Other Concerns about In-Water Construction

Time of Year Restrictions

Williams/Transco has chosen to request flexibility with the protective Time of Year Restrictions (TOYR) for specific species over infringing on the TOYR of other sensitive species.

- **Horseshoe crabs** are threatened, and their status directly impacts that of at least one other species on the federally endangered list, the **red knot**. During May and June, horseshoe crabs come ashore to lay eggs on beaches. Since horseshoe crabs do not stray far from their place of birth, disruption to their onshore migration could lead to long-term diminution of this critical ecological agent. At this point, Williams/Transco is choosing to forego avoidance measures during a critical time of year for this species and also not proposing any mitigation measures. It seems that there is no adherence at all to the "avoid, minimize, mitigate" practice relative to the horseshoe crab whatsoever. The encroachment of the TOYR on the horseshoe crab mating and nesting period makes it more likely that there will be an adverse impact on an endangered species' population.

- **Migratory fish pathways** lie within the water column above the proposed pipeline path, where sediment will be resuspended and where vessels will be travelling to conduct the proposed work. Many of the species will be impacted during their annual migration and spawning season through the water column and not just along the bottom. For example, **winter flounder** spawn from December 15 through May 15 from Raritan Bay to the Ambrose Channel. The **Atlantic sturgeon**, which is on the Federal endangered species list, migrates from March 1 to June 30 into the western part of the pipeline's route, and then returns through the eastern part of the pipeline route from October 1 through November 30.

- TOYR flexibility will not only affect benthic communities in New Jersey like the horseshoe crab, but it will also adversely affect sturgeon, winter flounder, and other migratory and economically important species, like the blue crab.

Thermal Discharges

Construction activities will also create thermal discharges. A number of marine species are sensitive to fluctuations in water temperature – for example, the eggs of Atlantic cod and winter flounder. The massive construction barges and large machines, such as drilling equipment, will likely raise temperatures in surrounding waters.

Shellfish, which are sensitive to both the warming and the higher acidification of seawater as it stores more carbon dioxide, move relatively slowly to escape the threats. Surfclams along the East Coast die when it becomes too hot.

Atlantic sturgeon (endangered): The endangered Atlantic sturgeon and winter flounder are bottom feeders, and churning up of buried toxins from construction of NESE in Raritan Bay threatens their food source and impacts the food chain. Additionally, it is possible that the Atlantic sturgeon could be attracted to the construction area when their prey is stirred-up.

Raritan Bay is a major habitat for Atlantic sturgeon. Atlantic sturgeon feed on bottom-dwelling invertebrates. Williams/Transco acknowledges that those species -- clams, crustaceans, etc. -- would be the most directly and adversely impacted by construction. Williams/Transco estimates that it would take 1-3 years for these species to recuperate. The impacts of the 3-12 hours per day of construction activity on the sturgeon's habitat will not only expose them to plumes of toxic sediments (given that sturgeon consume large amounts of mud and sand as they feed) but also reduce and poison their prey. Williams/Transco does not adequately address the long-term implications of any of this, especially considering that sturgeon are slow to mature and reproduce - males take at least 12 years to mature and females reach maturity at 18 years.

Horseshoe crabs: The construction schedule of Williams/Transco includes May to September, disrupting the horseshoe crab in the crucial months when they come ashore to lay eggs on beaches and then when larvae are hatching. Impact has not been identified, and avoidance / mitigation plans haven't been published even though comments of NJ's Endangered and Nongame Species Program experts (ENSP) noted a preference for no near-shore activity between April 15 and September 15.

Horseshoe crabs are recognized as a "keystone" species because its eggs and larvae are an essential food source for other marine wildlife as well as for migrating birds, including the federally listed threatened and state-listed endangered red knot. *****

Their blood (which is blue!) plays an essential role in human medicine. Pharmaceutical companies use Limulus Amoebocyte Lysate (LAL) made from horseshoe crab's blood to test the sterility of vaccines, drugs, prosthetics, and other medical devices. The LAL test is the most accurate test currently available.

The horseshoe crab population has substantially declined in recent decades. The FEIS states that "The most recent stock assessment report for horseshoe crab concluded that, since the ASMFC's initial horseshoe crab stock assessment in 1998, declining abundance in the New York region is evident, and the trend has not reversed (ASMFC, 2013a) … In the 9 years of monitoring conducted by BRWC, there has been no sign of sustained recovery, and the population remains at about 25 percent of its carrying capacity (Reynolds, 2017)." {BRWC = Bayshore Regional Watershed Council}

This is likely due to diminished water quality, lack of spawning habitat, and constant disturbance; and any action construction by Williams/Transco - especially during spawning season - will further disrupt important ecological processes relating to the horseshoe crab (*Limulus polyphemus*) and eliminate any possibility of potential recovery, particularly in New Jersey where there are spawning populations. Several studies (including those done by the National Park Service) document small but viable breeding populations in portions of New York and along the southern coast of Raritan Bay in New Jersey; all of these areas would be impacted by the NESE project. Due to the nature of the size of the *Limulus* populations that occupy Raritan Bay and nest on the surrounding shorelines, any impact to the benthic environment would have significant and potentially irreversible impacts on habitat, food resources, and recruitment.

*** Impacts to Horseshoe Crabs also Impacts Red Knots:** Though the New Jersey and New York FWS offices concurred with FERC's conclusion that the NESE Project *may affect, but is not likely to adversely affect* the federally-listed threatened and state-listed endangered bird, red knot, conclusions seemed to be based on the proximity of the birds to construction sites as well as whether or not they would be present in the open water habitat of the pipeline route in the bay. In the 1/25/19 FEIS, FERC noted that "large numbers of birds rely on New Jersey's coastal stopover habitats during the spring (mid-May through early June) and fall (late-July through November) migration periods." … "The spring migration is timed to coincide with the spawning season for the horseshoe crab (*Limulus polyphemus*). Horseshoe crab eggs provide a rich, easily digestible food source for migrating birds." … "The red knot is known to occur along the northern point of the Sandy Hook Unit in the Gateway National Recreation Area (FWS, 2016f; 2017b), which is approximately 1 mile from the Raritan Bay Loop, during the spring and fall migration periods." (Pages 4-172 and 4-173)

There did not seem to be clear consideration by FWS agencies about the effect of impact on horseshoe crabs as impacts on this food source for the red knot, and this should be factored into decision about the impact of construction on the food source for this federally-listed threatened and state-listed endangered species.

Additionally, it is known that this area is a key stop on the Atlantic Flyway for spring and fall migrating birds, and horseshoe crab eggs are one key source of food for them.

Surfclam: Interestingly, Williams/Transco reported that the dominant shellfish community in New York waters near Rockaway Delivery Lateral Transfer Point was the Atlantic Surfclam (*Spisula solidissima*) but that post-construction surveys showed that concentrations and sizes of surfclams declined in this area. The decline also contributed to substantial decreases in harvesting due to small surfclam sizes. This population decline was documented by Williams/Transco following their construction of the Rockaway Lateral pipeline in this area in 2015. If Williams/Transco's NESE project is allowed to proceed, further harm will be imposed on the already vulnerable surfclam populations of both New Jersey and New York.

The Raritan Bay Loop route and temporary construction workspace avoids the surf clam bed identified by the NJDEP specifically on Flynn's Knoll. However, the Project will directly disturb benthic habitat containing surfclam in other New Jersey waters. Surfclams in the seabed adjacent to the disturbed area may also be impacted by construction of the Raritan Bay Loop because of elevated levels of suspended sediments and additional sedimentation.

Oysters: As a species that filters seawater, the oyster is essential to the health of the waters in the New York Bight (which includes Raritan Bay). Oyster reefs can also reduce the impact of storms like Superstorm Sandy.

Efforts to establish 100 acres of oyster reefs are underway through the Billion Oyster Project, begun in 2014. The Billion Oyster Project has reinstituted oysters and reefs along the waters of Staten Island in the area of the proposed pipeline.

Oysters are a filter feeder of plankton, and they will be affected by the construction of NESE's pipeline in the New York Bight. The debris from digging will smother oysters.