities – Milford Landing Marina and Mystic Shipyard West have been designated Certified Clean Marinas, while Captain’s Cove Marina has pledged to become a Clean Marina. Connecticut’s voluntary Clean Marina certification program encourages operators of inland and coastal marinas, boatyards, and yacht clubs to minimize water pollution and air emissions, and to exercise proper handling of solid and hazardous waste, through the implementation of best management practices for hull maintenance, engine repair, wastewater discharge, winter storage, fueling operations, and other related activities.

For more information about the CVA and Clean Marina Programs, contact Rick Huntley at 860-424-3609 or by email at [rick.huntley@po.state.ct.us](mailto:rick.huntley@po.state.ct.us).

## LOOK OUT

for upcoming events!

### Norwalk Maritime Aquarium

10 North Water St., Norwalk, CT  
Call 203-852-0700 x2206 for information, costs and registration:

#### *Winter Creature Cruises*

**Alternating weekends in Feb. and Mar. (dates TBD); 2-1/2 hr cruises.**

View seals and winter waterfowl. Passengers must be 42 inches tall. Bring binoculars and dress warmly.

#### *Marine Life Study Cruises*

**Saturdays and Sundays, April-May; 2-1/2 hour cruises.**

Collect and study marine life in Norwalk Harbor aboard *RV Oceanic*. Passengers must be 42 inches tall.

**March:** Migrating osprey return to CT.

**April:** Striped bass migrate north to CT.

### Connecticut Audubon Coastal Center

Milford Point, Milford, CT

Call 203-878-7440 for info. and registration.

#### *The Return of the Piping Plover*

**Saturday, March 22, 10:30 AM**

Learn about endangered piping plovers and how to protect them.

#### *Earth Day Beach Clean-up*

**Saturday, April 19, 10:00 AM-1:00 PM**

Help clean shore for nesting shorebirds.

#### *Charles Island Explorations*

**Saturday, April 19, 4:45-6:15 PM**

**Saturday, May 3, 3:15-5:15 PM**

**Saturday, May 17, 3:30-5:30 PM**

Discover natural history and folklore.

Wear boots or sneakers that can get wet.

#### *Family Canoe Program*

**Saturday, May 24, 1:30-4:00 PM**

Guided tour of Charles E. Wheeler Salt Marsh. Time and route weather dependent – call to confirm.

**Please be sure to check the Calendar of Events listed on DEP’s website:**

[www.ct.gov/dep](http://www.ct.gov/dep)

## Putting Your LIS Plate Money to Work: Yale Study Traces Nitrogen Input to LIS

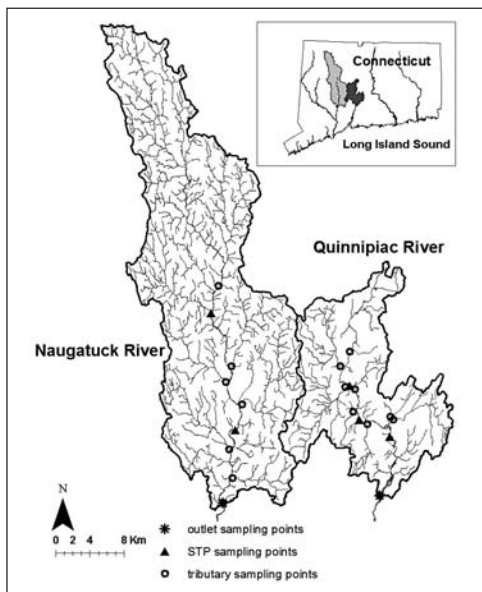
**T**he Long Island Sound Study has reported that recurring episodes of summertime hypoxia in bottom waters are a priority problem facing Long Island Sound. As the limiting nutrient for primary production in the Sound, nitrogen controls the amount of organic matter available for decomposition, and thus the degree of oxygen depletion. Excess nitrogen loading can also cause other problems in estuarine ecosystems, including changes in the base of the food web, harmful algal blooms, and loss of valuable submerged aquatic vegetation. Nitrogen in Long Island Sound is derived from a number of different sources, including sewage treatment plant discharges, leaking septic tanks, runoff from agricultural and homeowner fertilizers and animal waste, release from soils, and atmospheric deposition.

With a \$24,975.00 grant from the Long Island Sound Fund, Dr. Shimon Anisfeld of Yale University's School of Forestry and Environmental Studies conducted a study to determine whether individual nitrogen source contributions could be identified

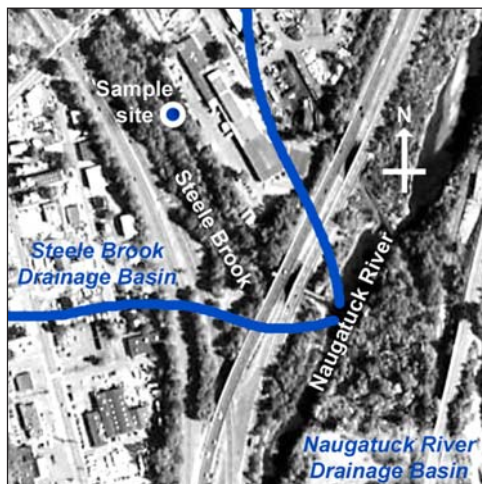
in rivers using naturally occurring isotopes of oxygen and nitrogen. This "fingerprinting" technique could be used to track the contributions of nitrate ( $\text{NO}_3$ ) from different sources. The study was conducted in the Quinnipiac and Naugatuck Rivers.

Dr. Anisfeld's research suggests that the isotopic source apportionment approach is able to provide rough estimates of the relative contributions of three different nitrate sources: sewage  $\text{NO}_3$ , atmospheric deposition of  $\text{NO}_3$ , and  $\text{NO}_3$  derived from soil nitrification (microbial nitrate). Soil nitrification is a component of nitrogen cycling within watersheds. For the Quinnipiac and Naugatuck River systems, the main source of nitrate to the tributaries is microbial nitrate, while the mainstems were largely sewage  $\text{NO}_3$ -dominated. A significant result from the source apportionment was the apparently very small role played by atmospheric deposition in these systems. However, microbial processing of nitrate in soils may mask the isotopic signal from deposited nitrogen, so the isotopic estimates of atmospheric contribution do not include the indirect contribution of atmospheric deposition to microbial nitrate.

This research provides us with an opportunity to consider isotopic source apportionment as a potential method for targeting nitrogen sources in specific watersheds that ultimately lead to Long Island Sound in an effort to reduce nit-rogen enrichment and improve overall water quality and estuarine health. For more information about this research, contact Dr. Anisfeld at [shimon.anisfeld@yale.edu](mailto:shimon.anisfeld@yale.edu).



*Study sites evaluated by Dr. Anisfeld, including outlets of the (non-tidal) watersheds, STPs where effluents were collected, and tributary sites including the upper portions of the mainstems.*



*A tributary site in Waterbury evaluated in Dr. Anisfeld's study*

## Sound Tips

The article on the following page discusses efforts to improve readiness for dealing with natural hazards along the New England coast. You can learn more about the history and science of coastal hazards in Connecticut and Long Island Sound, including hurricanes, nor'easters and other extreme weather events, in or at the following publications and websites:

Connecticut History Online, [The Eye of the Storm: A Journey into the Natural Disasters in Connecticut](http://www.cthistoryonline.org/cdm-cho/cho/journeys/j_infra_disast_intro.html), including photo essays:  
[http://www.cthistoryonline.org/cdm-cho/cho/journeys/j\\_infra\\_disast\\_intro.html](http://www.cthistoryonline.org/cdm-cho/cho/journeys/j_infra_disast_intro.html).

Records and references at the Connecticut State Library:  
<http://www.cslib.org/disasters.htm>.

[New England's Changing Climate, Weather, and Air Quality](http://www.neci.sr.unh.edu/necwaq.html#5), Climate Change Research Center, University of New Hampshire, Copyright 1998:  
<http://www.neci.sr.unh.edu/necwaq.html#5>.

NOAA's National Hurricane Center:  
<http://www.nhc.noaa.gov/HAW2/english/history.shtml#new>.

### Purchase of an LIS License Plate Supports the LIS Fund

#### As of 12/31/07:

- Plates sold: 137,870
- Funds raised: Over \$4.7 million
- Projects funded: 283

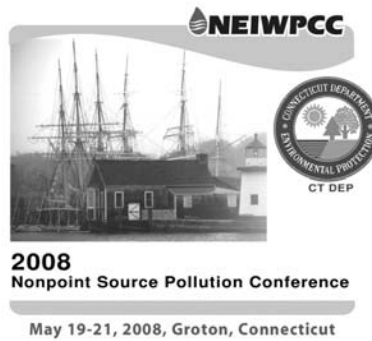
*The LIS Fund supports projects in the areas of education, public access to the shoreline, habitat restoration, and research.*

For information on ordering a Long Island Sound license plate, call 1-800-CT-SOUND.

View past issues of *Sound Outlook* at [www.ct.gov/dep](http://www.ct.gov/dep)

## Connecticut To Host Annual Non-point Source Pollution Conference

**F**rom May 19 to 21, 2008 the Connecticut DEP will host the 19<sup>th</sup> Annual New England NonPoint Source Pollution Conference. The conference is sponsored by DEP and the New England Interstate Water Pollution Control Commission (NEIWPCC) in cooperation with the nonpoint source (NPS) programs of the New England states, New York State, and EPA Regions I and II. The event will take place at the Mystic Marriot Hotel & Spa in Groton, CT. This year's theme is "PROGRESS THROUGH PARTNERSHIPS: COLLABORATING TO PROTECT OUR WATERSHEDS". The three-day conference will bring together all those in New England and New York State involved in NPS pollution management, including



participants from state, federal, and municipal governments, the private sector, academia, and watershed organizations.

The conference will offer a total of 19 presentations over 5 sessions, a poster session, two field trips, and a Storm Water Funding and Utility Development workshop. One field trip will tour agricultural sites and feature presentations on agricultural best management practices (BMPs); the other trip will focus on an Urban/Coastal NPS theme, with visits to several coastal sites including a certified Clean Marina and the Jordan Cove urban storm-water project. For information and conference registration materials, please

visit the NEIWPCC web site at <http://www.neiwpcc.org/npsconference/index.asp>

## Regional Ocean Governance -- Planning for the Future

**C**onnecticut is a participant in the recently instituted Northeast Regional Ocean Council (NROC), whose mission is to promote what is known as ocean governance among New England States and the Atlantic Provinces of Canada. Regional ocean governance is a mechanism established by a coalition of states, in conjunction with the federal government, to address ocean and coastal issues that cross political boundaries. Regional councils such as NROC, the creation of which was proposed by Rhode Island in 2005, were called for in both the 2004 U.S. Ocean Action Plan and the U.S. Commission on Ocean Policy's 2004 report, *An Ocean Blueprint for the 21<sup>st</sup> Century*, and were developed with support from the National Ocean Council.

NROC collaborates directly with the President's Ocean Policy Committee and its Subcommittee on the Integrated Management of Ocean Resources (SIMOR) to communicate the northeast region's needs to the U.S. federal government, and to address ocean-related issues of national scope in the northeast. SIMOR has designated the National Ocean and Atmospheric Administration (NOAA) and the U.S. Dept. of the Interior to be the lead federal agencies to work with NROC. Commissioner McCarthy has designated Brian Thompson, the Director of the Office of Long Island Sound Programs to,

represent DEPOn the Council.

NROC has identified four goals, or areas of emphasis, which will be developed respectively by different Council members. Connecticut is partnering with the states of New York, Rhode Island and Massachusetts in the *Southern New England/New York Ocean Partnership* to work toward the goal to Render New England a "Coastal Hazards Ready" Region. The other NROC priority issue areas, led by representatives of other states and organizations are (1) Ocean and Coastal Ecosystem Health, 2) Ocean Energy Planning and Management, and 3) Maritime Security in New England.

To make New England a Coastal Hazards Ready Region, it is envisioned that state-of-the-art data and tools would be provided to existing federal, state and municipal programs to help them advance planning and response to storms, shoreline erosion, and coastal inundation due to projected sea level rise from global warming, and to address the environmental impacts of those events. Infrastructure of tremendous importance to all of the New England region, such as highways, rail lines, and ports are threatened by such storms and inundation, the resulting damage from which would have major and long-term implications for the New England economy and New England's coastal residents.

The data and tools to be provided would include, among many others, (1) an integrated ocean observing system (IOOS) that supports storm, storm surge and inundation forecasting and response, (2) promotion of a regional dialog on broad-scale adaptation strategies for responding to the effects of sea level rise, and (3) collaboration on mitigation strategies for various hazard scenarios, including potential liquefaction from moderate to large earthquakes.

To date, NROC has undertaken a number of actions in the interests of furthering regional ocean governance in addition to those described above. A Northeast Regional Ocean Congress of government officials, scientists and NGO representatives was convened in 2007 to identify Action Items with which to meet the four NROC goals. NROC secured passage in 2007 of a resolution by the New England Governors' Conference/Eastern Canadian Premiers to produce annual regional ocean management priorities statements. And, with the assistance of NROC, the governors of Connecticut and the other New England states have requested Congressional funding to support pursuit of the NROC goals.

For more information on NROC, contact Ron Rozsa at 860-424-3034 or by email at [ron.rozsa@po.state.ct.us](mailto:ron.rozsa@po.state.ct.us)




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## *Then & Now: LIS and the Law of the Sea*

**C**itizens living near and around Long Island Sound have long had an interest in access to and use of the oceans around us. The ‘freedom of the seas’ concept, developed by the 17<sup>th</sup> century Dutch jurist Cornelius Bynkershoek limited national rights to the ocean to the belt of water extending three nautical miles from a nation’s coastline, according to the ‘cannon shot’ rule. All waters beyond that boundary were considered ‘international’ waters – free to all nations, but belonging to none of them. At that time, a slot of water extending down the middle of the Sound would have been considered international waters.

In 1945, President Harry Truman, responding in part to pressure from domestic oil interests, invoked the international law principle of a nation’s right to protect its natural resources and established full United States territorial control over LIS and similar bays & harbors along the coast. Soon after World War II, several nations joined the U.S. in extending their territorial seas out to 12 nautical miles. By 1967, 66 nations had set a 12-mile territorial limit and 8 had set a 200-mile limit. The U.S. Exclusive Economic Zone (EEZ), which extends 200 miles seaward from the “baseline” across the mouth of the Sound from Rhode Island to Long Island, was established by a presidential proclamation in 1983.

As the international community recognized the need for updating the ‘freedom of the seas’ doctrine to take into account technological changes affecting man’s relationship to ocean resources, the United Nations convened the Law of the Sea Conference from 1973 to 1982. The conference culminated in the adoption of the United Nations Convention on the Law of the Sea (UNCLOS), also known as the Law of the Sea Treaty. The Convention came into force in 1994. Today, 155 nations have ratified the Treaty while the US, along with 66 other nations, has consented only to the portions of the Convention relating to the conservation and management of straddling fish stock (fish populations that straddle the boundary between a country’s exclusive economic zone and the high seas beyond), and stocks of highly migratory fish stocks that have a wide geographic distribution, and migrate significant but variable distances across oceans for feeding or reproduction. 

Visit the DEP website at [www.ct.gov/dep](http://www.ct.gov/dep).

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