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Date: June 13, 1990

ECOLOGICAL SCIENCES TECHNICAL NOTE NO. 190-W-4

SUBJECT: ECS - ENVIRONMENT - TREATMENT OF SPECIAL AQUATIC SITES IN ENVIRONMENTAL EVALUATIONS

Purpose. To provide assistance in scoping and evaluating the effects of SCS actions on special environmental sites.

Effective Date. Immediately.

Filing Instructions. File with other ECS - ENVIRONMENTAL Technical Notes, or with appropriate environmental compliance references.

This note was developed by Tom Dumper, Environmental Specialist, MNTEC and was issued as ECS Tech. Note No. 190-LI-6 on April 16, 1990. We have reviewed the application of this note to planning situations in the West, and believe it has equal validity.

This note might be used by any SCS planners that would develop actions that would affect special aquatic sites such as wetlands or free flowing streams that have a pool-riffle complex substrate. These actions would include both project plans and individual actions where these resources would be affected, especially where a 404 permit would be required for installation. A few extra copies are available from the WNTC.


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 Director, WNTC

Enclosure

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Technical Note

Treatment of Special Aquatic Sites in Environmental Evaluations

Ecological Sciences—Environment Series No. W4

SOIL CONSERVATION SERVICE

U.S. DEPARTMENT OF AGRICULTURE

TREATMENT OF SPECIAL AQUATIC AREAS IN ENVIRONMENTAL EVALUATIONS

Introduction

Rules for compliance with National Environmental Policy Act (NEPA) (190-GM, Part 410.2 and 7 CFR 650.2) which apply to all SCS-assisted programs state that the first step in planning is the initiation of an environmental evaluation (EE). The EE integrates environmental concerns throughout the planning, installation, and operation of SCS assisted projects (190-GM, Part 410.5 and 7 CFR 650.5). The EE used in all assistance, but the planning intensity, public participation, and documentation of actions vary with their scope. The documentation that supports a small action, such as for one land user, is usually integrated into basic planning documents. Large actions, such as water resource projects, usually have a formal environmental assessment (EA) and a finding of no significant impact (FONSI); or an EA and an Environmental Impact Statement (EIS). In all cases, SCS planning procedures will identify environmental concerns, gather baseline data, and predict the effects of alternative courses of action on the environment.

The Clean Water Act (CWA) prohibits the discharge of dredged or fill material into the waters (and wetlands) of the United States in such a manner that it is deleterious to the quality or inhabitants of these waters. A permitting program is cooperatively operated under Section 404 of this act by USEPA, Department of the Army, and a few state agencies. SCS assistance activities that produce such a discharge under the rules of this action may require a "404 permit" before they may be implemented. Special aquatic sites, regulated under this part of the CWA, may affect the eligibility of the action for a permit.

Permit determinations under Section 404 require that the permitting authority determine, in writing, the potential short-term and long-term effects of a proposed discharge of dredged or fill material on the physical, chemical, and biological components of the aquatic environment and especially special aquatic sites. The EE, conducted and documented by SCS personnel, is expected to provide most of the information needed for the 404 permit determinations that is needed by the sponsors or cooperators to implement their permitted action.

NEPA regulations for federal agencies have been in place since 1970, although there have been changes in criteria; especially during the first NEPA decade. The CWA rules (40 CFR Part 230), which provide guidelines for the specification of disposal sites for dredged or fill material, were changed in 1981. Consequently, environmental documents prepared before 1981, and sometimes thereafter, may not contain the necessary information for issuance of a 404 permit.

Reasons for Denying a 404 Permit

The reasons that permitting agencies have not issued a 404 clearance include changes in criteria or techniques for resource evaluation and increased technical knowledge. Other reasons include changes in NEPA documentation requirements or new developments in scientific abilities, techniques, and procedures required to perform environmental evaluation of nationally significant resources. It is not unusual for a permitting agency to find that the database developed in the past for a specific action is inadequate and requires petitioners (including project sponsors and cooperators) to conduct additional studies. Effects of actions on special aquatic sites has frequently been the focal point of new studies. This is especially true when implementation actions lag behind plan authorization. Sometimes a supplement to the environmental evaluation and/or planning documentation may be required.

Information Needed by Permitting Agency for 404 Determinations

Rules and guidelines for specification of disposal sites for dredged or fill material need information that describes the aquatic environment of the affected area. These data include the physical and chemical characteristics of the aquatic ecosystem, its substrate, and an assessment of the potential loss of its environmental characteristics and values. Indicators ^{1/} include parameters such as concentration of suspended particulates; turbidity; physical, chemical, and biological characteristics of water (and related terrestrial vegetation); water current circulation patterns; and fluctuations in water level and salinity.

The assessment of the potential fill or dredging activity's effects on the biological characteristics of an aquatic ecosystem is an important part of the 404 permit findings. Special resources studied in these analyses are threatened and endangered species of plants and animals; fish, crustaceans, mollusks, and other aquatic organisms in the food web; and the characteristics of other wildlife that are resident or transient to the aquatic ecosystem. An additional need for information, that should be revealed and documented is the potential effects of human use on the site. These characteristics include the use of the waters for municipal, rural, and private water supplies; recreational and commercial fisheries; hunting, trapping, and water-related recreation; aesthetics; and parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves.

Special Aquatic Sites

One of the focal points in an EE that is carried out to provide data for a 404 permit, is the potential effect of the action on special aquatic sites. Special aquatic sites are geographic areas, large or small, that possess special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values (40 CFR 230.3(q-1)). These areas are generally recognized as those which

^{1/} See Principles and Guidelines, Chapter III, Section II, Part 3.2.1, Page 104, 1983.

have the potential to be significantly influenced by the planned action or positively contribute to the overall environmental health or vitality of the entire ecosystem of a permitted location. Analyses of these types of sites are included in EE techniques but sometimes they have not been emphasized in SCS environmental documentation (EA, EIS, FONSI, etc.). In as much as the USEPA guidelines under 40 CFR Part 230 discreetly describe special aquatic sites, they have SPECIAL INSTITUTIONAL SIGNIFICANCE where scoped as part of an EE in accordance with Chapter 3, Section IV, Part 3.4.3 of the Principles and Guidelines.

There are six special aquatic sites listed in the 404 guidelines (40 CFR 230, Subpart E): sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes. Descriptions of these sites, taken from the 404 regulations (40 CFR 230.40-45), follow.

Sanctuaries and Refuges.--Wildlife sanctuaries and refuges consist of areas designated under state and federal laws or local ordinances to be managed principally for the preservation and use of fish and wildlife resources. They might be affected by discharges of dredged or fill material and there could be:

1. Disruption of the breeding, spawning, migratory movements or other critical life requirements of resident or transient fish and wildlife;
2. Creation of unplanned, easy, and incompatible human access to remote special aquatic areas;
3. Creation of a need for frequent maintenance activity;
4. Establishment of undesirable, competitive species of plants and animals; and
5. A change in the balance in water and land areas needed to provide cover, food, and other fish and wildlife habitat requirements in a way that modifies sanctuary or refuge management practices.

Wetlands.--Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetland vegetation consists of plants that require saturated soils to survive (obligate wetland plants), as well as plants and certain trees, that gain a competitive advantage over others because they can tolerate prolonged-wet soil conditions while their competitors cannot. In addition to plant populations and communities, wetlands are delimited by hydrologic and soil characteristics of their environment. A manual for identifying and delimiting these wetlands was adopted by USEPA, USFWS, Department of the Army, and SCS in 1989, and it will be the basis for wetland interpretations for "404" regulation. Mitigation of the effects of an action on wetlands is described in an MOA between USEPA and the Department of the Army.

Mudflats.--Mudflats are broad flat areas located along the sea coast, in coastal rivers at the head of tidal influence, and in inland lakes, ponds,

and riverine systems. When mudflats are inundated, wind and wave action may resuspend bottom sediments. Coastal mudflats are exposed at extremely low tides and inundated, again, at high tides where the water table is at or near the surface of the substrate. The substrate of mudflats contains organic material and particles smaller in size than sand. They are either unvegetated or vegetated by algal mats.

Discharge of dredged or fill material can cause changes in water circulation patterns which may permanently flood or dewater the mudflat or disrupt its periodic inundation. This interruption in the water cycle may result in an increase in the rate of erosion or accretion. Such changes can deplete or eliminate mudflat biota, foraging areas, and nursery areas. Changes in inundation patterns can affect the chemical and biological exchange and decomposition processes occurring on the mudflat and change the deposition of suspended material. These changes affect the area's productivity.

Vegetated Shallows.--Vegetated shallows are permanently inundated areas that under normal circumstances support communities of rooted aquatic vegetation. These communities may include turtle grass and eelgrass in estuarine or marine systems as well as a number of fresh water species in rivers and lakes. The discharge of dredged or fill material can smother vegetation and benthic organisms. Discharges may create unsuitable conditions for the continued vigor of vegetation and organisms by: changing water circulation patterns; releasing nutrients that increase undesirable algal populations; releasing chemicals that adversely affect plants and animals; increasing turbidity levels that reduce light penetration; and changing the capacity of a vegetated shallow to stabilize bottom materials and decrease channel shoaling.

Coral Reefs.--Coral reefs consist of the skeletal deposits, usually of calcareous or siliceous materials, produced by the vital activities of anthozoan polyps or other invertebrate organisms present in growing portions of the reef. Discharge of dredged or fill materials can adversely affect colonies of reef building organisms by burying them, by releasing contaminants such as hydrocarbons into the water column, by reducing light penetration through the water, and increasing the level of suspended particulates.

Riffle and Pool Complexes.--Steep-gradient sections of streams are sometimes characterized by riffle and pool complexes that are recognized by their hydraulic characteristics. The rapid movement of water over a coarse-grained substrate forms a riffle that has a rough flow, a turbulent surface, and water with high dissolved oxygen levels. Pools are deeper areas of the water course associated with riffles and characterized by a slower stream velocity, a streaming flow, a smooth surface, and a fine substrate than riffle areas. Pools are valuable habitat for fish and wildlife.

Discharge of dredged or fill material can eliminate or impair the riffle and pool areas by displacement, hydrologic modification, or sedimentation. This elimination may result in reduced aeration and filtration capability, reduced diversity of stream habitat, and retarded repopulation of the disposal site and downstream waters through sedimentation and creation of unsuitable habitat. The discharge which alters stream hydrology may cause scouring or

sedimentation of riffles and pools and it may destroy habitats and create anaerobic conditions. Eliminating pools and meanders by the discharge of dredged or fill material can reduce the water-holding capacity of streams and cause rapid runoff. Rapid runoff can deliver large quantities of flood water resulting in natural habitat destruction, property loss, and need for hydraulic modification. Pool and riffle areas may be adversely affected by both channel modification and impoundment.

Need for Inventory, Evaluation, and Assessment of Special Aquatic Sites

Special aquatic sites should form one of the focal points for inventory and forecast during the EE because they have special institutional significance. This EE activity has special importance when the action will result in a plan or project that would require a 404 permit. The use of an interagency team, including the permitting agency, to inventory and evaluate the effects of proposed actions on special aquatic sites is recommended when project scoping indicates a potential for a significant effect on these resources. Appropriate techniques, such as defined in the SCS planning manuals and in 40 CFR 230, must be rigorously applied and documented. Environmental assessments should describe the potential effects of the action in terms of intensity and context, in accordance with environmental procedures spelled out in 40 CFR 1500-1508 and SCS General Manual 190, GM Part 410. This activity as part of the EE, should be conducted in a manner commensurate with the significance of the impact and scope of the activity. The content of this note applies to any SCS program that might potentially affect these aquatic resources

References

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