



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 22 1990

OFFICE OF
WATER

Honorable Joseph W. Westphal
Assistant Secretary of the Army (Civil Works)
Department of the Army
108 Pentagon
Washington, DC 20310-0130

Dear Dr. Westphal:

In accordance with the provisions of the 1992 Memorandum of Agreement (MOA) between the U.S. Environmental Protection Agency (EPA) and the Department of the Army under Section 404(q) of the Clean Water Act (CWA), I am requesting your review of a decision by Colonel Charles J. Fiala, Jr., U.S. Army Corps of Engineers (Corps), Baltimore District, to issue four Rivers and Harbors Act Section 10 permits to deepen channels in Chestnut Cove, Frog Mortar Creek, and Greyhound Cove in Baltimore County, and in Grays Creek in Anne Arundel County, Maryland. These four permits, which are intended to improve access for a limited number of recreational boaters, would cause significant adverse impacts to submerged aquatic vegetation (SAV), an aquatic resource of national importance, and a resource that is widely recognized as essential to the health and vitality of the Chesapeake Bay. While recreational boating is important to the Bay, the navigational benefits are comparatively small and cannot be considered critical. Weighed against the significant adverse impacts to SAV, these projects are not in the public interest and should be denied unless there are alternative approaches that would avoid impacts to SAV.

The largest estuary in the U.S., the Chesapeake Bay produces millions of pounds of seafood, provides natural habitat for a wide range of fish and wildlife species, and offers a variety of recreational opportunities for residents and visitors. Rivers such as the Middle and the Magothy provide habitat necessary for the production of many fish species in the Chesapeake Bay, and are critical to its overall health and productivity. SAV plays an important role in the aquatic ecosystem by providing food and habitat for a variety of valuable species, helping maintain water quality, and protecting shorelines from erosion. In addition to the immediate loss of 3.5 acres of SAV, the proposed dredging could cause adverse secondary effects by reducing opportunities for SAV propagation and expansion. Equally important, the authorization of these four projects would set an adverse precedent which would encourage additional dredging proposals in areas with SAV. EPA believes that these direct, secondary, and cumulative impacts to SAV will have a substantial and unacceptable impact on aquatic resources of national importance.

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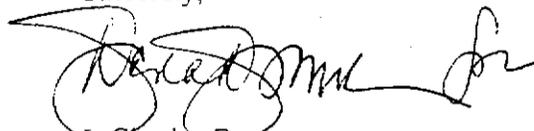
The proposed authorization of these dredging projects is particularly troubling at this time because it would run counter to intensive Federal, state, local, and private efforts to restore the Chesapeake Bay. Since 1983, Maryland, Pennsylvania, Virginia, the District of Columbia, the Chesapeake Bay Commission, and EPA have been setting goals for the restoration of the Chesapeake Bay's living resources, including SAV. While up to 600,000 acres of SAV once existed in the Bay, only approximately 68,000 acres remain today – a loss of nearly 90% of this valuable resource. In light of these drastic declines, the Chesapeake Bay 2000 Agreement reaffirms the interim goal of protecting and restoring 114,000 acres of SAV, and calls for new and more aggressive goals to be set in 2002. Furthermore, in 1995, the Corps took part in the development of "Guidance for Protecting Submerged Aquatic Vegetation in Chesapeake Bay from Future Disruption," agreeing to a number of policies for the protection of SAV, including the need to avoid dredging in existing SAV beds and areas that are suitable for SAV recolonization. Thus, permitting these proposed projects would undermine efforts to protect and restore SAV and would be counter to existing policies to restore the Chesapeake Bay.

EPA acknowledges the Corps' efforts to respond to requests to improve recreational access for a limited number of applicants, while also trying to protect the Chesapeake Bay's valuable aquatic resources for the greater public benefit. In this regard, however, we believe the Corps has not sufficiently reviewed alternative measures to avoid potential impacts to SAV. Such measures could include further changes in the width and configurations of proposed channels, pier lengthening to reduce the need for spur dredging, and the use of shared mooring facilities. Moreover, while EPA agrees with the Corps that further information is needed to develop additional specific policy regarding dredging and SAV in the Bay, it is inappropriate to permit the destruction of SAV without first having a sufficient understanding of the full effects of such activities. Although the Corps does propose to require a dredging impact study as part of the proposed permits, the study would occur after the SAV has been destroyed. Thus, the Corps is proposing to permit an activity that would impact a critical aquatic resource, while admittedly not having adequate information regarding its potential adverse effects. EPA is also concerned that the proposed study is not well designed and would likely not produce statistically valid results and, therefore, would be of little use in developing a long-term policy on dredging and SAV in the Bay.

Given the importance of SAV to the health of the Chesapeake Bay, EPA urges Army to reconsider the four proposed permits. In particular, there should be a thorough review of alternative methods to accomplish the purpose of the proposed projects while avoiding impacts to SAV. Where such impacts cannot be avoided, the proposed dredging should be denied. EPA commits to work with the Corps and the applicants to identify acceptable alternatives to the proposed projects. EPA also commits to work with the Corps and others to help design an effective study of dredging impacts on SAV, which could then be used to help develop policy to guide future permit decisions. Until there is such a Bay-wide dredging and SAV policy, based on sound scientific data, EPA further recommends that no permits be issued that would adversely impact SAV.

Thank you in advance for your consideration of this important matter. Attached is a detailed description of EPA's concerns with the proposed project. Should you have any questions or wish to discuss this matter further, please do not hesitate to call me or have your staff contact John Ettinger of the Wetlands Division, at (202) 260-1190.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Charles Fox", written over a circular stamp or seal.

J. Charles Fox
Assistant Administrator

Attachment

cc: Bradley Campbell, Regional Administrator, Region III

**Technical Attachment on Proposed Section 10 Permits for Dredging in
Chestnut Cove, Frog Mortar Creek, and Greyhound Cove in Baltimore County, and
Grays Creek in Anne Arundel County, Maryland**

I. INTRODUCTION

This attachment provides a detailed justification of EPA's request that Army review the proposals by the Baltimore District to issue Rivers and Harbors Act Section 10 permits for the dredging of channels in Chestnut Cove, Frog Mortar Creek, and Greyhound Cove in Baltimore County, and in Grays Creek in Anne Arundel County, Maryland. The primary purpose of the proposed projects is to improve navigational access for recreational boating.

EPA's request is based primarily on concerns with potential direct, secondary, and cumulative impacts to submerged aquatic vegetation (SAV), an aquatic resource that is critical to the health of the Chesapeake Bay. These concerns are heightened by the fact that the proposed dredging would run counter to intensive efforts to restore SAV in the Bay. When the relatively limited recreational benefits that would accrue from the dredging are weighed against the potential adverse impacts to critical aquatic resources, the proposed permits do not appear to be in the public interest. EPA believes, therefore, that the proposed permits should be denied unless there are alternatives that would avoid impacts to SAV. EPA agrees that there is a need for sound scientific data upon which to build a comprehensive Bay-wide policy to guide future permit decisions involving dredging in SAV. The study proposed by the Corp, however, is unacceptable because it would occur after the projects have been permitted and would provide data that is of questionable scientific merit.

II. PROJECT DESCRIPTIONS

Chestnut Cove: CENAB-OP-RW (BA DEPRM/CHESTNUT COVE/DREDGING) 98-60411 through 98-60414, 98-61291, and 98-61297. The Baltimore County Department of Environmental Protection and Resource Management (DEPRM) and five riparian property owners propose to dredge, by mechanical or hydraulic method, a 325-foot long by 50-foot wide by -4 feet MLW main channel and five spur channels in Chestnut Cove to improve navigational access for the residential and commercial property owners along the creek. The approximately 537 cubic yards of dredged material expected from the project is proposed for placement in an approved, upland dredged material placement site at Hart-Miller Island.

Frog Mortar Creek: CENAB-OP-RMN (BA FROG MORTAR CREEK/DREDGING) 98-61084 and 98-61096 through 98-61100. The Baltimore County DEPRM and five riparian property owners propose to dredge, by mechanical or hydraulic method, a main channel, 1,800 feet long by 50 feet wide, terraced from -5 feet to -6 feet MLW, and four spur channels in Frog Mortar Creek in Baltimore County, Maryland to improve navigational access for the residential and commercial property owners along the creek. The proposal also includes dredging a 130-

foot by 200-foot area to -6 feet MLW for an existing marina and the deepening of the main channel in Phase I, Segment C from -4 feet to -5 feet MLW. The approximately 5,474 cubic yards of dredged material expected from the project is proposed for placement in an approved, upland dredged material placement site at Hart-Miller Island.

Greyhound Cove: CENAB-OP-RW (BA DEPRM/GREYHOUND COVE/DREDGING) 97-66530, 97-66535, 97-66537, 97-66539, 97-66541 and 97-66543. The Baltimore County DEPRM and five riparian property owners propose to dredge, by mechanical or hydraulic method, a 620-foot long by 50-foot wide by -3 feet MLW main channel and five spur channels in Greyhound Cove in Baltimore County, Maryland to improve navigational access for the residential and commercial property owners along the creek. The approximately 2,089 cubic yards of dredged material expected from the project is proposed for placement in an approved, upland dredged material placement site at Hart-Miller Island.

Grays Creek: CENAB-OP-RMN (AA DPW/GRAYS CREEK) 00-62576, 00-62619 through 00-62645, and 00-65739. The Anne Arundel County Department of Public Works and twenty-eight riparian property owners propose to dredge, by mechanical or hydraulic method, (1) a main channel 400-feet long by 50-feet wide to a depth of -8 feet MLW; (2) two secondary channels, the northernmost being 1,700 feet long by 30-50 feet wide terraced from -3 feet to -6 feet MLW and the western 965 feet long by 30-40 feet wide and terraced from -3 feet to -6 feet MLW; and (3) 28 spur channels in Grays Creek in Anne Arundel County, Maryland to improve navigational access for the residential and commercial property owners along the creek. The approximately 12,336 cubic yards of dredged material expected from the project is proposed for placement in an approved, upland dredged material placement site at Rock Creek.

III. HISTORY OF EPA'S REVIEW OF THE PROJECTS

EPA has been involved in the review of these four dredging projects from the time of publication of their respective public notices. The original Public Notices for Frog Mortar Creek, Greyhound and Chestnut Coves were issued on March 16, 1998; and the Public Notice for Grays Creek was issued on March 15, 2000. EPA raised concerns with the proposed dredging in Frog Mortar Creek in letters to the Corps dated March 2, 1998, March 26, 1998, April 20, 1998, and May 13, 1999. EPA raised concerns with the proposed dredging in Greyhound Cove in letters to the Corps dated January 13, 1998, February 8, 1998, March 26, 1998, April 20, 1998, and May 13, 1999. EPA raised concerns with the proposed dredging in Chestnut Cove in letters to the Corps dated January 13, 1998, March 2, 1998, March 26, 1998, and March 27, 1998. EPA raised concerns with the proposed dredging in Grays Creek in letters to the Corps dated April 12, 2000, and May 4, 2000.

EPA has consistently raised concerns with the potential adverse impacts to SAV, and has recommended that the applicants be required to thoroughly explore less damaging alternatives to the proposed projects. EPA has also consistently recommended that dredging not occur directly in SAV beds. In all four cases, EPA found that the proposed projects will have substantial and

unacceptable impacts on aquatic resources of national importance. Based on these concerns, EPA informed the Corps that we maintained our ability to seek Army review of the proposed permit decisions pursuant to Section 404(q) of the Clean Water Act.

While attending a Public Hearing on the Middle River projects chaired by the Corps on May 24, 1999 in Bowley's Quarters, Maryland, EPA reiterated its concerns with the proposed dredging, and responded to questions from the public. In light of concerns with the proposed projects and in order to gather more information on potential impacts, EPA led an interagency group of scientists in a survey of SAV in the area of the proposed dredging projects. The results of this survey reaffirmed the importance of the SAV for habitat and water quality, and are discussed below in more detail.

In letters dated November 21, 2000, Baltimore District Engineer Colonel Fiala, Jr. indicated that, after considering EPA's concerns, the Corps intended to issue permits for the proposed projects. On December 1, 2000, Regional Administrator Bradley Campbell discussed EPA's concerns with Colonel Fiala by telephone. On December 6, 2000, Mr. Campbell informed Colonel Fiala in writing that due to unresolved concerns with the proposed project, EPA Region 3 would recommend that EPA Headquarters request Army review of the proposed permit decisions.

IV. SUBSTANTIAL AND UNACCEPTABLE IMPACTS TO AQUATIC RESOURCES OF NATIONAL IMPORTANCE

A. Submerged Aquatic Vegetation

SAV refers to vascular plants that grow beneath the surface of the water in shallow estuarine areas and tidal tributaries. Within the Chesapeake Bay, there are 13 primary species of SAV. These species include: Eurasian watermilfoil, *Myriophyllum spicatum*; common water weed, *Elodea canadensis*; wild celery, *Vallisneria spiralis*; coontail, *Ceratophyllum demersum*; horned pondweed, *Zannichellia palustris*; widgeon grass, *Ruppia maritima*; water stargrass, *Heteranthera dubia*; redhead grass, *Potamogeton perfoliatus* and curly pondweed, *Potamogeton crispus*.

SAV plays a critical role in the aquatic environment by:

- providing food and habitat for waterfowl, fish, shellfish and invertebrates;
- producing oxygen in the water column as part of the photosynthetic process;
- filtering and trapping sediment that can cloud the water and bury bottom-dwelling organisms, such as oysters;
- protecting shorelines from erosion by slowing down wave action; and

- removing excess nutrients, such as nitrogen and phosphorus, that can promote unwanted growth of algae in the surrounding waters.

SAV provides food and shelter for various species of fish, shellfish, invertebrates and waterfowl in the Chesapeake Bay. The blade surface of SAV serves as a substrate for microscopic algae and protozoans. Minnows swim among the plants and graze on the tiny organisms that grow on stems and leaves. Microscopic zooplankton feed on decaying SAV and, in turn, are food for larger Bay organisms. Other small species that use SAV as substrate and/or food include bay barnacles, sea squirts, sponges, isopods, amphipods, snails and sea slugs. Small fish and crustaceans, such as pipefish, seahorses, sticklebacks, anchovies, silversides, shrimp, blue crabs and clams use SAV as refuge. Shedding blue crabs conceal themselves in the vegetation until their new shells have hardened. SAV habitats also serve as protective nurseries for many juvenile fish including menhaden, herring, shad, spot, croaker, weakfish, red drum and silver perch. SAV is also a valuable food source for waterfowl. In the fall and winter, migrating waterfowl such as the American wigeon, the green-winged teal, and canvasback ducks search the sediment for nutritious seeds, roots and tubers. Resident waterfowl may feed on SAV year-round.

SAV serves other major functions in the Chesapeake Bay, as well. SAV actively removes nutrients and harmful heavy metals from surrounding waters. The dense mat of roots and tubers of SAV beds provide stability for the shoreline by binding substrates. SAV beds absorb wave energy, thus limiting the effects of erosion from storms and boat traffic. In this way, SAV beds have an important effect on the overall rate and quality of sedimentation throughout the Bay. The presence of increased amounts of SAV decreases the need for future dredging by stabilizing the sediment substrate.

In light of such critical functions and values, ecologists use the health of SAV habitat as a primary indicator of an ecosystem's condition. When SAV beds are abundant and healthy, the water quality is increased and suspended sediments are minimal. The growth or decline of SAV populations is a determining factor, and provides a reliable indicator of overall ecosystem health within the Bay.

B. Fisheries

There are several agencies and commissions that protect SAV beds and have specific policies that recommend not dredging through them. The National Marine Fisheries Service (NMFS) and U. S. Fish and Wildlife (FWS) wrote several letters recommending to the Corps not to issue these permits. The Maryland Department of Natural Resources (MDNR) in a letter dated February 20, 1998, stated that they had concerns with the potential adverse impacts to aquatic resources resulting from these projects. MDNR's letter identifies Frog Mortar Creek as a spawning area of anadromous fish such as alewife, *Alosa pseudoharengus*; blueback herring, *Alosa aestivalis*; white perch, *Morone americana*; and yellow perch, *Perca flavescens*.

The Atlantic States Marine Fisheries Commission (ASFMC) has identified species such as American Eel, *Anguilla rostrata*; Atlantic croaker, *Micropogon undulatus*; Atlantic menhaden, *Brevoortia tyrannus*; Atlantic striped bass, *Morone saxatilis*; bluefish, *Pomatomus saltatrix*; spot, *Leiostomus xanthurus*; and winter flounder, *Pleuronectes americanus* as needing more protection. Each species mentioned above has a management plan recommending protection of these species along with their habitat. These species are documented as utilizing the Middle River system, and therefore the habitat provided by the creeks and coves of Middle River warrant further protection. In addition, the ASFMC fully recognizes that SAV is critical to the various life stages of fish species. Consequently, in June 1997 ASFMC released their own policy pertaining to SAV that complements the Chesapeake Bay Program's policy and guidance. ASFMC specifically calls for increased protection and includes a detailed management plan recommending protection of these species and their associated habitat.

In attempting to achieve its stated goal, the ASFMC's policy emphasizes six key parts; one of which is the protection of existing SAV beds. The policy states that:

...while there have been numerous documented restoration successes, protection and conservation are a much more assured and cost-effective approach to perpetuation of SAV. Furthermore, without strong regulatory protection of existing SAV, incremental and cumulative losses SAV from federal and state authorized coastal development, coupled with natural fluctuation will make it difficult to achieve restoration goals.

The quantity and quality of the SAV habitat throughout the Middle and Magothy River systems is proportional to the stock size of the aforementioned fish species. NMFS, and the Mid-Atlantic Fisheries Management Council (MAFMC) have indicated the importance of these shallow water areas to Winter Flounder. Moreover, the NMFS and the MAFMC have identified the Middle River as Essential Fish Habitat pursuant to the Magnuson-Stevens Fishery Conservation and Management Act for Winter Flounder. Protection of these areas is essential to the growth of the Winter Flounder population surviving along the Eastern Seaboard.

C. Middle and Magothy Rivers

The creeks and coves of Middle and Magothy Rivers contain healthy beds of SAV consisting of species including *Myriophyllum spicatum*, *Elodea canadensis*, *Vallisneria americana*, *Ceratophyllum demersum*, *Zannichellia palustris*, *Potamogeton crispus*, *Potamogeton perfoliatus*, *Potamogeton pectinatus*, *Ruppia maritima* and *Heteranthera dubia*. If existing depths remain, several of these established beds have the potential to expand significantly.

- *Myriophyllum spicatum* (Eurasian water-milfoil) was introduced to the Chesapeake Bay area in the late 1900's. After a rapid expansion in the 1950's, followed by a decline ten years later, this species distribution is restricted to the upper reaches of the Bay. Given its growth potential, *M. spicatum* has the ability to occupy additional available habitat in the Bay, as well as the upper sections of tributaries and creeks.

- *Elodea canadensis* (common waterweed) was historically abundant throughout the Bay. Seed distribution demonstrates continually decreasing dispersal of seed beds. Since the 1970's *E. canadensis* has survived only in Middle River and presently continues to decline. According to historical evidence, this species has a high potential to expand.
- *Vallisneria americana* (wild celery) is one of the more valuable species found within the Bay due to its historically wide range of distribution. From 1970 to 1987, the seed record showed a dramatic decline in this species in the Middle River.
- *Ceratophyllum demersum* (coontail) does not require use of a substrate and rarely reproduces utilizing seeds. Therefore, no seed record exists to show historic distribution. Due to *C. demersum*'s ability to float freely, larger distribution patterns than those present are possible.
- *Zannichellia palustris* (horned pondweed) is one of the most widely distributed species of the Bay. Seed abundances declined between 1880 and 1980, but since that time distribution of this species has slightly increased. *Z. palustris* shows a high degree of annual variability with very abundant seed beds, indicating that this species has an extremely high potential to expand.
- *Potamogeton perfoliatus* (redhead grass) has been common to the upper Bay and its tributaries. After 1970, this species experienced a severe decline with seeds found only in four creeks, including Middle River. There have since been some sporadic recurrences of *P. perfoliatus*. Based on historical ranges, this species holds the potential of a very wide area of distribution.
- *Potamogeton pectinatus* (sago pondweed) is reported as the most common species present in few areas of the bay, including Middle River. This species has the potential to occupy a much wider area than many other species currently present in the bay.

Since the mid-1980's, SAV has been documented within the Middle River system. In 1995 and 1996, Baltimore County conducted an SAV survey throughout these creeks. SAV aerial distribution was much greater in 1996 than in 1995. Specifically, in Frog Mortar Creek, an increase was noted in the health and quantity of five species of SAV; including Eurasian water-milfoil, *Myriophyllum spicatum*; common waterweed, *Elodea canadensis*; wild celery, *Vallisneria americana*; coontail, *Ceratophyllum demersum* and horned pondweed, *Zannichellia palustris*. In late April 1998, SAV was re-surveyed in an interagency sampling effort. Results from this survey show significant expansion of SAV beds throughout many areas of the Middle River system.

Even though SAV distribution is increasing throughout the Middle River watershed, this information does not imply that existing SAV beds are stable enough to survive after becoming

disrupted or destroyed by dredging activities. For example, SAV distribution has shown significant vacillations in the Middle River, including an 81% decline from 1993 to 1995, the second lowest recorded by the Virginia Institute Marine Science aerial surveys. Overall, the Middle River system, as with much of the Chesapeake Bay, has been severely stressed over the past 20 to 30 years. Protecting existing SAV and encouraging re-colonization of historic beds is critical for improving conditions within the Middle River and similar creeks and coves.

D. Direct, Secondary, and Cumulative Impacts

EPA is concerned that the proposed dredging projects will result in significant direct, secondary, and cumulative impacts to SAV. Specifically, dredging through SAV will cause the direct destruction of the beds and loss of the critical functions they provide in the context of the broader aquatic ecosystem. In addition, the associated loss of SAV rhizome/tuber/root mass will eliminate or greatly reduce the potential for SAV to reestablish or expand into new areas. The proposed dredging will establish depths in many areas that are beyond the ideal SAV habitat depth of 1.5 meters, thus further limiting regrowth or expansion potential. As previously noted, SAV serves to reduce the overall rate of sedimentation, whereby the presence of SAV lessens suspended sediments. Therefore, the loss of SAV can increase turbidity and decrease light penetration, which can also cause adverse impacts beyond the immediate areas being dredged. Ironically, the loss of SAV can result in accelerated erosion and increase the need for future dredging. These direct and secondary impacts will contribute to the dramatic cumulative losses of SAV in the Chesapeake Bay, and the associated declines in ecosystem integrity.

SAV provides critical water quality benefits, including turbidity reduction and nutrient removal. Plant roots bind both sediments and pollutants which would otherwise contribute to the major causes of pollution in the Bay. In addition to impacts that such changes have on the aquatic ecosystem in general, there can also be secondary impacts on remaining SAV beds. Increased turbidity, for example, can have a significant impact on remaining SAV beds by reducing photosynthesis. Further light reductions to plants that are already living in turbid waters can result in senescence of plant tissue and eventual population declines. As noted above, dredging through SAV beds can also have a negative effect on plant dispersal and the establishment of other beds, by eliminating seeds and root propagules.

Cumulative impacts to SAV have the potential to adversely affect fauna throughout the Chesapeake Bay. Nearly all 3,600 species of plants, fish and animals of the Chesapeake rely on SAV beds at some time in their life cycles. The food web of the Bay is dependent on the overall health of existing SAV beds and the reestablishment of SAV beds back to historic levels. Dredging through SAV either eliminates dependent fauna or causes it to move to other parts of the Bay to find SAV for nursery areas and foraging. As invertebrates and fish populations move to other areas, predation of those species increases. Also, as juvenile fish move to other SAV beds, commercial and recreational fish species stock sizes decrease.

V. PUBLIC INTEREST AND NAVIGATIONAL NEEDS

According to Corps regulations, permits cannot be issued for activities which are contrary to the public interest (33 CFR Part 320.4). In determining whether a project is in the public interest, the Corps is to consider the relative extent of the public and private need for the proposed work, as well as the extent of the detrimental effects which the proposed work is likely to have on public and private uses to which the area is suited. Corps regulations further state that where there are unresolved conflicts as to resource use, the Corps should consider using reasonable alternative methods to accomplish the objective of the work (33 CFR Part 320.4(a)(2)(ii)). EPA believes that the relatively limited private recreational benefits that would accrue from the proposed dredging are outweighed by the potential detrimental effects to public and private interests in the Chesapeake Bay. As such, the proposed projects are not in the public interest and should not be authorized by the Corps unless there are reasonable alternatives that would accomplish the project purpose without destroying SAV.

The stated purpose of the permits in Baltimore and Anne Arundel Counties is to improve navigational access for the residential and commercial property owners. Boaters have historically used these creeks for recreational purposes, as they continue to do so today. According to the Corps Notices of Intent for these projects (November 2000), as of recently there exists a lack of "safe boat access" and unfulfilled "current boat use needs." At present, the dredging permits require minimum dredging depths below the current depth of the creek beds. However, boaters are currently utilizing their waterfront access. Dredging to these depths would be enough to eliminate the vegetative roots and rhizomes of any established SAV beds. These proposals to dredge shallow channels when current waterfront access already exists represent unwarranted environmental harm and risk for the purpose of gaining a comparatively limited navigational improvement for a relatively small portion of the recreational boating community.

EPA is not requesting that property owners relinquish current access. Therefore, no financial or logistical loss is expected to occur. Alternatives to the proposed projects are available and should be fully evaluated. Possible ways to achieve avoidance and/or minimization include limiting spur channel widths and lengths to a size necessary for reasonable mooring and/or to access the channel end of an existing pier or boat lift. Applicants have the option of extending pier lengths wherever possible to minimize dredging through SAV beds. Also, channels could be reconfigured to avoid or minimize adverse impacts to existing beds. While some minimization of impacts has been proposed, the critical importance of SAV to the Chesapeake Bay dictates that the Corps should request that the applicants perform detailed analyses of alternatives that would not impact SAV. Where no such alternatives exist, proposals which would directly impact SAV should be denied. EPA will work with the District and the applicants to help explore and evaluate alternatives.

VI. EXISTING POLICIES PROTECTING SAV

In addition to the fishery policies discussed earlier, the four proposed dredging projects at issue are in conflict with, and would undermine, a number of other important policies and agreements

pertaining to restoration of the Chesapeake Bay, particularly with respect to the protection of SAV. Historically, all agencies have recommended denial of SAV disruption, including EPA, FWS, NMFS, the Chesapeake Bay Program, and the Corps. Several non-governmental agencies within the Chesapeake Bay region, including the Chesapeake Bay Foundation, are also opposed to the approval of such permits.

The Chesapeake Bay has been designated a resource of international importance by the Ramsar Convention. The Chesapeake Bay 2000 Agreement signed by Maryland, Virginia, Pennsylvania, the District of Columbia, the Chesapeake Bay Commission and the Federal government reaffirms the interim Bay-wide goal of protecting and restoring 114,000 acres of SAV, and calls for new and more aggressive goals to be adopted by 2002. The Estuaries and Clean Water Act of 2000 requires all Federal agencies to comply with the Chesapeake Bay Agreement on Federal lands; and provides \$275 million to restore estuarine habitat, including SAV. In addition, in 1995 the Corps took part in the development of "Guidance for Protecting Submerged Aquatic Vegetation in Chesapeake Bay from Future Disruption," agreeing to a number of policies for the protection of SAV, including the need to avoid dredging in existing SAV beds and areas that are suitable for SAV recolonization.

The Chesapeake Bay Program's 1989 "Submerged Aquatic Vegetation Policy" also encourages the protection of existing SAV beds from further losses. The 1989 SAV policy was signed by the EPA Administrator, Chesapeake Bay Commission Chairman, the Governors of Maryland, Pennsylvania, and Virginia, and the Mayor of Washington D.C., thus indicating the importance of protecting SAV systems. The stated goal of this policy is to achieve a net gain in SAV distribution, abundance, and species diversity in the Chesapeake Bay and its tidal tributaries over present populations by:

1. protecting existing submerged aquatic vegetation beds from further losses due to increased degradation of water quality, physical damage to the plants, or disruption to the local sedimentary environment;
2. setting and achieving regional water and habitat quality objectives that will result in restoration of submerged aquatic vegetation through natural revegetation; and,
3. setting regional submerged aquatic vegetation restoration goals in terms of acreage, abundance, and species diversity considering historical distribution records and estimates of potential habitat.

The SAV policy places emphasis on four components key to the future restoration and protection of submerged aquatic vegetation: 1) assessment of historical, current and future distribution and abundance; 2) protection of existing populations; 3) restoration of former populations; and 4) increasing our knowledge of the resource through research and continued education of the public.

The SAV policy states:

The goal of the SAV policy is to achieve a net gain in SAV distribution.

abundance, and species diversity by protecting existing SAV beds from further losses due to increased degradation of water quality, physical damage to the plants, or disruption to the local sedimentary environment....

The parties to the SAV policy are committed to:

...use existing regulatory and resource management programs, and develop new programs, to limit permanent and irreversible, direct and indirect impacts to submerged aquatic vegetation and their habitats. Only in rare circumstances will losses of submerged aquatic vegetation be considered justifiable.

Issuing the pending permits for access channel enlargement in the Middle River and Magothy River systems is clearly inconsistent with the aforementioned policies and goals. In addition to the immediate impacts of the proposed dredging, authorization of these projects would set a precedent which could encourage future efforts to dredge in areas with SAV, thus further undermining the important efforts to protect and restore SAV for the good of the greater Chesapeake Bay ecosystem.

VII. PROPOSED DREDGING IMPACTS STUDY

The Corps has proposed that a study entitled "Assessment of Potential Impacts on Submerged Aquatic Vegetation Due to Permitted Dredging Activities" be conducted to determine whether dredging permanently or temporarily damages SAV beds. Making use of historic documentation of the quantity and quality of SAV, one set of sample data will be gathered before dredging occurs and multiple data samples will be collected after the dredging operation is complete. The Corps plans to draw conclusions from this study which will then be utilized to determine future permitting efforts. In addition to EPA's concern that the results of the proposed study will, by design, not be known until after adverse impacts to critical aquatic resources may have occurred, EPA is also concerned with the scientific validity of the proposed study.

As proposed by the Corps, this assessment of SAV is of questionable merit due to a lack of control sites and data. For any study to yield conclusive results, it must prove statistical significance with a low standard error. The study, as proposed, offers no control sites to provide information on the possible effects of critical parameters; including nutrient loading, sediment characteristics, light regime and others. Without specific knowledge concerning these parameters, erroneous results could easily be drawn. The study plans for one data sample to be collected before dredging occurs within each creek. One sample is not enough information to provide statistical evidence for any conclusions to be established. The quality of the data which would be generated by the proposed study is also questionable. To conclude with statistically significant results, the study must collect continuous data from a selected number of sites for an appropriate length of time. This data must include information on each critical parameter. In all respects, for any study to yield valid conclusions, it must appropriately follow the parameters of the scientific method.

At the request of the Corps Baltimore District, the Corps' Waterways Experiment Station (WES) reviewed the technical merits of the proposed study. In this review, WES emphasizes the need for a scientifically defensible study for future regulatory decisions, suggesting data collection on a continuous basis from selected sites, utilizing sophisticated monitoring equipment. This approach will provide information on the critical parameters that affect SAV, thus determining whether any of these parameters have an effect on the re-colonization and growth rates of SAV. A scientifically based study is necessary to understand the causal factors behind the dredging impacts on SAV. As WES states, a study that fails to employ the scientific method will produce inconclusive results.

Several times the EPA has stated its opposition to dredging through any established SAV bed, including those SAV beds designated for the purposes of the presence/absence study proposed by the Corps. Other Federal resource agencies such as NMFS and FWS have also recommended not to pursue a presence/absence study. Fisheries biologists from the MDNR also hold that the proposed study will be inconclusive.

EPA agrees with the Corps that there should be a study that could be used to develop a comprehensive policy concerning dredging activities and SAV. The current proposal, however, does not adequately account for key variables inherent in aquatic ecosystems. Therefore, the proposed study will have low reliability as a basis for the creation of new policy. In recognition of the need for sound scientific information upon which to develop a Bay-wide policy on dredging and SAV, EPA commits to work with the Corps and others to help design a suitable study and to develop of comprehensive policy based on its results.

VIII. CONCLUSIONS AND RECOMMENDATIONS

In summary, EPA believes that the approval of these four projects will result in significant and unacceptable impacts to SAV and the broader aquatic environment. Given the potential adverse impacts of the proposed projects, when weighed against the relatively limited private benefits, EPA recommends the following:

- The Corps should require the applicants to conduct a thorough review of alternative measures which would avoid impacts to SAV.
- Where impacts to SAV cannot be avoided, the Corps should not authorize the proposed dredging projects.
- The Corps should work with EPA and other interested stakeholders to develop a sound scientific study of dredging impacts on SAV, and to use the results of such a study to help develop a Bay-wide policy to guide future permit decisions. No permits should be issued for dredging in SAV until such a policy is developed.

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