

The logo for NEFSA (Northwest Environmental Fisheries Science Association) features the acronym in large, white, bold, sans-serif capital letters. The letters are filled with a white silhouette of a map of the Pacific Northwest coast of the United States. Behind the map, there is a dark silhouette of a fishing vessel with a mast and rigging.

NEFSA

COOLING STATIONS

REPORT

OCT. 10, 2023

MAIN TAKEAWAYS:

- **SEAWATER LIFT PUMPS (SWLPS) CAN ACCELERATE THE MATURING PROCESS FOR LARVAE.**
- **DISRUPTING THE NATURAL PROCESS CAN LEAD TO HIGH MORTALITY RATES AND FISH DEFECTS.**
- **WIND FARMS ARE COSTLY. AS CONSUMER PRICES INCREASE, SHOULD WE ADD MORE ENERGY COSTS TO THE CURRENT BURDEN?**



STRUCTURE:

The Ørsted Eversource farm Project design claims to have the "best technology available," yet **fails to address entrainments and the acceleration in fish maturity.**

- Three vertical pipes in parallel stem from the ocean surface down to **30 feet above the sea floor.**
- Each pipe has an intake opening **just under 30 feet** in surface area.
- Steel filters installed on these opening guarantee that large objects won't damage or destroy the structure from within, but **does not filter small organisms like fish larvae.**
- Two of the three pipes will operate with its own SWLP capable of generating an average of 4.0 to 5.3 million gallons of water flow per day (**4,245 gallons per minute**).
- The extreme power brings water and anything small enough to fit through the steel bar **filters to the surface in minutes.**



STRUCTURE:

BREAKDOWN OF MAXIMUM DAILY FLOW PER MONTH:

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Daily DIF (MGD)	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
Daily AIF (MGD)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.3	4.6	5.3	4.9	4.1

- The U.S. Department of the Interior Bureau of Ocean Management Office of Renewable Energy Programs (BOEM) have yet to document the temperature of the discharge water by these cooling systems.
 - However, they believe the warm water effects on the surrounding ocean are “likely to be extremely minimal.” **But there is no research to support this claim.**
 - BOEM is banking on engineering advancements to mitigate harm to the environment but **cannot confirm the effects currently.**



ECOLOGICAL IMPACTS:

ØRSTED, EVERSOURCE IGNORE THREATS TO FISH STOCKS, COASTAL COMMUNITIES

- The entrainment of ichthyoplankton during operation is **based on an outdated NOAA** National Centers for Environmental Information (NCEI) electronic database.
 - Estimates are from NOAA’s Marine Resource Monitoring, Assessment, and Prediction (MARMAP) program from 1977 to 1987 and by the Ecosystem Monitoring program from 1995 through 2017 throughout the North Atlantic region.
- The Ørsted Eversource Project Ichthyoplankton Entrainment Assessment **report notes no research on the mortality rate of entrained organisms for this system.**
 - “It is important to note that the potential ichthyoplankton and zooplankton entrainment estimates calculated assume 100 percent mortality of entrained organisms. There is potential that entrained individuals would survive passage through the CWIS due to short residence time in the system and a maximum water temperature exposure of only 90°F (32°C). Entrainment survival studies at existing power plants do not include directly comparable facilities or environments [..].”



ECOLOGICAL IMPACTS:

HIGHER WATER TEMPERATURES EFFECT BREEDING CYCLES FOR FISH, CRUSTACEANS ACCORDING TO NEFSA HIGHLIGHTS

- **Higher water temperatures typically accelerate species' lifecycles** (fish hatch/mature faster).
- For lobsters, these accelerated cycles mean that female lobsters produce eggs when they are younger & smaller than has traditionally been the case. Eggs produced by smaller & younger females are typically of **lower quality, and larvae have lower survival rates.**
- Cod eggs **develop faster in warmer waters.** Cod eggs and baby cod **cannot swim** and float with the current.
- **Increasing water temperature can affect pollock spawning** activity as typical water temperatures range from 46F and peak at 40F.
- Monkfish release egg veils that float near the water's surface and ride the ocean's current for 1-3 weeks until they hatch. The veils disintegrate based on the water temperatures. Warmer water accelerates this process.
- Haddock eggs rise to the ocean surface and ride the currents.



COSTS:

THE MYTH BEHIND CHEAP AND RELIABLE WIND GENERATION:

- Leases for the **ocean areas cost millions**, and costs per megawatt (MW) increased exponentially.
 - Most recently, the Gulf of Mexico bid for the Lake Charles Lease Area was **over \$5.5 million**.
 - Vineyard Wind costs **\$4 billion**.
 - Vineyard Wind costs over **\$4 million per MW**
 - Compared to a combine cycle facility at \$1 million per MW
- Wind is a variable source of power generation.
 - A typical turbine generates power at a wind speed of 11mph.
 - A wind speed of 33.5 mph enables the turbine to operate at 100%.
 - **Turbines will shut down to protect themselves at 25 meters/second (55.9 mph)**.
 - Vineyard wind designs allegedly **turn off at 69 mph**.
 - Wind blowing at 5 to 15 mph with a gust of 30 mph **will create zero electricity for the grid**.



NEESA

**DEFEND AMERICA'S
MARITIME HERITAGE.**



**BECOME A MEMBER
TODAY.**

**FIGHT
SALTY**

A white anchor icon positioned at the bottom right of the 'SALTY' text.