Living Resources of the Inland Bays

The Inland Bays' warm, shallow mix of fresh and salt water creates a variety of habitats that support many species, including bald eagles, ospreys, waterfowl, blue crabs, clams and finfish. White-tailed deer, wild turkey and beaver are once again common inhabitants of the watershed. However, for a host of other plants and animals, the future is less certain in the face of habitat loss, poor water quality and other factors.

The bays, with an average depth of 3 to 8 feet, have no shortage of shallow water habitat favorable for many species of aquatic plants, fish, shellfish, crabs, scallops and worms - as long as the water is clear enough to permit sunlight to reach the bottom and levels of nutrients, primarily nitrogen and phosphorus, are kept in check. While nutrients are essential for the growth of all living organisms in the bays, excessive amounts degrade water quality and cause harmful algae and plankton blooms. An excessive level of nutrients is the most serious environmental problem facing the Inland Bays.

Runoff is another cause of poor water quality. Not only can it dump dangerous levels of chemicals from fertilizers and pesticides into the water, but it can also bring in topsoil. The tiny particles of dirt become suspended in the water, creating murky conditions that shut out the sunlight that sea grasses need to survive. When the soil finally settles to the bottom, it can smother tiny animals that live and feed in the top layer of the floor of the bays.

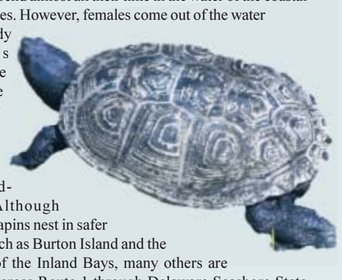
And playing the most critical role in the balance of the Inland Bays natural system? People. Lots of people want to live and/or recreate in one of the most beautiful parts of the state. Some manmade problems - habitat loss because of rapid development and nutrient pollution from farmland, sewage plants and septic systems - continue to degrade the water quality in the bays.

Blue Crabs

So named for their blue legs and particularly for the cobalt-colored claws of the males, the tasty crustaceans thrive in the salty seawater of the Inland Bays and its freshwater tributaries. Even though modern catches pale in comparison to past ones, blue crabs are an Inland Bays tradition and nothing is better than catching your own - whether it's with a hand line baited with chicken necks or by setting pots. Resident crabbers, regardless of method of take, are limited to one bushel per person per day. Only two crab pots are allowed per person.

Diamondback Terrapins

Diamondback terrapins are a brackish water turtle species that spend almost all their time in the water of the coastal salt marshes. However, females come out of the water onto sandy areas above the high tide line to lay their eggs between late May and mid-July. Although many terrapins nest in safer places, such as Burton Island and the beaches of the Inland Bays, many others are forced to cross Route 1 through Delaware Seashore State Park in order to find suitable nesting habitat. Unfortunately, many are killed by traffic before they can make it to the other side. Those that make it risk the same fate on the return trip. Please be alert when driving on Rt. 1 and watch for terrapins crossing the road.



A two-foot high wooden slat fence has been installed along an area where female turtles have been crossing the highway in large numbers to lay their eggs in sandy areas on the eastern side of the highway. Terrapin nests also are a favorite source of food for foxes, skunks and other animals. In the past, crab pots were a major cause of diamondback terrapin mortality. Adult terrapins would swim into the pots and get trapped. Since a terrapin needs to breathe air, it can drown if it's stuck under water too long. Since 2001 state fishery regulations have required "Turtle Excluder Devices," or TEDs, to be attached to the openings that lead into the crab traps. They change the shape and size of the openings so that turtles can't get in but crabs still can.

Bald Eagles

The Inland Bays watershed is home to the largest concentration of nesting American bald eagles in the state. More than a half dozen pairs nest in secluded areas along waterways with large trees and ample fish populations. Nest building usually begins in January and by late February or March they are incubating eggs. For eagles, the nesting season is long, with young birds sticking close to home until late summer. They feed on fish and waterfowl, though they won't pass up the easy pickings provided by dead animals or an opportunity to steal a fish from an osprey.

The species has recovered dramatically since it was put on the federal Endangered Species List in 1973. In 2002 there were 27 nesting pairs throughout the state, the highest number in Division of Fish and Wildlife records. However, the bird's sensitivity to human disturbance puts its full recovery on a collision course with shoreline development since most nests occur on private lands where protection is harder to achieve. There also is ongoing concern about contamination from organophosphates, the quality and quantity of forage fish, and disturbance to nesting and feeding adults.

Observing Nesting Birds

While some ospreys and eagles nest close to human habitations, most nesting birds are sensitive to human activity around their nests. It can even cause some birds, or whole colonies of birds, to abandon their nests. Some birds may find a new site and attempt to renest, but others may not find a suitable spot. If you come across nesting birds, give them space. When they are uncomfortable with your presence, they will fidget, call or leave the nest, often circling overhead and behaving in an agitated manner. Birds that fly away from a nest containing eggs or young provide an opportunity for predators such as gulls and crows to steal an egg or chick. If you notice any of these behaviors, move away until the birds settle down and watch from a safe distance. The continued survival of our native nesting birds depends on your courtesy and respect.

Submerged Aquatic Vegetation

Historically the Inland Bays had healthy populations of the submerged aquatic vegetation - algae and sea grasses such as eelgrass - that provide nursery and breeding habitat for aquatic life, including recreational and commercially important estuarine fish and shellfish. Due to hurricanes, coastal storms and declining water quality, eelgrass in the bays was all but eliminated by the early 1970s. Unexplainably, there has been a resurgence of bay grasses along the Delmarva Peninsula during the past two decades, prompting Delaware to transplant and restore eelgrass in Rehoboth Bay and Indian River Bay. Many newly established eelgrass beds have not only survived, but are now spreading and producing viable seedlings.

Importance of Underwater Grasses

- Underwater grasses such as eelgrass and widgeon grass filter polluted runoff, provide food for waterfowl, and provide habitat for blue crabs, juvenile rockfish (striped bass), and other aquatic species.
- They are one of the best barometers of the Inland Bays' water quality.
- Underwater grass beds are associated with clear water, and their presence helps improve water quality.
- Their leaves and stems baffle wave energy, help settle out sediments, and the roots and rhizomes bind the substrate.
- Underwater grasses also take up nitrogen and phosphorus that, in overabundance, lead to algae blooms that can impair water quality.
- Decomposing underwater grasses provide food for bottom-dwelling aquatic life.
- Improving water quality is key to restoring underwater grasses.
- Where water quality is good enough to support underwater grass survival, hands-on restoration efforts can help establish, expand, or diversify grass communities.
- DNREC scientists hope efforts to improve water quality and restore and protect underwater grasses will start an "ecological chain reaction" in which improved water quality promotes grass growth.

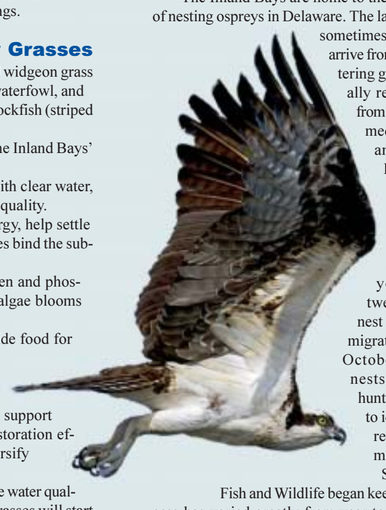
Waterfowl

A variety of ducks and geese use the Inland Bays and their wetlands as wintering habitat and resting areas along the Atlantic Flyway. Species that can be spotted, primarily in fall and winter, include buffleheads, mergansers and golden eyes. A large colony of Atlantic brant winters in Rehoboth and Indian River bays. Black ducks and mallards nest in spring and summer.

Loons arrive in fall and spend the winter diving for fish in Rehoboth and Indian River bays. They may be seen and heard in spring before they migrate north for the summer. Brown pelicans have increased in numbers in Delaware over the past 10 years. Small groups often feed in Indian River and Rehoboth bays or rest on exposed sandbars and marsh banks. The cormorant is a relative of the pelican which is common throughout the bays from fall to spring, and usually present in smaller numbers during the summer months. Look for them standing on sandbars with their wings spread wide.

Ospreys

The Inland Bays are home to the largest concentration of nesting ospreys in Delaware. The large fish-eating hawks, sometimes mistaken for eagles, arrive from South American wintering grounds in March, usually reunite with their mate from previous years, and immediately begin courting and nesting activities. Look for nests in tall trees or on channel markers, hunting blinds or man-made nesting platforms. After raising their young - usually between one and two per nest - they begin their fall migration in September and October. With their huge nests and dramatic fish-hunting skills, they're easy to identify and watch, and relatively tolerant of human activity.



Since the Division of Fish and Wildlife began keeping records, nest success has varied greatly from year to year but, overall, the population appears to be stable. However, increased pressure from human use and development of the area may sway the odds against them in the future.

Shorebirds

Shorebirds are small, long-legged birds that may be seen wading in the shallows along the edges of the bays and probing the mud with their bills for invertebrate prey. Three species nest around the Inland Bays. The most common is the willet, which nests along the edges of coastal marshes. The willet's brown plumage makes it easy to overlook, until it flushes from its nest or is frightened into flight. Its boldly marked black and white wings and loud noisy call distinguish this bird from most other shorebirds. The American oystercatcher is never easily overlooked. Its bold black, brown and white plumage and large red bill set this species apart. Oystercatchers nest in a variety of coastal habitats including ocean beaches, dunes and salt marsh islands. They feed mostly on clams, mussels and oysters. In spring and late summer more than 20 species of sandpipers and plovers stopover to feed during their migrations to and from Arctic breeding grounds.

Wildlife Buffer Areas

Certain areas of the Inland Bays provide critical nesting habitat. These Wildlife Buffers, which are marked on the map, support large numbers of nesting ospreys, eagles, herons, egrets, gulls, terns and other species. While entrance into these areas is not restricted, care should be taken to minimize disturbance to nesting birds. Avoid walking on the marsh and keep a safe distance from nest sites.

What Boaters Can Do To Protect Underwater Grasses

Protecting eelgrass habitat for fish and shellfish takes cooperation.

- Don't use clam rakes in areas where eelgrass grows.
- Avoid boating around eelgrass beds.
- Use marked navigational channels.
- Slow down in shallow areas to reduce wakes. This will prevent the erosion of shorelines and reduce water turbidity.
- Tilt engine up to lessen the effect of propeller wash on the bottom.
- Anchor outside eelgrass beds.
- Keep trash and pollutants out of the water. Clean up oil and fuel spills before they get into the water.
- Recycle used oil, filters, batteries and antifreeze.
- Use approved marine toilets, shore-based restrooms and pumpout facilities.
- If you are out-and-about in the watershed, kayaking, fishing, recreating, or just walking along the shoreline, look for underwater grass and let us know what you find. Report unmarked eelgrass beds to DNREC at 302-739-4590. Provide GPS coordinates if available.

Fish

The nutrient-rich waters of the Inland Bays are an important spawning and nursery area for commercial and sport fishing species including striped bass, weakfish, blue fish, summer flounder, spot and Atlantic croaker. Young fish take advantage of the shallow, protected waters, abundant food and relative safety from predators.

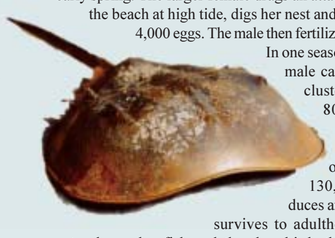
Summer Flounder

Striped Bass

Weakfish

Horseshoe Crabs

Looking like tiny armored tanks, horseshoe crabs - which are relatives of spiders and scorpions and not true crabs at all - migrate to the Inland Bays from nearby ocean waters in early spring. The larger female drags an attached male onto the beach at high tide, digs her nest and deposits some 4,000 eggs. The male then fertilizes the tiny eggs. In one season, a mature female can lay about 20 clusters or roughly 80,000 eggs. It has been estimated that only one out of 130,000 eggs produces an offspring that survives to adulthood. Most are eaten by crabs, fish and the shorebirds that stopover to refuel on their northern migration.



Though horseshoe crab numbers seem to be stable, scientists worry about increasing demands for the animals and potential threats to their habitat. They are sometimes awkward on land, easily getting stranded in the marsh where they can dry out and suffocate. If you see one in trouble, pick it up gently - not by the tail - and carefully return it to the water.

Wading Birds

From spring through fall, eight species of long-legged wading birds can be seen hunting for fish, crabs and other small aquatic animals in the bay shallows: great blue, little blue, tricolored and green herons; black-crowned and yellow-crowned night herons; great and snowy egrets. There are two small nesting colonies on islands in the Inland Bays. Colonial nesting wading birds are especially sensitive to human disturbance so their rookeries should be given wide berth. Watch from a distance to avoid causing them stress. Wading birds are also good environmental indicators. As final consumers in many estuarine food chains, changes in the health of the ecosystem, for example those caused by a pollutant, will be reflected in the health of the birds.

Terns and Gulls

Laughing, herring and great black-backed gulls nest on marsh islands in the Inland Bays. They are bold, boisterous birds whose opportunistic feeding habits have allowed them to adapt well to human activities. They feed at landfills, on grubs and worms in farm fields, and are not afraid to steal food out of our hands at the beach or boardwalks. While they will eat our castoffs, they also are accomplished predators, feeding on virtually any animal they can catch and swallow.

Terns are the more refined relatives of gulls. Their bodies are more streamlined, and they feed exclusively on fish and small invertebrates they capture by diving headlong beneath the waves. Three species are known to have nested in the Inland Bays area; the least tern, the common tern and the Forster's tern. Tiny least terns nest on the sandy beaches between the bays and the Atlantic. Common terns once nested on the beaches as well, but have not done so for some time. Forster's terns nest on rafts of dead marsh grass that come to rest on the surface of marsh islands. Royal terns, which are larger and heavier than laughing gulls, are common visitors to the Inland Bays in summer, but have never nested in Delaware. In the summer all of these birds can be seen hunting for food in the Inland Bays.

Exploring the Inland Bays

There are many ways to enjoy the recreational resources of the Inland Bays, including fishing, canoeing, kayaking, sailing, motor boating, jet skiing, shellfishing, crabbing, hunting, wildlife watching, camping and swimming. Within the Inland Bays watershed there are four state parks, two state wildlife areas, two state fishing areas, eight public boat launch ramps and one publicly-owned marina.

Fishing

Recreational saltwater fishing is popular in the Inland Bays and nearshore Atlantic. In one survey, 78 percent of boaters said fishing is the primary reason for boating. The game species most sought after are summer flounder, sea trout, bluefish, tautog, white perch, rockfish and winter flounder. Smooth dogfish, sandbar sharks and kingfish are caught in the surf. White marlin, yellowfin tuna, mako shark, cod and ling are caught in the ocean. Surf fishing is popular at Delaware's state park beaches. Permits are available for driving vehicles onto designated areas. The number of miles open varies according to the time of year.

Shellfishing

Clamming is a popular Inland Bays pastime. In areas "approved" by Delaware's Shellfish Program, harvesting is allowed year-round. "Seasonally approved" areas are open Dec. 1-April 15. Of the 32 square miles of the Rehoboth, Indian River and Little Assawoman bays, 19 square miles are currently considered suitable for clamming for human consumption. Look for signs and buoys marking prohibited areas. Delawareans may take up to 100 clams per day without a permit, non-residents 50 per day. To take up to 500, recreational clamming permits are available from the Division of Fish and Wildlife for $5.75 for residents and $57.50 for non-residents.

Kayaking and Canoeing the Inland Bays

The Inland Bays offer a wide variety of paddle craft experiences and opportunities for both the beginner and expert. With some good planning, your experiences will be the richer. The routes suggested assume that travel is one way and you have set up a shuttle at the take-out point. Put-in and take-out sites should be pre-checked to make sure they are open.

Sea kayaks move faster through the water, are more stable than other paddle craft and offer more protection from weather and water conditions. Sheltered waters and shorter trips may be more appropriate for canoeing.

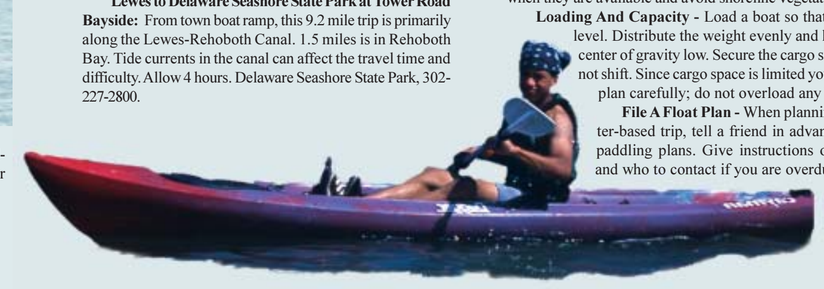
All paddlers should constantly be aware of other bay users such as motorized boats, personal watercraft, and other hazards.

Holts Landing State Park to Assawoman Wildlife Area: This 10.1 mile trip introduces the paddler to the Assawoman Canal, Indian River Bay and Little Assawoman Bay. The canal segment is about 3 miles long. There are three potential access sites in the Assawoman Wildlife Area, however access may be seasonally restricted. Winds may affect travel time and difficulty. Allow 5 hours. Holts Landing State Park, 302-539-9060. Assawoman Wildlife Area, 302-539-3160.

Holts Landing State Park to Millsboro: This 9.6 mile trip introduces the paddler to open waters of Indian River Bay and Indian River. Winds and currents may affect travel time and difficulty. Allow 5 hours. Holts Landing State Park, 302-539-9060.

Delaware Seashore State Park at Haven Road to Tower Road Bayside: This 4.6 mile trip follows along the marshy shores of the Rehoboth Bay. Allow 3 hours. Delaware Seashore State Park, 302-227-2800.

Lewes to Delaware Seashore State Park at Tower Road Bayside: From town boat ramp, this 9.2 mile trip is primarily along the Lewes-Rehoboth Canal. 1.5 miles is in Rehoboth Bay. Tide currents in the canal can affect the travel time and difficulty. Allow 4 hours. Delaware Seashore State Park, 302-227-2800.



Kayaking and Canoeing Safety Tips

Protect Natural Resources - Our waterways are precious; carry out all items that you carry in. Obey all marine regulations and stay out of restricted natural or cultural resource areas. Never approach occupied nest platforms or bird nesting areas. Scaring an adult bird off a nest can place eggs or young birds in danger of exposure to the elements or nearby predators. Give a wide berth to feeding and resting birds. The birds will let you know when you are getting too close by fidgeting, moving away from you, or vocalizing.

Know the Water - Before a trip begins, become familiar with the waters and land adjacent to the water. Each water body presents different sites, unique challenges, and dangers. Even well-seasoned veterans need to become familiar with a body of water before embarking on a journey.

Be Prepared - Wear a personal flotation device. The proper equipment is essential for a safe paddling trip. Before the trip begins get a weather forecast. Heat, cold, sun and wind are a few of the environmental factors to consider. Equip your craft with bow and stern lines and at least a 50 foot safety throwing line. Carry a spare paddle, extra clothing, maps, first aid kit, food and water in the boat. Foot gear will protect feet from unseen underwater hazards. Take sunscreen and plenty of drinking water. The marine environment can quickly change and you must be prepared for those changes.

Travel In A Group - Paddling alone is not recommended. The less the skill of the paddler, and the less that is known about the water body, the more important this rule becomes.

Getting On and Off the Water - A frequent cause of paddling accidents is the simple act of putting a kayak or canoe into the water, getting into it or getting ashore. Do not push or drag the boat. Carry craft to the water. Use boat ramps when they are available and avoid shoreline vegetation.

Loading And Capacity - Load a boat so that it stays level. Distribute the weight evenly and keep the center of gravity low. Secure the cargo so it does not shift. Since cargo space is limited you should plan carefully; do not overload any boat.

File A Float Plan - When planning a water-based trip, tell a friend in advance your paddling plans. Give instructions on when and who to contact if you are overdue.

Boats on the Bays

- While the effects of a single boat may seem insignificant, when multiplied by the thousands the effects are dramatic.
- Employ the best possible environmental practices when maintaining and operating boats, engines and marine sanitation devices (boat heads or toilets).

Marine Sanitation Devices

- Human waste contains nitrogen and phosphates that contribute to water pollution such as algal blooms and oxygen depletion in the bays.
- Human waste contains bacteria that can transmit diseases to swimmers and can close shellfish beds.
- It is very important to keep human waste out of the water. If a head is installed on your boat, it must be an operable marine sanitation device built and certified by the U.S. Coast Guard to meet Environmental Protection Agency standards.
- Comply with the law and never dump sewage into the Inland Bays. It is illegal to discharge raw sewage from any vessel anywhere in the bays or their tributaries, regardless of proximity to a coastline. In open U.S. waters, it is illegal to discharge raw sewage within three miles of the coast.
- Use holding tanks or portable toilets and on-shore pump-out stations to keep sewage out of the water.
- Encourage the development of more on-shore pump-out stations.
- Keep your MSD properly maintained and rinsed, and use non-toxic bacterial enzyme-based head treatments to keep odors down and break solid waste into liquid.

Keep Litter Out of the Inland Bays

- Plastic and litter not only ruin the natural beauty of the bays, but also can injure or kill aquatic life.
- Dumping of any material in any in-land waterway - rivers, lakes or bays - is illegal. Plastics are prohibited from being thrown overboard world-wide.
- Bring back whatever you take out. Obey the law; never throw litter overboard. Install garbage cans and recycling bins on your boat and use them.
- Remind your marina operator that trash cans and recycling bins should be provided for customers.
- Switch to reusable cups and plates on your boat.
- When possible pick up someone else's litter and bring it back to shore to dispose of properly. If something accidentally blows over board, go back and pick it up.
- Fishing line can entangle wildlife, leading to impairment of movement and strangulation. Please be careful not to leave any fishing line in the water or on land.

Inland Bays Eco-Cruises

A good way to explore the ecology of Rehoboth and Indian River bays is aboard Delaware Seashore State Park's 47-passenger pontoon boat, Sand Dollar. Two eco-cruises are scheduled for Wednesdays, Thursdays and Fridays during the summer. A two-hour hands-on Estuarine Ecology Cruise will depart from the park's Indian River Inlet Marina at 10 a.m. and a 90-minute naturalist-led tour of Rehoboth Bay departs at 1 p.m. Tickets are $15 for the Ecological Discovery Cruise, $10 for the Rehoboth Bay Boat Tour. They can be purchased at the marina office the day of the trip. For more information call 302- 227-3071.

Watch Your Wake

- Boat wakes contribute to shoreline erosion, especially in smaller coves and creeks, and stir up bottom sediments, which reduce sunlight essential to underwater grasses.
- Obey speed limits and buoy markings, and reduce your speed before reaching speed buoys in small rivers and creeks.
- Adjust your boat speed to minimize your wake. This saves fuel and reduces negative impacts of wakes on waterways.

Hazards to Avoid

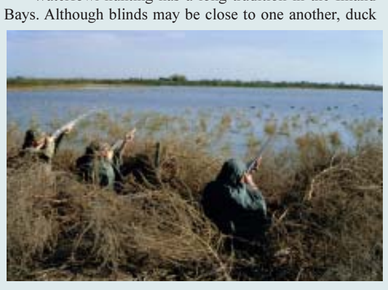
- Lightning, storms, large waves, strong currents, unstable weather, water traffic and debris are real dangers.
- Drinking alcohol impairs movement and judgment and endangers you and companions.
- Water below 60 degrees is dangerously cold. If the air and water temperatures do not add up to 100 degrees, then wet suits should be worn.
- Heat and humidity can be as dangerous as cold water. Water and aluminum canoes cause considerable reflection on sunny days which may lead to serious sunburn, heat exhaustion or sunstroke. Hats help prevent heat exhaustion or sunstroke. Know the symptoms and first aid procedures for these serious conditions. Carry lots of water.
- Even on still days, strong tidal currents can cause difficult eddies and wave conditions.
- Fog can cause total disorientation and leave you invisible to other water traffic. Staying close to shore and using a compass can keep you safe and on course.
- When paddling at night, not only are you invisible to other boating traffic but hazards will be extremely difficult to detect.
- Avoid paddling when whitecaps are visible as they can upset a canoe or kayak, or make it difficult to control. Get a weather forecast before you head out. Staying close to shore or paddling in protected waters will reduce these effects.
- Floating or submerged debris can upset or damage the boat and you. A watchful eye should reduce most unexpected encounters.
- Biting flies, mosquitoes, ticks, poison ivy, stinging sea nettles and jellyfish are found on land and water throughout the Inland Bays. Proper clothing, insect repellant and a watchful eye should reduce these unpleasant encounters.

Crab Pots

Crab pots can be death traps for crabs if they are in shallow areas where water can be warmer and have less oxygen. They must be checked at least once every three days and should never be left unattended in the water for extended periods. Pots also must be equipped with devices called turtle excluders to keep terrapins and other air-breathing animals from drowning. Public crabbing piers can be found at Holts Landing State Park, and Mulberry Landing and Strawberry Landing on Little Assawoman Bay. Other access areas are located at Delaware Seashore State Park, Massey's Landing and Rosedale Beach fishing access areas.

Hunting

Waterfowl hunting has a long tradition in the Inland Bays. Although blinds may be close to one another, duck boats must be more than 1,500 feet from the nearest blind. Most shorelines are private property and permission to use the area is required.



Trapping

At one time, trapping muskrats and other furbearing mammals provided a livelihood for some Delawareans. There is little economic incentive today, but a handful of trappers continue the tradition in the Inland Bays. The Division of Fish and Wildlife offers trapping leases for Assawoman Wildlife Area.

Navigational Aids

Channel Markers

The Division of Soil and Water Conservation installs and maintains channel markers throughout the Inland Bays where the U.S. Coast Guard does not mark, including Rehoboth Bay, Little Assawoman Bay, Herring Creek, the upstream portions of Indian River and White Creek, Roy Creek and Massey's Ditch. These efforts are designed to mark natural or dredged channels to ensure safe navigation for the boating public while protecting ecologically sensitive shallow water habitat areas. Boaters are reminded that it is unlawful to moor vessels or attach fishing or crabbing lines to navigational channel markers.

Red Means STOP, Green Means GO

To help boaters avoid sensitive shallow water habitat, DNREC, through a National Oceanic and Atmospheric Administration grant, is installing tidal water level markers at strategic locations in the Inland Bays. The colors on the poles - from top to bottom, bands of green, yellow and red - are to help boaters assess the probable tide stage. At high tide only the green is visible and boaters can proceed with caution. At a slightly lower tide, yellow begins to show and boat-bottom impact is more likely. When red is showing, bottom impact is almost certain; every effort should be made to stay in the channel or deeper water. Observing these tide markers will protect shallow water habitat along with your boat.

Boating in Shallow-Water Habitat

Many parts of the Inland Bays fall within the 3 foot low-tide water range. Most, if not all, of Little Assawoman Bay is shallow water habitat. With their shallow drafts, pontoon boats and kayaks are the boats of choice. Rehoboth Bay's eastern side, in the area off Rehoboth Marsh, is very shallow and should be avoided. There is a large shallow sand flat on the southwest side of Indian River Inlet that boaters should steer clear of. Staying in clearly marked navigation channels is safest. But if you do get stranded in shallow flats, here are some pointers to protect your boat and the habitat.

- Disengage the prop and put the boat into neutral.
- Tilt the prop so that it clears the bottom.
- Inspect the prop for damage and fouling.
- Push, pole or wade the boat out to deeper water. DON'T TRY TO POWER OUT!
- Turn around and go back the way you came.
- Proceed slowly (with prop up) out to deeper water and the navigation channel.

Other Places of Interest Around the Inland Bays/Atlantic Ocean Watershed

Cape Henlopen State Park

Delaware's largest state park has four miles of Atlantic Ocean beach, two miles of Delaware Bay beach, coastal dunes, woodland trails, military history, a quarter-mile fishing pier, and a Great Dune that is one of the highest coastal points between Cape Hatteras and Cape Cod. The Seaside Nature Center houses a native marine life aquarium and offers year-round activities for all ages. A family campground is set in pine-covered dunes a short walk from the beach. The park's **Beach Plum Island Nature Preserve,** accessed from Broadkill Beach just north of Lewes, offers other opportunities to explore the Delaware Bay coastline. Most of this 129-acre barrier island is protected to preserve habitat for native plant and animal species, but surf fishing and beachcombing are permitted. Call 302-645-8983.

Delaware Seashore State Park

This popular park, with the Atlantic Ocean to the east and the Rehoboth and Indian River bays to the west, attracts millions of sun lovers, swimmers, surf fishermen and surfers annually. The **Indian River Inlet Marina**, which was acquired in 1971, is undergoing major renovations that will be completed in 2007. A modern family campground is a short walk from the beach. The old **Indian River Life-Saving Station**, built in 1881, remains standing in the park. One of the oldest surviving life boat stations, it has been restored to its turn of the century appearance and is now a museum that pays tribute to the heroism of the surfmen who helped save countless lives along the coast. A nature trail on **Burton Island**, a Delaware Seashore State Park satellite area, affords visitors a scenic view of the salt marshes and the bay islands, where gulls and terns gather in their noisy summer nesting colonies and herons, egrets, deer and sea mammals can sometimes be spotted. Take the park office exit from Route 1 and follow the signs. Insect repellant is recommended. **Thompson Island Preserve** on Rehoboth Bay is a new addition to the park. Located northwest of the Inlet, it is a good example of the productive salt marsh habitat once common around the Inland Bays. Due to its importance to the living descendants of Native Americans who settled the island, activities on the island are limited, and there is no motor vehicle access or parking available at this time. Call 302-227-2800.

Protecting Archaeological Sites

Several state parks have archaeological sites, including Thompson Island. Visitors are reminded that there are stiff fines and even imprisonment for taking or destroying antiquities and even greater penalties - fines of up to $10,000 or a sentence of up to two years - for disturbing unmarked burial sites. Call 302-227-2800.

Fenwick Island State Park

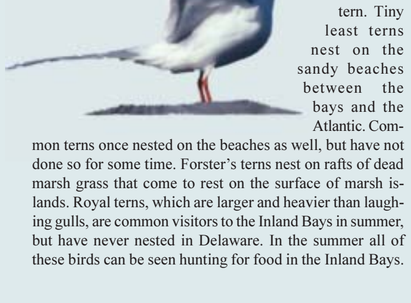
A three-mile stretch of barrier island along Delaware's Atlantic Coast is a playground for sand, surf and sun. Just across Route 1, the Little Assawoman Bay side of the park provides opportunities for watersports, boating and fishing. Call 302-539-9060.

Holts Landing State Park

This small park on the south shore of Indian River Bay features a new crabbing pier, convenient boat ramp and a nature trail through grassy marshland. Call 302-539-9060.

World War II Towers

Among the most visible of coastal Delaware's landmarks are the 11 concrete towers that were used to triangulate enemy ship positions for gun batteries at Fort Miles Military Reservation during World War II. With the exception of the tower that has been converted into an observation area for visitors to Cape Henlopen State Park and the Delaware River Pilot Association radar tower, also at Cape Henlopen, all of the towers along the shoreline are closed for public safety.



James Farm

The James Farm Ecological Preserve, managed by the Center for the Inland Bays, is open to the public for hiking, birdwatching and nature study, with more than two miles of trails, three observation platforms and a boardwalk beach crossing. It is on Cedar Neck on the southeast side of Indian River Bay. Call 302-645-7325.

Conservation Organizations

Department of Natural Resources and Environmental Control

Through land management, environmental protection and restoration, regulatory programs and environmental education, DNREC plays a major role in the Inland Bays watershed. In addition to managing and protecting plant, wildlife and fisheries resources, the Divisions of Fish and Wildlife and Parks and Recreation manage over 6,000 acres around the Inland Bays, including Assawoman Wildlife Area and Delaware Seashore, Fenwick Island and Holts Landing state parks. The Division of Water Resources monitors water quality, sets Total Maximum Daily Loads (TMDLs) of pollution a waterbody can tolerate, and enforces shellfish regulations. Coastal management, beach preservation, dredging, tax ditches and managing nonpoint source pollution caused by runoff are handled by the Division of Soil and Water Conservation. Solid and hazardous waste issues that impact natural resources are among the responsibilities of the Division of Air and Waste Management. To learn more, go to www.dnrec.state.de.us.

Center for the Inland Bays

Since 1994, the non-profit organization has promoted the wise use and enhancement of the Inland Bays and their watersheds through research, restoration, education and public policy. For more information, visit online at www.inlandbays.org.

The Nature Conservancy

Preserving the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive is TNC's mission. One of its preserves - the 557-acre Bullseye-Ferry Landing Preserve - is along the Indian River. (Permission required to visit.) To learn more, go to www.nature.org/wherewework/northamerica/states/delaware.

Delaware Wild Lands

Among its holdings throughout the state are nearly 800 acres of upland forest and wetlands on Angola Neck on the west shore of Rehoboth Bay. (Permission required to visit.) The private nonprofit promotes balance between land development and the natural landscape. Contact at 315 Main Street, Odessa, DE 19730-0506.

Photo and Illustration Credits: Chris Bennett, Keith Clancy, Jim Driscoll, Brett Breeding, Jack Goins, Susan Love, Duane Raver, Harold Malde, John Ford, Chris Wildt, Christopher M. Heckscher, U.S. Fish and Wildlife Service

Ruth Ann Minner
Governor

John A. Hughes
Secretary

Delaware's three Inland Bays, which were designated as an estuary of national significance in 1988, cover 32 square miles, separated by a barrier beach from the Atlantic Ocean. Indian River and Bay is a shallow drowned river valley system with freshwater inflow as well as a direct connection to the ocean through the Indian River Inlet. Rehoboth Bay is a shallow coastal lagoon system behind a narrow barrier island. It connects to the ocean by the Lewes and Rehoboth Canal and the Indian River Bay. The smallest and shallowest is Little Assawoman Bay which connects to the ocean via the Ocean City Inlet.

Their sheltered tributaries, bay bottom grasses and sandy shorelines provide habitat for numerous plant, animal and fish species. The recreational opportunities attract boaters, anglers, clammers, crabbers and wildlife watchers.

Unfortunately, the natural environment that draws people to the Inland Bays is threatened by its popularity. Increasing use, conflicting uses and development are possibly compromising the longterm sustainability of the resource and its recreational appeal. And saving the bays involves looking well beyond the shorelines, to all the land that drains into them. What happens on that land has a significant impact on the Inland Bays' future. Pollution from the 300 square mile watershed drains into the Inland Bays and they have a relatively small amount of water to absorb that pollution.

While some species and habitats have adapted and manage to coexist with humans, others have dramatically declined in numbers. The challenge of protecting the sensitive resources that remain has never been more pressing. It is up to everyone who enjoys the natural wonders of the Inland Bays - visitors and residents alike - to act as responsible stewards. Together we can make a difference by protecting, preserving and restoring the natural resources of this estuarine environment.

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Discover Delaware's INLAND BAYS

Rehoboth Bay
Indian River Bay
Little Assawoman Bay

A guide to enjoying and protecting the Inland Bays/Atlantic Ocean Watershed

Inland Bays Water Use Areas

The information contained on these maps is intended to provide general guidance to members of the public who use the State's Inland Bays. It was compiled by DNREC and represents the best available resource data available as of March 31, 2003. The information is NOT TO BE USED FOR NAVIGATIONAL PURPOSES as the location of the buoys and day beacons are subject to change on an annual basis. In addition, wind and weather conditions are highly variable and can alter water depths throughout the Bays at any given time. For this reason, boaters are urged to use extreme caution when navigating these waters.

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Legend

- Marinas
- Towers
- Park/Wildlife Offices
- Light House
- Eelgrass
- Submerged Aquatic Vegetation Area
- Channel
- Towns
- Private Conservation Areas
- State Fish and Wildlife Areas
- State Parks
- Wildlife Buffer

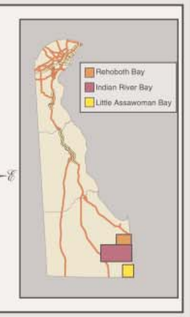
Clamming Areas

- Prohibited
- Seasonally Approved
- Prohibited Shellfish Harvesting & Resource Protection Area

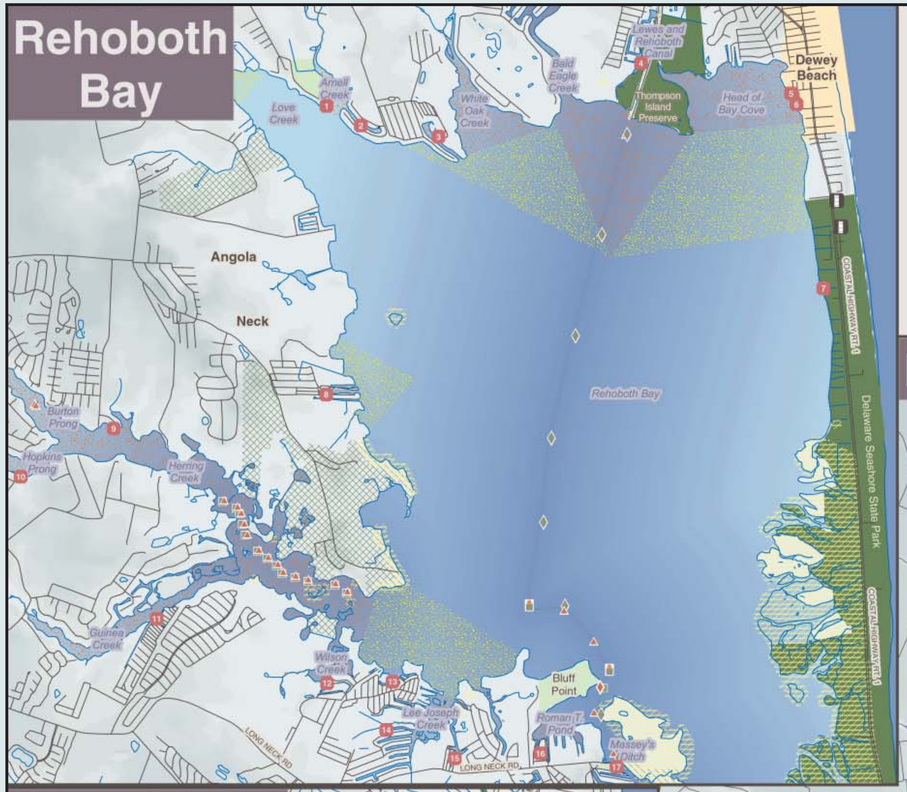
Buoys and Beacons

- Red Buoy
- Green Day Beacon (Lighted)
- Green Buoy
- Red/Green Junction Day Beacon (Lighted)
- Red Day Beacon
- Green Day Beacon

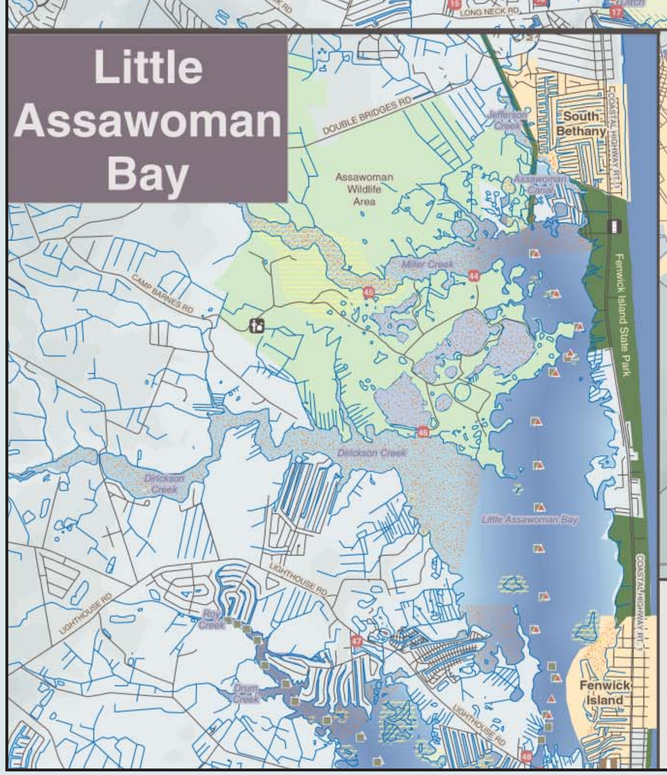
0 0.25 0.5 1 1.5 2 Miles



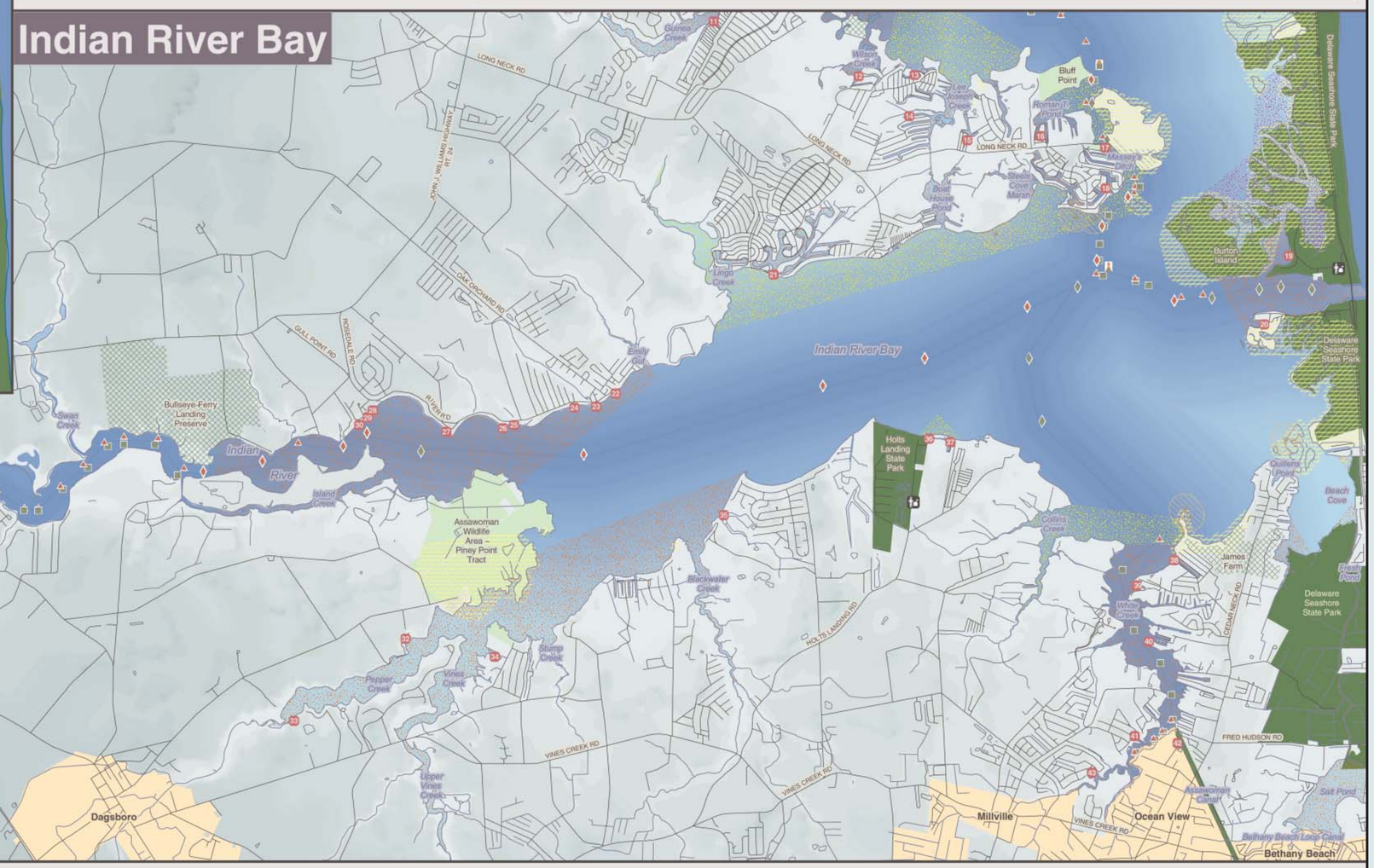
Rehoboth Bay



Little Assawoman Bay



Indian River Bay



	Ramp	Store	Restrooms	Fee	Slips	Private	Fuel
1 MULBERRY KNOLL MARINA							
2 OLD LANDING MARINA							
3 REHOBOTH BAY COMMUNITY MARINA							
4 BAY VISTA BOAT BASIN							
5 PIER POINT MARINA							
6 REHOBOTH BAY MARINA							
7 REHOBOTH BAY SAILING ASSOC.							
8 WEST BAY PARK							
9 ANGOLA BEACH							
10 SHAWN'S HIDEAWAY MARINA							
11 LEISURE POINT MARINA							
12 REHOBOTH SHORES TRAILER PARK							
13 BAY CITY MARINA							
14 MARINER'S COVE							
15 MALONES							
16 POT NETS DOCKSIDE							
17 DFW MASSEY'S LANDING							
18 POT NETS SEASIDE							
19 NORTH SHORES MARINA							
20 SOUTH SHORE MARINA							
21 POT NETS BAYSIDE							
22 OAK ORCHARD MARINA							
23 INDIAN RIVER MARINA PIER							
24 INDIAN RIVER WATERSPORTS CLUB							
25 IRWSC ANNEX							
26 SHORTS MARINA							
27 INDIAN RIVER YACHT CLUB							
28 ROSEDALE BEACH							
29 DFW ROSEDALE BEACH RAMP							
30 GULL POINT TOWNHOUSE MARINA							
31 CUPOLA PARK RAMP							
32 TIMMON'S BOATYARD							
33 GULL'S WAY							
34 VINES CREEK MARINA							
35 BAY COLONY MARINA							
36 HOLTS LANDING STATE PARK							
37 TUCKAHOE ACRES							
38 BAYSHORE MARINA							
39 SANDY COVE CAMPGROUND							
40 BETHANY MARINA							
41 BANKS HARBOR MARINA							
42 HARBOR VIEW MARINA							
43 WHITE CREEK MANOR MARINA							
44 DFW STRAWBERRY LANDING							
45 DFW SASSAFRAS LANDING							
46 DFW MULBERRY LANDING							
47 BAYVILLE MARINA							
48 SHARK'S COVE MARINA							
49 HARPOON HANNA'S							