



Alexander B. Grannis  
Commissioner

**M E M O R A N D U M**

TO: Christopher Amato, Assistant Commissioner

FROM: Patricia Riexinger, Director, DFWMR

SUBJECT: MONTHLY REPORT - June 2008

DATE: August 1, 2008

***Information and Extension***

Train the trainer: On June 18, Central Office Fisheries Outreach Staff trained DEC Summer Camp Staff at Pack Forest from 10 am to noon. Camp staff were given a presentation on fish species, fishing tackle, and basic fishing techniques. After the training, the camp staff were given the opportunity to fish so that the lessons learned would be reinforced. Staff left Pack Forest and immediately traveled to Silver Bay on Lake George to help train DEC Campground Educational Staff in fishing techniques and to schedule programs at DEC Campgrounds during summer weekends. Finally, on June 24 staff returned to Pack Forest to conduct training in fly fishing techniques. Dannielle Perry, the camp manager, requested the training so the camp could provide additional options for camp attendees. In support of the fishing programs at DEC Campgrounds and DEC Summer Camps, staff distributed 120 spincasting rods to DEC Campgrounds and five fly rods to Pack Forest. Central Office Fisheries Outreach Staff will also visit most of the campgrounds and summer camps to deliver programs throughout the summer.

*Bureau of Fisheries*

Greg Kozlowski

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NY Natural Heritage has reviewed more than 400 project sites in FY 09 - The New York Natural Heritage Program screens the sites of proposed projects and actions for potential impacts on rare animals, rare plants, and significant natural communities (habitat types). During the first quarter of FY 08-09, from April 1 through June 30, Tara Seoane and Jean Pietrusiak reviewed 465 project sites. Most screening requests are turned around in less than two weeks. For the FY 07-08, a total of 2,048 sites was screened, three percent more than in the previous year. The reports and maps we provide enhance the ability of municipalities, state agencies, regulators, planners, developers, and landowners to make decisions that benefit or minimize deleterious impacts on New York's imperiled plants and animals and significant ecosystems.

*Bureau of Habitat*

Tara Seoane

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## *Information and Extension*

Bear Workshop - Personnel in the Department's Bureau of Wildlife, Division of Law Enforcement, and within the Office of Parks, Recreation and Historic Preservation are frequently called upon to handle problem black bears throughout New York State. In recent years, the number of black bear complaints has increased, especially in the central and western parts of New York. For this reason, the Division planned and hosted a black bear handling and aversive conditioning workshop at Allegany State Park. The objective of this training was to describe state-of-the-art methods found to be effective in deterring black bear damage in the first place, and to teach responsible practices for handling individual animals. Over 60 professionals participated in this training session. They received extensive training on black bear behavior, use of appropriate equipment, interacting with the public and other agencies (e.g., local police departments), and capture and handling techniques. The training included the actual handling of a problem black bear frequenting camp grounds in Allegany State Park. In addition to New York State personnel, representatives of the Seneca Nation of Indians also participated. Key staff are now better prepared to deal with the often complex problems associated with an abundant (and growing) bear population in New York State.



*Bureau of Wildlife*

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## *Non-native Species*

Invasive water chestnut discovered: During a routine electrofishing survey of Swan Pond in Calverton on June 11, a small patch of water chestnut (*Trapa natans*) was discovered. This plant can grow three meters deep and can successfully compete with many aquatic plants. While this exotic invasive species is a common problem in the Hudson River and other parts of New York State, it is practically unknown on Long Island. This is the first confirmed sighting in Suffolk County.

The plant was observed by Norman Soule from Cold Spring Harbor Fish Hatchery and Aquarium, who was assisting with the electrofishing survey. Tim Green from Brookhaven National Laboratory and Rob Marsh, Regional Habitat Manager, confirmed the identification. Because the infestation was believed to be small and this was the first sighting in Suffolk County, removal of this infestation was put on priority. Bureau of Fisheries and Habitat staff and DEP worked together to modify an existing invasive removal permit to allow hand removal of the water chestnut. On June 17, Bureau of Habitat staff worked with the Bureau of Fisheries staff to map and carefully hand remove all of the water chestnut plants that could be found. All seeds that were observed were also removed.

Water chestnut was documented and removed at 11 locations in the pond. In total about 120 plants, filling two large garbage bags were removed. The map of water chestnut locations was provided to Suffolk County Parks (the landowner) and to LIISMA, the PRISM handling invasive species monitoring on Long Island. The Regional Fisheries Unit will work with both of these entities to ensure that the pond is monitored in the future to catch any possible regrowth of water chestnut.

*Bureau of Fisheries*

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## ***Protection***

Cormorant Control on Lake Champlain - Lake Champlain double-crested cormorant population management efforts continue. Corn oil was applied to prevent the eggs from developing in 2221 of the 3811 cormorant nests counted on Four Brothers Islands. DEC staff have also taken 378 cormorants by shooting at a nesting colony on Crown Point to discourage nesting at this location and reduce the lakewide population. This population control effort will continue through the summer on Lake Champlain, Lake George, and other waterbodies in the Region, until a permitted take of 500 cormorants is reached.

Cormorant populations have expanded rapidly and are being managed to mitigate negative impacts resulting from their high population densities. Guano from nesting cormorants kills the vegetation that other species such as herons and egrets utilize for nesting cover. Cormorants are also efficient fish predators. When they occur in high numbers, they can create competition for limited fish resources with other fish-eating birds such as herons, egrets and terns, large predatory fish and fishermen. There is also concern that high predation rates by cormorants may impact recruitment of larger fish into the fishery.

*Bureau of Wildlife*

Ken Kogut

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Vernal Pools - The Hanging Bog WMA in the Town of New Hudson in Allegany county is one of the most intensely managed areas in the state. Several habitat management practices have been implemented on this 4571 acre area which includes timber management, grassland development, and wetland enhancement.



One of the primary objectives of the area is to maintain diverse and abundant wildlife populations including amphibians and reptiles. In this regard, three new vernal pools were constructed in June of 2008 in addition to the ten that were constructed in 2004. All of the vernal pools were constructed by NYSDOT. They were completed for federal wetland impact mitigation in conjunction with the State Route 305 bridge removal and the Interstate 86 road construction projects in Cuba, NY as identified by the US Army Corps of Engineers.

In the fall of 2004, SUNY ESF Syracuse students conducted a preliminary amphibian survey of the vernal pools. The following species were observed: redback salamander, dusky salamander, spotted salamander, red spotted newt, wood frog and toad.

*Bureau of Wildlife*

Emilio Rende

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## ***Recreational Use***

Temporary repairs help mitigate unsafe conditions at a boat launch: The Raquette River Boat Launch has long been in need of repair. Although the boat launch will soon be completely reconstructed, some short term repairs were required due to unsafe conditions. Bureau of Fisheries and Division of Operations staff teamed up with Student Conservation Association (SCA) volunteers June 16-20, 2008, to conduct this much-needed work. Conservation Operations Supervisor Gerald Kavanagh and Senior Biologist Leo Demong were the Department staff involved in the repair work. Sincere thanks to the SCA volunteers for a difficult job well done. Planned renovations for the site include low profile shoreline protection constructed with stone and native plant species.

*Bureau of Fisheries*

Leo Demong

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## *Recreational Use*

New York sues NMFS over Summer Flounder. Following publication of the final federal rule establishing state-by-state conservation equivalency management measures for the summer flounder recreational fishery, the State Attorney General's Office filed a petition, on behalf of the department, to have that rule vacated in favor of the backup coastwide management measures for the fishery. If the petition succeeds, the recreational size limit, possession limit and season for summer flounder will be the same for the states from North Carolina to Maine. If it fails, we will continue to be subject to management measures based upon the MRFSS estimates of angler harvest on a state-by-state basis. A review of MRFSS and similar state surveys found that these surveys do not provide an adequate basis for state-level management of recreational fisheries.

*Bureau of Marine Resources*

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47th SAW/SARC for Summer Flounder. The Northeast Regional Stock Assessment Workshop or SAW is a formal scientific peer-review process for evaluating and presenting stock assessment results to managers. The SAW protocol is used to prepare and review assessments for fish stocks in the offshore US waters of the northwest Atlantic. Assessments are prepared by SAW working groups (federally led assessments) or ASMFC technical assessment committees (state led assessments) and reviewed by an independent panel of stock assessment experts called the Stock Assessment Review Committee or SARC. The SARC is asked to determine the adequacy of the assessments in providing a scientific basis for management. If the panel accepts an assessment, the SAW report will include an assessment summary and a chapter providing details on the assessment development and results. In addition, each panelist provides a review and the panel provides an overall summary of the proceedings.

The 47th SAW/SARC was convened on June 16 at the Northeast Fisheries Science Center in Woods Hole, Massachusetts specifically to address summer flounder. The reports from this meeting will not be final until the week of the next meeting of the Mid-Atlantic Fishery Management Council in early August. It is at this meeting when the Council, together with the ASMFC's Summer Flounder Management Board, will make some decisions about management of summer flounder in 2009, specifically with regards to the coastal Total Allowable Landings for next year. The results of the SAW/SARC will be presented at this meeting, along with recommendations from the Council staff and Monitoring Committee on the 2009 TAL. Rumors are rampant that the SAW/SARC report, if accepted, will show that the summer flounder stock is no longer overfished and that overfishing is not occurring, and that the recommendation for next year's coastal TAL will be four million pounds higher than this year. This is startling, considering the dire news that has been coming from scientists for the past several years. The recommendations, and reasoning, will be revealed in August.

*Bureau of Marine Resources*

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## ***Recruitment***

Wayne Richter joins the Bureau of Habitat! - Please welcome Wayne Richter to the Bureau of Habitat. Wayne returns to the Department after a four-year stint with the Department of Health where he worked on water supply issues including assessing potential adverse health impacts of disinfection by-products. Many of you know Wayne from his numerous years in our Division working as the technical project leader for the Division's GIS system or, prior to that effort, his work as the Habitat Protection Biologist in Region 2.

Wayne joins us in a new role as a Research Scientist 3 and the Division's project leader for the Hudson River PCB remedial project. His expertise with habitat issues, including habitat restoration, his project management and data management abilities, and his proactive style will be both necessary and welcome in helping assure that the remediation and restoration of the Hudson River will be successful.

*Bureau of Habitat*

Larry Skinner

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## ***Research and Monitoring***

2008 Lake Ontario Spring Preyfish Surveys: Each year, staff from the Cape Vincent Fisheries Station (R/V Seth Green) and the USGS Lake Ontario Biological Station (R/V Kaho) conduct bottom trawling to assess the status of alewife and rainbow smelt populations, the main forage for trout and salmon in Lake Ontario. Over 190 tows are conducted annually during the surveys in April/May (alewife) and May/June (smelt). Preliminary results for 2008 indicated a rebound in the abundance and biomass of alewife, while rainbow smelt numbers continued to decline.

In 2008 the adult alewife numerical index increased 225% over 2007 and 670% over the record low observed in 2006. Catch of yearlings also increased although the yearling index value was still relatively low (9th lowest).

For the second consecutive year, rainbow smelt abundance and biomass indices were the lowest on record in the 30-year time series. Based on preliminary observations, there were very few smelt greater than 150mm, indicating that few fish remain of the 2003 year class which is the last year to produce a noteworthy cohort. With very few adult smelt present in the population, reproduction in 2008 is also likely to be low and a population rebound in the near term is doubtful.

Although each of the spring surveys targets one species of fish, catches of non-target fish are also useful for documenting the increasing abundance of invasive species like the round goby (*Neogobius melanostomus*). After a brief break in population increase of round gobies in 2006, both numbers and biomass have continued to rise in the last two years. Biomass indices for round goby are now over two times that of rainbow smelt. Round gobies have been captured at depths over 100 meters.

*Bureau of Fisheries*

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## Research and Monitoring

PISCES: Simple Yet Elegant Monitoring Tool for Griffiss Air Force Base - As part of the remediation of the former Griffiss Air Force Base (Rome, NY), the US Air Force is required to conduct long-term monitoring of Three-mile and Six-mile Creeks, including sampling and analysis of surface water, sediment, fish tissue, and benthic macroinvertebrate communities. The monitoring aims to determine whether removal of contaminated sediments has eliminated PCBs (polychlorinated biphenyls) from the water column and reduced bioaccumulation of the contaminant in fish. Monitoring results from 2007 indicated that PCBs were still present in fish from Six-mile Creek after remediation, but the source of the PCB is unknown. In June, DEC biologist Tim Preddice and intern Devon Oliver bolstered the monitoring by deploying and retrieving passive in-situ chemical extraction samplers (PISCES) throughout the two streams. This inexpensive and simply constructed sampling device is an invaluable addition to long-term monitoring because PISCES samplers concentrate surface water contaminants such as PCBs, which often go unnoticed during routine surface water sampling due to high laboratory detection limits. An additional benefit of PISCES is its ability to track down potential PCB sources since surface water concentrations tend to increase closer to the source. Results of PISCES sampling are expected later this summer and will be used to focus the Air Force's post-remedial monitoring toward finding and eliminating the continuing source of PCB to Six-mile Creek.



*Bureau of Habitat*

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Southern Shawangunk Ridge Ecological Communities Mapping Completed - The Natural Heritage Program has completed the second and final phase of creating a seamless GIS map of the natural and developed lands in the southern Shawangunk Ridge. This portion of the ridge covers approximately 148,000 acres. The second phase focused on the northern section (about 38,000 acres) and resulted in 21 days in the field over the 2006 and 2007 field seasons, 266 field observation points, and 2,649 mapped polygons. Seven significant natural communities were updated during this process, including hemlock-northern hardwood forests on the western slopes of the ridge, two floodplain forests on the Shawangunk Kill and Bashakill, and the extensive chestnut oak forest that extends the length of the ridge (totaling 40,038 acres). Two rare species of grass, smooth wild rye and wood reedgrass, were found and identified in the study area; wood reedgrass is known only from New York. The results of this project will help to facilitate future inventories and the monitoring and management of natural resources in the southern Shawangunk Mountains. This project was funded by the NYS Biodiversity Research Institute.

*Bureau of Habitat*

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Happenings From the Field: Update on tree swallow and mallard PCB Studies - For the Hudson River Natural Resource Damages (NRD) Unit, the close of the month of June brought a close to this year's tree swallow/blue bird box monitoring project and Hudson river mallard nest searching. Over the past two months, SUNY Cobleskill intern, Chris Nevius, and biologist, Sean Madden, monitored tree swallow boxes along the Upper Hudson near Ft. Edward and collected a large number of eggs that were then transported to the University of Maryland. Some of the eggs are used for contaminant analysis, while others are incubated and brought to hatching to test for PCB effects on the species. Blue bird eggs have also been collected from the Upper Hudson study sites and included in this year's analysis. Researchers from the University of Maryland have been injecting tree swallow eggs from a reference colony in Cobleskill with varying concentrations of PCBs. The injections of controlled levels of PCBs will allow for a better understanding of the effects that PCBs have on the species, including reproductive ailments, bursa weight, and immune structure deficiencies.



The Mallard nest searching has been going slowly and the nesting structures placed along the Upper Hudson River have not produced this year; however, the NRD Unit

## **Research and Monitoring**

was able to collect one more mallard egg this month, bringing the total for the year to four mallard eggs for PCB analysis. In addition to monitoring the nesting structures, the NRD Unit has searched areas with promising mallard nesting habitat, observing any female mallard hens that lift from their nest. Most of the nests found during this field season were the result of helpful tips from the public.

*Bureau of Habitat*

Chris Nevius and Sean Madden

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DEC's "BTA" Determination in Danskammer Permit Upheld in Court - On June 19, 2008, the New York State Supreme Court Appellate Division determined that DEC was not arbitrary and capricious when it required variable speed pumps and river flow regulation as the best technology available (BTA) for reducing aquatic impacts at the Danskammer Generating Station located on the Hudson River in Newburgh. The State Pollutant Discharge Elimination (SPDES) permit renewal was challenged by Riverkeeper and others on several issues including an allegation that DEC's use of the full-flow capacity (operating 100 percent of the time) for calculating adverse impact to aquatic resources improperly minimized the actual impact. The full-flow operating condition is the worst case scenario for the calculating numbers of fish potentially subject to impingement and entrainment at the station and has been included as a condition in over a dozen power plant SPDES permits. The Court's finding that DEC acted properly is important because it validates the use of full-flow capacity as the baseline and allows staff to consistently apply the requirements for minimizing aquatic resource impact at power plant cooling water intake structures throughout New York. For more information on the Commissioner's Decision on the Danskammer permit, please visit [www.dec.ny.gov/hearings/11167.html](http://www.dec.ny.gov/hearings/11167.html)



*Bureau of Habitat*

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Wetland 'Basemapping' Under way in Three Watersheds - The creation of new basemaps on which to show regulated NYS DEC freshwater wetlands has begun in three watersheds - the Lower Genesee (Livingston and Monroe counties), the Oneida River/Oswego River (Oneida and Madison counties) and the Walkkill (Orange and Ulster counties). A change from the existing wetland maps, the new ones will include other valuable natural resource features and an improved road network. The basemap work is being done by SUNY Albany interns, Eryle Bixler and David Mark, under the guidance of Peter Gradoni, Bureau of Wildlife, Habitat Inventory Unit. To date they have completed one third, or 40 of the 120 quad maps needed. The next step is to use these maps to help identify missing wetland and produce updated NYS Article 24 Freshwater Wetland Maps. This work is being funded by a three-year grant from the Environmental Protection Agency (EPA).

*Bureau of Habitat*

Peter Gradoni and Judy Marth Stevens

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Wetland Map Amendments Completed - June 18, 2008 marks the official completion date for six amendments affecting one Erie County and four Niagara County wetland maps. The amendments consist of a boundary revision to a previously mapped wetland along with the addition of five new wetlands. Approximately 250 landowners were affected by the addition of 170 acres of newly regulated wetland.

*Bureau of Habitat*

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## ***Research and Monitoring***

Northeast Moose Meetings Attended - Two biologists from the Bureau of Wildlife attended the Northeast Moose Technical Committee meeting in Yarmouth, Nova Scotia, and a meeting of Northeast states moose biologists in Concord, New Hampshire. The Yarmouth meeting brought together moose biologists from Eastern North America to compare management strategies and research results. Chuck and Ed presented the status of moose in New York and updated the group on our moose activities for the year. The State's moose population is now estimated at about 500 and is expected to increase rapidly in the next 5-10 years. The New Hampshire meeting was arranged by the New Hampshire Fish and Game Department as a first meeting to develop regional moose habitat and population models. Biologists from all states in the Northeast discussed current population assessment techniques and habitat assessments. The group developed a plan to create a regional moose habitat quality map using existing U.S. Forest Service forest inventory data and geographic information systems. Each state will follow a template so the data is created in a consistent manner across the region.

*Bureau of Wildlife*

Ed Reed

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Colonial Waterbird Surveys - Region 6 Fish and Wildlife staff recently completed a count of gull nests on Little Galloo Island in Lake Ontario as part of a larger Great Lakes-wide waterbird census. Little Galloo has long been noted as one of the larger waterbird colonies on the Great Lakes in terms of overall bird numbers. During the 2008 census, 37,465 ring-billed gull nests were observed, and 375 herring gull nests also were tallied. Double-crested cormorant and caspian tern also nest on the site, but will be counted later to coincide with peak incubation periods. Ring-billed gull numbers observed on Little Galloo this year are substantially lower than the 52,000+ counted during the last survey in 1998. Reasons for the decline are not fully known, although Type E botulism loss, expansion of herring gulls (up 100 nests from 1998), and changes in forage availability may be contributing factors. It is not uncommon for waterbird colonies to change in size and composition of species over time.

*Bureau of Wildlife*

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## ***Restoration***

Wild brook trout enhancement work in ASP: Fish population sampling was done on two streams in Allegany State Park prior to habitat improvement work. The first stream, McIntosh Brook, where the habitat work will be done, was sampled at 23 sites. As expected, we found low numbers of adult wild brook trout because of very limited available habitat. Disappointingly, we found only one young-of-year brook trout and no yearlings in the stream. In the other stream, Beehunter Creek, which is being used as our "control stream" and has better habitat, we found moderate numbers of adult wild brook trout with low numbers of young-of-year and yearlings at 12 sites. It is likely that the low numbers of brook trout from the 1997 and 1998 year classes are a result of environmental conditions during the spawning and/or incubation periods in the fall and winter. Fall 1996 had very high flows and fall 1997 had extremely low flows. Both conditions can negatively affect the success of spawning. In July and August, DEC Fisheries in cooperation with ASP, USFWS and Trout Unlimited will be building pool digging structures at 17 sites along the stream to create deep water, adult trout habitat. These will be fairly simple structures and the work will be done completely by hand and with light, portable machinery. We will evaluate how this project changes stream habitat and trout populations from 2009-2011. This project is being funded by a grant from the Eastern Brook Trout Joint Venture and is the only project that received a grant in NY this year. Due to the low numbers of brook trout encountered during the survey, DEC recommends that anglers not fish this creek until the population recovers.



*Bureau of Fisheries*

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## Restoration

Peconic Partners Embark on Third Successful Invasive Eradication Season. The Peconic Estuary Program (PEP) and its many partners (DEC's Regional Fisheries Unit, Suffolk County Department of Health Services, The Nature Conservancy, Peconic Lake Estates Civic Organization, Freshwater Anglers of Long Island, Long Island Bassmasters, etc.) have entered the third year of their volunteer driven Ludwigia eradication effort in the Peconic River.



The success of this Early Detection Rapid Response (EDRR) project has well surpassed anticipated expectations. Routine monitoring conducted by PEP Ludwigia interns, and as witnessed at the June 2008 Pull Weekend, document that previously concentrated efforts have removed all large infestations in Peconic Lake, which have not resurfaced after two years. Since the initiation of the eradication effort in the spring of 2006, over 122 cubic yards of Ludwigia have been removed, and another removal event has been scheduled for July 12 and 13, 2008. The July event will rely on volunteers removing small infestations in river impoundments downstream of Peconic Lake. After the July event, it is hopeful that only minor maintenance pulling will be necessary. Ludwigia peploides, more commonly known as water primrose, is a South American species that first emerged in the Peconic River in 2003. This aquatic non-native invasive plant, which grows primarily on the waters surface, spreads rapidly in warm weather months and can often take over entire slow-flowing waterbodies. Ludwigia poses a major threat to the Peconic River as it acts as unsuitable fish habitat, out competes native plants, reduces biodiversity, blocks sunlight to oxygen producing submerged plants, and severely impedes recreational uses of the river. Grants from the New York State Department of Environmental Conservation and the New York Chapter of the Corporate Wetlands Restoration Partnership are supporting this effort.

*Bureau of Marine Resources*

Laura Stephenson

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## Staff Development

Emerging Environmental Concern: Brominated Flame Retardants - Brominated Flame Retardants (BFRs) such as polybrominated diphenyl ethers (PBDEs), hexabromocyclododecane (HBCD) and tetrabromobisphenol A (TBBPA) have been emerging as an environmental concern over the last ten years because of their persistence, wide distribution in the environment, and potential toxicological impacts on humans and wildlife. Biologist Dave Mayack of the Terrestrial Toxicant Research Unit recently attended the 10th Annual Workshop on BFRs to learn more about their potential effects on wildlife including bioaccumulation, which is not well understood. In the laboratory, BFRs and their metabolites have been implicated in toxicities, some of which affect thyroid and liver function, gonadal tissue steroidogenesis, DNA integrity and behavior; however, little is understood regarding the toxicological response of fish and wildlife in the environment. Although the production of several potentially more toxic PBDEs (penta and octa PBDEs) has been eliminated through regulation, they have been replaced by other compounds with unknown toxicological properties (HBCD and TBBPA). Although long-range transport has distributed these compounds globally, distribution of BFRs is usually centered near human populations. Relatively high levels of a number of these compounds are found in the Great Lakes Region, including Lake Ontario. Consequently, fish and wildlife of New York have great potential to be affected by BFRs.

Acquiring information on BFRs is important because BFRs are likely synergistic with other persistent organic pollutants such as polychlorinated biphenyls (PCBs), dioxins and dichlorodiphenyltrichloroethane (DDT) in the environment.

*Bureau of Habitat*

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## *Wildlife and Human Health*

Commercial Landings Rolling in Despite Low Trip Limits. In spite of program efforts to slow landings of federal quota-managed species with low commercial trip limits, landings continue to pile up with the threat of commercial closures looming if quota caps are reached. Several reasons for this are being investigated, including landings in other states being attributed to New York or double reporting by dealers. It is also believed to be related to a sagging local economy that has caused part-time and small-scale fishermen to make more trips to pay the bills. The affected fisheries are summer flounder, scup, black sea bass and bluefish. The fishery management plans for these species allow for quota transfer between states. We are seeking transfers of bluefish and black sea bass to help alleviate the situation. New York frequently requests transfers of bluefish quota, as other states seldom harvest their quotas of bluefish while the fish is an important and popular market item here.

*Bureau of Marine Resources*

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Shellfish Biotoxin. In May, the Bureau of Marine Resources (BMR) designated over 7200 acres of shellfish harvesting areas within and adjacent to the Town of Huntington as temporarily closed to shellfish harvesting after detecting a marine biotoxin (saxitoxin) in various species of shellfish (blue mussels, soft shell clams and hard shell clams). The closed areas, tributaries to Long Island Sound, are some of the most productive shellfish harvesting areas in New York State.

During June, BMR's Shellfisheries Section expanded its network of biotoxin monitoring locations in Northport Bay and Huntington Bay. Throughout June, the Shellfisheries program tested several dozen samples of shellfish - mussels, soft clams, hard clams and oysters - collected from the monitoring locations, harvested from inter-tidal areas by Shellfisheries staff, and collected by Shellfish Inspectors at commercial shellfish shippers regulated by DEC. In addition, shellfish from other harvesting areas outside the temporarily closed bays and harbors were also examined to verify that the biotoxin problem had not affected other areas.

BMR re-opened 5200 acres in Huntington Bay and Lloyd Harbor on June 14, after three consecutive shellfish samples, collected over a period of two weeks, were found to have STX levels that were undetectable or significantly lower than the action level of 80  $\mu$ grams/100 grams of shellfish meat. Those areas had been closed to harvesting since May 28.

On June 28, BMR re-opened the remaining 2000 acres in Northport Bay, Duck Island Harbor and Centerport Harbor after STX was determined to be absent or present at low levels that were not a threat to consumers. Those areas were initially closed on May 7.

Saxitoxin blocks sodium channels in the central nervous system, disrupting the transmission of electrical signals from nerve to nerve and to muscles. The effect is known as paralytic shellfish poisoning (PSP). Symptoms occur within minutes of consuming contaminated shellfish and can range from tingling or numbness in lips, tongue and face, in mild cases, to general loss of muscular coordination in more severe cases. In rare cases, fatalities have occurred due to paralysis of the diaphragm which causes the victim to stop breathing.

Serious PSP intoxications have been reported in individuals who ingested as little as 450 to 600  $\mu$ grams of saxitoxin. Prior to the re-openings, STX levels in mussels at one monitoring site exceeded 1400  $\mu$ grams/100 grams and STX levels in soft shell clams at another monitoring site approached 600  $\mu$ grams/100 grams. At the peak of this biotoxin event, a serving of as little as 35 grams (1.25 ounces) of blue mussels collected in the vicinity of one BMR's monitoring stations could have contained 500  $\mu$ grams of saxitoxin. Cooking does not destroy saxitoxin.

