

# I. Introduction to a General Comparison of Flag Ponds Habitat Surveys of 1990 and 2016

In 1990 Calvert County Department of Planning and Zoning contracted with John Hench, PhD. to study the natural resources and habitat of the Flag Ponds area.<sup>1</sup> The objective of the study was to give a general picture of the Flag Ponds habitat by the development of maps as well as a *permanent* survey of the plants of thirty randomly selected sites based on a 500-foot grid interval. Fifteen upland sites above 25 feet elevation (designated B) and 15 coastal sites less than 25 feet elevation (designated A) were surveyed. Appendix D is a general map of Flag Ponds showing the distribution of the 1990 sites. The thirty permanent sites were marked with either metal tree tags or six foot metal stakes. These habitat site studies included a 10 meter radius study of trees, a 4 meter square plot shrub study located SE of the center site of the tree survey, and two 1 square meter herbaceous plot studies located at the northeast and southwest corners of the 4 meter square. (For more details see Hench's Report, p. 4). A copy of this report is available online from the Government Printing Office at "<https://www.gpo.gov/fdsys/pkg/CZIC-qk63-h46-1990/html/CZIC-qk63-h46-1990.htm>".

The objective of the 2016 volunteer conducted survey, initiated by Karyn Molines, Calvert County Natural Resources Division Chief, was much less extensive. The goal was to simply find the original thirty sites and to do a cursory evaluation of the change or lack of change in the habitats.

It must be noted that many changes have occurred in mapping technology in the intervening 26 years. Earlier maps were based on the Maryland State Grid, which has been updated over the years. The North American Datum 27 (NAD 27) was supplanted in 1986 by NAD 83 using improved data, with a five-year overlap designated for transition. The 1990 Report does not designate which Grid was used. However, using the original 1990 survey map and property boundaries, Calvert County Technology Services updated the site locations to meet 2016 standards, (assuming the NAD 83 Plane Grid) and to provide geographic coordinates for the original survey grid. The question of which Base was used was resolved in early 2018 when a contract survey was conducted for the northeast coast of Flag Ponds in preparation for "The Living Shoreline Project" for erosion control. At the south end of the adjoining community of Long Beach, a survey stake was emplaced and an old Maryland Geological Survey (MGS) Benchmark was found 45 feet away. Contact with MGS resulted in the determination that the 1990 survey was based on NAD 27, while the 2015 computed points assumed NAD 83. As a result the 2015 computed points (NAD 83) are not an accurate conversion of the 1990 NAD 27 points. In 2018 using Corpscon software the 1990 sites were properly converted to NAD 83 values, and then compared to the 2015 calculated data. Longitude variances were generally less than 10 feet, while latitudes were mostly less than 25 feet, with only a few exceptions. The data clearly prove that the 2016 generalized field observations for each site were in the proximity of the intended 1990 permanent plots.<sup>2</sup> A copy of computations is included as Appendix B. Presumably, the 1990 survey points were generally found in the field via study of terrain, compass coordinates and topographic maps.

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<sup>1</sup> Hench, John, "Natural Resources Mapping and Studies of Floristic and Physiognomy at Flag Ponds Natural Area, Calvert County, Maryland," December 24, 1990

<sup>2</sup>This would not be valid for the detailed 10 meter plot studies in Appendix A.

For this report, information was collected using a Garmin GPSMap 64st unit, as well as the original 1990 maps. Volunteers attempted to find the original sites as determined by these calculated Lat/Long coordinates based on the 2015 NAD 83 computations. The 1990 intended locations were generally determined within 10 feet, and a 2-foot rebar wrapped in aluminum tape was placed with an embossed tag attached.

In this current study listings of Herbaceous and Woody plants are followed by site-by-site descriptions which provide maps, pictures, and 1990/2016 survey comparisons. Also included are discussions of Environmental and Habitat changes. Appendix A summarizes the supplementary 10-Meter surveys conducted by Karyn Molines in 2015-2016.