

Standard Operating Procedures for NFHAP Data Sharing

These Standard Operating Procedures for National Fish Habitat Action Plan Data Sharing (SOPs) have been developed for NFHAP Partnerships or other groups interested in:

- 1) Integrating regional data sets or project outcomes into NFHAP's National Assessment,
- 2) Using NFHAP's Assessment approach, or elements of the approach, to perform regional assessments, or
- 3) Using NFHAP's Spatial Framework which includes confluence to confluence stream reaches, also termed: "flowlines" or "arcs," defined in the National Hydrography Dataset Plus (NHD+) as a basic spatial unit.

These NFHAP Data SOPs outline requirements that must be adopted by Fish Habitat Partnerships (FHP), as outlined in Section 3 of the FHP Guidance. Additionally these SOPs offer operational guidance that will facilitate the exchange of information. Adhering to the NFHAP Data SOPs will ensure that information and data created by FHPs will be able to be integrated into the National Assessment framework. Please note that all new data initiated as part of a FHP are required to be provided back to NFHAP, while existing data used in support of FHP efforts are strongly encouraged to also be provided. New information and data will help to refine and improve the National Assessment and provide a more accurate picture of the status of and threats to fish habitat nationally than can be provided without such information. Examples of regional data sets that could aid in the refinement of the National Assessment include information describing biological communities of aquatic systems, habitat features of aquatic systems, management activities, and landscape-scale characteristics. Outcomes of regional activities that could be integrated into the National Assessment include results generated from regional assessments as well as protection, enhancement, or restoration outcomes. In general, most data that can be linked to any of the spatial units identified in the NFHAP Spatial Framework can be integrated; examples of spatial units include flowlines of the NHD+, river catchments, individual lakes or reservoirs, hydrologic units, ecological drainage units, etc.

- 1. Using/modifying the NHD+ data layer.** The NHD+ is a vector data set describing network hydrography and associated catchment characteristics for the conterminous 48 states and Hawaii derived at a spatial scale of 1:100,000. The NHD+ includes fluvial networks represented by confluence to confluence flowlines as the smallest spatial unit, catchment boundaries for each flowline, and some lakes and reservoirs represented as polygons.
 - A. Because stream flowlines of the NHD+ with their associated catchments are the basic spatial units of the NFHAP Spatial Framework, modifications to this NHD+ layer may prevent integration of information into the National Assessment. While modifications by individual FHPs are discouraged, if flowlines and/or their catchments are modified, be sure to keep a record of the original flowline/catchment identifiers so that modifications can be tracked and so that results generated for modified

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flowlines/catchments can be associated with original flowlines/catchments of the NHD+. If users link data with stream segments that have not been modeled by the NHD+, the users should instead link those data to the local catchment of the closest NHD+ flowline in which they occur. Note that the NHD+ is a modeled representation of the Nation's hydrography; consequently, it may contain errors. Those detecting errors in the NHD+ should report them to waters_support@epa.gov.

- B. If modifications to the NHD+ data layers result in the deletion of flowlines and/or catchments by FHPs, note that flow paths that are built into the NHD+ will be altered. These flow paths and their specified relationships to other flows paths are key to aggregating upstream network characteristics for any given flowline, so modifications to the NHD+ data layer may ultimately prevent aggregation of any upstream characteristics. Again, this is one reason why modification of the NHD+ by FHPs is not recommended.
- C. The spatial representation of many of the Nation's lakes and reservoirs in the NHD+ has a number of issues that prevent them from being readily integrated into NFHAP's Spatial Framework. At this time, we are working to develop some strategies for consistently dealing with these issues. In the interim, please contact Gary Whelan (whelang@michigan.gov) or Doug Beard (dbeard@usgs.gov) for more information.

2. Considerations related to types of data

- A. All point data intended to describe in-stream conditions should be attributed to an appropriate NHD+ flowline or multiple flowlines. However, the original GPS coordinates to six decimal places (or greater) should also be stored in the database for projected data to ensure that if future versions of network hydrography change, the original point locations can be evaluated against those changes. Other point data may be attributed at the level of local catchments (i.e., dams represented as points that are not directly linked to a specific flowline may be summarized as density for a given region); again, however, original GPS coordinates should also be included in the database, along with additional information describing the location of the collection (see instructions below for additional information to include about locations).
- B. Lakes that are not part of a fluvial network represented by the NHD+ should currently be treated as an attribute of catchments. In cases where catchments need to be delineated for lakes that are not part of a fluvial network represented by the NHD+, use the NHD+ flow direction grids and associated elevation data sets to perform the delineation. This will facilitate their eventual integration into the Spatial Framework.

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- C. For regional efforts attempting to generate finer-scale assessment results, we would encourage the use of data layers that are currently being used in the National Assessment unless more suitable data layers are available for the region of interest. More suitable data layers could include more recent information than what's been used nationally, data defined at finer spatial scales, more "data rich" layers, information that better describes habitat conditions at locations than landscape-scale surrogates, etc. For a list of data layers currently being used in the National Assessment, refer to the initial national assessment report, "An initial assessment of integrated human disturbances on stream fish habitats in the conterminous United States" or visit fishhabitat.org website and navigate to the Science and Data tab. Note that in many cases, such regional data sets would be helpful for refining and improving the National Assessment, and it would be helpful in many cases if such information could be shared with the National effort.
- D. For FHPs using hydrologic units, we would recommend using the latest version of the Watershed Boundary Dataset, which can be found at:
<http://www.ncgc.nrcs.usda.gov/products/datasets/watershed/>

3. Organismal data¹

- A. Ideally, all organismal data from streams or reservoirs should be attributed to a flowline or flowlines of the NHD+ with the original GPS coordinates to six decimal places stored in the database. If applicable, the organismal database should include the:
- Name of the water body from (with Waterbody name for data checking)
 - Purpose of collection (targeted gamefish, community sample survey, IBI development or application, etc)
 - Collection date
 - Effort details (preferably sampled reach length and/or sample area, number of persons and sample time)
 - Number of organisms collected, if possible.
 - Gear type/methods used
 - Scientific names for collected taxa
 - the associated ITIS* Taxonomic Serial Number (TSN)
 - population status/estimates, where available (including definition and/or derivation explanation)

In cases where exact location information cannot be provided, having data summarized at the smallest spatial scale (i.e., hydrologic units) with as much descriptive information as can be provided will facilitate integration into the National Assessment.

¹ Organismal data includes any information describing distributions and abundances of organisms.

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* Integrated Taxonomic Information System (www.itis.gov); web service also available

4. Providing data to the National Assessment

- A. Data should be provided back to the National Assessment in tabular format, with a comma-delimited text file as the preferred format. The key to providing data for use in the assessment is the ability to link to the spatial units represented in the Spatial Framework, and the COMID field is critical for linking data to the smallest spatial scale represented in our framework (the flowline or local catchment). Data attributes should include the identifying field for catchments or flowlines in the NHD+ dataset, and the COMID field in the NHD+ dataset must accompany the coordinates. The following tables are provided as a guide to summarize data records:

COMID	HUC	State	EDU	WWF	Catch Area (km2)	Urban (%)	Ag (%)
1022432	22056782	MI	a362	14	45	55	30
...	...	...	...	...	...	...	...

COMID	HUC	Date	Effort	Method	Taxa A	Taxa B	Taxa C
1022432	22056782	6/7/2008	100 m	Electrofishing	10	55	30
...	...	...	...	...	...	...	...

- B. All metadata generated to describe layers should be FGDC compliant. Refer to the following website for more information:
<http://www.fgdc.gov/standards/projects/FGDC-standards-projects/metadata/biometadata/biodatap.pdf>
- C. For spatial data provided back to the National Assessment, the projection system should be specified in the metadata provided with data in shapefile or coverage format.

5. Timeline for Data Submission.

Data should be submitted within one year of project implementation. Information and data related to project evaluation is to be described in annual reports in subsequent reporting periods.

*** Guidelines for project information tracking will be provided when developed.**