

Creek Watcher Volunteer Manual

For the Eastern Shore of Virginia

Developed by:



*The Virginia Eastern Shorekeeper
P.O. Box 961, Eastville, Virginia 23347-0961*

Protecting, preserving and improving the quality of the tidal waters of the Eastern Shore of Virginia.
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The Virginia Coastal Program is focused on restoring Virginia’s coastal ecosystems, and strengthening the coastal economy. The Virginia Coastal Program provides a network to link state, local and federal efforts to manage Virginia’s coastal resources.

Accomack-Northampton Planning District Commission’s publication “*Chesapeake Bay Preservation Act Handbook for the Eastern Shore of Virginia,*” which is included as part of this manual.

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I. Creek Watcher Volunteer Program

You've signed on for an important job – to be an advocate for our coastal waters. Welcome aboard.

You have joined a network of trained volunteers we call the Eastern Shore Creek Watchers that helps protect our Atlantic and Chesapeake shores. The Eastern Shore of Virginia's 613 miles of Atlantic Ocean tidal shoreline and 750 miles of Chesapeake Bay tidal shoreline present quite a challenge to the Virginia Eastern Shorekeeper who obviously cannot patrol all that water. That's where you come in.

As a volunteer, you're the Shorekeeper's eyes and ears in your region. We'll teach and advise you about government programs designed to protect our coastal environment and help you work with people in your region on issues that are important in your backyards.

In return, you'll help the Shorekeeper monitor development projects dealing with such issues as stormwater, wetlands, and erosion control. You'll make sure that the projects comply with various state and federal regulations, thus ensuring that environmental rules are adequately enforced.

Each volunteer is assigned a territory, and each works with the Shorekeeper in his or her area. The Shorekeeper, in turn, coordinates their activities with the other volunteers and with the Virginia Eastern Shorekeeper Board of Directors.

Working with your Shorekeeper, you will be required to:

- Understand state and federal environmental rules and regulations.
- Identify, research and report illegal land-disturbing activities and pollution sources.
- Participate in occasional training sessions.
- Know your territory and patrol it as needed.
- Know how to report and describe a potential problem.
- Respond and help coordinate action during a fish kill or other pollution problem.

The Shorekeeper will be required to:

- Coordinate volunteer Creek Watchers.
- Provide the necessary information, resources and training to the volunteers.
- Investigate and document reported violations.
- Report violations to the appropriate agency.
- Help correct any reported violations of environmental rules and regulations.
- Follow-up on corrective measures.

Creek Watcher Volunteer Guidelines

- Volunteers are not authorized to speak on behalf of the Virginia Eastern Shorekeeper or for the Board of Directors unless given express permission to do so.
- Volunteers have no authority to enforce any local, state or federal regulation or law.
- Volunteers are not to enter onto private property without the express permission from the landowner.
- Volunteer activities will be considered as a regular part of the voluntary work done by Creek Watchers, who assume their own risks and liabilities.
- Safety and responsibly is of the utmost importance for all volunteers.

II. Pollution and the Coast

This section is a primer on the dynamics of a watershed and some of pollution's effects on water quality.

How does your local watershed influence the coast?

Because a watershed is made up of several pieces that are all connected, it's important to remember that what happens on the land often affects the water. For example, a river or stream flowing through a farm field or pasture can be polluted with fertilizer, manure, and pesticides that run off the land after a rainstorm, or by shallow ground water inflow that sustains stream flow during periods of no runoff. After rain falls on cities and towns, runoff can pick up fertilizers that wash off lawns, untreated sewage from failing septic systems, chemicals from industrial plants, sediment from construction sites, oil and grease from parking lots and driveways, and bacteria from animal feces. This stormwater runoff then flows into the nearest body of water, and is the largest source of sediment and a major source of nutrient, chemical, and biological water pollution on Virginia's Eastern Shore today.

Effects on the Coast

Soil/Sediment is a major pollutant in our waterways. Improper planning and damaging land uses, such as construction sites without controls, farms without buffers, and modified streams or creeks, can bleed soil into streams and rivers and ultimately lakes, estuaries, and oceans, especially during and following heavy rain. The resulting muddy water can smother organisms living on the bottom; decrease the amount of light reaching sea-grass beds, and clog fish gills. Other pollutants such as phosphorus can bind to sediment and flow with it to coastal waters.

Excess nutrients, such as nitrogen and phosphorus, also wash off the land when it rains and end up in coastal waters. Sources include lawn fertilizers, pet and other animal waste, decaying plant matter, failing septic tanks, atmospheric deposition, and effluent from sewage-treatment plants. Ground water that discharges into wetlands, estuaries, and that sustains the flow of streams during times of no overland runoff also can carry excess nutrients and toxic chemicals that have entered the ground water systems as a result of man's activities. The loss of wetlands in many watersheds has reduced the ability of nature to process these nutrients before they enter rivers, streams, and ultimately estuaries. These nutrients upset the natural balance and can feed microscopic plants called algae, which can grow and block the light reaching sea grasses. Bacteria feeding off dead algae use excessive amounts oxygen in the water, which can lead to fish kills. Some of these algae and related organisms, including the infamous *Pfiesteria piscicida*, release toxins that can also kill fish or shellfish and harm humans.

Toxic substances include pesticides from lawns, gardens, and farms, as well as lead, oils, and greases deposited on roads from cars and trucks. These so-called "non-point sources" can all run off the land with rainfall. Industrial plants and municipal wastewater treatment plants, called point sources because their pollution can be traced to a pipe or other source,

can also contribute to the amount of toxic substances entering streams and rivers and ultimately estuaries and coastal waters. Fish kills and loss of the recreational uses of an area can occur.

Pathogens are microscopic organisms like bacteria and viruses that enter our water through untreated or poorly treated sewage, pet and other animal waste, and improperly handled medical waste. High amounts of pathogens in the water can make people sick, kill fish, and close beaches and shellfish beds. Stormwater runoff contains pathogens, both from human and natural sources.

Fecal coliform bacteria are not generally harmful but can usually be found with other bacteria that can cause a variety of diseases. The Virginia Health Department's Shellfish Sanitation Division (SSD) monitors levels of fecal coliform bacteria in coastal waters for shell fishing and human contact. Bacteria contamination from stormwater runoff, particularly after a heavy rain, has routinely been the cause for closure of large areas of Eastern Shore water to shellfishing. Bivalve molluscan shellfish (oysters, clams, mussels etc.) feed by pumping large amounts of water through their gills and filtering out their microscopic sized food particles. Along with these small particles, they also filter out bacteria and viruses from the water. Since shellfish may be eaten raw, including their intestinal tracts, care has to be taken to ensure that shellfish harvested for direct marketing are taken from very clean water. Waters approved for the direct harvest of shellfish therefore must be much cleaner than waters approved for swimming, fishing, etc.

IV. Laws & Regulations pertaining to Our Waters

This section is designed to acquaint you with the major state and federal laws that will guide you as you monitor your territory.

Federal Clean Water Act and Wetlands

What is a Wetland?

Wetlands are defined as areas that are inundated or saturated by surface or groundwater often enough and long enough to support plants that have adapted to those types of soils. Wetlands generally include swamps, marshes and bogs, and can also include other areas that contain the proper indicators even if seemingly dry. Wetlands are identified by three indicators; vegetation, soils, and hydrology. Under natural conditions, all three must be present for an area to fall under Section 404 of the Federal Clean Water Act.

Wetlands are an essential adjunct to of the waters of the Eastern Shore, serving as fish and wildlife habitat, protecting against storms and floods and improving water quality. Section 404 of the federal Clean Water Act provides much of the legal protections afforded wetlands. The law prohibits dredging or filling waters of the United States, including wetlands, without a permit. The U.S. Army Corps of Engineers (Corps) issues and enforces the permits, while the U.S. Environmental Protection Agency sets the minimum permit requirements and oversees the program.

Key Provisions

A complex regulatory program, complete with provisions for public participation, has been developed to implement Section 404. The provisions for protecting wetlands are the most important components of the program. However, they remain very controversial. Key aspects of Section 404 and its implementation are described in this section. It should be noted that this is a volatile policy area and the described regulations are subject to legislative or administrative changes. Please refer to the Corps' website www.usace.army.mil for more information.

Waters of the United States

Section 404 jurisdiction applies to "waters of the United States." Courts have defined that to mean all public waters *and* wetlands, including rivers, mud flats, natural ponds, lakes, and impoundments of public waters, tributaries, swamps, marshes, and other wetlands.

Dredge-and-Fill Activities

A permit is required to dredge or fill water or wetlands. These terms are defined as follows:

Dredged material: material excavated from U.S. waters.

Discharge of dredge material: Any addition of dredged material into U.S. waters, including the addition of dredged material to a previous disposal site, and the runoff or overflow from a contained land or water disposal area.

Fill material: material used to replace an aquatic area with dry land or to raise the bottom elevation of a water body.

Discharge of fill material: the addition of fill material into U.S. waters. This includes: fill necessary to construct any structure in the water, such as a structure or impoundment requiring rock, sand, dirt, or other fill material; site development fills for recreational, industrial, commercial, residential, and other uses; causeway or road fills; dams and dikes; artificial islands; property protection and/or reclamation devices such as riprap, groins, seawalls, breakwaters and revetments; beach nourishment; levees; sewage treatment plants; intake and outfall pipes for power plants; underwater utility lines; and artificial reefs.

Land clearing and/or drainage (ditching): projects in wetlands require permits if they place or dispose of dirt in the wetland. Mechanized land clearing or landscaping is presumed to include at least some dirt placement. If the project involves discharges into traditional “navigable” waters, the Corps will require a 404 permit and a Rivers and Harbors Act Section 10 permit.

Types of Permits Under Section 404:

Individual and general permits are issued by the Corps under Section 404. Individual permits require extensive case analysis. General permits are allowed for activities that cause minimal adverse environmental impact, and are issued by the Corps.

General permits have been issued by the Corps for these specific coastal activities:

- To maintain, repair, construct and install piers, docks, boathouses, mooring pilings, buoys, jetties, breakwaters, boat ramps, utility lines, and bulkheads and riprap needed for eroding shorelines (not including ocean shorelines).
- To authorize emergency construction of primary dunes and placement of sandbags along the oceanfront.
- To dredge, fill, and construct piers, docks, bulkheads, riprap, boat ramps and boathouses, and to install pilings within manmade basins and canals located in high ground.

Permit Requirements:

404(b)(1) Guidelines: Key requirements of the guidelines for individual permits include: There must be no practical upland alternative for the proposed project; the project must be water dependent; the project must not violate water quality standards; the project must not cause or contribute to significant degradation of U.S. waters; secondary impacts of the project must be considered; cumulative impacts of the project must be considered; the

proposed project must represent the least environmentally damaging alternative; the proposed project must meet other federal, state, and local requirements.

401 Certification: Section 401 of the Clean Water Act requires that the state agency responsible for water quality certify that proposed projects do not violate water quality standards. In Virginia, the Department of Environmental Quality issues 401 certifications. The Clean Water Act requires public notice and an opportunity for a public hearing during the 401 certification.

Public Interest Review: The proposed project must not be contrary to the public interest. The Corps evaluates the project to determine the public and private need for it, the feasibility of alternative locations and methods, the beneficial or detrimental effects, and the cumulative effect created by existing or anticipated projects.

Environmental Assessment: The Corps prepares a report called an Environmental Assessment that discusses the project's effects and possible alternatives. If the agency determines that the project could have a significant impact on the environment, then they must prepare an Environmental Impact Statement (EIS). If an EIS is needed, federal requirements mandate that the public be involved in the identification and evaluation of issues. The corps holds public meetings and solicits written public comments to identify what issues must be evaluated.

Citizen involvement

Citizen involvement is essential in Section 404 permit reviews. As a Creek Watcher, it is important to inform the Shorekeeper, and the Corps, of your concerns and interests in proposed projects. If you see a public notice announcement for a proposed project affecting wetlands, coordinate with the Shorekeeper to find out if a permit has been applied for and to obtain a copy. If materials or comments from other agencies pertaining to the Section 404 activities are obtained, make sure that the Corps has these materials in their project file. Do not hesitate to share your personal knowledge of the area with the Corps officials.

Storm Water and Phase I & II National Pollutant Discharge Elimination System (NPDES)

Discharge points, outfalls, pipes and culverts that carry storm water runoff into a water body at a single point are of considerable concern. These point sources may cause water quality and the water body morphology to be impacted, especially at the point of discharge. Not all discharges are legal, and information regarding the current location of all outfalls to the creeks is limited. Noting the location of these outfalls will help the Shorekeeper update available mapped information. Monitoring these outfalls for visual impact to the receiving waters is critical.

NPDES Permit:

A NPDES permit must be obtained for any discharge of wastewater into surface water. The permit covers the construction and operation of wastewater treatment plants, including municipal sewage plants.

A discharge to surface waters must also meet water quality standards, including the anti-degradation requirement. If a discharge meeting minimum (technology-based) limits would violate water quality standards at a location, then the NPDES permit will contain more stringent limits. The permit will be denied if it is impossible to develop a reliable treatment system that protects water quality standards at a site.

Public Participation: A public notice for a proposed NPDES permit is published in a local newspaper and sent to people who request copies of NPDES notices. The notice lists the location and size of the proposed treatment plant and indicates that a draft permit decision has been made. The draft permit decision will contain tentative permit limits or explain the reason for denying the permit. The public can submit written comments on this draft permit decision for 30 days after the notice.

A public hearing will be held if there is significant public interest in the draft permit. Requests for a hearing are submitted during the period for written comments. Notice of a public hearing is published in a local newspaper and sent to the NPDES mailing list 30 days prior to the hearing.

Storm water:

Storm water runoff is threatening the health of Virginia's coastal environment and is a significant concern for communities along the coast. According to the year 2000 305(b) report, in estuarine waters, urban runoff is cited as a widespread source of pollution. Storm water pollution is also listed as the primary cause of water quality degradation in each of the river basin plans that cover urbanizing areas of coastal Virginia. Storm water discharge has resulted in numerous shellfish bed, fishing and swimming area closures across the state, hampering the fishing and tourism industries.

In natural, undisturbed areas, especially on the permeable Virginia Eastern Shore, the land absorbs almost all of the rainwater and very little runoff occurs. However, as areas become more developed, paved and hardened structures serve to funnel the rainwater into nearby waterways, increasing storm water runoff and the risk of flooding. As rain water washes over roads, highways, driveways, parking lots, roof tops, decks, and construction sites it also picks up pollutants such as sediments, nutrients, organic matter, bacteria, oils, heavy metals, pesticide and other toxic synthetic chemicals, and transports them to creeks, rivers and estuaries.

NPDES Phase II Storm Water Program

To comply with the 1972 Clean Water Act (CWA), the U.S. Environmental Protection Agency, is implementing the second Phase of its NPDES Storm Water Regulations. The

goal of the Phase II Storm Water Program, which became effective on March 10, 2003, is to “reduce the discharge of pollutants to the ‘maximum extent practicable’ (MEP), protect water quality, and satisfy the appropriate water quality requirements of the Clean Water Act”.

To achieve this goal, all small municipal separate storm sewer systems (MS4s) must apply for a NPDES Phase II permit in order to discharge storm water. Phase II permits will require designated small MS4s to develop a storm water management plan that will incorporate six minimum measures mandated by the EPA:

- (1) Public Education and Outreach
- (2) Public Participation and Involvement
- (3) Illicit Discharge Detection
- (4) Construction Site Runoff Control
- (5) Post-Construction Runoff Control
- (6) Pollution Prevention and Good Housekeeping

Any construction activity disturbing between one and five acres of land, or that is part of a larger development whose total area is between one and five acres, will also have to apply for a Phase II storm water permit.

Chesapeake Bay Preservation Act:

For a more thorough examination of the Bay Act and its implementation on the Eastern Shore, Creek Watchers are encouraged to read Chapter VII, Appendix B of this manual, “Chesapeake Bay Preservation Act Handbook for the Eastern Shore of Virginia” that was prepared by the Accomack-Northampton Planning District Commission.

The Chesapeake Bay is the United State’s largest estuary and one of the world’s most productive. The Bay is home to over 2,700 species. It drains 64,000 square miles of land, receiving roughly 70,000 cubic feet of water every second. That water reflects the surrounding land use and the activities of about 15 million people. The ratio of land to water is 10 to 1, which means that the Bay must process more land-based pollution than most bodies of water.

The Chesapeake Bay’s ecological decline was evident as early as the 1950s. In the late 1970’s, state and federal scientists began an extensive study to determine the reasons for the bay’s decline. Three major problems were identified: (1) excess **nutrients** from wastewater, agricultural lands, and developed land; (2) **sediment** in runoff from farms, construction sites, and eroding lands; and (3) possibly elevated levels of **toxic chemicals**.

Sources of nutrients and other types of pollution are generally categorized as “point” or “nonpoint” sources. Point sources are often described as known, “end-of-the-pipe” discharges. They include discharges from sewage treatment plants and discharges from industrial or commercial activities. Point sources are easily identified and technology is

available to reduce the nutrients and toxics contained in point source discharges. Much of the initial bay cleanup effort focused on upgrading the pollutant removal capability of sewage treatment plants. However, reducing pollutants from point sources alone has not been enough to improve Bay water quality. Nonpoint sources of pollution are being reduced as well, in order to halt the decline and improve the quality of bay waters.

Nonpoint sources of pollution come from diffused origins and result from land runoff, atmospheric deposition, drainage, seepage, and hydrologic modification. Nonpoint source pollution includes sources such as septic tank effluent, runoff from agricultural activities, and stormwater runoff from developed areas. Generally speaking, nonpoint source pollution is caused by rainfall moving over the land surface and through the ground. As the water moves, it picks up and carries away pollutants from human activities, transporting these pollutants into streams, rivers, and finally the Bay. Water infiltrating into the soil often contains elevated levels of pollutants which reach the Bay via groundwater transport. One way to minimize these nonpoint sources of pollution is to wisely manage land uses and development.

On the Eastern Shore, 75% of the nutrient pollutants (nitrogen and phosphorus) come from nonpoint sources, including runoff from developed areas and farms. These pollutants harm fish and wildlife, kill native vegetation and underwater grasses, foul ground water supplies and make recreational areas unsafe.

In 1983, the governors of Virginia, Maryland, Pennsylvania, the mayor of the District of Columbia, and the administrator of the U.S. Environmental Protection Agency signed an agreement to work together to try to solve the water quality problems of the Chesapeake Bay. In 1987, these officials, known as the Chesapeake Bay Executive Council, reinforced the agreement to include specific goals and timeframes for solving the Bay's problems. A major element of the renewed agreement was a commitment to reducing nutrients entering the Bay by 40 percent by the year 2010. The signatories recognized that reducing the amount of pollution entering the Bay is a very complex process. In response, the three states and the District of Columbia have worked to adopt and implement interrelated programs including Virginia's Chesapeake Bay preservation Act program to improve the Bay's water quality.

The Bay Act created a unique partnership between the state and local governments of Tidewater Virginia. The Act recognizes the primary responsibility of local governments for land use decisions. The Act expands local government authority to manage water quality and establishes a more specific relationship between water quality protection and local land use decision-making. The term "Tidewater Virginia", as defined by the Chesapeake Bay Preservation Act, includes 46 cities and counties that border on tidal waters. The 43 town governments in Tidewater counties are also included.

All localities on the Eastern Shore which are located within the Chesapeake Bay Watershed have their own local Bay Act Programs. Because land features and conditions are generally consistent throughout the Eastern Shore, the local bay Act Programs of each locality are similar. Eastern Shore localities with local Bay Act Programs include

Accomack County, Northampton County, and the towns of Cape Charles, Cheriton, Eastville, Nassawadox, Exmore, Belle Haven, Painter, Melfa, Onley, Onancock, Parksley, Bloxom, Hallwood, Saxis and Tangier. The towns of Chincoteague, Keller, Wachapreague and Accomac are not included because they are not located within the bay watershed; instead, they drain into the Atlantic Ocean. Northampton County and the towns of Cheriton and Nassawadox have included the Atlantic Ocean watershed as part of their local Bay Act programs.

The basic Bay Act performance criteria are:

Minimize impervious cover – minimizing impervious surfaces will reduce stormwater runoff and therefore, nonpoint source pollutants by increasing the infiltration of stormwater through the ground.

Minimize land disturbance – erosion will be reduced by minimizing land disturbance

Preserve existing vegetation – retaining the natural or existing vegetation onsite will prevent erosion, allow rain water to filter through the ground and will reduce the application of fertilizers, pesticides and the need for supplemental watering

No-net increase in stormwater pollutant loadings for new development; and 10% reduction in stormwater pollutant loadings for redevelopment – to ensure that runoff from development and redevelopment does not increase the amount of pollution reaching waterways

Evidence of all wetlands permits prior to any clearing or grading – for better coordination of wetlands permitting among different levels of government

Plan review for development that exceeds 2,500 square feet – ensures that all the performance criteria are implemented and to depict the onsite delineation of resource protection areas

Erosion and sediment control for land disturbances exceeding 2,500 square feet – reduces erosion by addressing the cumulative impact of many small land disturbances

Septic tank pump-out every five years – pump-out will reduce septic failure and ensure effective treatment of wastes

Reserve septic tank drainfield for all new development – to ensure that in the event of drain field failure, an alternate drainfield is readily available

V. Resources

The resources section is designed to provide the user a brief overview of the organizations that provide technical assistance or research to the activities monitored by Creek Watchers. Regional contact information is provided. Organizations and agencies with offices located on the Eastern Shore are included.



Web site to the primary contact or home page.

Note: Many of the organizations and agencies provide extensive online information. The Virginia Eastern Shorekeeper has made every effort to verify each Web site. As with any online source of information, content may be dated or contain inaccuracies. Users should verify information with multiple sources or published material from regulatory agencies or academia.

Virginia Eastern Shorekeeper



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757-678-6182



www.shorekeeper.org

The **Virginia Eastern Shorekeeper** was established for the general purpose of protecting, preserving and improving the quality of the tidal waters of the Eastern Shore of Virginia. The Virginia Eastern Shorekeeper is a non-profit organization and a member of the Waterkeeper Alliance. In October 2003, a Shorekeeper was hired to be an effective ombudsman and advocate for the tidal waters of Northampton and Accomack counties on the Eastern Shore and to further the mission of the organization.

The Shorekeeper will:

- Develop and train a network of citizen volunteers as **Eastern Shore Creek Watchers**.
- Conduct year round on-the-water observations of aquatic and shoreline conditions.
- Investigate and assess citizen complaints.
- Document and report environmentally harmful activities to the appropriate federal, state or local agency.
- Analyze zoning and other permit applications with volunteers, and when appropriate, prepare credible testimony to be offered through the public process.
- Keep board members, volunteer **Eastern Shore Creek Watchers**, supporters and the community informed with regular newsletters, press releases and fact sheets.
- Enhance public awareness with outreach and presentations.
- Work with the community and the aquaculture industry to help mitigate conflicts.
- Network with related organizations and agencies to benefit the Eastern Shore.
- Initiate civil action when all other attempts at mitigation are not successful.

Waterkeeper Alliance



Waterkeeper Alliance
828 South Broadway - Suite 100
Tarrytown, New York 10591

914-674-0622



www.waterkeeper.org

Waterkeeper Alliance is a grassroots organization with local Waterkeeper programs nationally and internationally. We are dedicated to preserving and protecting YOUR WATER from pollution.

Each Waterkeeper program, like the Virginia Eastern Shorekeeper, reflects the needs of the water body and community it represents. The common thread is that for each water body and community there is a full-time person who serves as the Waterkeeper, the public advocate for that body of water.

Waterkeepers are part investigator, scientist, lawyer, lobbyist and public relations agent. Think of a Waterkeeper's "clients" as all the users of the watershed for which the Waterkeeper advocates. A successful advocate has a diverse bag of tools that allows her

or him as the Waterkeeper to get the job done. Waterkeepers have some kind of boat ranging in size from canoes to research vessels, but sometimes a pair of hip boots is more important than a boat. Sometimes a legal brief is more important than either. Each water body has its own unique set of challenges requiring its own unique strategy.

Waterkeeper programs must have organizations behind them. Whether you intend to structure your Waterkeeper program under the umbrella of an existing organization or start your own organization, there must be a non-profit 501(c)(3) or (4) entity sponsoring the Waterkeeper program.

Waterkeeper Alliance is the international center of a network of Waterkeeper programs. The Alliance approves new Waterkeeper programs, licenses use of the Waterkeeper names, represents the individual Waterkeepers on issues of national interest, and serves as a meeting place for all the Waterkeepers to exchange information, strategy and know-how. The Alliance and its member Waterkeeper groups meet at least once a year, rotating between regions, and communicates regularly in the interim.

Assateague Coastal Trust & Assateague Coastkeeper



**Assateague Coastal Trust
P.O. Box 731
Berlin , Maryland 21811**

410-629-7538



www.actforbays.org

Assateague Coastal Trust is the only Delmarva Peninsula grassroots, non-profit organization working to preserve Assateague Island and the living resources of the coastal ecosystem, by (1) Sponsoring outreach programs to promote awareness among Delmarva's citizens and visitors about the natural resources and their long term sustainability, and (2) Participating in advocacy efforts to influence public policies that affect the functions of these ecosystems.

The **Assateague Coastkeeper** is an on-the-water, privately funded advocate for the coastal bays. The mission of the Coastkeeper Program is to protect the quality of the coastal bays for generations to come.

Chesapeake Bay Program



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Suite 109
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(410) 267-5700 or
1 (800) YOUR BAY (968-7229)



www.chesapeakebay.net

The Chesapeake Bay Program is a regional partnership that's been directing and conducting the restoration of the Chesapeake Bay since the signing of the historic Chesapeake Bay Agreement of 1983. The Bay Program partners include the states of Maryland, Pennsylvania and Virginia; the District of Columbia; the Chesapeake Bay Commission, a tri-state legislative body; the U.S. Environmental Protection Agency, representing the federal government; and participating advisory groups.

The Bay Program's highest priority has been the restoration of the Bay's living resources- its finfish, shellfish, bay grasses, and other aquatic life and wildlife. Improvements include fisheries and habitat restoration, recovery of bay grasses, nutrient and toxic reductions, and significant advances in estuarine science.

Considered a national and international model for estuarine research and restoration programs, the Bay Program is a partnership led by the Chesapeake Executive Council. The members of the Executive Council are the governors of Maryland, Virginia and Pennsylvania; the mayor of the District of Columbia; the administrator of the U.S. Environmental Protection Agency and the chair of the Chesapeake Bay Commission. The Executive Council meets annually to establish the policy direction for the Bay Program.

In the 1987 Chesapeake Bay Agreement, the Executive Council set a goal to reduce the nutrients nitrogen and phosphorous entering the Bay by 40% by 2000. Achieving a 40% nutrient reduction will ultimately improve the oxygen levels in Bay waters and encourage aquatic life to flourish. In 1992, the Bay Program partners agreed to continue the 40% reduction goal beyond 2000 as well as to attack nutrients at their source - upstream in the Bay's tributaries. As a result, Pennsylvania, Maryland, Virginia, and the District of Columbia began developing tributary strategies to achieve nutrient reduction targets.

On June 28, 2000, the Chesapeake Bay Program partners signed the new Chesapeake 2000 Agreement, which will guide the next decade of restoration and protection efforts

throughout the Bay watershed. The agreement commits to protecting and restoring living resources, vital habitats and water quality of the Bay and its watershed.

Virginia Institute of Marine Science



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Virginia Institute of Marine Science
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804-684-7000



www.vims.edu

Locally: College of William & Mary
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The Virginia Institute of Marine Science (VIMS) has a three-part mission: to conduct interdisciplinary research in coastal ocean and estuarine science; educate students and citizens; and provide advisory service to policy makers, industry, and the public. The VIMS School of Marine Science (SMS) is the professional graduate school in marine science for the College of William & Mary. Chartered in 1940, VIMS is currently among the largest marine research and education centers in the United States.

The Wetlands Advisory Program of the Virginia Institute of Marine Science provides scientific and technical advice for the use of all participants in the shoreline permit process. To accomplish this, a written impact assessment report is prepared for most projects requiring a wetlands or subaqueous bed permit. The report describes the marine environmental impact of the proposed activity and suggests alternatives and/or modifications which will lessen any significant adverse effects to aquatic resources

Soil and Water Conservation District

**Eastern Shore Soil and Water Conservation District
22545 Center Parkway
Accomac, VA 23301-1330**

(757) 787-0918

Soil and water conservation districts are political subdivisions of state government responsible for conservation work within their boundaries. A district focuses attention on land, water and related resource problems; develops programs for solving the problems; and coordinates assistance from public and private sources to carry out conservation programs. When the Soil Conservation Districts Law of Virginia was passed in 1938, the foundation was laid for today's 47 soil and water conservation districts. Other states throughout the country have established similar organizational structures, and there are now nearly 3,000 soil and water conservation districts nationwide.

Districts provide local citizens with the opportunity to shape resource planning in their communities. While receiving technical and financial assistance from local, state and federal sources, soil and water conservation district boards make the decisions, set the priorities and make sure conservation occurs. This cooperative process helps districts control soil erosion, prevent flood water and sediment damages, and promote agricultural and urban conservation. Through memorandums of agreement with other agencies, districts help to preserve wildlife, protect the tax base, and enhance the health, safety and welfare of the people. In addition, districts sponsor community events, such as field trips or demonstration projects, working with citizens at a grassroots level to create awareness and understanding of conservation needs and measures.

Since the mid-1980s, the Virginia Department of Conservation and Recreation (DCR) has relied heavily on soil & water conservation districts to help deliver many programs aimed at controlling and preventing nonpoint source (NPS) pollution, often on a watershed basis. With their volunteer boards and more than 150 full and part-time technical and administrative employees, districts provide a valuable delivery system for Virginia's statewide nonpoint source pollution prevention programs.

Virginia Agriculture Extension Service

**Eastern Shore AREC
Eastern Shore Agriculture Research and Extension Center
33446 Research Drive
Painter, VA 23420-2827**

Phone: 757-414-0724



www.vaes.vt.edu

The Virginia Agricultural Experiment Station (VAES) performs research on food and fiber systems, their impact on the environment, and natural and human resource issues relating to the future needs of Virginia, the nation, and the world. VAES has faculty members at twelve agricultural research and extension centers, and throughout the colleges of Agriculture and Life Sciences, Human Resources and Education, Natural Resources, and Veterinary Medicine at Virginia Tech.

The Eastern Shore Agricultural Research and Extension Center is dedicated to vegetable and field crop research and extension by providing producers with efficient, state-of-the-art production and management recommendations and technologies. Areas of faculty expertise include entomology, horticulture, plant pathology and weed science. Some of the crops being researched are potatoes, sweet potatoes, snap beans, broccoli, cauliflower, cucumbers, peppers, summer squash, tomatoes, corn, cantaloupes, watermelons, small grains, corn, soybeans and cotton.

Virginia Marine Science Museum



**Virginia Marine Science Museum
Stranding Team
717 General Booth Boulevard
Virginia Beach, VA 23451**

**TO REPORT A STRANDED MARINE ANIMALS, CALL
757-437-6159 (24 hours, 7 days a week)**



www.vmsm.com

The Virginia Marine Science Museum's (VMSM) Stranding Team is a group of trained staff and volunteers who respond to stranded animals along the Virginia coastline. As a research arm of the Virginia Marine Science Museum, the people who work at the Stranding Center rescue and rehabilitate live animals, collect data from dead specimens and conduct research on marine animals found in Virginia. Most important, they serve as environmental ambassadors, educating the public about the Stranding Team's activities and research findings.

Marine mammals and sea turtles live out their lives in the ocean, allowing us only brief glimpses into their intriguing world. Unfortunately, these amazing creatures sometimes end up on our beaches, sick, injured or dead. These events are known as "strandings." They can be due to natural causes, or possibly, human interaction. These stranding events provide a unique opportunity for scientists to examine animals that are otherwise difficult to study in their natural habitats.

Since its inception in 1991, the VMSM Stranding Team has responded to more than 500 marine mammals and over 600 sea turtles. Averaging more than 100 per year, stranded animals have included harbor seals, harbor porpoises, bottlenose dolphins, humpback whales, loggerhead sea turtles and kemp's ridley sea turtles.

Chesapeake Bay Foundation

**Chesapeake Bay Foundation
Virginia State Office
1108 E. Main Street, Suite 1600
Richmond, VA 23219**

804-780-1392



www.cbf.org

**Chesapeake Bay Foundation
Hampton Roads Office
142 West York Street, Suite 318
Norfolk, VA 23510**

757-622-1964

The Chesapeake Bay Foundation (CBF) is the largest conservation organization dedicated solely to saving the Chesapeake Bay watershed. Our motto, *Save the Bay*, defines the organization's mission and commitment to reducing pollution, improving fisheries, and protecting and restoring natural resources such as wetlands, forests, and underwater grasses. CBF headquarters is in Annapolis, MD, and has state offices in Maryland, Virginia and Pennsylvania. CBF also operates 16 environmental education programs.

Alliance of the Chesapeake Bay

Alliance of the Chesapeake Bay
P.O. Box 1981
Richmond, Virginia 23218

804-775-0951



www.acb-online.org

The Alliance for the Chesapeake Bay is a regional nonprofit organization that builds and fosters partnerships to restore the Bay and its rivers. The Alliance does not lobby or litigate. Instead, we do the slow, hard work of bridging dialogue between groups that don't see eye-to-eye, forming strategies for joint solutions, and building the capacity of communities for local-level action. To this end, the Alliance:

- Develops methods and tools for restoration activities and trains citizens to use them.
- Mobilizes decision-makers, stakeholders, and other citizens to learn about Bay issues and participate in resolving them.
- Provides analysis, information, and evaluation of Bay policies, proposals, and institutions.

Founded in 1971, the Alliance for the Chesapeake Bay is funded by individuals, corporations, governments and foundations. The Alliance maintains offices in Baltimore, Maryland; Harrisburg, Pennsylvania; Richmond, Virginia, and Washington. D.C.

Wetlands Watch

Wetlands Watch, Inc.
P.O. Box 9335
Norfolk, VA 23505

(757) 423-8855



www.wetlandswatch.org

Wetlands Watch is a Virginia non-profit organization dedicated to protecting and conserving Virginia wetlands. Launched on Earth Day 2001, Wetlands Watch believes that citizens who understand the value of wetlands will be motivated to protect and conserve them. We believe that environmental regulators need community support to effectively enforce laws and regulations.

And we believe that statewide consensus, commitment and partnership is necessary to achieve no net loss of wetlands acreage and functions.

Wetlands Watch works on the local level to help homeowners, developers and regulators avoid and minimize wetlands impacts from activities like dredging, bulkheading, sprawl and shoreline development.

On the state level, Wetlands Watch studies trends in wetlands-disturbing activities and regulatory practices, identifies the factors that undermine wetlands protection, and develops recommendations to promote more effective stewardship of our wetlands resources.

Wildlife Center of Virginia

The Wildlife Center of Virginia
P.O. Box 1557
Waynesboro, VA 22980

540-942-9453 (7 days a week, 9:00 am - 5:00 pm)



www.wildlifecenter.org

The Wildlife Center of Virginia is the nation's leading teaching and research hospital for native wildlife. Each year, they provide thousands of injured and orphaned wild animals with state-of-the-art veterinary care, free of charge, with the goal of returning them to the wild. They also train veterinarians, veterinary students, and wildlife rehabilitators from all over the United States. As a non-profit organization, The Wildlife Center's work is supported by people who share a concern for wildlife and the environment.

Through caring for individual animals, The Wildlife Center of Virginia gains unique insights and perspectives into conservation issues. Most of their patients have problems caused directly or indirectly by people--many are victims of motor vehicle collisions, pesticide poisoning, gunshot wounds.

Eastern Shore Licensed Wildlife Rehabilitators

Birds, Deer, Raptors, Small Mammals

Dr. Paula R. Cameron
Eastern Shore Animal Hospital
Painter, VA

757-442-7849

Small Mammals

Ms. Barbara Kelley Jewett
Chincoteague, VA

757-336-3606

VII. Reporting a Problem

General Procedure for Documenting and Reporting Potential Violations

- Take photos or video and carefully document and date your observations
- Permit notices must be posted conspicuously at the job site. If there is no permit posted or if you have other reason to question a potential violation, contact the Shorekeeper. Provide the property owner's name and address plus a full description of the activity that you are questioning or believe may be in violation.
- Coordinate with the Shorekeeper to determine if and which agency should be contacted. If the appropriate agency has no record of the activity, they will be asked to investigate.

In every case the Virginia Eastern Shorekeeper should be contacted and apprised of the problem. Call 757-678-6182 or shorekeeper@verizon.net

Be on the Look Out for:

- Illegal land disturbing activities
- Large amounts of trash/debris
- Notable changes in water clarity due to sediment or algae
- Illegal impacts on wetlands, coastal marshes, sensitive shorelines
- Chemicals being dumped or discarded into coastal creeks and waters
- Sewage in coastal waters
- Gas or oil spills
- Dead/injured marine mammals or sea turtles. For all marine mammals in Virginia and for sea turtles on the Eastern Shore and lower Chesapeake Bay call: Virginia Marine Science Museum Standing Program, Virginia Beach, VA. (757) 437-6159
- Illicit storm water discharges

If in doubt, please report the issue. The Shorekeeper will decide if there is a problem.

**Virginia Department of Environmental Quality
POLLUTION RESPONSE PROGRAM (PREP)**

The Department of Environmental Quality's **POLLUTION RESPONSE PROGRAM**, known as PREP, provides for responses to air, water, and waste pollution incidents in order to protect human health and the environment. PREP staff often work to assist local emergency responders, other state agencies and federal agencies, as may be needed to manage pollution incidents. Oil spills, fish kills, and hazardous materials are examples of incidents that may involve the DEQ's PREP Program.



There are two ways to actually make a Pollution Response report:

During normal work hours call the number listed for the Pollution Response Program (PREP) for the DEQ Regional Office that covers the area where the incident occurred. On the Eastern Shore call:

Tidewater Regional Office (757) 518-2000

1. Nights, holidays, and weekends call the **Department of Emergency Management's (DEM)** 24 hour reporting number.

In-state calls only: 1-800-468-8892

Out-of-state calls: 1-804-674-2400

The DEM staff will relay the information to on-call DEQ personnel.

If you wish to report a pollution incident or a suspected violation of state environmental law please assemble the following information:

1. **WHERE:** The location of the incident. In order for the DEQ to investigate we need to know where the problem is and how to get there.
2. **WHEN:** The sooner an incident is reported the greater the likelihood that an environmentally protective response can be made.
3. **WHAT:** If you know what was released and how much, that can help determine the type of investigation needed.
4. **WHO:** If you know the source of the problem or the company/individual causing the problem, please give us that information.

Remember, the Virginia Department of Environmental Quality needs your help to locate, identify, and stop pollution of the state's air and water. Even if you don't believe your incident is an emergency you should still report known or suspected pollution problems to the DEQ.

VIII. Glossary of Terms

The Glossary of Terms is intended to be used in conjunction with a Joint Permit Application (JPA). Please note that definitions of the same term may differ between regulatory agencies.

Acre-Foot

Unit of volume of water that would cover one acre to a depth of one foot; equal to 43,560 cf.

Adjacent Property Owner

Individuals owning property that shares the boundary (common property line) of the property at the project site.

Apron

The area along the waterfront edge of a pier or wharf.

Backfill

Material used to fill an excavated area, or the act of filling an excavation.

Beach Nourishment

The placement of suitable sand on a shore to restore and stabilize an eroding beach.

Benchmark

A fixed point of reference used in a measure that under normal circumstances will not move or be changed. For example: the distance from the corner of a house to a telephone pole, or an official government survey marker.

Breakwater

A fixed or floating structure usually constructed parallel to the shoreline to protect the shoreline from erosion by reducing the wave energy that reaches the shore.

Buffer Zone

An area designed to separate a water resource from temporary or permanent construction activities, or a sensitive environmental area from surrounding landscape uses.

Bulkhead

An upright structure built to protect an eroding shoreline from the force of water.

CFS

Cubic feet per second. A measurement of rate of flow.

Clamshell

A bucket or grapple (as on a dredge) having two hinged jaws, or an excavating machine having a clamshell. A method of dredging using machinery equipped with a bucket that closes like a clam shell.

Class

Classification system based on grade or quality. For stone, Class I to Class III, Class III being the largest.

Cofferdam

A watertight enclosure from which water is pumped to expose the bottom of a body of water

and permit construction (as of a pier).

Community Facility for Boat Moorings

A facility operating under public or private ownership which provides mooring for boats whether on a free, rental, or fee basis or for the convenience of a particular group of individuals.

Cubic yard (cu yd)

A measure of volume, computed by multiplying the length by the width by the depth. 27 cubic feet = 1 cubic yard.

Culvert

Any structure (other than a bridge) that provides an opening for movement through an obstruction, such as a roadway or dam.

Culvert Invert

The elevation at the inlet end of a culvert pipe.

Deadman

A buried object which serves as an anchor for guy cable, typically used in securing post, poles, towers, etc. in an upright position.

Dolphin

A spar or buoy for mooring boats, or a cluster of closely driven piles used as a fender for a dock or as a mooring or guide for boats.

Dragline

An excavating machine in which the bucket is attached by cables and operates by being drawn toward the machine.

Dredge Cut Slope

Slope produced from dredging excavation.

Dredged Material

Material that is excavated or dredged from waters of the United States.

Estuarine

River systems that extend upstream to an imaginary line that closes the mouth of the river, bay or sound. Generally, the term estuary refers to the portion of the river from the ocean to the point where the ocean salts are diluted by freshwater from either river currents or upland runoff.

FPS

Feet per second.

Fill Material

Any material that will change the bottom elevation of an aquatic area, wetland, or water body.

Fingerling

A small fish especially up to one year of age.

Finger Pier

A small walkway generally built perpendicular to a pier for the purpose of providing access to and aid in mooring a boat. (Often referred to as a catwalk, L-head or T-head).

Filter Cloth

A thin cloth-like material normally used behind bulkheads or riprap to retain fill material while allowing water to pass through it.

Fish Ladder

A series of pools arranged like steps by which fish can pass over a dam in going upstream.

Groin

A structure built perpendicular to the shore whose main function is to trap and retain moving sediments.

Intermittent Stream

A stream that has flowing water at some times and is dry at other times.

Intertidal Zone

The area of land that is submerged at high tide and exposed at low tide.

Jetty

A structure, much like a groin, that is built alongside a channel or harbor entrance to prevent sand from building up in the channel and obstructing navigation. Jetties are seldom low profile since their main purpose is to maintain a channel opening.

Linear Feet

The total footage of a structure measuring in a continuous line along the structure.

Low Profile Groin

A groin design where the height of the structure is gradually lowered so the channelward end is below mean low water which allows sand to bypass the structure (once the structure is filled) so that beaches downdrift of the groin will still receive sand.

Marginal

Oriented along the margin of a water body.

Marina

Any installation operating under public or private ownership which provides mooring (not including paddle or rowboats), sale, rental, equipment, supply, or service for the convenience of the public or their lessees, renters, or users of their facilities.

Marsh Peat Surface

The surface of the area containing the roots of the wetland vegetation. Also referred to as the wetland substrate.

Mean High Water (MHW)

The average elevation of high water in tidal areas.

Mean High Water Line

A contour line on a drawing that shows the landward limits of an average high tide.

Mean Low Water (MLW)

The average elevation of low water in tidal areas.

Mean Low Water Line

A contour line on a drawing that shows the channelward limits of an average low tide.

MGD

Million gallons per day.

Mudflats

Nearly level areas without vegetation that are covered during high water and exposed at low water.

Navigable Waters of the United States

Waters of the United States that are subject to the ebb and flow of the tide, and/or are presently used, or have been used in the past, or may be susceptible to use for the transport of interstate or foreign commerce.

Nontidal Waters

Waterways or impoundments not subject to the periodic rise and fall of the tide.

Nonvegetated Wetlands - State and Local Definition:

The Commonwealth of Virginia has defined these areas as follows: *Non-vegetated wetlands include the land lying between and contiguous to mean low water to an elevation of mean high water not otherwise considered "vegetated wetlands"*. Generally, this is any area between mean low water and mean high water which does not exhibit or support vegetation. These areas include mudflats, sand beaches, eroding shorelines, etc.

Ordinary High Water (OHW)

The average elevation of high water in nontidal areas.

Ordinary High Water Line

A contour line on maps of nontidal waterfront property that shows the landward limits of normal high water.

Perennial Stream

A stream that has flowing water year round and is usually indicated by a solid blue line on U.S.G.S. quadrangle maps.

Pre-Discharge Notification (PDN)

Notification required by the Corps of Engineers on specific projects that may meet the criteria of certain Nationwide Permits.

Ponding Depth

Depth to which pooled water normally extends.

Retaining Wall

An upright structure built to prevent property from slumping into a waterway.

Revetment

A facing, usually made of stone or concrete, installed to protect an eroding shoreline from the force of water.

Riffle

Rapid movement of water over a coarse substrate.

Riparian Rights

The rights of a person owning land bordering on a water body to reach navigable water.

Riprap

A layer of material such as stone or chunks of concrete on an embankment slope to prevent erosion.

Riser

A vertical pipe (as for water or gas) or a vertical portion of an electric wiring system.

Spillway

A passage for surplus water to run over or around an obstruction (as a dam)

Splash Apron

A structure that is usually made of riprap or concrete and placed at the outlet of a pipe to absorb the initial impact of the flow and reduce the flow velocity to a level which will not erode the receiving channel or area.

Spur

A short structure, normally less than 20 feet in length, built perpendicular to a groin for the purpose of reducing erosion or scour downdrift of the groin.

Square Feet

A measurement of area (length x width = area),

State Waters

All water, on the surface and under the ground, wholly or partially within its jurisdiction.

Subaqueous Land

Land which is submerged below mean low water (channelward of the mean low water line) in tidal areas or below ordinary high water (channelward of the ordinary high water line) in nontidal areas.

Thermally Enhanced

Water that has been heated above the normal temperature of the water body into which the water is discharged.

Tidal Waters

Waters subject to a periodic rise and fall in elevation caused by the moon and sun and occurring in a cyclic manner, normally every 12 hours.

Trout waters

Cool, clear, freshwater streams that provide habitat for various species of trout. Trout cannot survive in waters warmer than 68 degrees.

Vegetated Shallows

Shallow water areas that support submerged aquatic vegetation.

Vegetated Wetlands - State and Local Definition

The Commonwealth of Virginia has defined these areas as follows: *Vegetated wetlands include the land lying between and contiguous to mean low water to an elevation above mean low water equal to one and one-half times the mean tide range at the site of the proposed project and upon which one or more species of tidal wetland plants is growing.* Generally, this is the land between and adjacent to the range of mean high water and mean low water which supports at least one species of wetland vegetation. This definition includes the land within one and one-half times the range of the average tide at the site. State and Local wetlands are limited to tidal areas of the commonwealth.

Federal Definition

The Government of the United States has defined wetlands as follows: *Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.* Federal wetlands generally include swamps,

marshes, bogs, and similar areas. It should be noted in many cases the federal definition of wetlands includes areas at higher elevation than one and one-half times the mean high tide range. Federal wetlands are not limited to tidal areas.

Vernal Pools

Pools that may only seasonally have standing water. Several endangered species are dependant on vernal pools for their reproduction and continued existence.

Waters of the United States

Coastal (including territorial seas) and inland waters, lakes, rivers, and streams that are navigable waters of the United States, including adjacent wetlands. PLUS: Tributaries to navigable waters of the United States, including adjacent wetlands. (Man-made, nontidal drainage and irrigation ditches excavated from dry land, not from wetlands, are not considered to be tributaries.) PLUS: Interstate waters and their tributaries, including adjacent wetlands.

Wing Wall

Wall attached to the headwall of a culvert, setting at an angle with the centerline, that prevents earth from spilling into a channel and improves hydraulic efficiency.



Reporting Form

Please fill out this short form to report any problems you think should be looked into

To report, call **757-678-6182** Email: **shorekeeper@verizon.net** FAX: **757-331-5881**
Or report an incident via our website at: **www.shorekeeper.org**

Name _____

Daytime Phone _____ Email _____

Date of incident _____ Time _____

Location _____

Type of incident (Check all that apply)

<input type="checkbox"/> Bay Act violation	<input type="checkbox"/> Illegal filling/cutting
<input type="checkbox"/> Sewage	<input type="checkbox"/> Dredging/dumping
<input type="checkbox"/> Industrial discharge	<input type="checkbox"/> Fish Kill
<input type="checkbox"/> Chemical/Oil spill	<input type="checkbox"/> Other Wildlife

Type of problem:

<input type="checkbox"/> Urgent/emergency
<input type="checkbox"/> Chronic
<input type="checkbox"/> Background info

Other activity _____

How incident was discovered _____

Is photos or video available? Yes No

Suspected source(s) _____

Agencies contacted _____

Please attach any relevant documents, pictures or any other materials.