





Prepared for



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EA Engineering, Science, and Technology, Inc. 15 Loveton Circle Sparks, MD 21152 Submerged Aquatic Vegetation Surveys for UniStar Calvert Cliffs Expansion Project

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Introduction

Submerged aquatic vegetation (SAV) surveys were conducted within the waters adjacent to the Calvert Cliffs Nuclear Power Plant, Lusby, Maryland (Figure 1). In accordance with protocol used by Maryland Department of the Environment staff (Attachment 1), SAV surveys were conducted during the spring growing season (1 May to 15 June) and during the summer growing season (15 July to 30 September). The summer survey was conducted 28 September 2006 and the spring survey was conducted 30 May 2007.

The study area for the SAV surveys was the right bank of the Chesapeake Bay, bounded on the north by the intake structure for Units 1 and 2, and on the south by the barge slip. The study generally included areas with water depths less than or equal to 2 meters within this area. The survey did include some stations with water depths in excess of 2 meters at the time of the survey. These stations were isolated pockets of deeper water within the overall study area and were included in the survey to provide a comprehensive depiction of the distribution of SAV within the study area. The primary objective of the SAV surveys was to document the presence or absence of SAV within the study area.

Methods

Transects traversing the study area, developed prior to fieldwork, were oriented north to south with approximately 100 ft between each transect (Figure 2). Sampling along the transects occurred at random intervals. A range of seven to nine stations were sampled along each transect. The station locations were established in the office prior to fieldwork. The summer 2006 survey was comprised of 65 sampling stations and the spring 2007 survey was comprised of 65 sampling stations, on nine transects. At each sampling point, SAV presence or absence, species information, and density data were recorded.

The surveys were conducted from an open work boat. A Trimble® ProXR Global Positioning System (GPS) was used to navigate to station locations. The X and Y coordinates predetermined for the sampling points were uploaded to the GPS unit prior to starting the field surveys.

An iron dethatching rake was used as a collection device. The rake was thrown into the water, pulled across the bottom, and brought to the surface. Six throws of the rake were

conducted at each survey station to assess the extent and species composition of the SAV species coverage. Vegetation collected by the rake, if any, was brought on board and identified to species level.

The density for each rake throw was recorded on field datasheets. Measurements of density were recorded as 0 through 4, based upon methods developed by U.S. Fish and Wildlife Service (USFWS) (2002) (Figure 3). For the density classification of collected SAV, a "0" corresponded to a lack of SAV, "1" corresponded to a very sparse density class, "2" corresponded to a sparse density class, "3" corresponded to a moderate density class, and "4" corresponded to a dense density class. Figure 3 presents examples of the various density classifications.

To summarize, at each sampling station, during the survey, the following approach was taken:

- 1. Six sample collection (raking) attempts occurred.
- 2. SAV specimens collected, if any, from the bottom was brought onboard and identified.
- 3. SAV density for each rake throw was recorded.

Results

No SAV was observed at any of the stations during these surveys. In addition, no signs of SAV were observed along the shoreline or floating throughout the study area.

While not SAV, two species of algae were collected during the summer 2006 survey. Muskgrass (*Chara* sp.) and red marine algae (*Chondria* sp.) were collected from the bottom at the stations closest to the shoreline. Pieces of a macrophytic algae were collected from the bottom during the spring 2007 survey. These species were anchored to the substrate and dislodged using the rake. None of these species are classified as SAV because they lack true leaves, stems, and roots.

Conclusions

SAV was not observed during the surveys conducted within the study area. In addition, a review of SAV observation data available through the Virginia Institute of Marine Science (VIMS) reveals that SAV has not been observed along the shoreline in the

vicinity of the study area during the period 1994 - 2005. VIMS uses a combination of aerial photography and field surveys to document the presence, species composition, and distribution of SAV in the Chesapeake Bay and many of its tributaries. VIMS discontinued aerial surveys on the western shore of the Chesapeake north of the Patuxent River after repeated surveys found no SAV and the area was deemed not to be likely SAV habitat (VIMS personal communication, 2007).

Based on a lack of SAV presence during the summer 2006 survey and the spring 2007 survey and a lack of observations of SAV as part of the VIMS annual surveys, it is unlikely that SAV occurs within the study area.

References

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- USFWS. 2002. Adaptation of Braun-Blanquet Scale to Rate SAV Density through Rake Throws. Adapted from Virginia Institute of Marine Science (VIMS) website. June 2004.
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Figure 1. Calvert Cliffs Nuclear Power Plant Location Map



Figure 2. Submerged Aquatic Vegetation Sampling Locations, September 2006 and May 2007.



Source: U.S. Fish and Wildlife Service, adapted from Braun-Blanquet scale used to rate SAV density through rake throws, adapted from Virginia Institute of Marine Science (VIMS) website.

Figure 3. Density Classification of Collected SAV

ATTACHMENT 1

MDSPGP-3 CONFIRMATION PROTOCOL FOR DETERMINING PRESENCE/ABSENCE OF SUBMERGED AQUATIC VEGETATION AT PROJECT SITES

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Appendix B

MDSPGP-3

CONFIRMATION PROTOCOL FOR DETERMINING PRESENCE/ABSENCE OF SUBMERGED AQUATIC VEGETATION AT PROJECT SITES

Confirmation of submerged aquatic vegetation (SAV) presence or absence within a project area and/or vicinity must be done for proposals involving dredging, and/or beach nourishment to determine whether a project qualifies as a Category I activity, or whether a seasonal in-water work restriction is necessary on a qualifying action to protect SAV during the growing season. The following protocol should be used by Maryland Department of the Environment Tidal Wetland Division staff in confirming presence/absence of SAV at project sites.

- 1. Confirmation will be done by personnel with relevant experience (e.g., regulatory or resource agency staff, resource experts, consulting firm staff with experience in SAV ground truth surveys and species identification).
- 2. Ground truth observation of a project site and vicinity (i.e., visual, raking, etc.) is the most accurate and reliable method for determining SAV presence/absence, and therefore, preferred for confirmation. Ground truth confirmations need not involve comprehensive surveys, but may be limited to cursory or reconnaissance-type inspection of the bottom within and adjacent to (within 500 yards of) a project area. Ground truth data should be recent (i.e., collected during the same year of project application, or, during the growing season from the previous year). Ideally, data should be derived from two periods of the growing season (1) one during spring, May 1 through June 15; and, 2) a second during summer, July 15 through September 30). However, if SAV presence is confirmed during one ground truth observation, a second ground truth observation during that same year is not necessary, because SAV presence has already been confirmed.
- 3. Aerial photography survey information, such as the Virginia Institute of Marine Science (VIMS) annual aerial surveys, can be used as a "first line" of SAV confirmation, but should preferably be followed-up by ground truth observation, particularly if VIMS surveys indicate SAV presence within or near a project site. However, if aerial survey information indicates that SAV has been absent from a tidal watershed or tributary for at least 5 growing seasons prior to a project's application date, then ground truth observations will not be necessary to confirm SAV absence from that project site.