

WETLANDS AND OPEN WATERS
Compensatory Mitigation
Definitions of Factors

Adverse effects as used in this section of the SOP means any adverse ecological effect on wetlands or areas of open water. Those effects, or impacts, include filling, excavating, flooding, draining, clearing, or similar changes affecting wetlands or open water areas. Other categories of effects such as aesthetic, cultural, historic, health, etc., are not addressed by this SOP.

Aquatic site means wetlands and other open water areas (streams not included in this section).

Control means the entity responsible for enforcing preservation requirements. Related terms are:

- Restrictive Covenant (RC). (0.1 credit factor)
- RC and Conservation Easement (CE) or Government/Public Protection (GPP). (0.1 credit factor)
- RC and CE and GPP. (0.5 credit factor)

Credit Schedule means the timing of mitigation in relation to adverse impacts to aquatic sites. Mitigation schedules are reviewed and approved on a case-by-case basis. Related terms include:

FOR NON-BANKS:

- Schedule 1. Mitigation is done prior to the adverse impacts. (0.4 credit factor)
- Schedule 2. The majority of the mitigation is done prior to the impacts and the remainder is done concurrent with, or after the impacts. (0.3 credit factor)
- Schedule 3. The mitigation is constructed concurrent with the impacts. (0.2 credit factor)
- Schedule 4. The majority of the mitigation is done concurrent with the impacts, and the remainder is done after the impacts. (0.1 credit factor)
- Schedule 5. The mitigation is done after the impacts. (0 credit factor)

FOR MITIGATION BANKS:

- Schedule 1. No credits may be withdrawn prior to final determination of success.
- Schedule 2. No more than 5% of the total credits are released upon recording a restrictive covenant over the bank site and at least 25% of the total credits are held until final determination of success.
- Schedule 3. No more than 10% of the total credits are released upon recording a restrictive covenant over the bank site and at least 20% of the total credits are held until final determination of success.
- Schedule 4. No more than 15% of the total credits are released upon recording a restrictive covenant over the bank site and at least 20% of the total credits are held until final determination of success.

Degree of Threat is an assessment of the level of imminent risk of loss or damage to a system. None (0 credit factor); Low (0.1 credit factor); Moderate (0.3 credit factor); High (0.5 credit factor).

Dominant Effect categories are defined as follows:

- Shading means to shelter or screen by intercepting radiated light or heat. (0.5 impact factor)
- Clear means to mechanically remove vegetation (mechanized landclearing). (1.0 impact factor)
- Flood means to periodically and temporarily cover an aquatic area with water. (1.2 impact factor)
- Draining means ditching, channelization, or excavation that results in the removal of water from an aquatic area causing the area, or a portion of the aquatic area, to change over time to a non-aquatic area or to a different type of aquatic area. (1.4 impact factor)
- Impound means to create a permanent lake or pond by obstructing the flow of a riverine system. (1.6 impact factor)
- Dredge means to dig, gather, pull out, or excavate from US waters. (1.8 impact factor)
- Fill material means any material used for the primary purpose of replacing an aquatic area with dry land or of changing the bottom elevation of a waterbody. (2.0 impact factor)

Duration means the length of time the adverse impacts are expected to last. Impact factors range from 0.1 (< 1 year) to 2.0 (7+ years).

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Effect is defined by Webster to mean something that inevitably follows an antecedent (as a cause or agent). The Council on Environmental Quality (CEQ) has defined at 40 CFR Part 1508.8 that the words impacts and effects are synonymous, and that effects includes ecological, aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Mitigation for other categories of effects (e.g., historic, cultural, aesthetic) is not addressed in this SOP. The CEQ stated that effects include: direct effects which are caused by the action and occur at the same time and place; and indirect effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.

Existing Conditions categories are defined as follows. This SOP is limited to evaluation of compensatory mitigation plans for adverse ecological effects.

- Class 1 means fully functional. For example: Mixed species hardwood forest with 40-year old or older dominant canopy trees, and no evidence of hydrologic alteration (2.0 impact factor).
- Class 2 means adverse impacts to aquatic function are minor and would fully recover without assistance. For example: Mixed species hardwood forest with 20 to 40-year old dominant canopy trees, and no evidence of hydrologic alteration (1.5 impact factor).
- Class 3 means adverse impacts to aquatic functions are minor and would not fully recover without some minor enhancement activity. For example: Mixed species 10 to 20-year old hardwoods with evidence of minor hydrologic alteration (i.e., few shallow ditches) (1.0 impact factor).
- Class 4 means major adverse impacts to aquatic function and substantial enhancement would be necessary to regain lost aquatic functions. For example: Clear-cut/cutover 0 to 10-year old stand dominated by early successional tree species (i.e., gums, maples, willows, etc.), and lacking many indigenous mast producing hardwood species. In addition, these areas may have extensive hydrologic alteration (i.e., network of drainage ditches and canals) (0.5 impact factor).
- Class 5 means most aquatic function has been lost. For example: Intensively managed pine plantations or farmed wetlands. (0.1 impact factor).

Hydrology, as used in this SOP, means the properties, distribution, and circulation of water on the surface of the land, in the soil, and underlying rocks. Related terms include:

- Mechanical hydrology means the employment of mechanical methods (e.g., pumps) to supply water to an area thereby causing an ecologically significant change in the hydrology of the area. (0 credit factor)
- Created hydrology means the permanent manipulation of the topography resulting in an ecologically significant change in the hydrology of the area. (0.1 credit factor)
- Natural hydrology means the area's hydrology, as it existed prior to the actions of modern man. Hydrology which has been restored to its natural state qualifies as natural hydrology. Examples of such restoration include effectively filling ditches that drain the area or removing berms that prevent inundation. (0.3 credit factor)

Kind is a factor used to compare the relative functions and values of the mitigation site to the impacted site. For Mitigation Banks the Kind Category will almost always be Category 1 (In Kind), because banks are encouraged to target restoration or enhancement of forested riverine systems, and these are the types of wetlands that receive the most impact. For Non-Banks, kind is as follows:

- Category 1 is In-kind. In-kind Mitigation means the replacement of the impacted aquatic site with one of the same hydrologic regime and plant community type (same species composition). (0.6 credit factor)
- Category 2 is Out-of-kind. Out-of-kind Mitigation means the replacement of an impacted aquatic site with one of a different hydrologic regime and plant community type (different species composition). For example, if a wooded swamp habitat is filled or altered and the mitigation consists of grading an area and planting it in freshwater emergent marsh species. (0.2 credit factor)

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Lost Kind categories are based on functional values. Habitat types that are not categorized below will be evaluated and assigned a category ranking by the Project Manager on a case-by-case basis.

- Kind A - Riverine forested wetlands; intertidal wetlands. (2.0 impact factor)
- Kind B - Non-riverine forested wetlands; freshwater areas adjacent to tidal areas. (1.5 impact factor)
- Kind C - Pine flatwood wetlands. (1.0 impact factor)
- Kind D - Lakes and impoundments. (0.5 impact factor)
- Kind E - Naturalized borrow pits. (0.1 impact factor)

Maintenance means any long term or perpetual manipulation or action after completion of the monitoring period that is necessary to achieve the mitigation goal. Remedial or planned work during the monitoring period is not considered maintenance, but is rather just a part of the mitigation work.

- None -- The mitigation area is expected to continue developing into the preferred habitat without any human intervention after the monitoring period is complete. (0.3 credit factor).
- Low -- Minimal level maintenance including removal of unwanted species. (0.2 credit factor).
- Moderate -- Maintenance including some replanting of the desired vegetation. (0.1 credit factor).
- High -- Maintenance includes significant replanting, addition of soils, hydrology manipulation, or other similar actions. (0 credit factor)

Monitoring and Contingencies (M and C Plans) means the actions which will be undertaken during the mitigation project to measure the level of success of the mitigation work and to correct problems or failures observed. Contingencies means the actions that will be employed to correct deficiencies or failures found during the monitoring period and to achieve the specified success criteria. Monitoring means the collection of field data to measure the success of a mitigation effort. It usually includes analysis of the data, and submittal of a comprehensive report containing the data, analyses, and a narrative discussion of the findings and conclusions. Proposals for Mitigation Banks and Establishment (Creation) sites must include an Excellent M and C Plan.

- Minimum Level Monitoring and Contingencies Plans: (0.1 credit factor)
 - At least 5 years of monitoring (unless approved otherwise)
 - Vegetation survival monitoring (including a commitment to replant if success is not achieved)
- Moderate Level Monitoring and Contingencies Plans: (0.2 credit factor)
 - At least 5 years of monitoring
 - Vegetation survival monitoring (including a commitment to replant if success is not achieved)
 - Basic hydrological monitoring
 - Collection of suitable baseline data
- Substantial Level Monitoring and Contingencies Plans: (0.3 credit factor)
 - At least 5 years of monitoring
 - Vegetation survival monitoring (including a commitment to replant if success is not achieved)
 - Extensive hydrological monitoring
 - Collection of suitable baseline data
 - Reference site comparison monitoring
- Excellent Level Monitoring and Contingencies Plans: (0.4 credit factor)
 - At least 7 years of monitoring
 - Vegetation survival monitoring (including a commitment to replant if success is not achieved)
 - Extensive hydrological monitoring
 - Collection of suitable baseline data
 - Reference site comparison monitoring
 - For mitigation banks, submission of an annual status report until all credits are sold

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Net Improvement is the level of enhancement and/or restoration of the functions of an aquatic site being used for mitigation. There are two Net Improvement credit factors. Vegetative Net Improvement can range from 0.1 to 1.4 and Hydrologic Net Improvement can range from 0.1 to 1.4. For larger mitigation sites and for mitigation banks, a functional assessment (i.e., HGM, RAP, etc.) will normally be required to provide justification in support of the selected Vegetative and Hydrologic Net Improvement factors. The USACE will make final decisions with regard to appropriate net improvements factors.

Preventability is an evaluation of the degree to which the adverse effects could be prevented. This factor is intended primarily for Nationwide Permit mitigation. Individual Permits must also satisfy the 404(b)(1) guidelines regarding avoidance, minimization, etc. Preventability levels are as follows:

- High means there may be practicable, less damaging alternatives that satisfy the purpose of the project. In the case of existing violations the presumption will be that there was high preventability unless demonstrated otherwise. (2.0 impact factor)
- Moderate means there may be alternatives but it is unclear if they satisfy the project purpose or if they are practicable. (1.0 impact factor)
- Low means there are no known alternatives which satisfy the purpose, are practicable, and are less damaging. (0.5 impact factor)

Rarity Ranking categories are determined based on information furnished by the US Fish and Wildlife Service and/or the Georgia Department of Natural Resources or other available data. The USACE will assign a rarity ranking on a case-by-case basis with consideration of any comments provided by resource agencies. Categories are defined as follows.

- Rare means that the designated category is seldom occurring and is marked by some special quality. (2.0 impact factor)
- Uncommon means that the designated category is not ordinarily encountered or is of exceptional quality. (0.5 impact factor)
- Common means that the designated category is frequently occurring or widespread in distribution. (0.1 impact factor)

Upland Buffer Credit is based on the acreage of suitable upland buffer and the percentage of the total jurisdictional boundary on the mitigation area (interface between upland and aquatic site present, with upland present to serve as a buffer) that is protected by the buffer. Only the area (acres) of upland buffer in excess of the minimum 25' can be used to calculate upland buffer credit. Categories are:

- More than 95% of the total jurisdictional boundary of the aquatic site is protected by a suitable upland buffer. (1.0 credit factor)
- From 68% to 95% of the jurisdictional boundary protected by upland buffer. (0.8 credit factor)
- From 50% to 67% of the jurisdictional boundary protected by upland buffer. (0.6 credit factor)
- From 33% to 49% of the jurisdictional boundary protected by upland buffer. (0.3 credit factor)
- Less than 33% of the jurisdictional boundary protected by upland buffer. (0.1)

Upland Buffer Enhancement Credit is based on the acreage of the buffered aquatic site and the percentage of the total jurisdictional boundary of the aquatic site (interface between upland and aquatic site present, with upland present to serve as a buffer) protected by a suitable upland buffer. Categories are:

- More than 95% of the jurisdictional boundary protected by upland buffer. (0.15 credit factor)
- From 50% to 95% of the jurisdictional boundary protected by upland buffer. (0.1 credit factor)
- Less than 50% of the jurisdictional boundary protected by upland buffer. (0.05 credit factor)

Vegetation means the plant material within a defined area. Related terms used in this SOP include:

- N.A.-- Not Applicable and vegetation adjustment is not part of the mitigation plan. (0 credit factor).
- Natural revegetation involves no planting. (0.1 credit factor).
- Planted means using transplanted, or nursery stock vegetation. (0.4 credit factor).

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Wetland Enhancement is the manipulation of the physical, chemical, or biological characteristics of a wetland (undisturbed or degraded) site to heighten, intensify, or improve specific function(s) or to change the growth stage or composition of the vegetation present. Enhancement is undertaken for specified purposes such as water quality improvement, flood water retention, or wildlife habitat. Enhancement results in a change in wetland function(s) and can lead to a decline in other wetland functions, but does not result in a gain in wetland acres. This term includes activities commonly associated with enhancement, management, manipulation, and directed alteration. Proposed enhancement mitigation plans must include an explanation of what values or functions are being enhanced and to what degree, and a narrative description of how the enhancement will be accomplished. The plan must also include a narrative description of how a functional assessment methodology (i.e., reference site, HGM, WRAP, etc.) would be used to document that identified values and/or functions are enhanced to the degree proposed.

Wetland Establishment (Creation) is the manipulation of the physical, chemical, or biological characteristics present to develop a wetland on an upland or deepwater site, where a wetland did not previously exist. Establishment results in a gain in wetland acres. In designing creation mitigation, the selection of high quality upland habitat for conversion will generally not be acceptable. For example, a cutover area or former agricultural field would be ecologically preferable to a mature forested area as a candidate for alteration. Mature forested areas will generally not be approved as suitable creation areas. Proposals for establishment mitigation must include an explanation of what values or functions are to be established and to what degree, and a narrative description of how the establishment will be accomplished. The plan must also include a narrative description of how a functional assessment methodology (i.e., reference site, HGM, WRAP, etc.) would be used to document that identified values and/or functions are established to the degree proposed.

Wetland Preservation is the permanent perpetual protection of existing wetlands, or other open water aquatic resources may be an acceptable form of mitigation when these areas are preserved in conjunction with establishment (creation), restoration, and enhancement activities. Preserved resources should augment the functions of newly established, restored, or enhanced aquatic resources. In **exceptional circumstances**, the preservation of existing wetlands or other aquatic resources may be authorized as the sole basis for generating credits as mitigation projects. Natural wetlands provide numerous ecological benefits that restored wetlands cannot provide immediately and may provide more practicable long-term ecological benefits. If preservation alone is proposed as mitigation, it must be demonstrated that the wetlands or other aquatic resources perform important physical, chemical or biological functions, the protection and maintenance of which is important to the region where those aquatic resources are located; and are under demonstrable threat of loss or substantial degradation from human activities that might not otherwise be avoided. The existence of a demonstrable threat will be based on clear evidence of destructive land use changes that are consistent with local and regional (i.e., watershed) land use trends, and that are not the consequence of actions under the control of the party proposing the preservation.

Wetland Restoration is the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former or degraded wetland. There are two categories of restoration as follows: (a) Re-establishment, which results in rebuilding a former wetland and results in a gain in wetland acres and (b) Rehabilitation, which results in a gain in wetland function but does not result in a gain in wetland acres. Proposals for restoration mitigation must include an explanation of what values or functions are being restored and to what degree, and a narrative description of how the restoration will be accomplished. The plan must also include a narrative description of how a functional assessment methodology (i.e., reference site, HGM, WRAP, etc.) would be used to document that identified values and/or functions are restored to the degree proposed.