

Methods for Monitoring Fish Communities of Buffalo National River and Ozark National Scenic Riverways in the Ozark Plateaus of Arkansas and Missouri, Version 2.0

Standard Operating Procedure (SOP) 11: Reporting, Version 2.0

Revision History Log:

Previous version number	Revision date	Author	Changes made	Reason for change	New version number
1.0	11/10/2016	Dodd	Added new guidance from IMD and incorporated HTLN guide on peer review	Not in original	1.1
1.1	6/4/2018	DeBacker, Dodd	Updated to Operational Review Reports and incorporate review guidance from IMD	New protocol review guidance from IMD	2.0

Results from the fish monitoring program will be reported to park managers and superintendents of each park. The type of report to the park depends on the number of years data has been collected and the analysis of that dataset. Gallo (2018) describes the reporting requirements for the Inventory and Monitoring Division. Collector's reports will also be sent to state agencies as required for obtaining scientific collector's permits from those agencies. Protocol reviews and field implementation will be documented in operational review reports. This standard operating procedure describes the administrative, operational, and scientific reporting requirements.

Report Types and Frequency

Trip Reports

Description: Trip reports should include a description of the trip's mission, participants, and daily activities. Specific to fish monitoring are notes on weather, water levels, or any obstacles to sampling. These reports are an invaluable record of field data collection efforts. The format of trip reports is flexible. The crew leader authors the trip report with input from the sampling team, and the program manager reviews the trip report. Trip reports are stored on the HTLN server in the project's trip report folder.

Objectives: Document field operations and conditions. Identify noteworthy field circumstances. Document issues requiring follow-up.

Frequency: One month or less following every trip during a season.

Operational Review and Report

Description: Inventory and Monitoring Division protocol review guidance requires annual operational reviews of all implemented protocols (Mitchell et al. 2018). Mitchell et al. 2018 prescribe the following required outcomes of the operational review.

- Documentation of suggestions for improving the protocol and decisions regarding the suggestions. Note that some suggestions may trigger a scientific review.
- Documentation of deviations between the protocol and the field implementation that could potentially affect data quality or utility. For these deviations, document whether the deviation needs to be addressed with changes or clarifications to procedures. Update the database with affected data appropriately flagged and documented.
- Updated and approved protocol documents or an approved plan (tasks and timeline) for revising the protocol if procedures, methods, or equipment are changed or clarified. Approved plans may include a pilot study, data analysis, and scientific review.
- Identification and verification that safety risks associated with protocol implementation are appropriately mitigated. For any newly identified or incompletely mitigated risks, approve a plan (tasks and timeline) for mitigating the risks and updating the network safety documents.

The project lead conducts the review and data quality assessment, and authors the final report with input from the crew lead and sampling team. The program manager reviews the report. Final reports are stored on the HTLN server in the project's OpsReview report folder. A checklist is provided in Appendix A.

Objectives: Document the continuous learning and clarification of protocol details and safety issues. Evaluates field crew effectiveness in implementing the protocol. Documents data quality.

Frequency: The end of the field season for each park: summer of odd numbered years for BUFF and fall of even numbered years for OZAR.

Reports for Collection Permits

Description: Scientific collection permits for Arkansas and Missouri are required for collection of fish data. Renewal of the permit requires a report be submitted to the Arkansas Game and Fish Commission and the Missouri Department of Conservation describing the results of collection activities. This report typically includes a description of sampling locations, sampling gear, number and taxa of collected specimens, and specimen disposition. Requirements occasionally change, and permit requirements need to be consulted each year for each state agency.

Frequency: Annually.

Resource Briefs

Description: These updates may be in the form of a resource brief (short article of 1-2 pages), web article or data visualizer. They are limited to routine analysis based on data collection and analysis methods from well-established, peer-reviewed protocols. Content should be drafted and provided to HTLN web support personnel. A 9th grade reading level is preferred for public audiences. It is

recommended to utilize a narrative or story format known as the ABT when possible (Olson 2009). These reports will typically include one or two graphs/tables that summarize the fish data along with brief text stating the main results of the monitoring. See HTLN website at <https://www.nps.gov/im/htln/fish-communities.htm> for examples of web articles.

Objective: Provide managers a data summary including location of sites, methodology used, and data analysis such as number of species caught, diversity, relative abundance, and IBI (see SOP 10 for detailed list of variables).

Frequency: Resource briefs will be sent to park managers prior to the start of monitoring every two years (BUFF in May of odd numbered years and OZAR in September of even numbered years).

Trend and Synthesis reports

Description: Trend reports are used to describe the standard metrics through time including the most recent visit and prior monitoring visits. Statistics may be used to summarize and present the data in a user friendly manner as well as to determine if the trend is statistically or ecologically significant. These reports will be constructed for inclusion in the Natural Resource Data Series (NRDS), Natural Resource Report (NRR) series or a scientific journal publication. An NRDS format is appropriate when the trend report is limited to routine analysis. An NRR format is appropriate when more in-depth analyses are included. Trend reports may take a baseline report format if new monitoring is initiated in a new park or park unit. Publication of data in peer reviewed scientific journals will also serve as an acceptable trend report when the content is similar in nature. See the HTLN website (<https://www.nps.gov/im/htln/reports-publications.htm>) for examples of trend reports.

Objectives: These reports are to provide: 1) a description of the data, summary information including tables and graphs, and highlight relevant trends. 2) a context for the metric and status or trend when appropriate, 3) determine the relationship between management actions and fish community data, and 4) determine the relationships between fish data and environmental or other explanatory variables.

Frequency: Trend reports will be completed every six to eight years under the current sample design (of every two years) for each park.

Reporting Series, Templates, and Style

The report templates for the Natural Resource Publication Series (NRPS) should be followed (<https://www.nps.gov/im/publication-series.htm>) for NRDS and NRR reports. Consult the NRPS website to choose the correct template with which to begin writing. Always start with a fresh template as templates change periodically and old templates can become corrupted. If the report will be sent to a specialist for design and layout, use the author templates.

The Natural Resource Data Series (NRDS) is a non-scholarly series intended for the timely release of basic data sets and data summaries. Data reported in the NRDS are limited to those collected, processed (undergone quality assurance and quality control procedures), and analyzed

following methods prescribed in peer-reviewed and published NPS Inventory & Monitoring protocols.

The Natural Resource Report Series (NRR) is used to disseminate information and analysis about natural resources and related topics concerning lands managed by the National Park Service. The series supports the advancement of science, informed decision making, and the achievement of the National Park Service mission. The series also provides a forum for presenting lengthy results that may not be accepted by journal publications with page limitations.

Standards for scientific writing as recommended in the CBE Style Manual (CBE Style Manual Committee 1994) should be followed. Reports should be direct and concise. Refer also to Mack (1986), Day and Gastel (2012), and Strunk and White (2000) for guidelines on appropriate writing style.

Report Peer Review

NPS 2017 serves as guidance to the National Park Service Inventory and Monitoring Division (IMD or the “Division”) staff in the implementation for conducting peer reviews issued by the National Park Service (NPS 2008). The network’s Process for Implementing Peer Review and Reporting Policy document provides step by step procedures for implementing the division’s guidelines.

Data reported in the NRDS are limited to those collected, processed (undergone quality assurance and quality control procedures), and analyzed following methods prescribed in peer-reviewed and published NPS Inventory & Monitoring protocols. As such, no further peer review is required, but an editorial review is highly recommended to evaluate grammatical soundness and readability.

In many cases, data reported in the NRR series may also be exempt from additional peer review if analyzed following methods in peer-reviewed and published NPS Inventory & Monitoring protocols. In some cases, however, NRR reports will expand and enhance upon the basic analyses and summaries provided in the protocols, and will require peer review. Authors should consult with their supervisor and peer review manager to determine the appropriate level of peer review.

Generally peer review begins when the document is sent to the program manager who assigns peer reviewers and a peer review manager. The review(s) are sent to the peer review manager who then passes on the required changes to the report author(s). After changes are made, a response with the new report draft are forwarded to the peer review manager. Upon approval of the manuscript, the author should obtain a management review from the park. After those results are incorporated, a final draft is given to the peer review manager. After approval, the author may send the report to be formatted. After formatting, a manuscript submittal form is completed and the report submitted via the manuscript submittal portal (<https://nrss.sharepoint.nps.gov/prg/nrpm/Pages/Home.aspx>).

Report Distribution

All NRDS and NRR reports are permanently archived in the Integrated Resource Management Application (IRMA) (<https://irma.nps.gov/DataStore/>). All reports (including briefs and web articles) are posted to the Heartland Network web site (<https://www.nps.gov/im/htln/index.htm>), and tagged

so that parks may share the reports through their web sites. Citations of published scientific journal articles are listed on the HTLN website. Copies of the report, or at a minimum a personal email with the link to the report, are sent to the resource management staff and the superintendent. All data collected are public property and subject to requests under the Freedom of Information Act (FOIA).

References Cited

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- Gallo, K. 2018. Inventory and Monitoring Division Data Analysis and Reporting Requirements. Inventory & Monitoring Program Memo. <https://irma.nps.gov/DataStore/DownloadFile/600325>
- Mack, R.N. 1986. Writing with precision, clarity and economy. Bulletin of Ecological Society of America 67:31-35.
- Mitchell, B., A. Chung-MacCoubrey, J. Comiskey, L. Garrett, M. MacCluskie, B. Moore, T. Philippi, G. Sanders and J.P. Schmit. 2018. Inventory and Monitoring Division protocol review guidance. Natural Resource Report NPS/NRSS/IMD/NRR—2018/1644. National Park Service, Fort Collins, Colorado.
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- Olson, R. 2009. Don't be such a scientist: Talking substance in an age of style. Island Press, 216 pages.
- Strunk, W. Jr. and E.B. White. 1979. The Elements of Style. Fourth Edition. Macmillan, New York, New York, USA.

Appendix A. Annual Operations Review and Data Quality Assessment Checklist

Heartland Network	
Annual Operations Review Form and Data Quality Assessment Checklist	
Filed by:	Date:
Operational Review	
Suggestions for improving the protocol:	
None	
Ideas on how to improved, clarified or updated Protocol (Narrative, SOPs, QAP):	
None	
Were these suggestions acted upon? N/A	
If yes, how:	
Documentation of Deviations between Protocol & Field Implementation	
Protocol Narrative and SOP version(s):	
Date(s):	Site(s):
Description of Deviation:	
If this deviation potentially affect data quality or ability to use/analyze the data, identify the data fields to be flagged.	
Identification of Safety Risks	
List any safety issue(s) and how they were mitigated:	
Describe how the issue and mitigation were addressed in the SOPs and/or HTLN safety plan:	
Checklist	
☐	Document data processing level in the monitoring database
☐	Document completion of the Operational Review in monitoring database
Were any data 'flagged' during the operational review? (Y/N) No	
If yes, how many records were flagged?	
☐	If yes, 'flag' the records in the monitoring database