

Environmental Training

Coastal Virginia Offshore Wind (CVOW) Commercial Project

**Training for Marine Based
Project Activities
January 2024**

Introduction

All Project-Associated Crew Training

- Marine Species Awareness
- Marine Species Identification
- Vessel Strike Avoidance and Management
- Cultural Resource Protection
- Marine Trash & Debris
- Fish Kills
- Birds & Bats
- Key Points to Remember

Activity-Specific Crew Training

- **Foundation Construction Activities**
 - PSO/PAM Monitoring Protocols
 - Clearance/Shutdown Zones
 - Protected Species Mitigation Measures
- **HRG Survey Activities Crew (Only < 180kHz)**
 - PSO/PAM Monitoring Protocols
 - Clearance/Shutdown Zones

Introduction

Training Guide

- Foundation for ensuring environmental and regulatory compliance
- Will be located on every vessel
- Provides a summary of all federal, state and local permits issued in relation to CVOW Commercial Project Marine Activities
- Identifies important roles and responsibilities
- Establishes communication structure
- Includes a copy of all agency-issued permits and approved plans



How we communicate as a Project Team will:

- Ensure safety on the water
- Ensure compliance
- Establish our level of professionalism with both regulators and the public



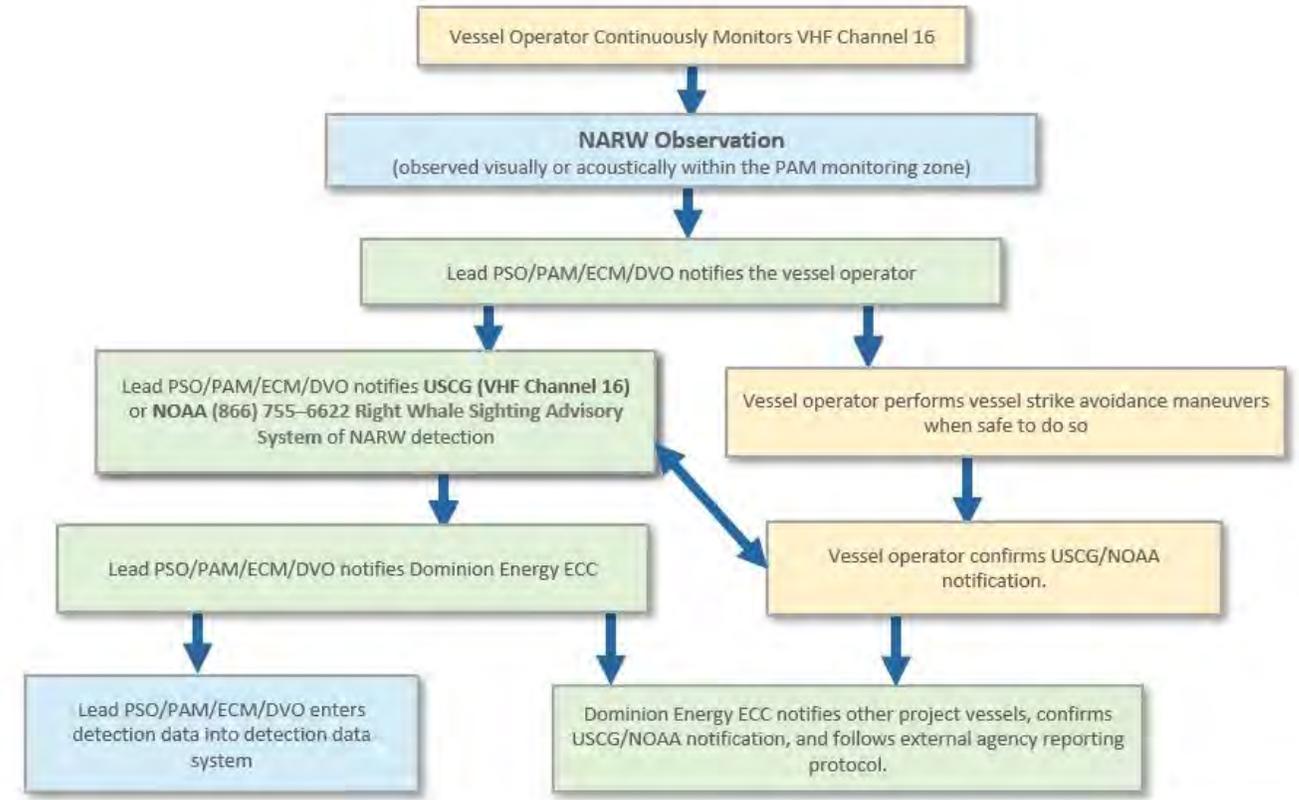
Prevention of Miscommunication

- Clear, annunciated radio communication
- Toolbox talks
- Use of hand signals
- Three-way communication
- Know your communications plan
- Communications flowchart

Everyone is responsible!

Maintain a vigilant watch!

If you see something, contact your visual monitoring team!



Abbreviations	
CVOW	Coastal Virginia Offshore Wind
DVO	Dedicated visual Observer
ECC	Environmental Compliance Coordinator
ECM	Environmental Compliance Monitor
MCC	Monitoring and Coordination Center
NARW	North Atlantic right whale
PAM	Passive Acoustic Monitoring
PSO	Protected Species Observer

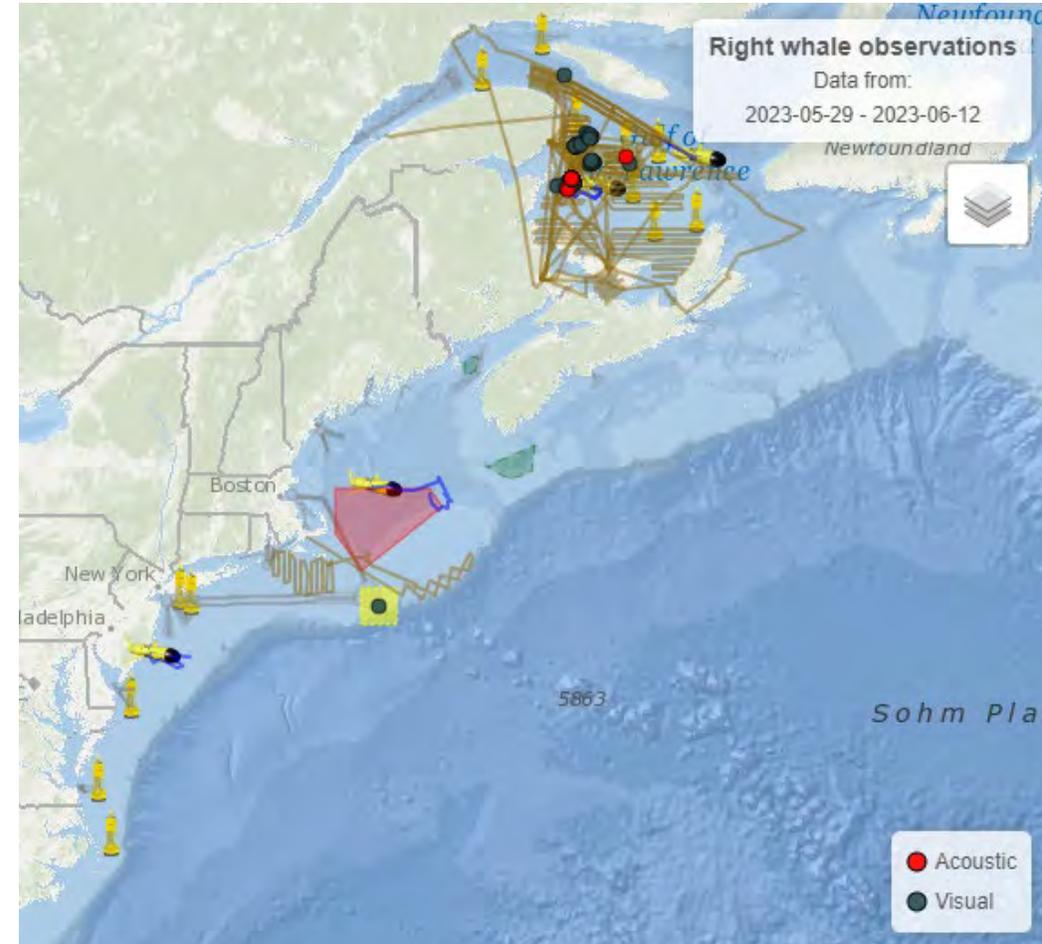
Permit Summary

- **BOEM Lease OCS-A 0483 (2013)**
 - General provisions
 - Protected species not covered under the IHA
 - Marine Protected Species and Essential Fish Habitat
 - Cultural Resource Protection
 - Marine Trash and Debris Prevention
 - Reporting
 - Navigational Safety
- **CVOW Final COP**
 - Terms and Conditions
- **OCS Air Permit and USACE IP**
- **CVOW ESA Biological Opinions (NMFS and USFWS)**
 - T&Cs of the Incidental Take Statements
- **Offshore Wind Site Assessment and Site Characterization Activities Programmatic Consultation (as per November 2021 update)**
 - Project Design Criteria (PDC)
 - Best Management Practices (BMPs)
- **Final Letter of Authorization (February 5, 2024)**
 - Ramp Up and Power Down
 - Vessel Strike Avoidance
 - Marine Protected Species Monitoring
 - Visual Monitoring (i.e., PSOs, etc.)
 - Acoustic Monitoring (i.e., PAM)
 - Sound Field Verification
 - Activity-Specific Protocols
 - Clearance/Shutdown Zones
 - Reporting

Recent regulatory policies impacting OSW Projects

Notable or unusual marine mammal sighting or stranding information

Implications for CVOW construction and operations

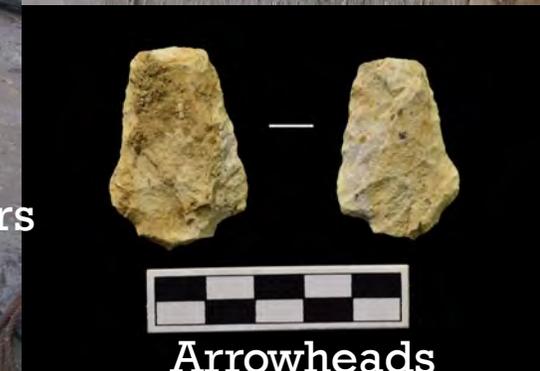


NARW detections 5/29/23 – 6/12/23

Cultural Resource Protection

If a potential archaeological resource is discovered within the Project area:

- Immediately halt seafloor/bottom-disturbing activities within the area of discovery **and implement a 50 m avoidance Zone**
- Notify designated on-vessel representatives and the MCC immediately; the MCC will contact the Qualified Marine Archaeologist (QMA) for an assessment
- **Note location, depth for reporting**
- Keep the location of the discovery confidential and take no action that may adversely affect the archaeological resource until instructed on how to proceed



Intro

All Project-Associated Crew Training

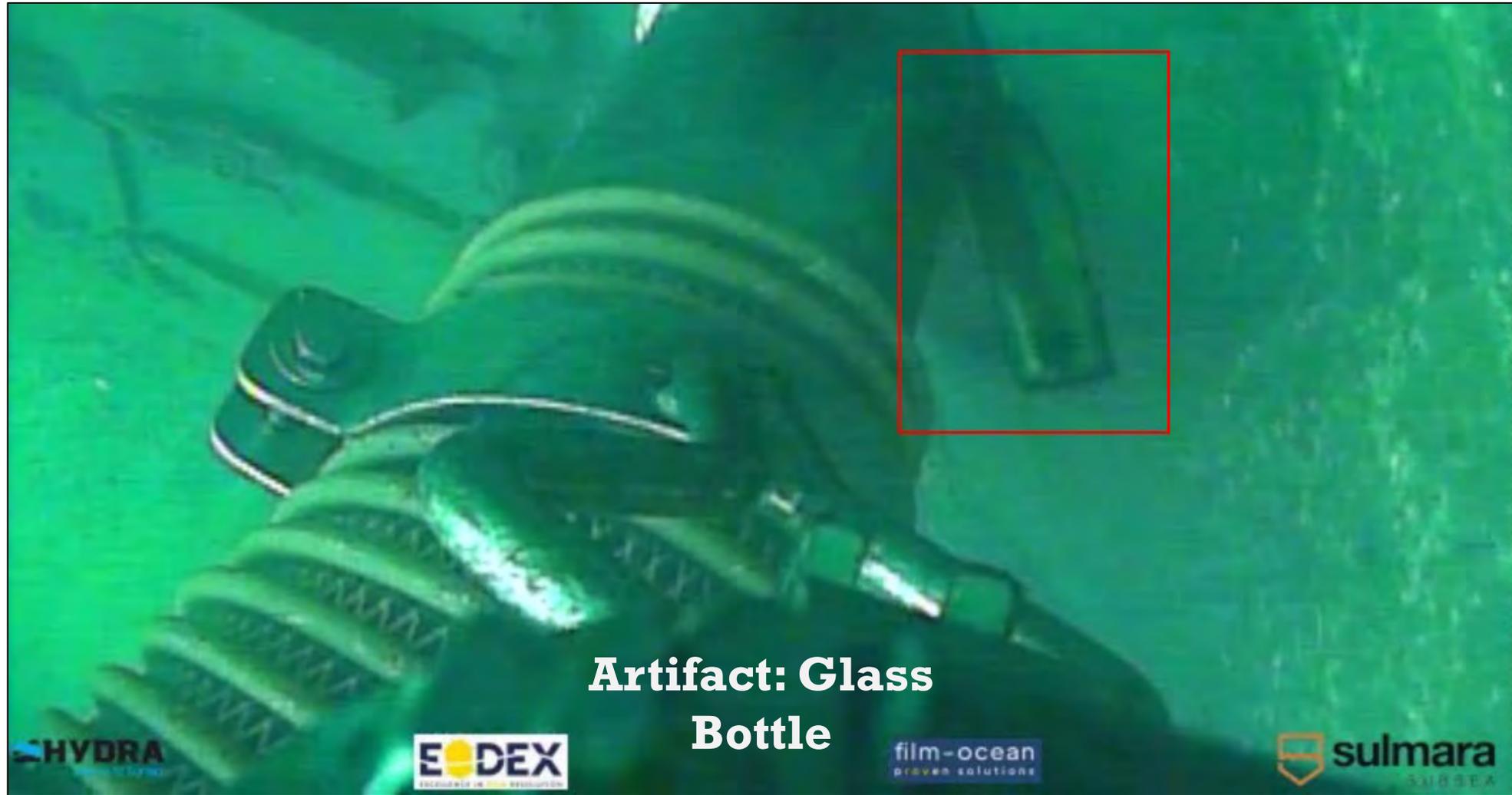
- Basic Wreck Identification Guide
- Overview
- Framing
- Timbers
- Artifacts
- Anchors
- Aircraft
- Key Points to Remember

Basic Wreck Identification Guide

Overview

- The majority of older historic wrecks are made of wood with large iron bolts.
- Fragmentary pieces of wrecks usually require detailed views and a specialist for an accurate identification as a specific part.
- If identification is in any doubt, refer to wreck pieces as “timbers” because terminology for ship parts is very specific.
- Any objects found that are not wood or iron should be treated as potential artifacts and avoided immediately after close examination. Many artifacts are delicate and provide critical identification information.

IF YOU SEE SOMETHING, STOP AND SAY SOMETHING!



**Artifact: Glass
Bottle**



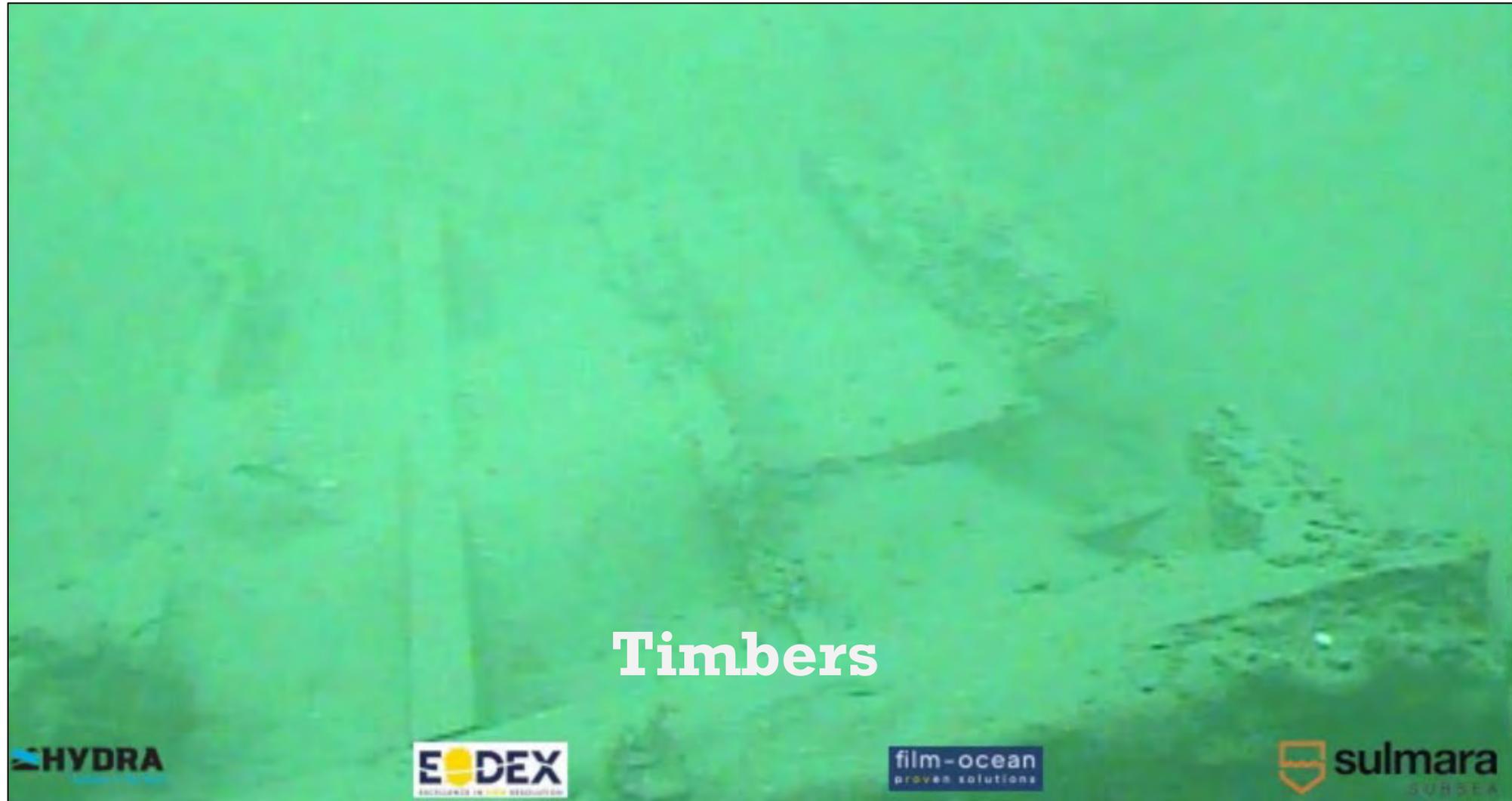
Artifact: Fabric



Artifacts

- Artifacts are loose objects that are not part of the wreck structure itself.
- Examples of artifacts include objects such as glass bottles, ceramic plates, loose pieces of metal, and fabric.
- Any artifact found could suggest the presence of more in the vicinity, and extra care should be taken after one is located. Any ground disturbance should be immediately stopped in the vicinity following artifact discovery to avoid damaging the artifacts. If an artifact is found **on** the wreck, then all disturbance should stop immediately with a record of the artifact from a few angles recorded on film. The position of artifacts on a wreck can provide valuable cultural information.
- Close camera views should be taken of any artifacts to facilitate identification by specialists.

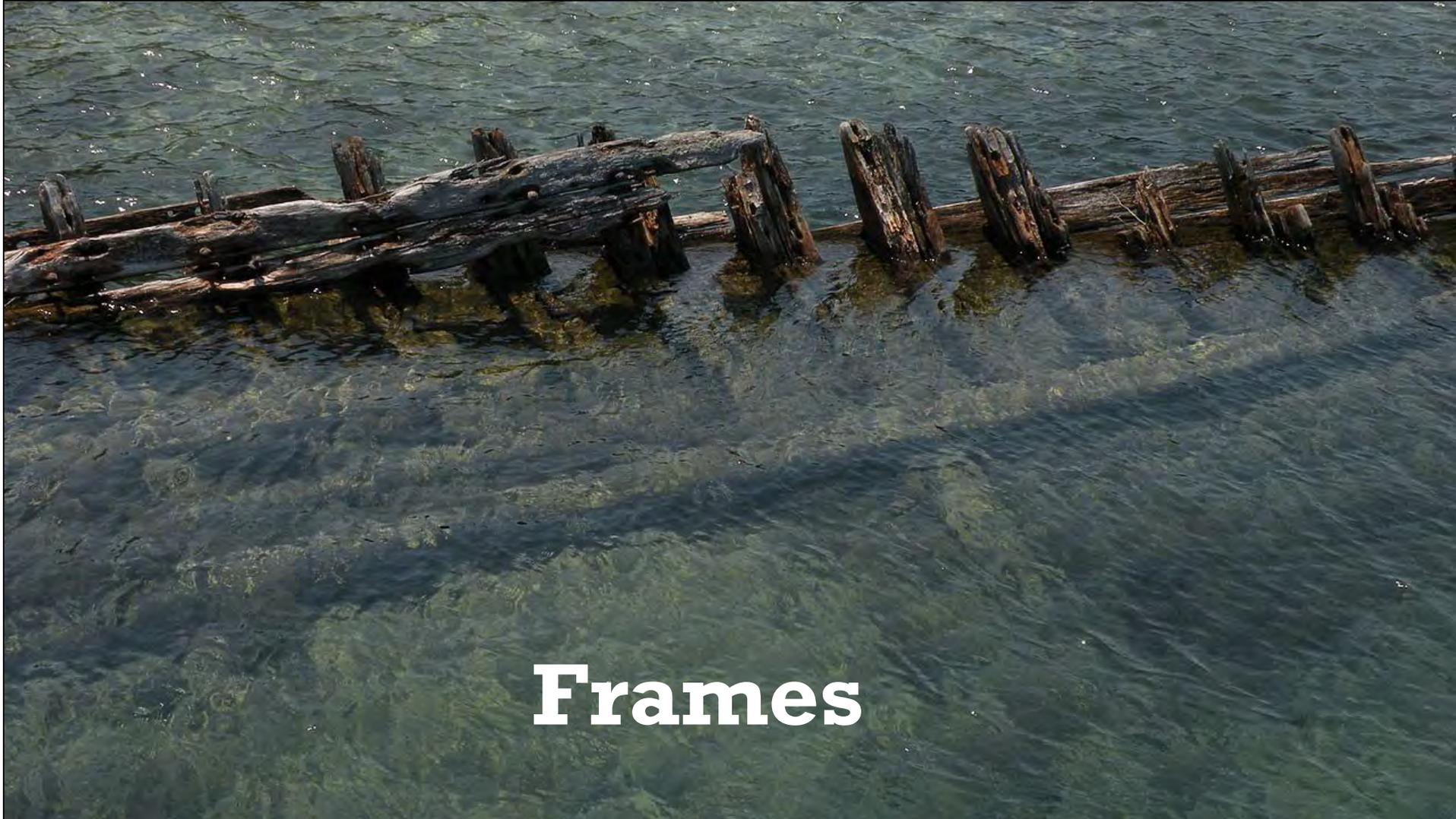
IF YOU SEE SOMETHING, STOP AND SAY SOMETHING!





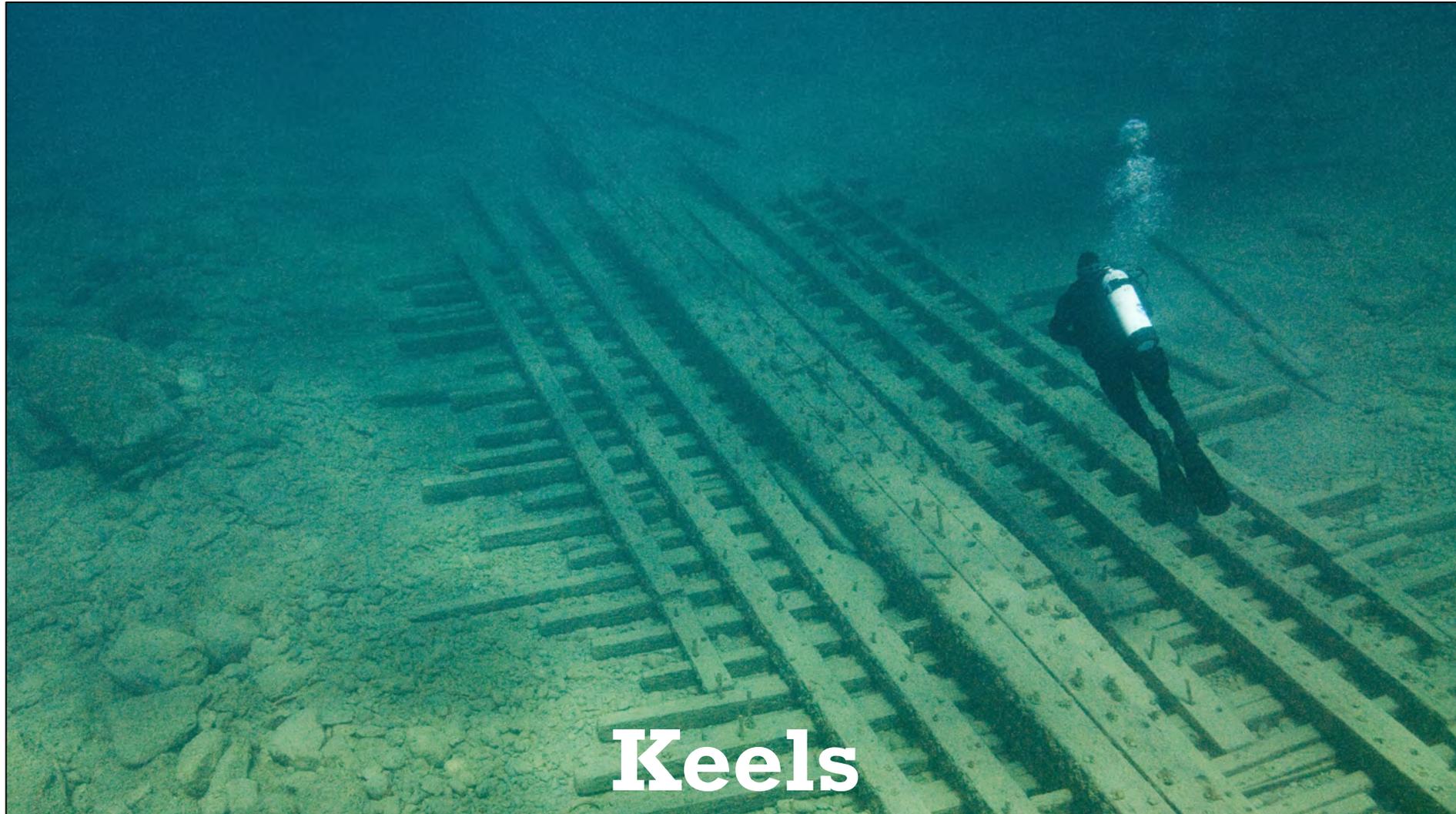
Timbers, planks, and features

- Work should be immediately stopped anytime a section of timbers is encountered until it is reviewed by a Subject Matter Expert (SME).
- Thin straight wooden timbers in parallel are indicative of decking but could also be other structures such as bulkheads.
- These timbers often have planks attached to one side which run perpendicular to the timbers, but bulkheads may be only planks.
- Frequently, these structures have attached features or cutouts which can give indication of what part of a ship it is.
- Care should be taken to record features as they can be used for identification.
- This type of wreckage is likely to have artifacts in the vicinity so ground disturbance should stop or proceed with caution.



Frames

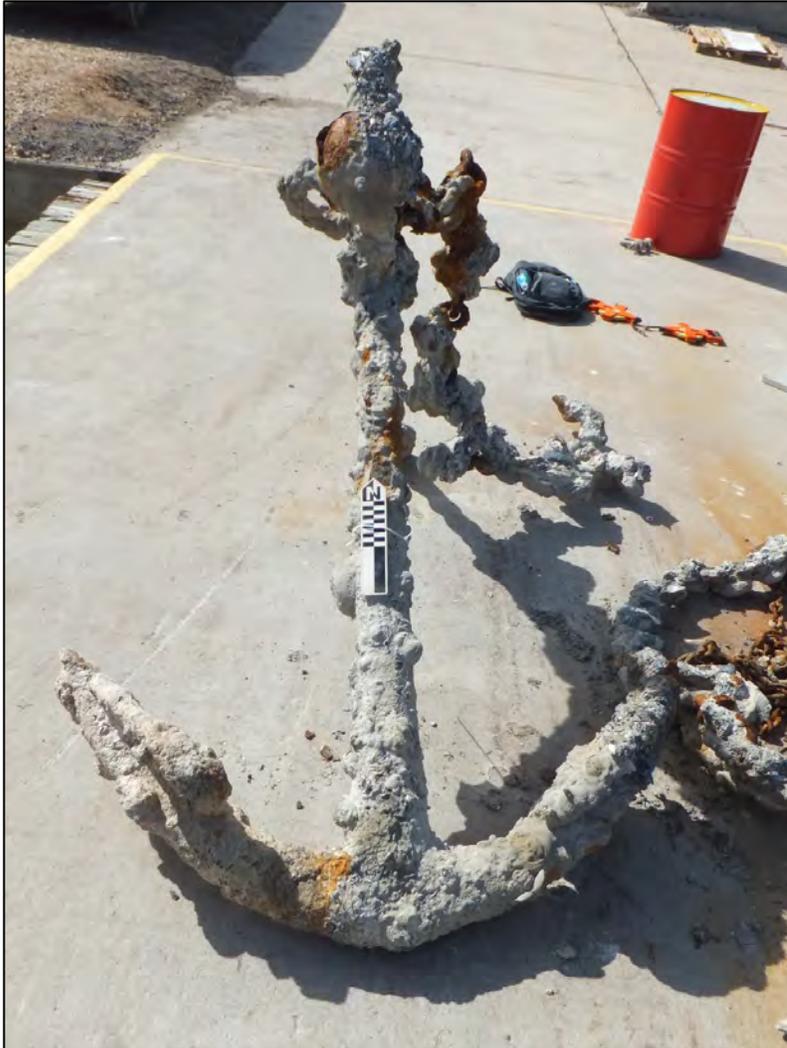
- Commonly referred to as ‘ribs,’ frames are the main structure of a ship’s hull often made of many attached timbers called futtocks
- These timbers are normally noticeably curved but can become flattened due to pressure from sediments and decay
- Frames are normally very thick and closely spaced
- Frames often have surviving planking on the inside and outside which is directly attached to the frames
- The presence of frames indicates the presence of significant wreckage and likely artifacts in the vicinity. Ground disturbance should stop or proceed with caution.



Keels

Keels

- A keel is a very large straight timber, which is the main backbone of a ship, and will almost always have frames attached at regular close intervals along its length
- Keels often have additional timbers attached along their length and large timbers at the ends, the stem and stern posts
- Care must be taken in identification as other large timbers can resemble keels, and if there is any uncertainty timbers should not be called keels
- The presence of a keel indicates the presence of a wreck, and likely artifacts; therefore, ground disturbance should stop or proceed very carefully



Anchors

Anchors

- To identify an anchor, a detailed view of every part of the anchor is needed since the overall shape of anchors has been the same for centuries
- Particular attention should be taken to the curve of the anchor arms, the stock (if present), and any chain (if present)
- Anchors were frequently lost or discarded; therefore, an isolated anchor is not uncommon
- You should try to get video footage from many angles without disturbing the anchor



Aircraft

Aircraft

- Often made of aluminum
- Aircraft are rare to find and very rare to find intact
- Can be very difficult to identify as aircraft without close details of surviving parts, which should be obtained if possible
- Correlating with specific aircraft types or losses is even more difficult
- Aircraft parts are not always a result of crashes but can be from lost parts shipments, dumping of damaged or old aircraft, or accidental loss

- Likelihood of human remains associated with wreckage, caution should be exercised
- Aircraft may be military losses putting them under strict protections
- Ground disturbance should stop after aircraft wreckage is identified

Stop Work Criteria

- Stop if you believe wreckage or artifacts are consistent with a historic or military wreck, or other suspected archaeological site
- Highly contextual as every wreck is different
- Must balance between revealing enough for an identification and disturbance of a possible wreck
- Gather as much video as possible to allow expert identification

Stop Work Criteria

- Refer to **Unanticipated Discoveries Plan** for requirements as they differ between state and federal waters.
- Federal Waters:
 - Federal regulations **allow** for human remains retrieval (under direction by the agency) as needed to protect them.
 - All work in the near vicinity of the human remains will cease and reasonable efforts will be made to avoid and protect the remains from further damage. Potential remains shall be protected, which may include keeping the remains submerged in an onboard tank of sea water or other appropriate material.
- State Waters:
 - The Commonwealth of Virginia **does not allow** for the retrieval of human remains.
 - Stop work immediately. Suspected remains and associated artifacts should be left in place and not disturbed until appropriate consultation has taken place.

Potentially Significant Cultural Resources

- Prehistoric shell middens;
- Lithic and ceramic artifacts;
- Animal bone;
- Wooden ship timbers or sections of iron or steel hulls;
- Scattered cargo remains, such as ceramics, glass, wooden barrels, or barrel staves;
- Any distinct mound of stones indicative of a ballast pile;
- Cannon and swivel guns and/or ammunition;
- Debris comprised of ship rigging, gear and fittings;
- Groups of anchors or other objects that indicate the presence of a shipwreck.

Summary

- The majority of older historic wrecks are made of wood.
- Fragmentary pieces of wrecks usually require detailed views and a Qualified Marine Archaeologist for an accurate identification.
- If identification is in any doubt, refer to wreck pieces as “timbers” because terminology for ship parts is very specific.
- Any objects found that are not wood or iron should be treated as potential artifacts and avoided immediately after close examination. Many artifacts are delicate and provide critical identification information.

**IF YOU SEE SOMETHING, STOP AND SAY
SOMETHING!**

Marine Species Awareness

Marine Species Compliance Roles

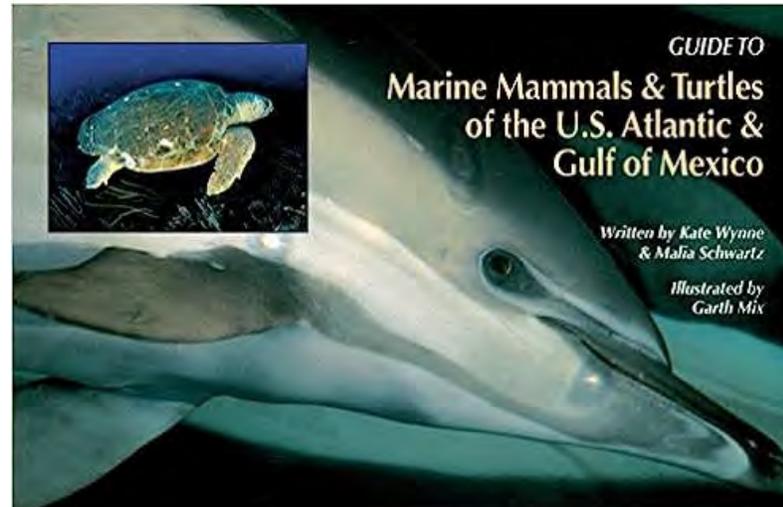
- General Crew Members (visual lookouts)
- **ECM:** Environmental Compliance Monitor
- **DVO:** Dedicated Visual Observer
- **PAM:** Passive Acoustic Monitoring
- **PSO:** Protected Species Observer
- **MCC:** Monitoring and Coordination Center



The Lead PSO onboard will verify sightings, ensure collection of proper documentation and reporting data, and advise on the appropriate mitigation measures (to include change of course or reduction in vessel speed, or stopping construction activity) when required.

PSO Onboard

When PSOs are present on the vessel, protected species presence observations should be communicated immediately to the PSOs so that identification can be made.



No PSO Onboard

When PSOs are not present on the vessel, protected species presence observations should be communicated to the ECMs/DVOs for confirmation of identification.

Activities requiring PSO/PAM coverage

A Lead PSO, PSO team, and the PAM operators will coordinate tasks through Project activities requiring PSO/PAM coverage. Note that ECMs/DVOs may provide marine mammal monitoring when PSOs are not in use.

Activity	Vessels Transiting	Foundation Installation	Cofferdam / Goal Post Construction	HRG Surveys
PSO		X	X	X (for HRG equipment under 180 kHz)
PAM	X	X		X (nighttime)
ECM	X	X	X	X (for HRG equipment above 180 kHz)
DVO	X	X	X	X (for HRG equipment above 180 kHz)

During nighttime operations, IR and NVD will be utilized to improve detection ability in low light situations.

Visual monitoring responsibilities:

- 360° Visual Monitoring of Clearance, Shutdown, and Vessel Strike Avoidance Zones
- Documentation and Data Collection of Any Protected Species Detections
- ECM/Lead PSO Will Ensure Compliance
- Reporting Large Whale and ESA-Listed Species Detections to Dominion Energy ASAP
- Reporting and Documenting All Other Protected Species Detections



Also note that when operating any heavy machinery if a marine protected species approaches within 10 meters you must pause until the animal has to avoid a direct interaction of the animal.

1. **Vessel name**;
2. **Observers' names and affiliations**;
3. **Dates**;
4. **Time and location** (latitude/longitude) when daily visual survey **began**;
5. **Time and location** (latitude/longitude) when daily visual survey **ended**; and
6. **Average environmental conditions** during visual surveys including:
 - a. Wind speed and direction;
 - b. Sea state (glassy, slight, choppy, rough, or Beaufort scale);
 - c. Swell (low, medium, high, or swell height in meters);
 - d. Water depth; and
 - e. Overall visibility (poor, moderate, good).
7. **Species** (or identification to lowest possible taxonomic level);
8. **Certainty of identification** (confident, most likely, best guess);
9. **Total number of animals** (number of juveniles, etc.);
11. **Activity of vessel** when sighting occurred (vessel speed, etc.);
12. **Description** (as many distinguishing features as possible of each individual seen, including length, shape, color and pattern, scars or marks, shape and size of dorsal fin, shape of head, and blow characteristics);
13. **Direction of animal's travel** – related to the vessel (drawing preferably);
14. **Behavior** (as explicit and detailed as possible; note any observed changes in behavior);
15. **Mitigative Action** (if deemed safe and necessary).

Reporting Stranded, Entangled, Injured, or Dead Marine Mammals

- If a sighting of a stranded, entangled, injured, or dead marine mammal occurs, the sighting must be reported as soon as feasible and within 24 hours to:
 - NOAA Fisheries Office of Protected Resources (OPR);
 - NOAA Fisheries Greater Atlantic Regional Fisheries (GARFO; nmfs.gar.incidental-take@noaa.gov);
 - Marine Mammal and Sea Turtle Stranding & Entanglement Hotline (866-755-6622); and
 - The U.S. Coast Guard.
- If the injury or death was caused by a Project activity, Dominion Energy must immediately cease all activities until NOAA OPR is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the LOA.

Monitoring and Reporting NARW

- All Project personnel, but especially the vessel operators, PSOs, and PAM operators must monitor available sources of information on NARW presence in or near the Project Area at least every 4 hours, including:
 - The Right Whale Sightings Advisory System (RWSAS)
 - The U.S. Coast Guard VHF Channel 16
 - WhaleAlert software
 - PAM system
- Visual monitoring crew will receive notification of any sightings and/or information associated with any NARW presence to provide situational awareness.
 - If a NARW is observed at any time by PSOs or Project personnel, Dominion Energy must submit a summary report within 24 hours that includes the required reporting information to:
 - NOAA Fisheries GARFO (nmfs.gar.incidental-take@noaa.gov);
 - NOAA Fisheries OPR; and
 - NOAA Fisheries Northeast Fisheries Science Center (NEFSC; ne.rw.survey@noaa.gov).

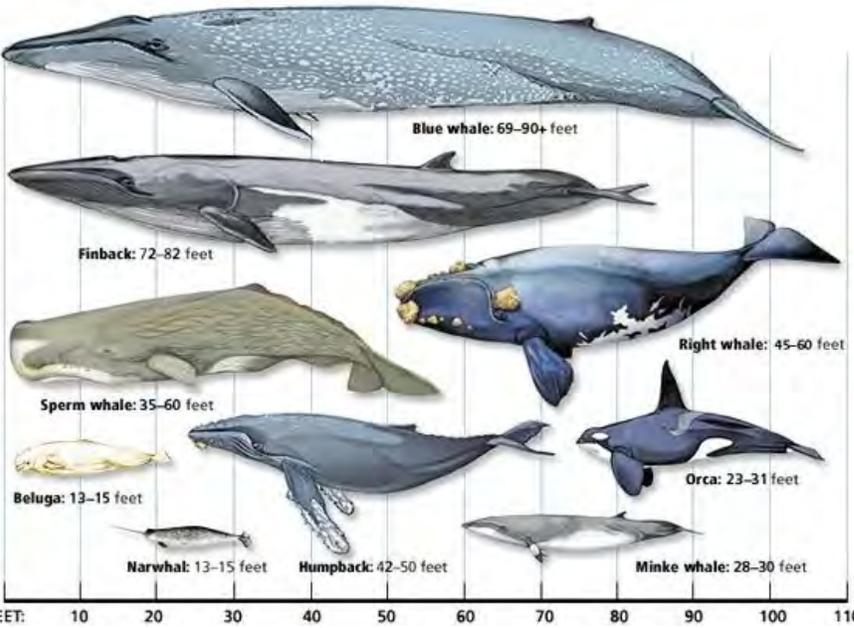
Marine Species Identification

Baleen Whales

- North Atlantic Right Whale**
- Sei Whale**
- Humpback Whale
- Minke Whale
- Fin Whale**
- Blue Whale

Toothed Whales

- Sperm Whale**
- Common Dolphin
- Risso's Dolphin
- Pygmy sperm whale
- White-sided Dolphin
- Pilot Whales
- Harbor Porpoise
- Atlantic Spotted Dolphin
- Melon-headed whale
- Bottlenose Dolphin
- Pantropical Spotted Dolphin
- False killer whale



Seals and Manatee

- Gray Seal
- Harbor Seal
- West Indian Manatee



Atlantic Sturgeon

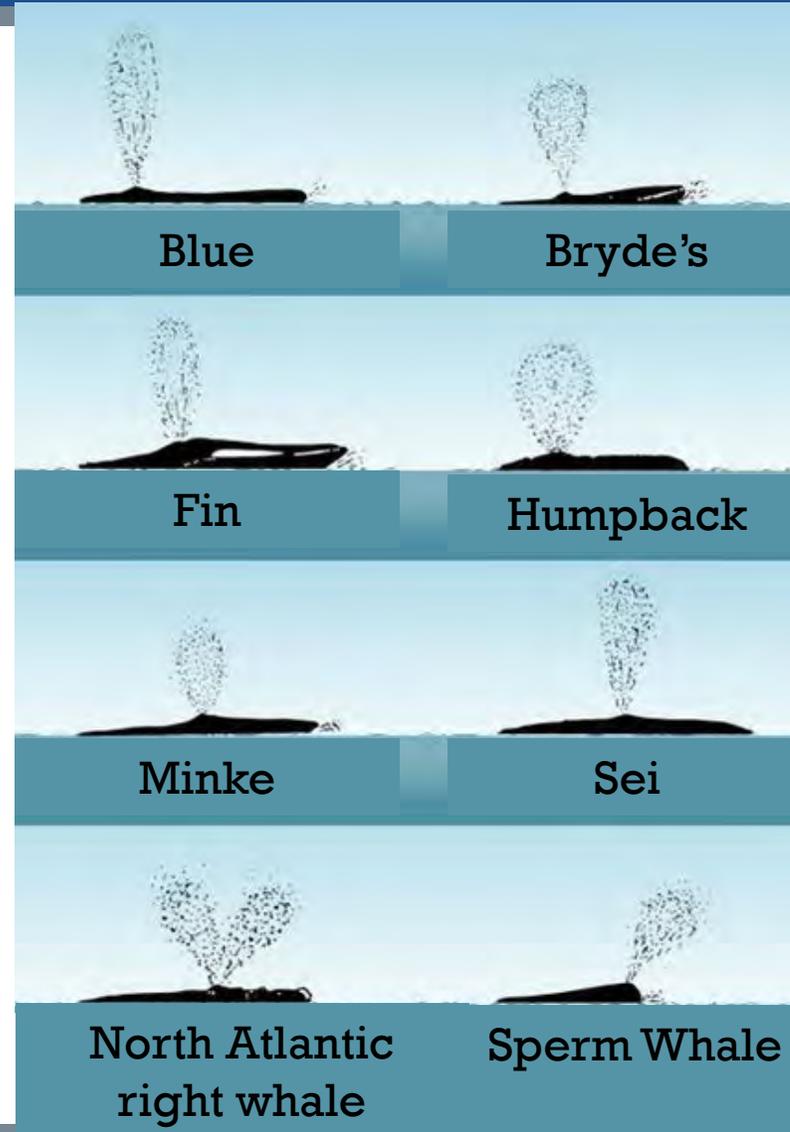


Sea Turtles

- Green Sea Turtle
- Kemps Ridley Sea Turtle
- Leatherback Sea Turtle
- Loggerhead Sea Turtle



Most species of large whales can be identified by the distinctive shape of their exhaled breath, called “blow.” North Atlantic right whales have very distinctive, V-shaped blows.



Whale species can also be identified by the shape of the dorsal fin, pectoral flippers, or flukes (tail).

North Atlantic right whales have a distinctive V-shaped blow and are the only large whale without a dorsal fin!

Species	Blow	Surfacing	Diving	Other characteristics
North Atlantic right whale	V-Shaped Blow 	No Dorsal Fin 	Broad, smooth flukes 	Paddle-like Pectoral Flippers 
Blue				
Fin				
Sei				
Humpback				
Bryde's				
Sperm				
Minke				
Killer				

NARW	Humpback	Fin	Sei	Minke	Sperm
40-52 ft.	40-60 ft.	45-85 ft	45-50 ft	12-35 ft	40-52 ft
					
 	 	 <p>copyright © 2006 Uko Gorter Illustrations</p> <p>rarely fluke</p>	 	 	 <p>Sperm</p>
					

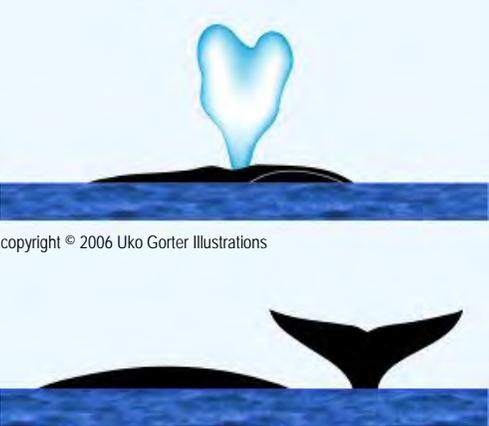
North Atlantic Right Whale

Endangered Species

Length: 40-52 ft.



Photo taken on CVOW vessel



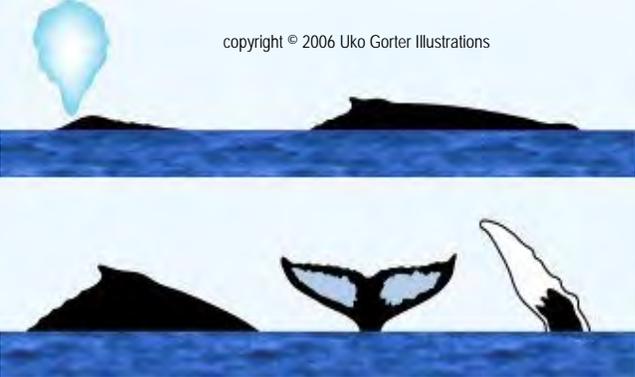
North Atlantic Right Whale



Humpback Whale

Strategic Species

Length: 40-60 ft.



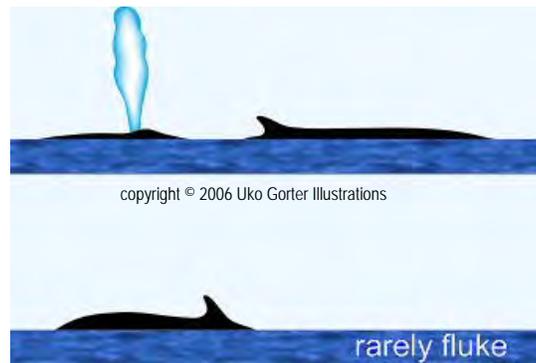
Humpback Whale



Fin Whale

Endangered Species

Length: 45-85 ft.



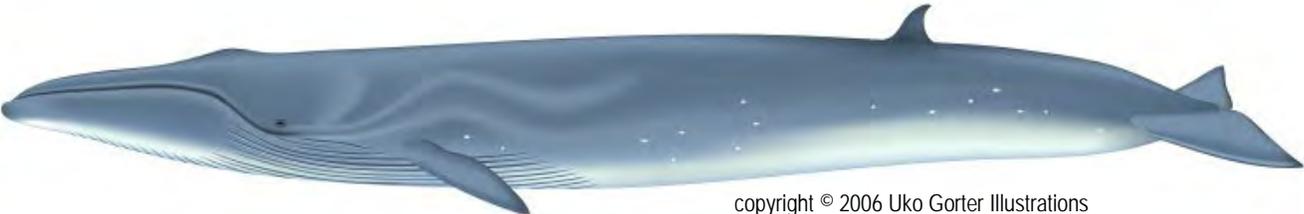
Fin Whale



Sei Whale

Endangered Species

Length: 45-50 ft.



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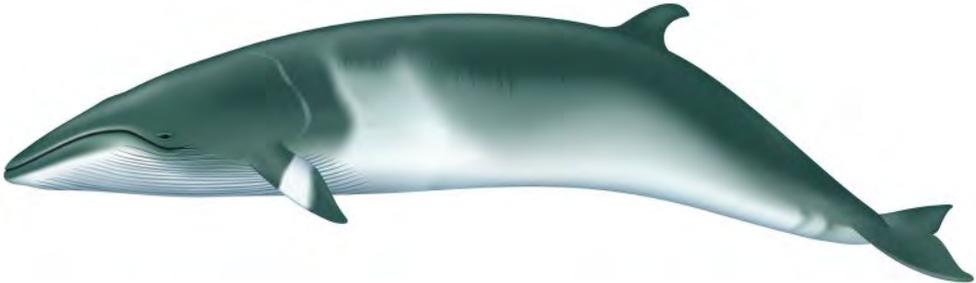
Sei Whale



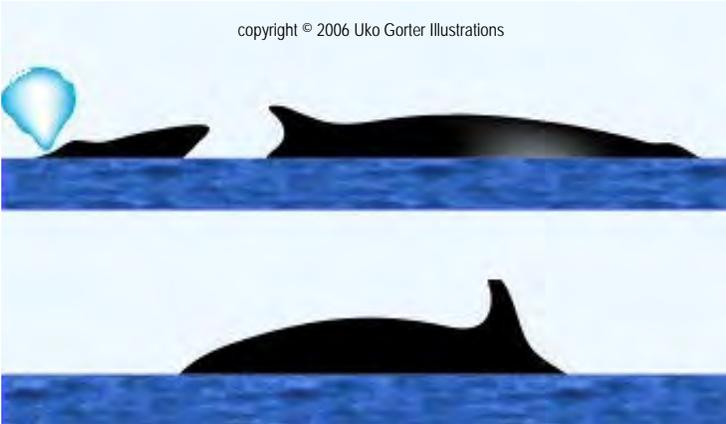
Minke Whale

Length: 12-35 ft.

Smallest baleen whale in Project area.



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Minke Whale



Sperm Whale

Endangered Species

Length: 40-52 ft.



Sperm Whale



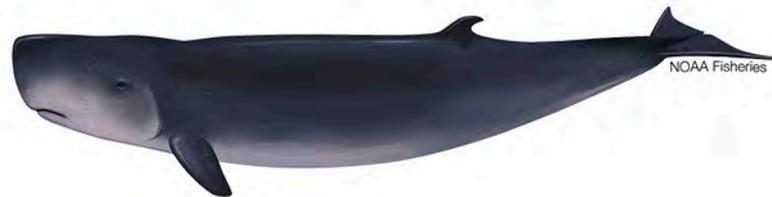
Pygmy Sperm Whale

Resembles Dwarf sperm whales

Length: up to 11.5 ft.



Photo credit: American Cetacean Society



Pygmy Sperm Whale





© Robin W. Baird/Cascadia Research



Melon-Headed Whale

Resembles pygmy killer whales and false killer whales

Length: up to 9 ft.



Melon-Headed Whale



False Killer Whale

Resembles melon-headed whale but typically larger

Length: 16-20 ft.



False Killer Whale



Long-Finned and Short-Finned Pilot Whale

Common year-round

Length: 16-25 ft.



Long-Finned Pilot Whale



Short-Finned Pilot Whale



Long- Finned Pilot Whale



**Short-
Finned
Pilot Whale**



Harbor Porpoise

Length: 5-6 ft.



Harbor Porpoise



Bottlenose Dolphin	Short-beaked Common Dolphin	Atlantic Spotted Dolphin	Atlantic White-sided Dolphin
6-13 ft.	5-6 ft.	5-7.5 ft.	5-9 ft.
			
			

Bottlenose Dolphin

Length: 6.0-13 ft.



Bottlenose Dolphin



Short-beaked Common Dolphin

Length: 5-6 ft.



Short-beaked Common Dolphin



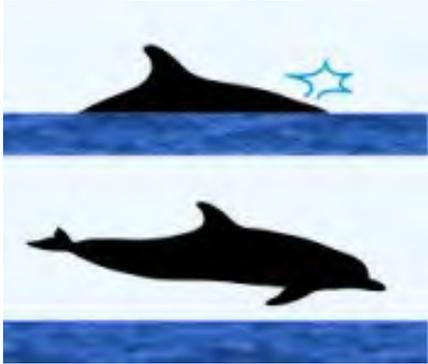
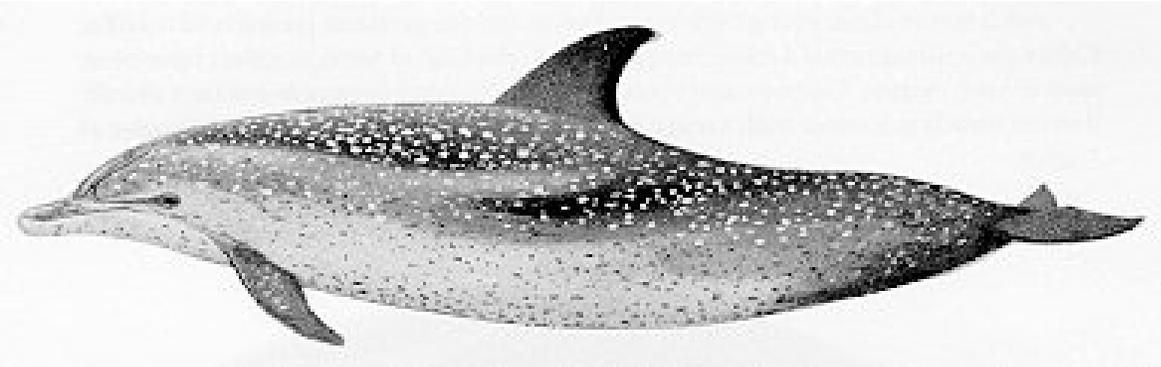
Slow Motion- 50% speed



**NOAA
FISHERIES**

Atlantic Spotted Dolphin

Length: 5-7.5 ft.

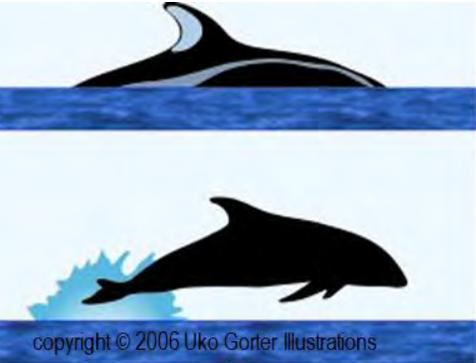


Atlantic Spotted Dolphin



Atlantic White-Sided Dolphin

Length: 5-9 ft.



Atlantic White- Sided Dolphin



Pantropical Spotted Dolphin

Length: 6-7 ft.

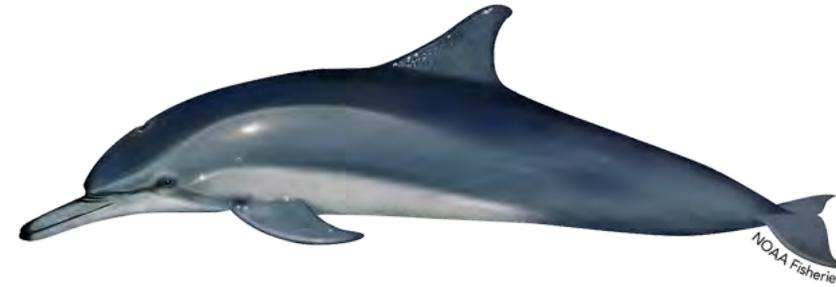


Pantropical Spotted Dolphin



Clymene Dolphin

Length: 6-6.5 ft.



Clymene Dolphin



Risso's Dolphin

Length: 8.5-13 ft.



Risso's Dolphin



Gray Seal

Length: 7.5 – 10 ft



Harbor Seal

Length: 5 – 6 ft



Gray Seal and Harbor Seal



Green Sea Turtle



Kemps Ridley Sea Turtle



Leatherback Sea Turtle



Loggerhead Sea Turtle



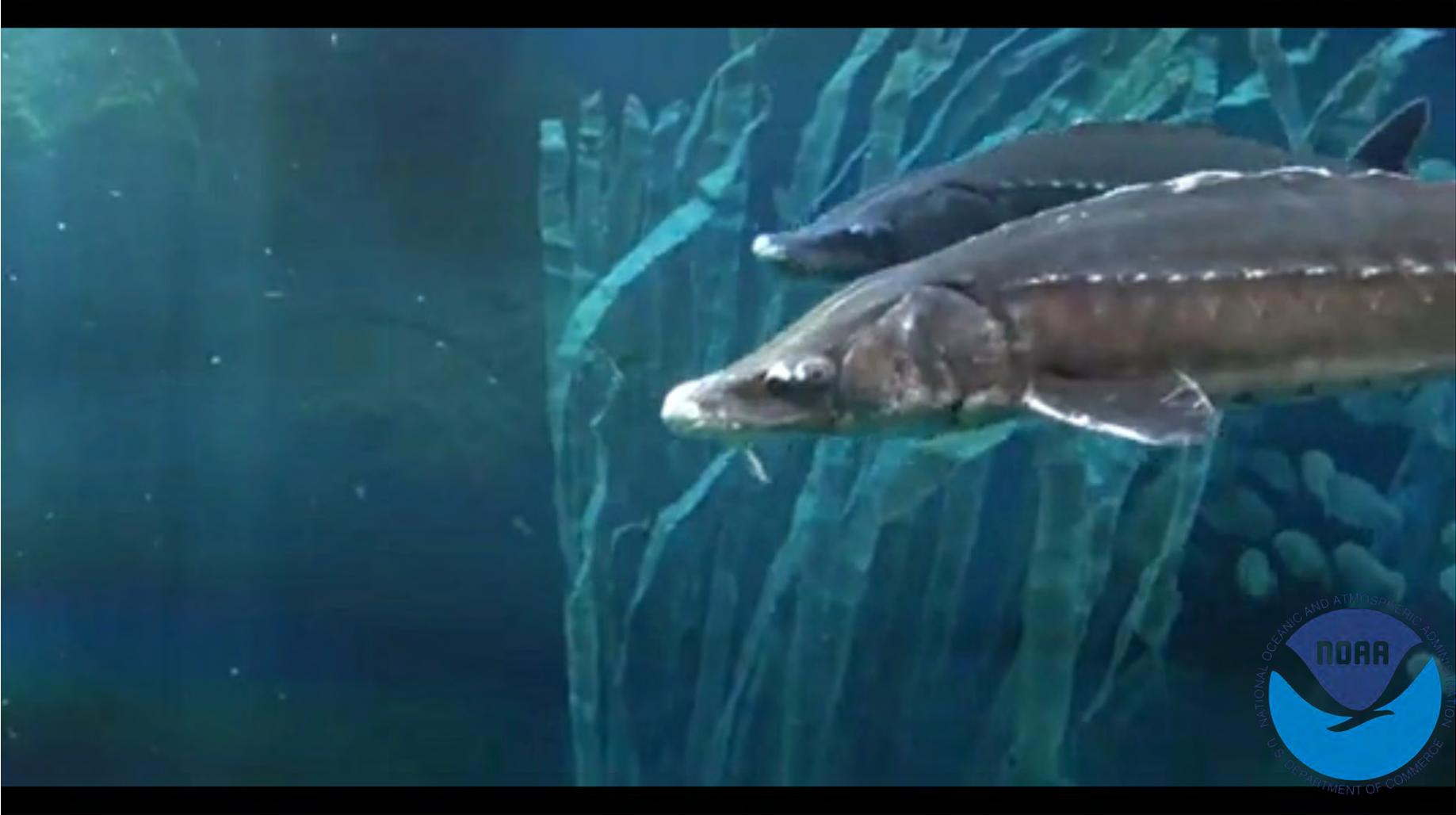
**Green,
Kemps
Ridley,
Leatherback,
and
Loggerhead
Sea Turtles**



Atlantic Sturgeon
Endangered Species
Length: up to 14 ft.



Atlantic Sturgeon



Vessel Strike Avoidance

Whales spend a portion of their time at or near the sea surface travelling, feeding, resting and socializing and are therefore vulnerable to ship strikes.

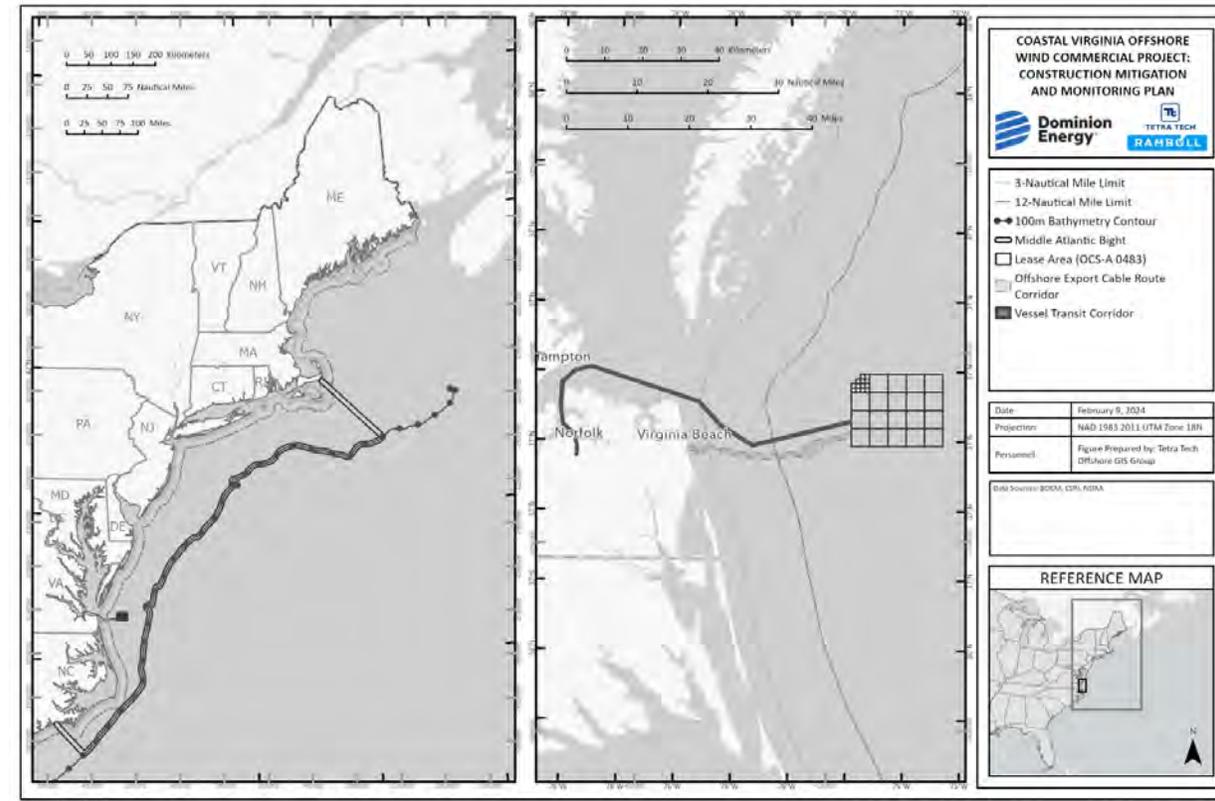


Crew Roles and Responsibility

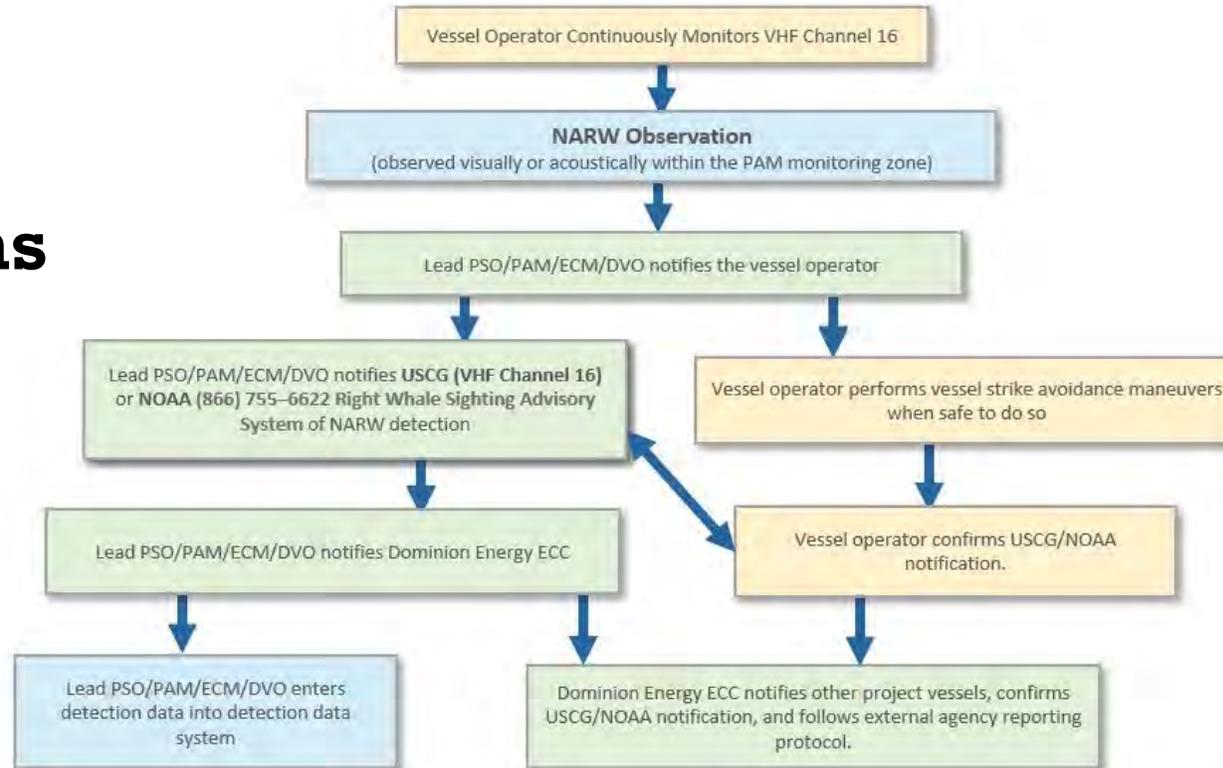
- All vessels will have a dedicated lookout on duty while underway.
- Crew members responsible for these duties must be provided sufficient training to 1) distinguish protected species from other phenomena and 2) identify a marine mammal as a right whale, other whale (defined in this context as sperm whales or baleen whales other than right whales), or other marine mammal.
- Vessel operators/crew must maintain a vigilant watch for all protected species and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any protected species.

Vessel Speed Restrictions

- All vessels must have AIS onboard and active
- All vessels, regardless of size, must not exceed 10 knots within
 - Mid-Atlantic Bight (Nov. 1 – April 30)
 - Vessel Transit Corridor (All year)
 - SMAs, DMAs, Slow Zone
 - Marine Mammals observed near vessel
 - 24hours of visual or acoustic detection of NARW by project personnel



Vessel Strike Avoidance Communications Flowchart



Abbreviations	
CVOW	Coastal Virginia Offshore Wind
DVO	Dedicated visual Observer
ECC	Environmental Compliance Coordinator
ECM	Environmental Compliance Monitor
MCC	Monitoring and Coordination Center
NARW	North Atlantic right whale
PAM	Passive Acoustic Monitoring
PSO	Protected Species Observer

Species	Separation Distance (m)	Vessel Strike Avoidance Measures
NARW a/	500	If a NARW is sighted within the relevant separation distance, the vessel must steer a course away at 10 knots or less until the 500 m separation distance has been established. If a NARW is sighted within 500 m of an underway vessel, that vessel operator must reduce speed and shift the engine to neutral.
Non-NARW whales a/	100	If one of these species is sighted within 100 m of a transiting vessel, the vessel must shift the engine(s) to neutral. Engines must not be engaged until the whale has moved outside of the vessel's path and beyond 100 m.
Delphinid cetaceans b/ Pinnipeds (seals)	50	If a delphinid cetacean or pinniped is sighted within 50 m of a transiting vessel, the vessel must shift the engine to neutral, with an exception made for those that approach the vessel (e.g., bow-riding dolphins). Engines must not be engaged until the animal(s) has moved outside of the vessel's path and beyond 50 m.
Sea turtles Sturgeon	500	If a sea turtle or sturgeon is spotted within 100 m of a transiting vessel, vessel operators must reduce speed to 4 knots or less and steer away from the animal until the 500 m minimum separation distance has been established. If a sea turtle or sturgeon is sighted within 50 m of a vessel's forward path, the underway vessel must reduce speed and shift the engine to neutral as soon as it is safe to do so.

Notes:
 a/ If a whale is observed but cannot be confirmed as a species that is not ESA-listed, the vessel operator must assume that it is an ESA-listed species and take appropriate action.
 b/ All vessels, regardless of size, must immediately reduce speed to 10 knots or less when any large whale, mother/calf pairs, or large assemblages of cetaceans are observed within 500 m of an underway vessel.

Vessel Navigation Actions to Prevent Ship Strikes

- All vessels will maintain a safe separation distance from all other marine mammals and sea turtles.
- **Underway vessel will remain parallel to a sighted sea turtle or seal (pinniped) course whenever possible, avoiding speed or direction changes until the animal has moved beyond the vessel's path.**
- If a sea turtle or manta ray is sighted at any distance within the operating vessel's forward path, the vessel operator must slow down to 4 knots and steer away (unless unsafe to do so). The vessel may resume normal vessel operations once the risk for collision is mitigated (i.e. animal no longer in vessel's direct path and beyond minimum separation distance).
- Vessels must avoid transiting through areas of visible jellyfish aggregations or floating vegetation (e.g., sargassum lines or mats). In the event that operational safety prevents avoidance of such areas, vessels must slow to 4 knots while transiting through such areas.
- **Vessels underway will not divert to approach any dolphins or seals.**

Summary

- In general, when marine protected species are sighted while a vessel is underway, the vessel shall take appropriate action as necessary to avoid violating the relevant separation distances, such as:
 - Attempting to remain parallel to the animal's course;
 - Avoiding excessive speed or abrupt changes in direction until the animal has left the area; and
 - Not diverting or altering course to approach any marine protected species.
- If protected species are sighted within the relevant separation distance, the vessel must reduce speed and shift the engine to neutral, not engaging the engines until animals are clear of the area.

Note: The only exception to complying with the vessel strike avoidance measures is when the safety of the vessel or crew necessitates deviation from these requirements.

PSO Guidance

- PSOs will provide guidance for conditions of the Lease, LOA, COP T&Cs, and other regulations and requirements.
- All vessels must listen to their observers and act accordingly as per the CMMP Vessel Strike Avoidance Plan.
- If you suspect that a marine mammal, sea turtle, or protected fish species (i.e., sturgeon or manta ray) is present in the Project Area, alert the visual monitoring crew.

Marine Trash and Debris

[BSEE Marine Trash and
Debris Update
\(youtube.com\)](#)



What about marine spills?

- Oil and/or chemical spills to the marine environment
- Can be caused by collisions, equipment failure, overfilling of a vessel or facility tanks, pumping bilge water contaminated with oil, and other operator errors
- Can injure and/or kill marine species, damage and destroy marine habitats, beaches, and coastlines
- Any identified spill must be reported to an onboard QI/IC (Qualified Individual/Incident Commander) who will notify the National Response Center. If NRC reporting is not practicable, spill reports may be made to the USCG Sector Virginia, providing that the NRC is notified as soon as possible.



The oil discharge report shall include:

- a) Time of the discharge.
- b) Identity of the material discharged.
- c) Approximate quantity discharged.
- d) Location and source of the discharged.
- e) Cause and circumstances of the discharge.
- f) Existing or potential hazards (fire, explosion, etc.), if any.
- g) Personal injuries or casualties, if any.
- h) Corrective action being taken and an approximate timetable to control, contain, and clean up the spill.
- i) Name(s) and telephone number(s) of individual(s) who discovered and/or reported the spill.
- j) Other unique or unusual circumstances.
- k) Who was responsible for the spill?
- l) What are their contact details?
- m) Was the spill inshore or offshore?
- n) What color was the sheen?
- o) How large was the sheen?
- p) Were efforts made to contain the spill?
- q) Did the spill come from the vessel or from the remotely operated vehicle (ROV)?
- r) What were the weather conditions like?
- s) What is the IMO number of the vessel?
- t) Is it a US flagged vessel?
- u) Was the spill planned or accidental?

In the event of a discharge of marine debris or a spill, immediately notify the QI.

The QI will often be the vessel captain or other designated individual.

The QI will then notify Dominion Energy Threat Response and Analysis Center and/or System Operations Center (SOC) and the appropriate notification to Dominion Energy Environmental Services (DEES), external agencies, and the Oil Spill Response Organization (OSRO).

Monitoring and Coordination Center (MCC)

(757) 366-7100 (Marine Coordinator)

(757) 731-8307 (Marine Coordinator mobile)



Fisheries Related Concerns

Under **NO circumstance is fishing authorized from any Project vessel during transit or while on station during Project activities.**



What is a “fish kill”?

A “fish kill” is a significant and sudden death of fish, shellfish, and other aquatic animals.

The event is characterized by large numbers of animals dying over a short time, usually in a defined area.

Fish kills can occur for several reasons:

Oil Spill	Illegal Discharges
Rapid temp. change	Entrainment
Release of bycatch	Underwater noise
Harsh Weather	Harmful Algal Blooms



- PSOs, CVOW Commercial, and Contractor staff should maintain a vigilant watch for evidence of a fish kill during mobilization and Project-related activities.
- Evidence of a fish kill should be reported immediately to the PSO/ECMs via verbal notification and documented in vessel daily reporting.

- **Ghost gear**
- **Lionfish – Invasive Species**
- **Atlantic Sturgeon – Endangered Species**



- Any fisheries related concerns, including fish kills, ghost gear, or sightings of endangered or invasive fish species should be reported to the Lead PSO or ECM onboard.
- The Lead PSO or ECM will confirm the sighting and continue reporting protocols as appropriate.

Birds & Bats

Considerations for Birds & Bats During Marine-Based Project Activities

- Dominion Energy worked with VDWR and USFWS to develop avoidance and minimization measures for any potential impacts to bird or bat species of conservation concern during Project activities.
- Implement BMPs identified by BOEM and comply with FAA and USCG lighting requirements
- All nighttime Project activity implement reduced lighting to the extent practicable to minimize impacts to bat species.

BOEM and USFW Requirements on Bird/Bat Reporting

- Document any dead birds or bats found during Project activities. This is applicable to all activities, including transits and surveys.
- ***Any dead or injured bird found with a federal band must be reported to the USGS Bird Band Laboratory.***

ESA Listed Bird Species

Red Knot
(*Calidris canutus*)



Piping Plover
(*Charadrius melodus*)



ESA Listed Bat Species

Northern Long-eared Bat
(*Myotis septentrionalis*)



Tri-colored Bat
(*Perimyotis subflavus*)



Key Points to Remember

- **Follow all vessel speed restrictions.**
- **Everyone is responsible - maintain a vigilant watch.**
- **If you see something, say something.**

Monitoring and Coordination Center

Marine Coordinator:

(757) 366-7100

Marine Coordinator (mobile):

(757) 731-8307



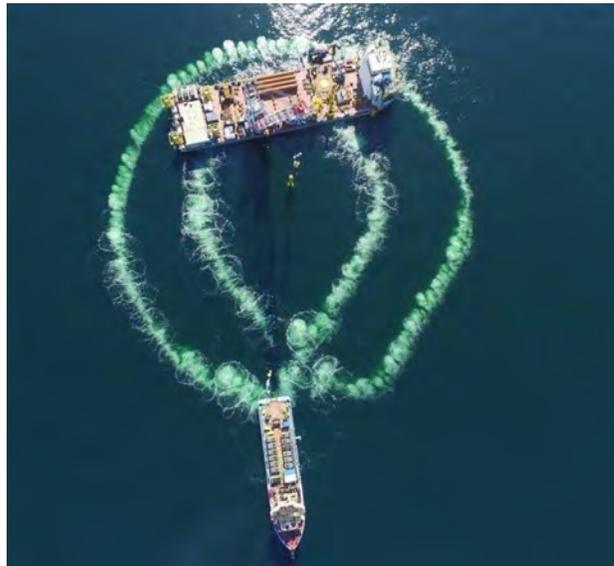
CVOWreporting@dominionenergy.com

Activity – Specific Training

Foundation Construction
Activities

Noise Abatement Systems

Noise abatement systems (NAS; consisting of at least a double bubble curtain) achieving the target of a 10 dB reduction in sound level will be implemented during all WTG and OSS foundation installation activities.



Passive Acoustic Monitoring

- At least one PAM operator must review data from at least 24 hours prior to any foundation installation and must actively monitor hydrophones for 60 minutes prior to commencement of these activities. Additionally, PAM operators must monitor for 30 minutes following the completion of pile driving.

PAM Operators will:

- Acoustically monitor, detect, and identify marine mammals and determine distance to source;
- Record and report marine mammal sightings, construction activities, and environmental conditions according to plan;
- Monitor and advise on sound source and vessel operations for compliance with the environmental requirements;
- Communicate with the crew to implement mitigation actions as required by environmental protocols;
- Assist PAM operators in maintaining and troubleshooting the PAM system hardware and software; and
- Oversee all deployments and retrievals of the hydrophone cable.

Seasonal and Daytime Restrictions

Seasonal Restrictions

- Seasonal restrictions are in place for impact and vibratory pile driving for WTG and OSS foundation construction, with activities scheduled between May 1 and October 31st only. These activities would not occur between November 1st through April 30th
- Pile driving will begin no earlier than 1 hour after civil sunrise and no later than 1.5 hours before civil sunset (§ 217.294 Mitigation requirements (c)(4)).*

PSO Coverage

- During impact and vibratory pile driving of WTG and OSS Foundations, at least 3 PSOs will be on active duty on the pile driving platform and at least 3 PSOs will be on active duty on each of two dedicated PSO vessels.
- The PSO team will jointly provide coverage to monitor and enforce the Clearance and Shutdown Zones prior to the initiation of pile driving.
- Soft starts will be implemented for all monopile and jacket foundation impact pile driving. Soft starts are not possible for vibratory pile driving (§ 217.294 Mitigation requirements (c)(5)).

*Note that a pile started earlier in the day may continue past sunset for safety reasons.

Start-Up and Shut-Down Procedures

- **Start-up of Pile Driving Equipment**
 - Foundation Installation: 60-minute Clearance period for marine mammals and sea turtles
 - Cable landfall and HRG: 30-minute Clearance period for marine mammals and sea turtles
- **Soft Start for Impact Pile Driving**
 - Soft starts will occur at the beginning of impact pile driving of each pile and at any time following cessation of impact pile driving for 30 minutes or longer.
 - No more than 6 strikes per 1 minute using hammer energies not to exceed 20% (the total procedure will be no less than 20 mins for each pile).
- **Shutdown and Power-Down procedures**
 - Marine mammal or sea turtle sighted in respective Clearance Zones
 - Shutdown if feasible (if no risk to vessel or crew)
 - Reduced hammer energy (power down) will be implemented as deemed appropriate by the lead engineer.
 - Subsequent restart/increased power of equipment can be initiated if animal observed exiting Zone or if appropriate time elapsed without further sightings (15 mins for small odontocetes, 30 mins for all other species).

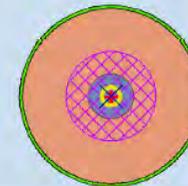
Clearance/Shutdown Zones – Vibratory Pile Driving*

Species	Clearance Zone (m)		Shutdown Zone (m)	
	One per Day	Two per Day	One per Day	Two per Day
NARW acoustic detection	at any distance			
NARW visual detection				
All species (other than NARW) acoustic detection	10,000			
All other Mysticetes and sperm whales visual detection	1,000	1,000	1,000	1,000
Harbor porpoise	500	500	500	500
Dolphins and pilot whales visual detection	250	250	250	250
Seals visual detection	100	100	100	100
Sea Turtles	1,000	1,000	100	100

*Note that these may change based on Sound Field Verification results after discussions with Federal Agency partners.

Note:
*North Atlantic right whale
Clearance and Shutdown Zones:
Any Distance*

Atlantic Ocean



Vibratory Pile Driving Clearance & Shutdown Zones

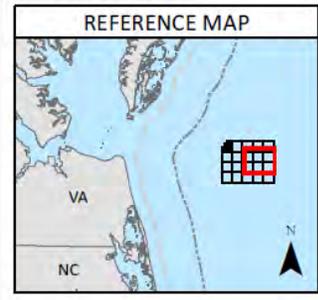
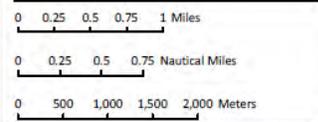
Data Sources: BOEM, ESR, Tetra Tech, USACE
Service Layer Credits: Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org,
and other contributors

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT:
CONSTRUCTION MITIGATION AND MONITORING PLAN




- + Pile/Construction Vessel
 - 3-Nautical Mile Limit
 - 12-Nautical Mile Limit
- Vibratory Pile Driving Clearance and Shutdown Zones**
- Harbor Porpoise Zone
 - Large Whale Zone
 - Clearance and Shutdown (500 m)
 - Clearance and Shutdown (1,000 m)
 - Other Marine Mammal Zone
 - Clearance and Shutdown (250 m)
 - Sea Turtle Zone
 - Clearance (1000 m)
 - Shutdown (100 m)

Date	January 11, 2024
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

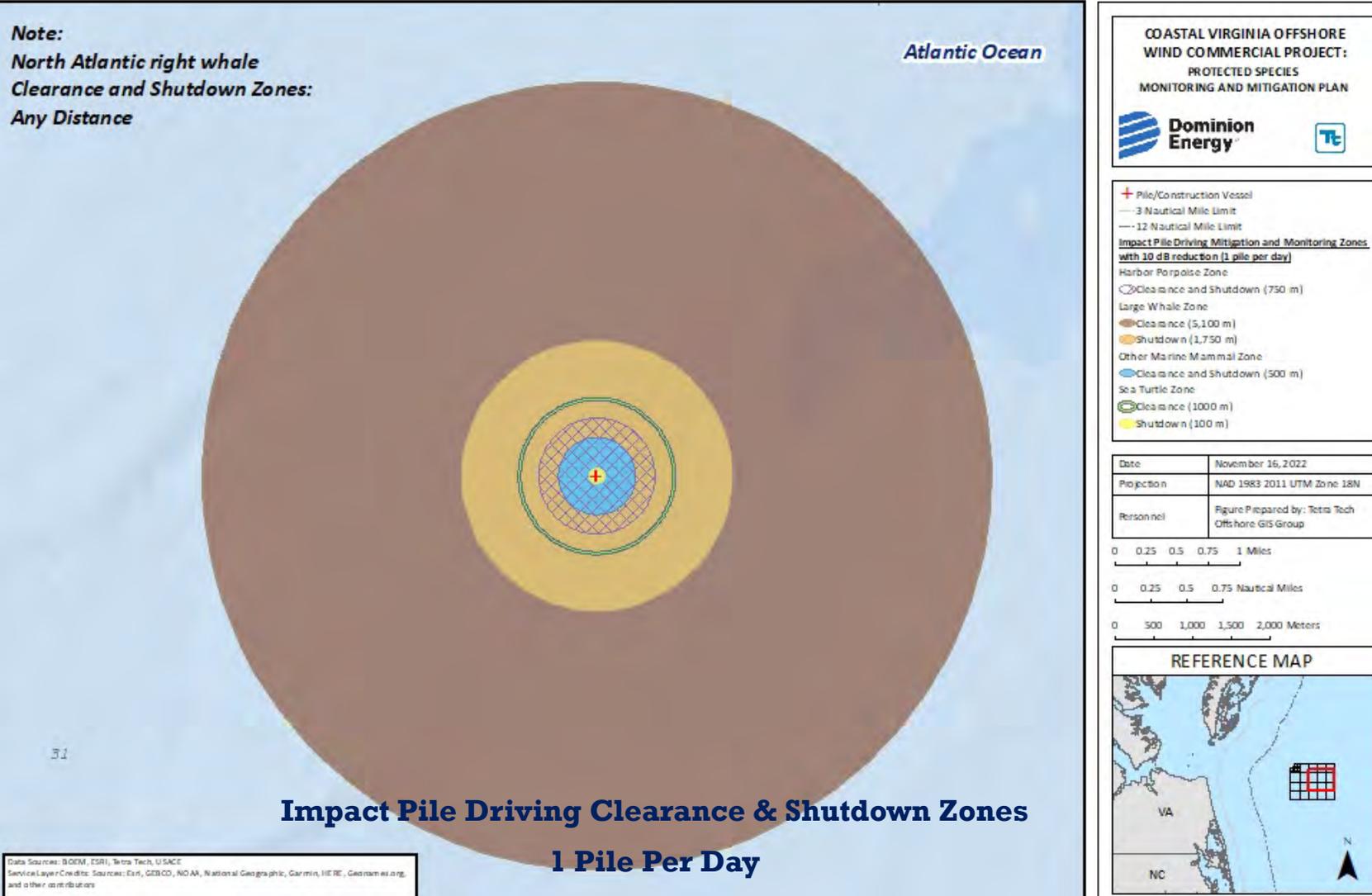


Note that the Clearance and Shutdown Zones for North Atlantic right whales are *ANY* distance.

Clearance/Shutdown Zones – Impact Pile Driving*

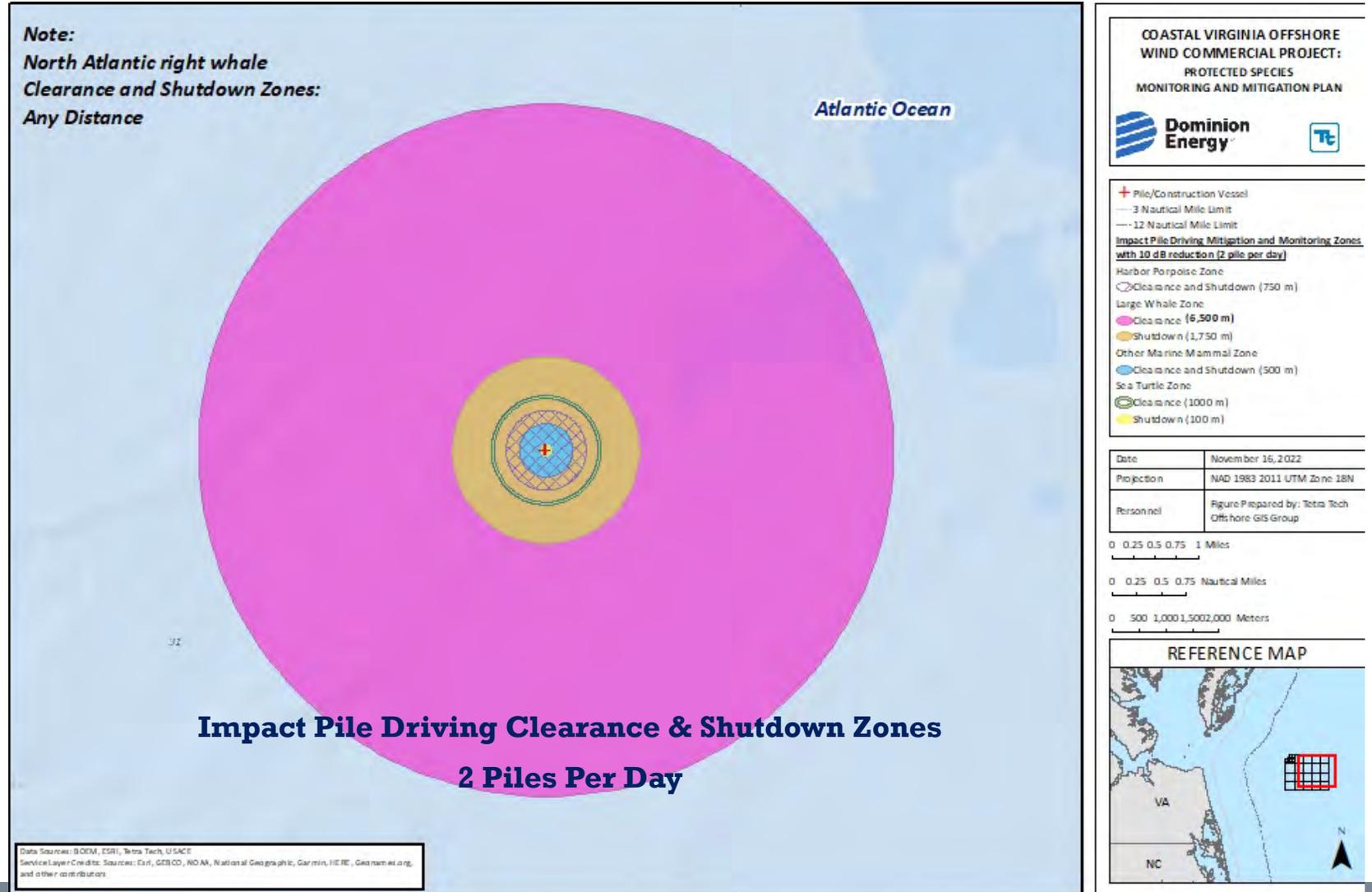
Species	Clearance Zone (m)		Shutdown Zone (m)	
	One per Day	Two per Day	One per Day	Two per Day
NARW acoustic detection	at any distance			
NARW visual detection				
All species (other than NARW) acoustic detection	10,000			
All other Mysticetes and sperm whales visual detection	5,100	6,500	1,750	1,750
Harbor porpoise	750	750	750	750
Dolphins and pilot whales visual detection	500	500	500	500
Seals visual detection	500	500	500	500
Sea Turtles	1,000	1,000	500	500

*Note that these may change based on Sound Field Verification results after discussions with Federal Agency partners.



Note that the Clearance and Shutdown Zones for North Atlantic right whales are *ANY* distance.

Note that the Clearance and Shutdown Zones for North Atlantic right whales are *ANY* distance.



Activity – Specific Training

**Cofferdam and Goal Post
Construction Activities**

Cofferdam and Goal Post Construction Activities

- PSO coverage will be implemented during cofferdam and goal post construction activities.
- Seasonal restrictions are in place for cofferdam and goal post construction, with activities scheduled between May 1 and October 31st only. These activities would not occur between November 1st through April 30th.
- Noise attenuation systems will not be used during cofferdam and goal post construction.
- Soft starts will be implemented at the beginning of impact pile driving of goal posts.
 - This procedure involves an initial set of three strikes at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets.
- Soft starts are not feasible for vibratory driving of cofferdams.

Shutdown and Power-Down procedures

- Marine mammal or sea turtle sighted in respective Clearance Zones
- Shutdown (if safe and practicable)
- If Shutdown is not practicable due to imminent risk of injury or loss of life to an individual or risk of damage to a vessel that would create risk of injury or loss of life for individuals or if the lead engineer determines there is refusal or instability, reduced hammer energy (power down) will be implemented as deemed appropriate by the lead engineer.
- Subsequent restart/increased power of equipment can be initiated if animal observed exiting Zone or if appropriate time elapsed without further sightings (15 mins for small odontocetes, 30 mins for all other species).

Clearance/Shutdown Zones – Cofferdam Construction Activities

Species	Clearance Zone (m)	Shutdown Zone (m)
NARW visual detection	at any distance	at any distance
All other Mysticetes and sperm whales	1,000	1,000
Delphinids	250	100
Pilot whales	1,000	1,000
Harbor porpoises	250	100
Seals	250	100
Sea Turtles	1,000	100

Clearance/Shutdown Zones – Goal Post Construction Activities

Species	Clearance Zone (m)	Shutdown Zone (m)
NARW visual detection	at any distance	at any distance
All other Mysticetes and sperm whales	1,000	1,000
Delphinids	250	100
Pilot whales	1,000	1,000
Harbor porpoises	750	100
Seals	500	100
Sea Turtles	1,000	100

Activity – Specific Training

HRG Survey Activities (under
180 kHz)

PSO Responsibilities

- Monitor the Clearance Zone for at least 30 minutes prior to ramp-up.
- Monitoring of both the Clearance and Shutdown Zones will continue throughout the survey until at least 30 minutes after survey equipment is shut down or survey activity has concluded.
- ECM will ensure all monitoring and mitigation practices are followed.
- Dominion must ensure that the vessel operator and other relevant vessel personnel are briefed on all responsibilities, protocols, and procedures.
- In cases where multiple vessels are surveying concurrently, any observations of marine mammals must be communicated to PSOs on all active survey vessels.

Nighttime and Poor Visibility Operations – NVDs

PSOs will monitor, using night vision devices (NVDs) such as night vision binoculars and thermal night vision cameras:

- The respective Clearance and Shutdown Zones
- The minimum vessel separation distances
- Monitor from highest vantage point on vessel, 360-degree scanning with target scanning when marine mammals present
- Visually sweep path of vessel to detect marine mammals and sea turtles

Monitoring Using Infrared Apparatus

- PSOs will be provided with BHM-3X+ NTSC 9Hz thermal night vision cameras (or similar) to allow mitigation to continue in low and no light situations.
 - The 65 mm lens option would be used, as it provides a good compromise between field of view and clarity of image, while fully covering the Clearance/Shutdown Zones.
- In addition, PSOs will be provided with clip-on thermal imaging technology to augment the use of NVD as a backup system. Nivisys Miniature Thermal Acquisition Clip-on Systems (TACS-M) provide high performance long wave infrared technology capable of detection up to 300 m (984 ft) in clear conditions.
- The full 360 degrees around the vessel will be monitored with IR.
- The two-person PSO team will alternate the use of the IR and NVD equipment throughout the course of each 4-hour shift to minimize eye strain and fatigue.
- The Lead PSO on duty will work in coordination with the PAM team to maximize marine mammal detections and implement the most appropriate mitigation procedure.

Ramp-up and Shutdown Procedures*

- **Ramp-up**
 - If an animal is sighted, ramp-up may not begin until the animal has left the relevant Clearance or Shutdown Zone or no further sightings have occurred for the appropriate time period
 - 15-minute waiting period for small cetaceans and seals
 - 30-minute waiting period for other marine mammals
 - 30-minute waiting period for sea turtles and ESA-listed species
 - Ramp-up may occur at times of poor visibility, including nighttime, if appropriate visual monitoring has occurred with no detections of marine mammals in the 30 minutes prior to beginning ramp-up.
- **Shutdown procedures**
 - Marine mammal or sea turtle sighted in respective Clearance Zones
 - Shutdown (if safe and practicable)
 - If acoustic source is Shutdown for reasons other than mitigation (e.g., mechanical difficulty) for less than 30 minutes, acoustic sources may be activated again without ramp-up only if PSOs have maintained constant observation and no detections of any marine mammal occurred within the Shutdown Zones.

*Note that these Clearance periods apply beginning on the LOA issue date (February 5, 2024).

Clearance/Shutdown Zones – HRG Surveys

Species	Clearance Zone (m)	Shutdown Zone (m)
NARW visual detection	500	500
Endangered species (excluding NARW)	500	500
All other marine mammals, except delphinids from genera <i>Delphinus</i> , <i>Lagenorhynchus</i> , <i>Stenella</i> , or <i>Tursiops</i> and seals	100	100
Sea Turtles	1,000	100

Thank You

Remember, everyone is responsible - maintain a vigilant watch. If you see something, say something.

Monitoring and Coordination Center

(757) 366-7100

(757) 731-8307

Any questions? Please contact CVOWreporting@dominionenergy.com.