

OMB Instrument Form for Generic Citizen Science ICRs

Burden Statement:

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Information and Packet for Meeting Participants

How do the People of Crisfield feel about their Natural Spaces and Coastal Environment?

Overview:

The US Environmental Protection Agency’s Office of Research and Development (US EPA ORD) is partnering with Crisfield, Maryland to better understand the community’s challenges and goals, and work together to co-develop research and methods around the potential use of natural infrastructure, or ‘nature-based solutions’, such as marsh restoration, dune restoration, or living shorelines, for protection from coastal flooding and associated natural resource benefits to community health and wellbeing.

We will be discussing the following questions as a group. You can also choose to provide your own written answers here if you prefer, or in addition to any discussion. All responses are voluntary. Both written and verbal responses will be treated anonymously.

Question 1a. Which neighborhood in the Crisfield area do you live or work, or do you come from outside of the Crisfield area?

Please mark an X next to the neighborhoods where you live and/or work. Refer to Map #1 for neighborhoods.

	Primary Residence	Primary Work Location
Box Iron Area		
Byrdtown		
Cove Street		
Daughertytown		
Downtown Condos		

Hammock Pointe		
Hopewell		
Lawsonia		
Mariners		
Marion Station		
Myrtle Street Area		
N. Somerset Avenue		
S. Somerset Avenue		
Outside of the Crisfield Area Please list the town or city.		

Question 1b. What motivated you to want to be a part of the discussion today?

Question 2a. What are the natural habitats or green space that contribute most to the unique character of Crisfield?

Please place an X next to the top (5-10) habitats or greenspaces you consider most important to Crisfield. Please note any more specific information about why you selected each.

Habitat or Greenspace	Most Important	More specific details or specific location?
Open Water in the Bay		
Rivers and Streams		
Lakes and Ponds		
Beaches and Dunes		
Eelgrass, Seagrass, Aquatic Vegetation		
Rocky Shoreline		
Tidal flats or mudflats		
Salt marsh		
Freshwater wetlands		
Forests		
Agricultural Pasturelands		
Agricultural Croplands		
City greenspaces (Parks, Landscaping)		
Other (Please Explain)		

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Question 2b. Where are the natural habitats or greenspaces that contribute to the unique character of Crisfield?

Please circle on the map natural areas and greenspace you think are most important to Crisfield. Please write-in any important natural areas or green spaces that you think are missing.



Question 3a. How have these natural spaces changed in your lifetime, and what impacts have those changes had on the Crisfield community?

Question 3b. What organizations, or business, or neighborhoods have been most impacted by these changes in green spaces in and around Crisfield?

Question 4. How do the people of Crisfield use or interact with natural habitats and green spaces? Why do they care about these spaces?

Place an X next to the top (5-10) natural resource users you consider most important to the character of Crisfield. Please note any more specific details about what or why natural spaces matter to them.

Type of Natural Resource User		Most Important	What natural spaces do they use or care about?
Agricultural	Livestock Grazers		
	Agricultural Processors		
	Aquaculture (farming aquatic fauna)		
	Farmers (such as crops, orchards)		
	Forestry; Silviculture		
Commercial / Industrial	Food Extractors (fishing, hunting, or trapping of edible organisms for commercial purposes)		
	Timber / Fiber / Ornamental Extractors (such as logging, shell collection for commercial purposes)		
	Industrial Processors (such as manufacturing, mills, oil and gas)		
	Private Energy Generators (such as power plants, hydroelectric dams, wind turbines, solar)		
	Pharmaceutical / Food Supplement Suppliers (use of nature-derived ingredients in medicines, vitamins)		
	Trappers / Hunters of Fur or Hides for commercial purposes		
	Commercial Property Owners (private owners of commercial or industrial property)		
	Private Water Plant Operators (drinking or other uses)		
Governmental / Municipal / Residential	Municipal Water Plant Operators (drinking or other uses)		
	Public Energy Generators (such as power plants, hydroelectric dams, wind turbines, solar)		
	Residential Property Owners (homeowners; landowners)		
	Military / Coast Guard (infrastructure, training)		

Type of Natural Resource User		Most Important	What natural spaces do they use or care about?
	activities)		
	Public Sector Property Owners (government owned property or land)		
Transportation	Transporters of Goods (shipping of cargo by planes, trains, ships, trucks)		
	Transporters of People (cruises, ferries, airports, trains, harbors)		
Subsistence or Traditional / Tribal Uses ('Living Off the Land')	Water Subsistence (such as wells, cisterns, rain gardens, rain barrels)		
	Food and Medicinal Subsistence (hunting, fishing, or gathering as a major source to fill nutrition or medical needs)		
	Timber / Fiber / Ornamental Subsistence (such as firewood or clothing materials)		
	Building Material Subsistence (relies on natural materials for housing needs)		
Recreational	Experiencers / Viewers (such as bird or wildlife watching, hiking, biking, camping, sightseeing, sunbathing)		
	Food Pickers / Gatherers (such as berry picking, mushroom gathering, clam digging for recreation)		
	Hunters (for recreation or sport)		
	Fishing (for recreation or sport)		
	Waders / Swimmers / Divers (SCUBA, snorkeling)		
	Boaters (such as sailboats, jet skis, speed boats, kayaks, surfboards)		
Inspirational	Spiritual and Ceremonial Participants (such as festivals, tribal or religious ceremonies)		
	Artists (such as writers, painters, sculptors, cinematography, music)		
Learning	Students and Educators (such as field trips, outdoor labs)		
	Researchers (scientific research)		
Non-Use	People Who Care (preserve for ethical reasons or future generations)		
Others Not Listed Here			

Question 5. Thinking about the top types of natural resource users identified in the previous question, what specific characteristics of natural habitat or greenspace do you think are most important to them, and the people of Crisfield in general?

Which of the following Environmental Attributes are most important to the top natural resource users identified in question 4? What specific characteristics do these user groups care most about?

Category	Examples	Important to Which Types of Users?	What specifically (such as type, species, location) is most important?
Atmosphere	Air quality, wind, sunlight, temperature, precipitation, humidity		
Soil and Substrate	Mud, clay, organic matter, stones, rocks		
Water	Surface water, ground water, water quality, water quantity, water movement		
Fauna	Fauna diversity, edible fauna, charismatic or rare fauna, pollinators, pest predators, commercially or culturally important fauna		
Flora	Flora diversity, edible or medicinal flora, charismatic or rare flora, commercially or culturally important flora		
Fungi	Fungal diversity, edible or medicinal fungi, charismatic or rare fungi, commercially or culturally important fungi		
Other Natural Materials	Fuel, fiber, minerals, driftwood, shells, acorns, honey		
Site Appeal	Sounds, scents, scenic views, natural phenomena, open spaces, ecological condition		
Extreme Events	Flood protection, wildfire suppression, storm surge reduction, wave breaking, erosion control		
Other Not Listed Here			

Question 6. Would you like to see these natural resources and their impacts to the people of Crisfield change in the future in any way? If so, how?

Question 7. Nature-based solutions have been implemented in other communities to help improve resilience to flooding by buffering against storm surge and protecting the coastline from erosion.

How might nature-based solutions such as the ones below benefit the top natural resources and natural resource users you just identified as important to Crisfield? Are there other actions that might do a better job to preserve or protect the natural resources you identified as important to Crisfield?

Natural Infrastructure	Explanation	Potential impacts to Crisfield's top natural resources and natural resource users?
Artificial reefs	A manmade structure that promotes habitat for oysters or other species	
Beach nourishment	Placing additional sediment on a beach or nearshore, to mimic or enhance a natural shoreline	
Dune restoration	Build up of dunes via beach restoration and addition of native vegetation	
Living berms	Raised, vegetated barriers along the beach to help prevent flooding	
Living shoreline	A protected or stabilized shoreline made of natural materials such as plants, sand, or rock	
Marsh restoration	Actions to return natural function to a degraded wetland, or establish new acres of wetland habitat	
Oyster reefs	Establishment or enhancement of oyster aggregations	
Restoration of barrier islands	Actions to restore geographic features and vegetation of barrier islands	
Seagrass restoration	Actions to restore or enhance density or acres of submerged aquatic vegetation	
Other actions?		

REFERENCE MATERIAL

Reference Material #1 Map of Crisfield community neighborhoods

Crisfield community neighborhoods

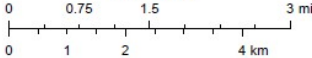


5/23/2023

Crisfield Neighborhoods

- Byrdtown
- Downtown Condos
- Lawsonia
- Myrtle St.
- Box Iron Area
- Cove Street
- Hammock Pointe
- Mariners
- N. Somerset Ave.
- Brick Kiln Townhomes
- Daughertytown
- Hopewell
- Marion Station
- S. Somerset Avenue

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VGIN, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/INASA, USGS, EPA, NPS, USDA

Reference Material #2. List of Natural Resource Users

Category	Subcategory	Definition
Agricultural	Livestock Grazers	Uses the environment to graze livestock
	Agricultural Processors	Cleans edible products
	Aquaculturalists	Farms aquatic fauna (e.g., fish, shrimp, oysters)
	Farmers	Farms terrestrial or aquatic flora (e.g., crops, orchards)
	Foresters	Plants and raises trees (i.e., silviculture)
Commercial / Industrial	Food Extractors	Uses the natural abundance of edible organisms (e.g., hunting, trapping, or fishing for livelihood, job, commercial, or artisanal purposes)
	Timber / Fiber / Ornamental Extractors	Extracts or harvests timber, fiber, wood, or ornamental extraction or harvest for commercial or business purposes (e.g., logging, shell collection)
	Industrial Processors	Uses natural resources in industrial processing such as manufacturing (e.g., textile or steel industries), mills, or oil and gas extraction and processing)
	Energy Generators	Uses the environment for energy production or placement of power generation structures includes power plants (electric and nuclear), dams, turbines (wind, water, or wave), solar
	Pharmaceutical / Food Supplement Suppliers	Collects organisms from nature that are used for pharmaceuticals, medicines, food supplements, or vitamins for commercial sale
	Fur / Hide Trappers / Hunters	Hunts or traps fauna for fur or hides for commercial sale
	Commercial Property Owners	Owners of private land for commercial or industrial purposes
	Private Drinking Water Plant Operators	Provides water for private purposes
Governmental / Municipal / Residential	Municipal Drinking Water Plant Operators	Provides water for the Community
	Public Energy	Uses the environment for energy production or placement of

Category	Subcategory	Definition
	Generators	power generation structures for the community, includes power plants (electric and nuclear), dams, turbines (wind, water, or wave), solar panels, and geothermal systems
	Residential Property Owners	Homeowners of private land
	Military / Coast Guard	Uses the environment for placement of infrastructure or training activities
	Public Sector Property Owners	Uses or benefits from the environment as an owner of property and in a way not specified in other government, municipal, and residential subclasses.
Transportation	Transporters of Goods	Uses the environment to transport goods (e.g., shipping, cargo, commercial navigation, barges, freight, planes, trains)
	Transporters of People	Uses the environment to transport people (e.g., cruises, ferries, airplanes, airports, trains, harbors)
Subsistence	Water Subsisters	Relies on natural sources for water including drinking water and tribal or traditional uses (may use wells, cisterns, rain gardens, rain barrels, etc.)
	Food and Medicinal Subsisters	Uses natural sources of edible flora, fauna, and fungi as a major source of food; includes hunting, fishing, and gathering as well as other tribal or traditional uses
	Timber / Fiber / Ornamental Subsisters	Relies on timber, fiber, or fauna for survival, including tribal or cultural traditions (e.g., firewood)
	Building Material Subsisters	Relies on natural materials for infrastructure and housing
Recreational	Experiencers / Viewers	Views and experiences the environment as an activity (e.g., bird, wildlife, or fauna watching; nature appreciation; hiking, biking, camping, climbing, outings, sunbathing, sightseeing, beach combing)
	Food Pickers / Gatherers	Recreationally collects or gathers edible flora, fungi, or fauna (does not include hunting or trapping) (e.g., berry picking, mushroom gathering; clam digging)
	Hunters	Hunts for recreation or sport
	Anglers	Fishes for recreation or sport

Category	Subcategory	Definition
	Waders / Swimmers / Divers	Recreates in or under the water (e.g., snorkeling, SCUBA, swimming, beachgoing, wading, diving, bathing)
	Boaters	Recreates in motorized or unmotorized watercraft (e.g., sailboats, ski boats, jet skis, kayaks, surfboards)
Inspirational	Spiritual and Ceremonial Participants	Uses the environment for spiritual, ceremonial, or celebratory purposes (e.g., harvest festivals, tribal observances, traditional ceremonies, religious rites)
	Artists	Uses the environment to produce art, includes writers, painters, sculptors, cinematographers, and recording artists
Learning	Students and Educators	Includes all educational uses, interests, or opportunities including field trips and outdoor laboratories
	Researchers	Includes opportunities or interest for significant scientific research and improving scientific knowledge
Non-Use	People Who Care	Believes it is important to preserve the environment for moral or ethical reasons, for fear of its loss, or to allow their future selves or future generations to visit or rely upon it

Reference Material #3. List of environmental attributes that could be important to people.

Category	Environmental Attribute	Definition
Atmosphere	Air Quality	The degree to which air is clean, clear, and pollution-free
	Wind Strength / Speed	The speed and force of the wind
	Precipitation	Weather in which something, including rain, snow, sleet, and/or hail, is falling from the sky
	Sunlight	Light from the sun
	Temperature	A measure of the warmth or coldness of the weather or climate
Soil	Soil Quality	The suitability of soil for use based on physical, chemical, and/or biological characteristics
	Soil Quantity	The amount of soil present, could be measured in terms of volume, depth, and/or extent
	Substrate Quality	The suitability of substrate for use based on physical, chemical, and/or biological characteristics
	Substrate Quantity	The amount of substrate present, could be measured in terms of volume, depth, and/or extent
Water	Water Quality	The suitability of water for use based on physical, chemical, and/or biological characteristics
	Water Quantity	The amount of water present, could be measured in terms of volume, depth, total yield, and/or peak flow
	Water Movement	The amount of water flowing per unit of time, includes aspects such as surface water movement through watersheds, wave action, etc
Fauna	Fauna Community	The interacting animal life present in the area
	Edible Fauna	Fauna fit to be eaten by humans
	Medicinal Fauna	Fauna that has healing properties as is or after processing

	Keystone Fauna	Fauna on which other species depend, its absence would significantly alter the ecosystem
	Charismatic Fauna	Fauna with symbolic value or widespread popular appeal
	Rare Fauna	Fauna that are uncommon or infrequently encountered
	Pollinating Fauna	Fauna that moves pollen from plant to plant
	Pest Predator / Depredator Fauna	Fauna that prey upon pest species
	Commercially Important Fauna	Fauna that has importance for commerce
	Spiritually / Culturally Important Fauna	Fauna that has importance for spiritual or cultural practices or beliefs
Flora	Flora Community	The interacting plant life present in the area
	Edible Flora	Flora fit to be eaten by humans
	Medicinal Flora	Flora that has healing properties as is or after processing
	Keystone Flora	Flora on which other species depend, its absence would significantly alter the ecosystem
	Charismatic Flora	Flora with symbolic value or widespread popular appeal
	Rare Flora	Flora that are uncommon or infrequently encountered
	Commercially Important Flora	Flora that has importance for commerce
Fungi	Spiritually / Culturally Important Flora	Flora that has importance for spiritual or cultural practices or beliefs
	Fungal Community	The interacting fungal life present in the area
	Edible Fungi	Fungi fit to be eaten by humans
	Medicinal Fungi	Fungi that has healing properties as is or after processing
	Rare Fungi	Fungi that are uncommon or infrequently encountered
	Commercially Important Fungi	Fungi that has importance for commerce

	Spiritually / Culturally Important Fungi	Fungi that has importance for spiritual or cultural practices or beliefs
Other Natural Components	Fuel Quality	The suitability of material, based on physical, chemical, and/or biological characteristics, to produce heat or power through burning or other methods
	Fuel Quantity	The amount of fuel present, could be measured in terms of volume, mass, and/or extent
	Fiber Material Quality	The suitability of material, based on physical, chemical, and/or biological characteristics, to be used in production of textiles
	Fiber Material Quantity	The amount of fiber material present, could be measured in terms of volume, mass, and/or extent
	Mineral / Chemical Quality	The suitability of material for use based on physical, chemical, and/or biological characteristics
	Mineral / Chemical Quantity	The amount of material present, could be measured in terms of volume, mass, and/or extent
	Presence of Other Natural Materials for Artistic Use or Consumption (e.g. Shells, Acorns, Honey)	The presence and/or extent of materials suitable for artistic use or consumption
Composite (Site Appeal and Extreme Events)	Sounds	The sounds or combination of sounds arising from the area
	Scents	The scents or combination of scents arising from the area
	Viewscapes	The views and vistas available in the area
	Phenomena (e.g. Sunsets, Northern Lights, etc)	Natural phenomena arising from a combination of environmental attributes
	Ecological Condition	The overall quality of the ecological system based on physical, chemical, and biological characteristics
	Open Space	Land that is undeveloped, but may be landscaped or otherwise in use, and is available for use

	Flooding	The likelihood the area will experience flooding and the likely severity of the flooding
	Wildfire	The likelihood the area will experience wildfire and the likely severity of the fire
	Extreme Weather Events	The likelihood the area will experience extreme weather events and the likely severity of the events
	Earthquakes	The likelihood the area will experience earthquakes and the likely severity of the earthquakes

Reference #4 Examples of nature-based solutions that may help to reduce storm surge and coastal erosion.

Natural Infrastructure	Description
Artificial reefs	Artificial reefs that are adaptable to promote oyster growth and other benthic habitat have been assessed as part of the nature-based solutions being developed. These structures can be designed to withstand high-energy oceanic conditions and can provide a good first line of defense to dissipate wave energy before reaching the shorelines. Examples of these types of structures include pre-cast concrete units such as concrete reef balls and reef castles as well as conventional rock. Marine mattresses are a good alternative for scour protection of these systems and can provide additional habitat for oysters and crabs.
Beach nourishment	The process of placing additional sediment on a beach or in the nearshore. Can involve dredging sand from an offshore area, pumping it onshore, and sculpting beaches that both mimic and enhance the original shoreline.
Dune restoration	Sand dunes provide a natural buffer against storm surges, and offset the coastline substantially from the water, thereby protecting native vegetation, and coastal areas. In particular, areas with wide sandy beaches and littoral sediment deposition potential are ideally suited for dune restoration as a first line of defense against coastal erosion due to storm surges.
Living berms	Nearly horizontal portion of a beach or backshore having an abrupt fall and formed by wave deposition of material and marking the limit of ordinary high tides. Confine water flow within a specified area to prevent flooding.
Living Shorelines	Living shorelines encompass a wide variety of solutions that incorporate substrate alterations, SAV and shoreline vegetation, living sills, and recruitment of aquatic organisms to create a rich food web with enhanced connectivity across the littoral, pelagic, and benthic zones. These solutions not only provide storm surge attenuation potential, but also provide significant ecosystem co-benefits for recreation, blue economy, and blue carbon sequestration.
Marsh restoration	Marsh restoration was assessed to complement other nature-based approaches such as dune restoration and living shorelines. One of the benefits of having healthy marshes is that they can reduce wave energy, storm surge, and sometimes even flooding. Some of the alternatives assessed for marsh restoration include installing marshes with offshore edgings and sills such as rock sill, shell bags, reef balls, coir log sill, marine mattresses, and marsh mounds. Others include marsh migration by placing fill and vegetation to

Natural Infrastructure	Description
	promote sediment accretion and variations of this.
Oysters Reefs	Dense aggregations of oysters that form large colonial communities. Because oyster larvae need to settle on hard substrates, new oyster reefs may form on stone or other hard marine debris.
Restoration of Barrier Islands	Barrier islands form as waves repeatedly deposit sediment parallel to the shoreline. As wind and waves shift according to weather patterns and local geographic features, these islands constantly move, erode, and grow. They can even disappear entirely. They are generally separated from the mainland by tidal creeks, bays, and lagoons. Beaches and sand dune systems form on the side of the island facing the ocean; the side facing the shore often contains marshes, tidal flats, and maritime forests. These areas are important habitat for seabirds, fish and shellfish, and nesting sea turtles.
Seagrass Restoration	Small-scale projects in low energy environments to regenerate or enhance the quality or quantity of submerged aquatic vegetation.