



Expedited Approval for NPS-Sponsored Public Surveys

1. **Project Title | Submission Date:** Isle Royale National Park Inland Lakes Creel Survey 4/22/08

2. **Abstract:** Isle Royale National Park, located in Lake Superior, has 42 named inland lakes within its boundaries. Fishing pressure, in terms of species fished for and angler hours, is not well understood for Isle Royale's inland lakes. Isle Royale proposes to conduct an inland lakes creel census in 2008 to help determine relative information on species presence and abundance, fishing pressure, and any observations of spiny water flea, an aquatic exotic species, in the park's inland lakes.
(not to exceed 150 words)

3. **Principal Investigator Contact Information**

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4. **Park or Program Liaison Contact Information**

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Project Information

5. **Park(s) For Which Research is to be Conducted:**

6. **Survey Dates:** (mm/dd/yyyy) to (mm/dd/yyyy)

7. **Type of Information Collection Instrument (Check ALL that Apply)**

- Mail-Back Questionnaire** **On-Site Questionnaire** **Face-to-Face Interview** **Telephone Survey** **Focus Groups**
- Other (explain)**

8. **Survey Justification: (Use as much space as needed; if necessary include additional explanation on a separate page.)**

Social science research in support of park planning and management is mandated in the *NPS Management Policies 2006* (Section 8.11.1, "Social Science Studies"). The NPS pursues a policy that facilitates social science studies in support of the NPS mission to protect resources and enhance the enjoyment of present and future generations (National Park Service Act of 1916, 38 Stat 535, 16 USC 1, et seq.). NPS policy mandates that social science research will be used to provide an understanding of park visitors, the non-visiting public, gateway communities and regions, and human interactions with park resources. Such studies are needed to provide a scientific basis for park planning, development, operations, management, education, and interpretive activities.

The objectives of this project are to: a) gather data regarding fishing pressure for Isle Royale's inland lakes fishery; b) gather information on anglers' observation of the presence of exotic invasive species, such as spiny water flea; and c) gather data from anglers regarding presence of different fish species in remote backcountry lakes of the park.

Isle Royale National Park is 571,790 acres and over 99% of its approximately 135,000-acre land mass is designated as federal wilderness. No roads exist within the park's boundaries, and access to specific sites, such as its 42 named inland lakes, is by foot, and often cross-country (no trail access is available to many of the park's lakes.) Terrain is rugged, composed of a series of rocky ridges and swampy swales over most of the main island, which is 45 miles long and 9 miles at its widest point. All of these factors make surveys such as a traditional interview-type creel survey difficult, time-consuming, and costly.

Work on the island's inland lakes has been limited. The most comprehensive inland lakes survey was conducted in 1929 by the University of Michigan, when physical and biological sampling occurred on 38 lakes, followed by the USGS's comparison of 32 inland lake fish communities in 1995-1997 (Kallemeyn, 2000.) Other studies have focused on specific lakes or stream segments. Creel data are even rarer. Other than an unpublished creel census performed in 1960 by a park ranger on Siskiwit Lake, no creel data for inland lakes exist prior to the 1997 census (Kallemeyn, 2000). Fishing regulations for inland lakes have been based for the most part on inland lake and stream regulations of the Michigan Department of Natural Resources, with little knowledge of fishing pressure from anglers or ongoing collection of data on the inland fish communities, such as population sizes and community structure.

The park is in the process of completing its Fish Management Plan (FMP), an interagency effort that will document research and management to date, and will recommend needed research and management actions to guide future efforts for park managers. The draft FMP contains a recommendation that the park collect information on fish populations, fishing pressure, presence of exotic species, and effectiveness of fishing regulations for its inland lakes. One technique for doing this is a traditional creel survey, where a technician interviews anglers and checks

angler catch during or immediately after their fishing interval. At Isle Royale, this would require stationing several technicians across the park because of the distance between 10-12 survey lakes located in a 405 square-mile roadless area. Because of the prohibitive expense involved in stationing creel clerks throughout the park to gather creel survey data for an entire 6-month season, this method can only be employed on a limited basis (on a ≥ 20 -year interval). Similarly, the park does not have adequate staff to conduct species assemblage or abundance surveys using trap nets or similar capture methods on a regular cycle (5 previous surveys of multiple inland lakes have been conducted in the last 103 years, 3 of which occurred prior to 1950.)

A voluntary creel census provides important information to natural resource management staff. Anglers keep a record of their fishing effort and catch for each lake they visit (see survey sheet.) The results from this type of survey supplement limited park knowledge about species presence, angler effort, and overall fishing pressure at the lakes that are visited.

Angler logbook surveys can be conducted more frequently, and the relative results can be compared qualitatively to provide the park with some information on fish communities across its inland lakes system. This same method was used in 1997, for the same reasons: as a way to gather relative information on fish communities across the park's remote backcountry lakes. While the data collected are not used directly to determine management actions, they do act as the only source of information on backcountry angler use of inland lakes at a regular, 10-year interval. The angler logbook survey method can potentially produce estimates of total fishing effort and harvest that are as accurate as a traditional face-to-face creel survey, at 20% of the cost (Pollock et al, 1994.)

9. **Survey Methodology: (Use as much space as needed; if necessary include additional explanation on a separate page.)**

- (a) Respondent universe: Adult (18 and older) backcountry anglers who fish the park's inland lakes between June 30, 2008 and October 20, 2008.
- (b) Sampling plan/procedures: This is a census sample of all anglers visiting the park during the survey period. Sampling will be directly related to issuing backcountry permits to anglers who plan to fish in the park's inland lakes. All persons entering the backcountry must receive a permit directly from park staff, and survey forms will only be handed out to those who identify themselves as backcountry anglers when asked at permit issuance. Survey distribution days will correspond with park visitor center hours. Anglers' entrance into the backcountry is regulated through visitor center offices on the mainland and on the island. Island access is limited, so the sample is expected to be a census of all backcountry angling parties who legally register with the park (>90% of backcountry anglers.) If there are multiple anglers in a single party, each angler will get his/her own survey form. This will ensure that data cover all aspects of each angler's time spent fishing on each inland lake that he/she fishes. This survey method corresponds with the methods of the 1997 creel survey described above and is a cost-effective way to conduct a creel census when staff are not available to conduct face-to-face interviews in remote areas (Kallemeyn, 2000). Sample days and times are limited only by the respondents' trip dates. Respondents will record angling information for each angling event during their trip. Average backcountry trips are 4 nights per party (Isle Royale Draft Wilderness and Backcountry Management Plan, 2005).
- (c) Instrument administration: Surveys will be distributed only to willing participants. Visitor center staff will distribute forms to backcountry anglers (hikers who plan to fish interior lakes) when they issue required backcountry permits. Staff will record the permit number for each survey distributed. Anglers will be instructed that the survey is voluntary, and the park requests completion of the form during the backpack trip or prior to leaving the park.

Survey forms can be handed in when exiting the park (the park's isolated island status and limited access points causes all non-boaters to pass through a visitor center to enter and exit the park.) Collection boxes will be placed outside of each visitor center so that respondents may deposit their survey forms when the visitor centers are closed. Boxes will be clearly marked and secured. Forms will be collected periodically from visitor center staff by natural resources staff. Natural resources staff will compile the data from the survey forms, enter results into a database, and analyze results, comparing them to the 1997 creel survey results.

- (d) Expected response rate/confidence levels: The total number of backcountry anglers is estimated to be a maximum of 200. This number is based on backcountry use overall, and the number of fishing rods transported by the park and private ferries (fishing rods are checked separately before passengers enter the ferry boats. Ferries are the main transportation method for backcountry travelers.) The expected response rate is 65%. Creel studies have average response rates around 70% (Passaic River Study Area: Creel/Angler Survey 2001, 70%), so the estimated 65% response rate is reasonable.

The margin of error is +/- 5.1% at a confidence level of 95% (assuming a finite population of 200 backcountry anglers).

- (e) Strategies for dealing with potential non-response bias: Observations regarding gender, group size, the presence of children, and the number of anglers in each group, as well as the reason for refusal (if given) will be recorded for non-respondents. These items will be used to compare non-respondents with respondents. Implications of non-response bias (if any) for park planning and management will be discussed in the final report.
- (f) Description of any pre-testing and peer review of the methods and/or instrument (recommended): We are using a modified design developed for the 1997 survey, by NPS and USGS fish biologists (Kallemeyn, 2000.) Review by the MWR fish biologist, and by the 1997 survey designer, USGS fish biologist (retired) Larry Kallemeyn, as well as internal park review, has occurred. The park is choosing this method as a way to gather some qualitative information on species assemblages, sport fishing pressure, and the presence of an invasive species, spiny water flea.

10.	Total Number of Initial Contacts Expected Respondents:	200	130	1	Estimated Time to Complete Initial Contact Instrument (mins.):	2	15	12.	Total Burden Hours:	39
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13.	Reporting Plan:	Anglers will complete the survey form during or at the end of their backpacking/fishing trip. Survey forms will be collected from visitor centers by Natural Resource Division staff. Data will be entered into a database and a final report will be issued no later than 12/31/08 as part of the NPS project funding requirements for Natural Resource Project Proposals (NRPP) Regional Block Allocations. The final report will compare results with the 1997 creel census and data tables. A copy of all survey reports will be archived with the NPS Social Science Program, for inclusion in the Social Science Studies Collection.
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Bibliography

Kallemeyn, L.W. 2000. A Comparison of Fish Communities from 32 Inland Lakes in Isle Royale National Park, 1929 and 1995-1997. U.S. Geological Survey, Biological Science Report 00004.

Pollock, K.H., Jones, C.M., and T.L. Brown. 1994. Angler Survey Methods and Their Applications in Fisheries Management. American Fisheries Society: Bethesda, MD.