Natural Resources Department

It has been in the past and will continue to be, into the future, the responsibility of Native Peoples to oversee the environment in which we must all survive. It is inherent to our survival. It is the purpose of the Natural Resources Department of the Wampanoag Tribe of Gay Head (Aquinnah) to establish and maintain the capacity and capability to manage environmental programs on the Tribal Lands, as well as beyond the boundaries of Tribal Lands.

~Matthew (Cully) Vanderhoop

Wampanoag Tribe of Gay Head Aquinnah

Our Department

From left to right: Ranger Tyler Moreis, Director of Natural Resources Bret Stearns, Laboratory Manager Andrew Jacobs, Laboratory Analyst Marcella Andrews, Environmental Programs Coordinator Beckie Finn, Ranger Michael Sellitti Jr.

Wampanoag Tribe of Gay Head Aquinnah

Wampanoag Tribe of Gay Head Aquinnah
Public Safety and Response

The Wampanoag Tribe's Natural Resources Department strives to empower and enhance the first responders and the civilian enrichment programs available to members of the larger Island community.

Teaching the Massachusetts Hunter Education Safety Course Annually.

Annual Earth Day Beach Cleanup

Response to wildlife entanglements

Outreach education with children from local schools using the YSI

Law Enforcement, Emergency Medical Response, Public Education & Environmental Response

Wampanoag Tribe of Gay Head Aquinnah
Public Safety and Response

The Wampanoag Tribe's Natural Resources Department strives to empower and enhance the first responders and the civilian enrichment programs available to members of the larger Island community.

Ranger Michael Sellitti gives an Earth Day presentation at Cape Cod Community College

The Natural Resources Department along with the US Coat Guard assisting with rescue response efforts for a boat fire in Menemsha, June 2016

Law Enforcement and First Response course followed by Tactical Casualty Care drill

Law Enforcement, Emergency Medical Response, Public Education & Environmental Response

Wampanoag Tribe of Gay Head Aquinnah
Wampanoag Environmental Laboratory

- Center of the Tribe's environmental programs
- DEP certified in microbiology
- Full service public testing facility
- Provides data to Tribal programs, as well as the Island community and State
- Conducts fresh, salt, and brackish water quality monitoring and environmental research

Wampanoag Tribe of Gay Head Aquinnah
Wampanoag Environmental Laboratory

- Surface Water Monitoring
- Drinking Water Analysis
  - Public Water Supply (PWS)
  - Private Homes and Wells
- Air Quality Monitoring
  - Ground Level Ozone
  - Particulate
- MDPH Bathing Beaches Program
- Weather Monitoring Station
- Direct Mercury Analyzation
- Ground Water Monitoring
- Biomonitoring
- Stormwater/Runoff Monitoring

Wampanoag Tribe of Gay Head Aquinnah
Wampanoag Environmental Laboratory

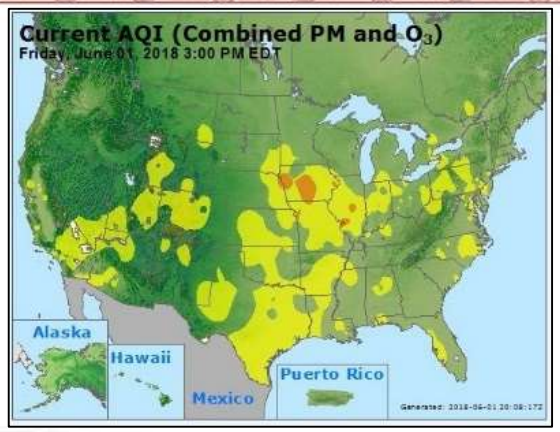
Surface Water Monitoring

EPA approved water monitoring program
20 sampling sites in and around the Menemsha Pond Complex
Collection and analysis of over 700 samples yearly
Monitor watershed health, enhance, protect, and restore water quality
Data available publicly through EPA's WQX (Water Quality Exchange)

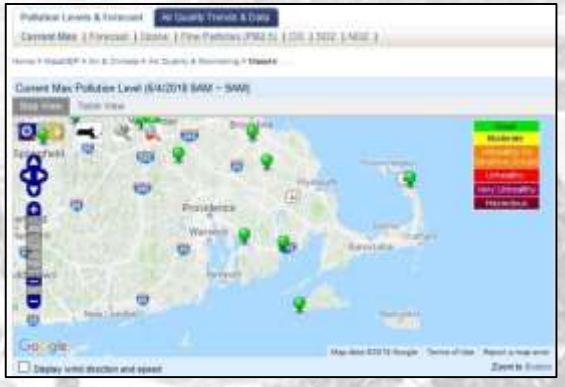
pH	Dissolved Oxygen Turbidity	Ammonia
Temperature	ORP	Silica
Conductivity	Chlorophyll	Phosphates
Total Dissolved Solids	Nitrate	Total coliform
Salinity	Nitrite	E. coli

Ozone Monitoring

- Year round monitoring of ground level ozone
- Data is exported in real-time to MassDEP Ozone Program
- The Tribe's ozone data is vital to public health. Without our monitoring station, ozone air quality for the entire Cape Cod region could not be validated.
- Data is uploaded to national database and is accessible to both professional agencies and general public
    - Data can be accessed via
        - EPA's AirNow website
        - MassDEP: MassAir Online



EPA's AirNow air quality website. Data and air quality can be view nationally, regionally, and by individual sampling site



MassDEP's MassAir Online real time air quality shows data and air quality from across the state

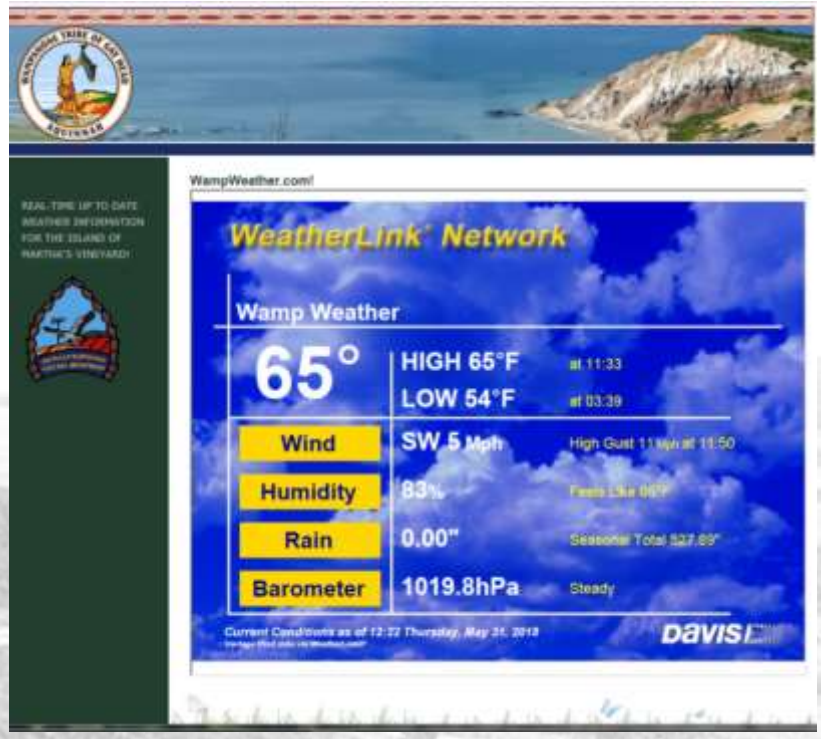
Particulate Monitoring

The Tribe has operated and maintained a particulate matter monitoring program (PM2.5) on Tribal lands since 2003. Samples are sent to University of California Davis Air Quality Group for analysis. The analyzed data from this station is uploaded to a national database which is accessible to the public via the Environmental Protection Agency website in AirNow.

Left: Inside sampling module where particulates are collected

Right: Newly installed V4 controller at the Tribe's MAVI1 PM2.5 monitoring site

Wampanoag Tribe of Gay Head Aquinnah
Links to Weather Station, Air Data and Water Data



- http://www.wampweather.com
- http://www.wunderground.com
- https://www.airnow.gov/
- http://www.wampnrd.com
- https://www.epa.gov/waterdata/water-quality-data-wqx

Wampanoag Tribe of Gay Head Aquinnah
Coastal Resiliency Program

Both sides of road contain habitat for rare and threatened species

Dune Loss/Road Damage Sandy

Culvert damage from Sandy, awaiting FEMA repairs, further compromised during January 2014 Nor'easter

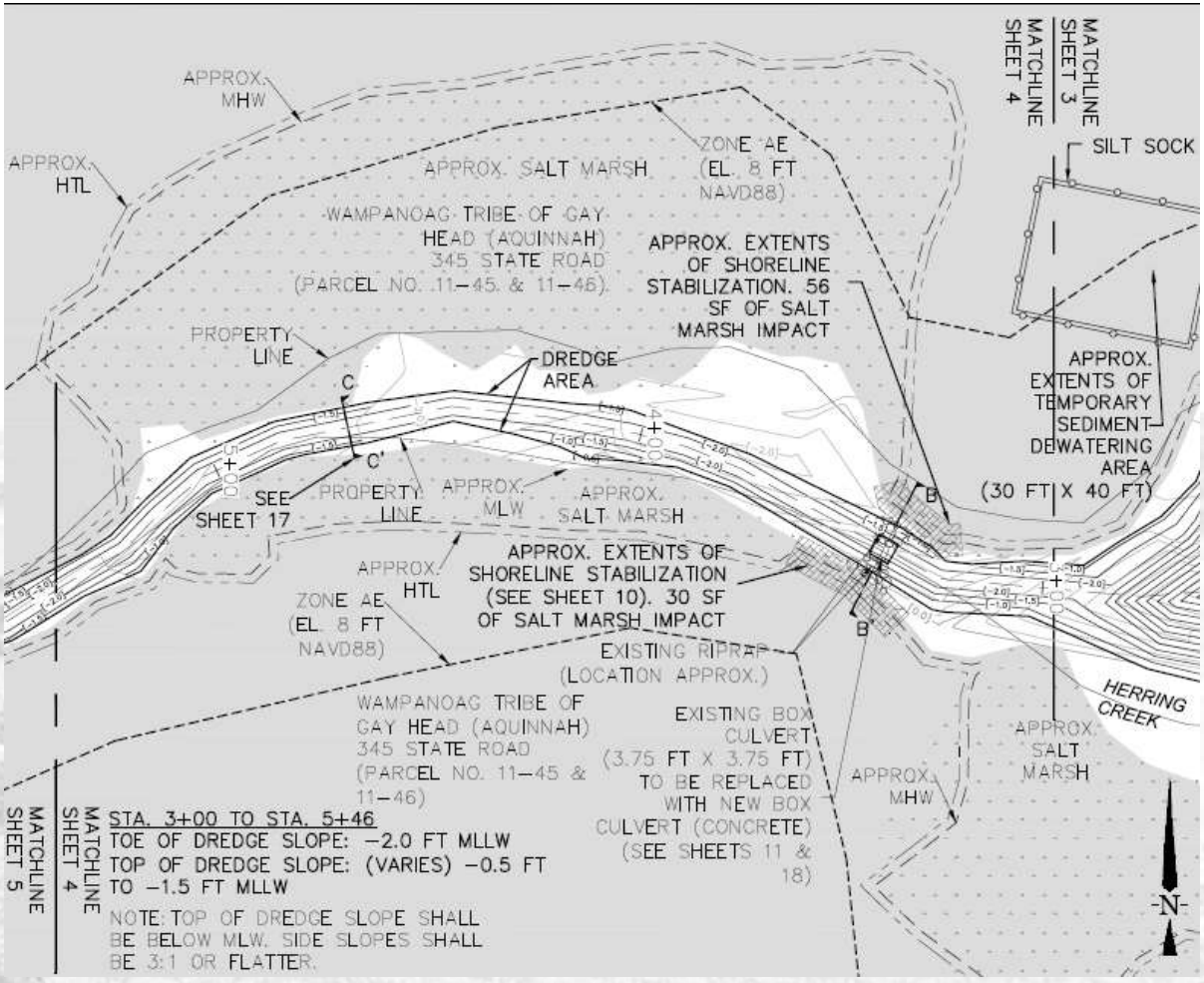
Road protects matrix of interdunal wetlands

National Fish and Wildlife Foundation

Wampanoag Tribe of Gay Head Aquinnah
Dredging of the Herring Creek

Wampanoag Tribe of Gay Head Aquinnah

Dredge design for northern end of creek, including fish box and associated shoreline stabilization



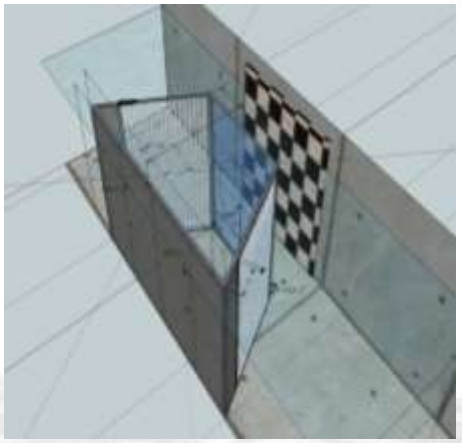
Wampanoag Tribe of Gay Head Aquinnah

Wampanoag Tribe of Gay Head Aquinnah
Herring Cam

The Wampanoag Tribe manages a natural herring run located on Tribal lands. In early spring, sexually mature Blueback Herring and Alewife travel from the Atlantic Ocean into Menemsha Pond and pass through the run to spawn in Squibnocket Pond.

In recent years, the creek has been severely impacted by siltation, largely due to storm influence, which now hinders the migration of these anadromous fish.

The Natural Resources Department installed a seasonal fish counter in May 2016. Using a camera and specialized software program, fish populations can be enumerated, providing bassline data to gauge restoration efforts

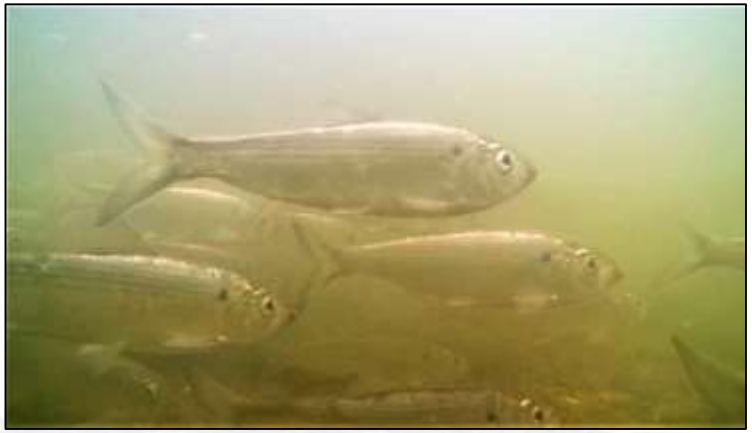


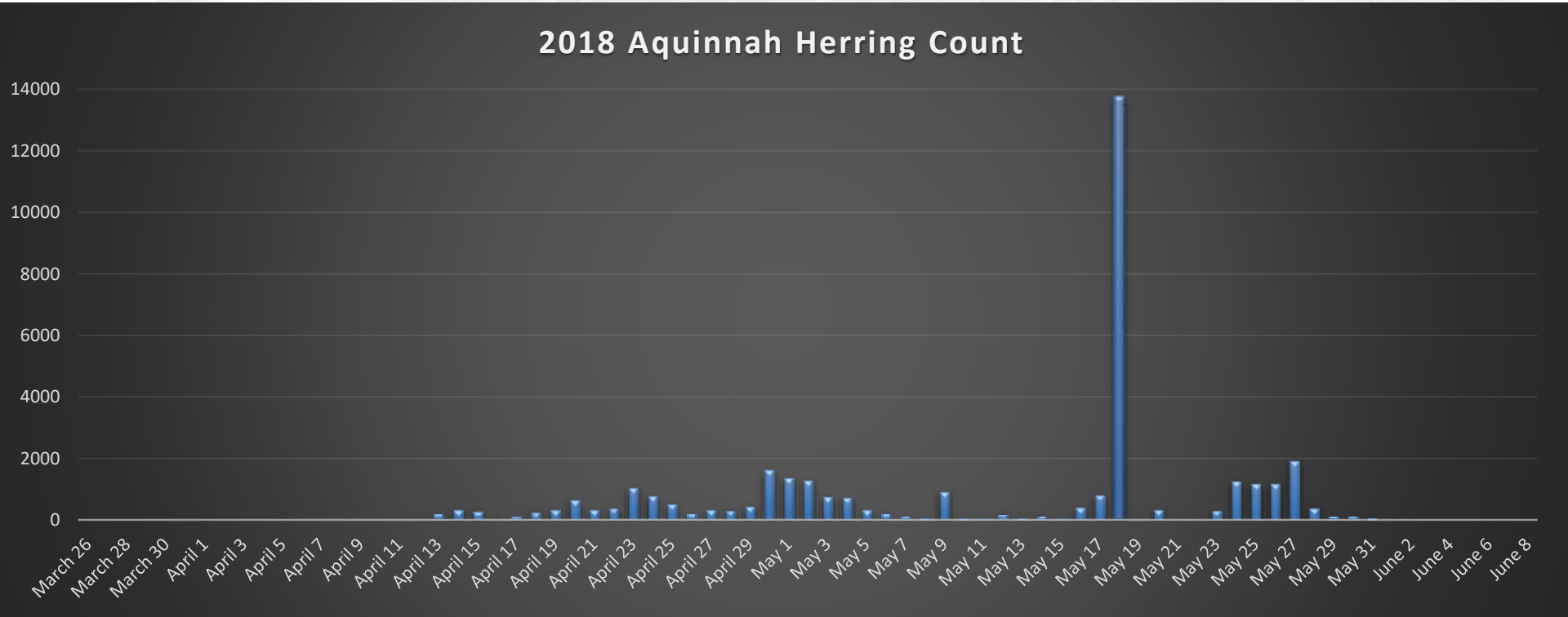
Wampanoag Tribe of Gay Head Aquinnah

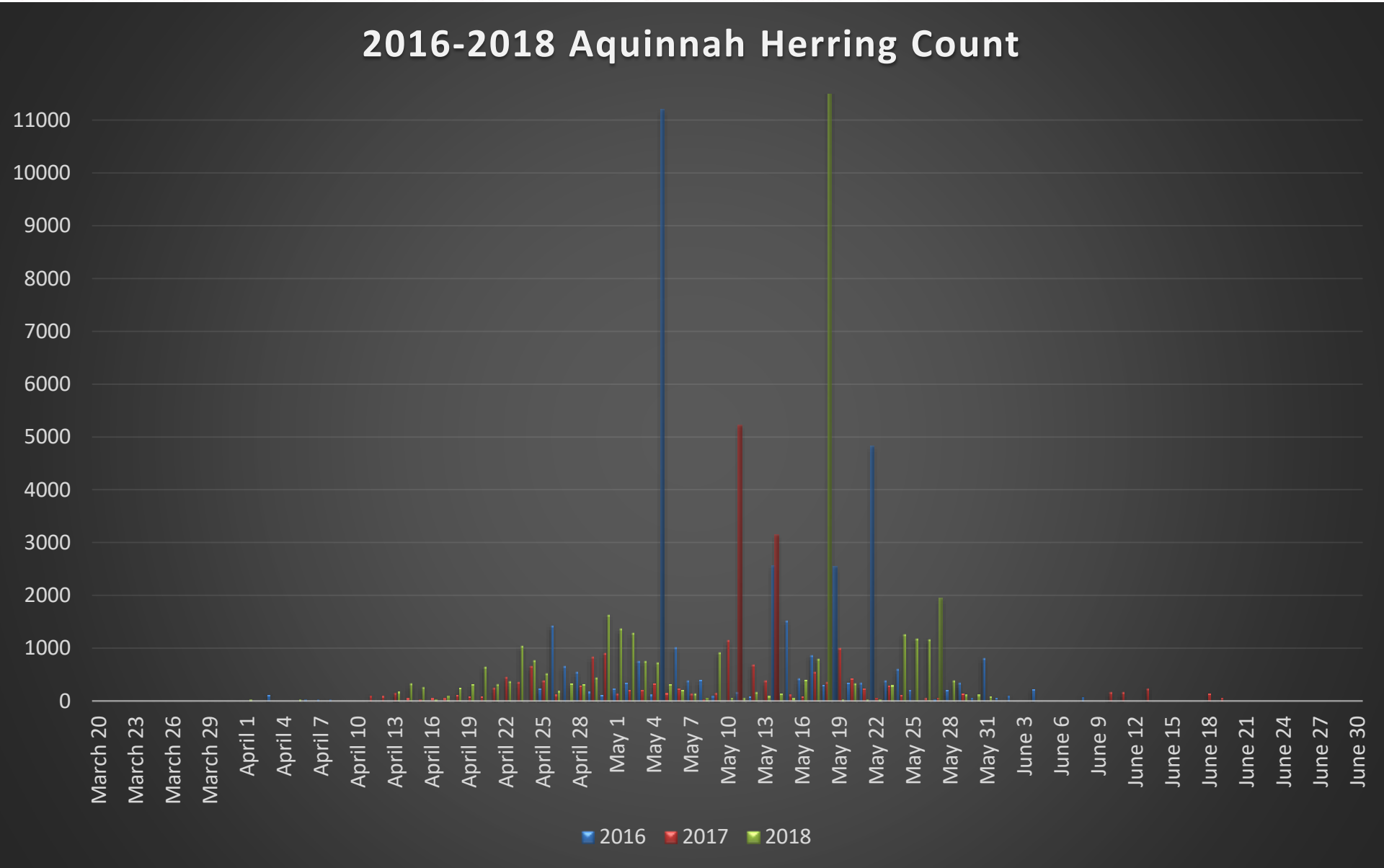
Herring Figures

2016 survey counted ≈ 34,404 Herring
2017 survey counted ≈ 22,371 Herring
2018 current herring count ≈ 37,326 Herring

* 2018 data accurate as of June 3rd, 2018






2016-2018 Aquinnah Herring Count
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
March 20
March 23
March 26
March 29
April 1
April 4
April 7
April 10
April 13
April 16
April 19
April 22
April 25
April 28
May 1
May 4
May 7
May 10
May 13
May 16
May 19
May 22
May 25
May 28
May 31
June 3
June 6
June 9
June 12
June 15
June 18
June 21
June 24
June 27
June 30
2016
2017
2018

Wampanoag Tribe of Gay Head Aquinnah
Hurricane Sandy Restoration Projects

Hurricane Sandy devastated the Northern Shores in Aquinnah. The impacts to Lobsterville and West Basin beaches, and the dunes in what is known as the Common Lands are still clearly evident today. The storm washed away large portions of beach front dunes which provide wind and water protections to the delicate bog and wetland ecosystems that lay just on the other side. Sandy also destroyed public access routes to the cranberry bogs, the boat launch point, and to major fishing locations. Since the passing of Hurricane Sandy the Natural Resources Department has been working to bolster protections for the wetlands and to try and reinforce the remaining dunes.

Wampanoag Tribe of Gay Head Aquinnah
Hurricane Sandy Restoration Projects

The Natural Resources Department continues to actively work on impacts from Hurricane Sandy and subsequent storms. The department has been successful finding funding sources and partnerships to assist with these projects.

Wampanoag Tribe of Gay Head Aquinnah

Menemsha Dredge/Lobsterville Restoration

Wampanoag Tribe of Gay Head Aquinnah
Replanting Beach Grass

The Natural Resources Department, with funding in part from National Fish and Wildlife Foundation (NFWF) started replanting beach grasses in the dune system to bring back structure, stabilization, and protection. The beach grass helps hold sand together because of its wide root system, this keeps the dunes from shifting and the sand from easily blowing/washing away.

Our beach grass project also entails the removal of spotted knapweed: an invasive, noxious plant which uses its “taproot” structure to out-compete native plants for water.

Invasive Spotted Knapweed

Amira Madison and Christina Hook-Leslie

Newly planted Beachgrass

- In 2015 and 2016 the Natural Resources Department began coordinating beach grass plantings along West Basin Road and Lobsterville Beach.
- In 2015 there were 20,000 stems planted in bare regions of dune along West Basin Road.
- In 2016 a volunteer planting day resulted in 19,000 stems planted in a section of Lobsterville Beach where dredge spoils had recently been placed to replace dune lost to Hurricane Sandy.
- On Sunday, April 29, we hosted another volunteer planting day to continue our efforts to stabilize Lobsterville Beach and to rebuild the dune. 20,000 stems were planted in 2.5 hours with 80 volunteers!
- We hope to continue this effort with another planting next April in celebration of Earth Day.

Wampanoag Tribe of Gay Head Aquinnah

Wampanoag Tribe of Gay Head Aquinnah
Progress

September 2016

September 2017

Wampanoag Tribe of Gay Head Aquinnah

New Planting April 2018

Wampanoag Tribe of Gay Head Aquinnah

Eel Grass Transplanting

Wampanoag Tribe of Gay Head Aquinnah

Wampanoag Tribe of Gay Head Aquinnah

Bay Scallop Restoration

The Natural Resources Department receives approximately 150,000 bay scallop seed each year from a hatchery for population enhancement in Menemsha Pond. The packets hold approximately two thousand seed. These bundles are then placed into spat bags and hung from floating lines, where they provide a safe environment for the scallops to grow, out of the reach of predators. When the scallops mature, to about the size of a quarter, they are released into a protected sanctuary site within Menemsha Pond.

Wampanoag Tribe of Gay Head Aquinnah
Predator Control

Each year, the Natural Resources Department deploys crab traps on Menemsha Pond to minimize predation on Bay Scallops. Staff continues to empty the traps and re-bait every week from spring into fall annually to keep predation down in order to restore greater scallop population numbers. It is the continuing goal of the Natural Resources Department to increase availability and sustainability of sustenance foods for Tribal People.

Wampanoag Tribe of Gay Head Aquinnah
Wild Cranberries and a Changing Bog Structure

The Wampanoag Tribe of Gay Head (Aquinnah) has historically and contemporaneously relied on the annual harvest of wild cranberries to help supplement its traditional culture and food supply. Over the last several years the Natural Resources Department has observed a decline in the amount of fruit produced by the natural bogs in the Aquinnah Common Lands. While some of the decline could possibly be attributed to human interaction, much of the decline can be traced to changes in the weather and the storms produced by changing weather patterns. The bogs have been inundated with salt from storm surges produced by major storms such as Hurricane Sandy and Winter Storm Juno just in past few years alone.

Wampanoag Tribe of Gay Head Aquinnah
Wild Cranberries and a Changing Bog Structure

Wampanoag Tribe of Gay Head Aquinnah
Links for more information and videos

http://www.wampanoagtribe.net

http://www.wampnrd.com

http://wampnrd.com/videos.html

https://www.facebook.com/wampnrd/

https://www.facebook.com/wampnrd/videos/