

ENVIRONMENTAL ASSESSMENT AND
FINDING OF NO SIGNIFICANT IMPACT
FOR THE HAWAII AND PACIFIC ISLANDS REGIONAL SUPPLEMENT
TO THE 1987 WETLAND DELINEATION MANUAL

Purpose and Need

The purpose and need for this supplement to the 1987 Manual is to use the best available scientific and technical information for improving precision in delineating upland/wetland boundaries in the Hawaii and Pacific Islands Region for purposes of Section 404 of the Clean Water Act and provide a procedure for continual future updates as more data are gathered and analyzed.

Background

The U.S. Army Corps of Engineers (Corps) Wetland Delineation Manual was published in 1987 (Environmental Laboratory, 1987) and identified a three-parameter approach to delineating wetlands – hydric soils, wetland hydrology and hydrophytic plants. Use of this manual for wetland delineation by Corps Districts has been mandatory since 1991.

Since the manual was first published, the Corps proposed updating the 1988 National Plant List and the Natural Resources Conservation Service (NRCS) has published newer versions of the “Hydric Soils of the United States”. In addition, wetland science has advanced the understanding of the processes (e.g., biochemical) in these systems.

In 1993, the U.S. Congress requested that the Environmental Protection Agency (EPA) ask the National Academy of Sciences, National Research Council (NRC) to create a committee to study the scientific basis for the characterization of wetlands. The committee was asked to review and evaluate the consequences of alternative methods for wetland delineation and to summarize the scientific understanding of wetland functions (National Research Council, 1995). One of the recommendations of this committee was to develop regional supplements to the 1987 Manual and that the regions should be defined on the basis of physiography, climate, vegetation and prevailing land use and should be used by all agencies for wetland characteristics.

The Corps of Engineer Research and Development Center (ERDC) was asked to identify and discuss the technical issues relevant to regionalization of the manual (Wakeley, 2002). The Corps, as the lead Federal agency and author of the 1987 Manual, invited the other three Federal agencies that assess wetlands (EPA, NRCS and FWS) to participate in the development of regional supplements, as recommended by the NRC. A National Advisory Team consisting of representatives of all four Federal agencies was created to oversee the regional supplements to provide quality control, consistency on national issues and decisions regarding the timing and defining of “regions”. This regional supplement was developed by a Regional Working Group consisting of experts from Federal/state/local agencies and academia. The availability of the draft supplement was announced through the Corps public notice process for public comment

and field-testing, and underwent an independent peer review as discussed below. When finalized, the interim supplement will be implemented with additional field-testing for one year before a final version of the supplement is published by ERDC.

This document discusses the factors considered by the Corps during the development process for the Hawaii and Pacific Islands Regional Supplement. This Environmental Assessment/Finding of No Significant Impact contains: (1) a discussion of the environmental consequences necessary to comply with the National Environmental Policy Act, and (2) creation of an independent peer review, their report and the Corps response to their comments as required by the Office of Management and Budget (2004).

Alternatives

We considered three alternative methods with respect to the 1987 Manual. The No Action Alternative would result in the continued use of the 1987 Manual without scientific or technical changes. The preferred alternative would be to develop regional supplements that identify a regionally tailored list of indicators appropriate for that ecological region, include more helpful local photographs and descriptions and more detailed guidance on problem areas. The third alternative considered was to update and republish the 1987 Manual.

Affected Environment

This supplement is applicable to the Hawaii and Pacific Islands Region, which consists of the State of Hawaii, Territory of Guam, Commonwealth of the Northern Mariana Islands, and the Territory of American Samoa. The area includes Land Resource Region (LRR) V (Hawaii) and portions of LRR Q (Pacific Basin) recognized by the U. S. Department of Agriculture (USDA Natural Resources Conservation Service 2006). Most of the wetland indicators presented in this supplement are applicable throughout the entire Hawaii and Pacific Islands Region. However, some indicators are restricted to specified subregions.

The Hawaii and Pacific Islands Region consists of island complexes scattered across the Pacific Ocean. The Northern Mariana Islands, Guam, and the Hawaiian archipelago are located in the northern Pacific Ocean, while American Samoa is located below the equator in the southern Pacific. These islands are separated by vast distances. The main islands of Hawaii are approximately 2,400 mi (3,900 km) southwest of the United States mainland. Guam (the southernmost of the Mariana island chain) is located an additional 3,800 mi (6,130 km) southwest of Hawaii. American Samoa is located 2,300 mi (3,710 km) southwest of Hawaii and 4,150 mi (6,695 km) from the U.S. mainland. Many of the islands are the exposed tops of partially submerged volcanic mountain ranges, although limestone terraces and coral atolls, built on the tops of submerged volcanic peaks, make up some islands. The region contains approximately 6,890 mi² (17,840 km²) of land area and includes the major islands of the Hawaiian chain (Ni‘ihau, Kaua‘i, O‘ahu, Moloka‘i, Lāna‘i, Kaho‘olawe, Maui, and Hawai‘i), the island of Guam, the Northern Mariana Islands (including Rota, Tinian, Aguijan, and Saipan), and American Samoa (including Ofu, Olosega, Ta‘u, and Tutuila). Many smaller islands, some

uninhabited, are also contained in the region. The island of Hawai‘i, known as the Big Island, is the largest in the region and has the greatest topographic relief. The volcanoes of Mauna Loa and Mauna Kea dominate the island and rise to maximum elevations of 13,679 ft (4,169 m) and 13,796 ft (4,205 m) above sea level, respectively (Juvik and Juvik 1998, Natural Resources Conservation Service 2006).

Islands in the region lie within the belt of trade winds and have tropical to subtropical maritime climates, in which the average annual variations in air temperature are generally less than daily temperature fluctuations (Natural Resources Conservation Service 2006). However, there is considerable spatial variability in both temperature and rainfall, especially on the higher islands that have greater topographic diversity and relief.

The variety of topographic, soil, and climatic conditions across the region, along with geographic isolation, has encouraged the development of a diverse Pacific flora with many species endemic to particular islands and island groups. The natural climax communities in the region are mostly forested with tropical hardwoods, except in semi-arid areas in the lee of the higher mountains and in high-elevation areas on upper volcanic slopes. Waves of human colonizers added large numbers of introduced and invasive plants to the flora. Early Polynesian settlers carried with them a number of important food plants, including taro (*Colocasia esculenta*), sweet potatoes (*Ipomoea batatas*), breadfruit (*Artocarpus altilis*), bananas (*Musa acuminata*), and yams (*Dioscorea* spp.) (Juvik and Juvik 1998). However, prior to European discovery and settlement, most of the islands remained dominated largely by hardwood forests. Discovery by Europeans (and, later, by Japanese and others) led to large-scale agricultural development, primarily for sugarcane (*Saccharum officinarum*) production. Following World War II, lands in sugarcane production were converted to pastureland, secondary agro-forestry, and subsistence agriculture (Nakamura 1984, Young 1989, Natural Resources Conservation Service 2006). Large-scale agriculture (e.g., for pineapple [*Ananas comosus*] and coffee [*Coffea* spp.]) remains prevalent in some areas, along with small commercial enterprises that grow food for local consumption. Many areas have become urbanized and industrialized with large areas utilized for tourism and military purposes.

Environmental Consequences

The No Action alternative would not achieve one of the goals of the Corps, which is to use the best scientific/technical information available in the Clean Water Act Section 404 program or the purpose and need of this project. The No Action alternative would result in continued heavy use of the “problem areas” section of the manual without additional science-based guidance. Although the 1987 Manual is updated to incorporate some other technical information such as use of updated National Plant Lists and the Natural Resources Conservation Service Field Indicators of Hydric Soils, newer information such as alternative procedures for calculating plant dominance may not be used consistently. Use of the 1987 Manual with no changes would result in continued confusion and lack of clarity, predictability, precision and consistency in the region. No changes to wetland delineation methods or boundary lines would occur with this alternative.

The preferred alternative, to develop regional supplements to the 1987 Manual using the best available scientific data, is expected to result in more consistent, science-based upland/wetland boundary determinations by Federal, tribal, state and local government delineators as well as private parties. Region-specific issues such as new hydric soils indicators, if they were developed for specific technical problems, would be included in the appropriate regional supplement. Also, region-specific technical problems such as plant cover of halophytes or morphological adaptations of certain plant species can be described and photographs and guidance will be included in each regional supplement. This results in a more user friendly and region-specific document. Also, if changes in a particular region of the country need to be made, then the entire country does not need to change versions.

Changes to this supplement would be much easier than continuous changes to a national manual. There will be some training requirements for both agency personnel and private companies as this supplement is finalized. A transition period of one year will occur when the interim document is published and additional data will be collected on perceived changes to upland/wetland boundaries based on the new supplement. Additional needed changes will be made prior to publishing a final document. It is not expected that the regional supplement will have the net effect of increasing or decreasing the total amount of wetlands in the Hawaii and Pacific Islands Region, although site-specific boundary changes may occur. These changes may occur due to more refined plant indicators or the use of new soils or hydrology indicators. The testing period using the interim document will allow for further identification of the types and reasons that changes to wetland boundaries occur, prior to finalization of the document. If significant changes to wetland boundaries of specific types or in specific geographic locations occur, an analysis would be completed to determine the acreage of wetland affected and the indicator(s) responsible for the change. However, all areas must continue have all three criteria—wetland hydrology, hydric soils and hydrophytic vegetation – in order to be determined to be a wetland that may be regulated under Section 404 of the Clean Water Act.

The third alternative would be to update and republish the 1987 Manual. Some overlap in supplements is expected as they are developed from west to east and common themes may eventually develop, resulting in changes and republication of the 1987 Manual for national issues such as changes to procedures for plant dominance calculations that may be identified. However, without identifying specific technical problems by developing regional supplements, it is difficult to articulate national issues. There would be a difficulty in answering problem area questions across the country without a systematic approach to identifying technical problems and solutions. This alternative would likely take an addition 5-6 years to identify all of the national technical problems and result in continued difficulty updating a single document.

Coordination with Others

A 60-day comment period was announced by public notice by the Honolulu District of the Corps on July 22, 2009. No public comments were received.

Independent Peer Review:


The purpose of the Office of Management and Budget Information Quality Guidelines (2004) is to enhance the quality and credibility of the government's scientific information, recognizing that different types of peer review are appropriate for different types of information. A copy may be obtained at http://www.whitehouse.gov/omb/inforeg/peer2004/peer_bulletin.pdf. The Federal agencies were granted broad discretion to weigh the benefits and costs of using a particular peer review mechanism; however, agencies strive to ensure that their peer review practices are characterized by both scientific and process integrity. Peer review is one of the important procedures used to ensure that the quality of published information meets the standards of the scientific and technical community and involves the review of a draft product for quality by specialists in the field who were not involved in producing the draft. The peer review report is an evaluation or critique that is used by the authors of draft information that contains important scientific determinations to improve the product. The selection of participants in a peer review is based on expertise, with due consideration of independence and conflict of interest. In some cases, reviewers might recommend major changes to the draft, such as refinement of hypotheses, modifications of data collection or analysis methods, or alternative conclusions. However, the peer review does not always lead to specific modifications in the draft product. In some cases, the authors do not concur with changes suggested by one or more reviewers.

A peer review is considered completed once the agency considers and addresses the reviewers' comments and incorporates them where relevant and valid. In cases where there is a public panel, the agency publishes the peer review report(s) and the agency's response to the peer review comments. Agencies prepare a written response to the peer review report explaining: the agency's agreement or disagreement, the actions the agency has undertaken or will undertake in response to the report, and (if applicable) the reasons the agency believes those actions satisfy any key concerns or recommendations in the report. A copy of the peer review report, including the responses to the comments, is included as an attachment to this document.

Finding of No Significant Impact:

In compliance with the National Environmental Policy Act (NEPA) and its implementing regulations at 40 CFR Parts 1500 – 1508, an Environmental Assessment has been prepared for this supplement. The Corps prepares appropriate NEPA documentation, including Environmental Impact Statements when required, for all permit decisions. The environmental review process undertaken for this supplement has led me to conclude that the publication of this supplement will not have a significant effect on the human environment, and therefore an Environmental Impact Statement is not required by §102(2)(C) of NEPA or its implementing

regulations. A copy of this Environmental Assessment with attachments is available from the U.S. Army Corps of Engineers, HQUSACE, Operations and Regulatory Community of Practice, 441 G Street, NW, Washington, DC, 20314-1000 and on the Regulatory Homepage at http://www.usace.army.mil/CECW/Pages/cecwo_reg.aspx.


Michael G. Ensched
Chief, Operations
Directorate of Civil Works

5/16/09

Literature Cited

Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Juvik, S. P., and J. O. Juvik. 1998. *Atlas of Hawai'i, third edition*. Honolulu, HI: University of Hawai'i Press.

Nakamura, S. 1984. *Soil Survey of American Samoa*. Washington, DC: U.S. Department of Agriculture, Soil Conservation Service.

(http://soils.usda.gov/survey/online_surveys/pacific_basin/index.html)

National Research Council (NRC). 1995. *Wetlands Characteristics and Boundaries*. National Academy Press (Washington, DC). 308 pp

Office of Management and Budget. 2004. Final Information Quality Bulletin for Peer Review.

USDA Natural Resources Conservation Service 2006. *Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin*. Agriculture Handbook 296. Washington, DC: U.S. Department of Agriculture. (<http://soils.usda.gov/survey/geography/mlra/index.html>)

Wakeley, J. S. (2002). "Developing a 'Regionalized' Version of the Corps of Engineers Wetlands Delineation Manual: Issues and Recommendations," [ERDC/EL TR-02-20](#), U.S. Army Research and Development Center, Vicksburg, MS.

Young, F. J. 1989. *Soil survey of the islands of Aguijan, Rota, Saipan, and Tinian, Commonwealth of the Northern Mariana Islands*. Washington, DC: U.S. Department of Agriculture, Soil Conservation Service.

(http://soils.usda.gov/survey/online_surveys/pacific_basin/index.html)