

VESSEL PROGRAM SUMMARY

VESSEL NAME:	KIYI
OPERATOR:	U.S. Geological Survey, Great Lakes Science Center Ashland Biological Station, Ashland, Wisconsin
LAKE:	Superior
HOME PORT:	Ashland, Wisconsin
CAPTAIN:	Joseph Walters
STATION ADMINISTRATOR:	Owen Gorman

PROGRAM DESCRIPTION: The USGS Lake Superior Biological Station (LSBS) vessel program for the KIYI in 2001 will be approximately 100 operating days that will start the end of April and run to about mid November. Prey-fish assessment will be done with trawls from the end of April to the end of June at stations lake-wide in U.S. and Canadian waters. Primary species in this assessment are lake herring, deepwater ciscoes, rainbow smelt, sculpins, and whitefish. Plankton samples will also collected during this assessment. Work on developing an acoustic sampling program will be included during the last week of May and first week of June. Trawling with a 39-foot bottom trawl will be done to assess Chequamegon Bay fish populations during the last week of July. Species in this assessment include those in the lake-wide prey-fish assessment plus freshwater drum, walleye, and yellow perch. Gill nets will be fished from the KIYI for about two weeks in mid August to determine the status of shortjaw cisco populations in waters off Ontonagan, Michigan. During October and early November, the KIYI will serve as a mother ship for small boats and crews assessing coaster brook trout populations with fyke nets and electro-fishing at Isle Royale National Park. A breakdown of the KIYI's operation time in 2001 would be 50% trawling, 10% gill net work, 20% acoustic work, and 20% as a support vessel. The KIYI vessel program will involve more trawling and less gill netting than the program with the previous vessel Siscowet. The previous vessel program 10-20 years ago included the lake-wide prey-fish assessment and the Chequamegon Bay assessment that will be continued by the KIYI. Trawling for young-of-the-year lake trout has been discontinued and graded-mesh gill netting for pre-recruit lake trout has been turned over to the states. In addition to work done with the KIYI, the LSBS also does assessment of ruffe populations in western Lake Superior using trawls and fyke nets fished from 20- and 25-foot boats. Some of the trawl stations in Chequamegon Bay are too shallow to be fished safely by the KIYI and the LSBS is considering acquiring a small, shallow-draft, day boat that will be capable of fishing a 39-foot trawl. All of the work done by the LSBS is in response to needs or in cooperation with partner state, federal, provincial, and tribal agencies. The station also cooperates with the Great Lakes Aquarium in Duluth, Minnesota by collecting live fish for restocking the aquarium. The station currently does not do contract work with the KIYI except that the Ontario Ministry of Natural Resources (OMNR) does pay fuel, per diem, and overtime costs for doing prey-fish assessment in Ontario waters of Lake Superior and the LSBS now has a Partnership Agreement with OMNR that operates in the spirit of the Joint Strategic Plan. Contract work may be done in the future and the estimated cost would be \$2,000-\$3,000 per day. Years ago, the Lake Superior Biological Station had contracted some of its work to commercial fishermen, but is currently not contracting any of its work and has no plans to do so in the future.



VESSEL DESCRIPTION: The KIYI was designed by the USACE Marine Design Center in Philadelphia, PA and built by Patti Shipyard, Inc. of Pensacola, FL in 1999. It was delivered to the USGS Lake Superior Biological Station at Ashland, WI in 2000. The contract cost of the KIYI was just over \$3,299,000. The KIYI is a steel boat 107 feet long, has a beam of 27 feet, a navigational draft of 10.5 feet, and a displacement of 232 tons (290 regulatory tons gross). It has a fuel capacity of 9,600 gallons, which allows it to cruise for approximately 2,300

miles and 8 days (~200 hrs of continuous operation) between refueling. The KIYI has five staterooms with accommodations for 9 people, 3.5 heads, a galley with a sink and two refrigerators, a TV, and a VCR. The KIYI is powered by two 640 hp Cummins KTA-19M3 diesel engines that propel it at a cruising speed of 11 knots and a maximum speed of 11.5 knots. The KIYI has two Cummins GBT5.9GM 99 kW generators, a Wesmar DPC50 75 hp electric bow thruster, and three sets of two ballast tanks each that are operated off a manifold in the engine room. Deck machinery includes a Wintech B-03-0019 anchor windlass, a 7-foot B. T. winch with 900 feet of 3/16th-inch cable, a 18,000-lb static/2,000-lb deployable A-Frame, an Alaska Marine deck crane with a 30-foot reach, a Kolstrand Variable Speed trawl winch, a Kolstrand Dual Drum Vertical Stack net reel, and a 30-inch Crossley Deep Water gill net lifter. Pilothouse electronics include: Furuno differential GPS, JRC 3811 and JMA 2254 radar units, 2 Furuno FM 2710 VHF radios, Raytheon 430 hailer, Furuno FC 600 sounder, KVH Gyro trac, and Robinson AP35 autopilot.

VESSEL STAFFING: Proposed vessel staffing for the Kiyi is a captain, mate, engineer, and seaman. Joseph Walters entered on duty as the captain on April 29, 2001; he has 21 years experience with large ships in the U.S. Coast Guard. Mike McCann is the captain of record on the Musky II in Lake Erie, but also serves as the Mate on the Kiyi when he is not working on Lake Erie. The crew of the previous LSBS vessel Siscowet, consisted of a captain, engineer, and cook/seaman and a similar three-person crew would be adequate for the Kiyi on day trips in the Ashland area. The captain of the Kiyi is required to have a 500-ton Coast Guard Masters License with a radar endorsement and the Mate is required to have a 500-ton Coast Guard Mates License. Mike McCann has several years of experience as a captain of the Musky II and commercial fishing experience. The engineer and seaman are not required by USGS to have any special licenses or certifications. The current engineer and seaman for the Kiyi have 10 and 8 years experience on USGS vessels, respectively, the engineer worked 4 years operating boats for the Park Service, and both have previous commercial fishing experience. The engineer and seaman have been being trained by Cummins as certified engine technicians for the Kiyi. The engineer is a certified Detroit Diesel engine technician. Vessel crew vacancies are filled following federal hiring practices. The positions are advertised or applications solicited and USGS personnel office screens applications to select those with appropriate knowledge, skills, and abilities. Those that qualify are placed on a certification list that is reviewed by a committee made up of the station head and others. The top three candidates are selected from this list and are interviewed by the committee. The station administrator estimates that this process could take from two to six months. Salaries for the current vessel crew are Wage-board Series based and are about \$28/hour for the captain and mate, \$22/hour for the engineer, and \$20/hour for the seaman. The new captain was hired under the General Service (GS) Series as a GS-12 with an annual salary range of \$51,000-\$67,500. The GS Series provides a better career track and allows for training for advancement. That position is a management supervisor position at the station in charge of the crew and an expensive vessel budget. There is no career ladder for Wage-board Series personnel and rules prohibit agency-supported training for advancement to a higher position. Scientific staffing consists of either a biologist or a technician who are on board for each cruise. The vessel crew and scientific staff work together and share some jobs in completing the required assessments. The vessel crew receives vessel related safety training each year. The vessel crew spends all of their time on vessel operations and maintenance, about 90% on the Kiyi and up to 10% on the LSBS small boat fleet.

VESSEL OPERATION AND MAINTENANCE COSTS: The KIYI was newly acquired and saw only limited operation in 2000. There are only a little over 700 hours on each of the main engines and a little over 1,000 hours on each of the generators. The KIYI consumes approximately 50-60 gallons of fuel per hour. At \$1.50 per gallon, fuel expense would be \$75-\$90 per hour. A 22-day cruise in 2000 cost about \$50,000 for fuel, per diem, overtime, etc., which was about \$2,300 per day. There have been no major maintenance problems and maintenance expense has been minimal as equipment and engines are new and still under warranty. The KIYI is currently wet-docked at Ashland, WI during the non-operational season. The dockage is free but costs about \$1,500 per month in winter to keep the KIYI heated and there are no facilities at the dock for vessel repair and maintenance. Maintenance on the KIYI will follow American Bureau of Shipping (ABS) standards and recommendations above all else to maintain ABS certification, but will also include recommendations provided by Cummins and other manufacturers. The Lake Superior station administrator is responsible for securing operation and maintenance funds for the KIYI. The engineer has been working with the station administrator to schedule and complete maintenance projects, but now that the captain's position is filled, the captain will take over most of these duties. The Lake Superior station

has acquired a computer software package (Vessel Maintenance System by Chartview) that tracks the vessel maintenance schedule. The engineer and other crew members take care of most maintenance except engine overhauls, haul-out, and sandblasting. The KIYI will be hauled out every 5 years for inspection and painting as required for ABS certification. The haul-out will likely be done at Fraiser Shipyard in Duluth, MN. Minimum cost of the haul-out alone is \$10,000 with an hourly charge on top of that for sandblasting, painting, etc. Unforeseen repairs should not be a problem or significantly impact a cruise because the KIYI will be maintained following ABS recommendations, and carries manuals, listings of parts suppliers and repair facilities, and an extensive supply of spare parts for most of the onboard equipment. There are a number of ports on Lake Superior that have repair facilities including Duluth, MN and Sault Ste. Marie, MI. The LSBS operating and maintenance budget has increased substantially with acquisition of the KIYI. However, vessel budgets in recent years have been bare bones. Maintenance requirements for ABS certification should help educate USGS regarding vessel costs and provide for adequate funding if money is available in the overall USGS budget.

VESSEL INSPECTIONS, AND SAFETY: An American Board of Shipping (ABS) condition assessment is conducted annually and a full ABS survey and recertification of machinery and hull is done every 5 years, requiring a haul-out. The last full ABS survey was completed in 1999 before it left the shipyard in Pensacola, FL and the next one will be done in 2004. A stability test was done right after launched at the Pensacola shipyard in 1999. No modifications that would affect stability have been done to the KIYI since this last stability test. Safety equipment carried by the KIYI includes one 16-foot Zodiac, two 10-man life rafts, 10 exposure suits, 10 PFDs, two life rings, and an EPIRB. The crew receives annual offshore safety training, which includes use of the PFDs, survival suits, ring buoys, life rafts that are carried on the KIYI. They also get annual CPR training and First Aid training every 3 years. Fire suppression equipment on the KIYI includes a fixed CO2 system in the engine room that can be activated from the pilothouse, 13 hand-held ABC fire extinguishers located strategically throughout the vessel, and a main system that pumps water to a hose on each deck. The crew has received basic fire fighting training from the Ashland Fire Department.

FUTURE VESSEL PROGRAM: The LSBS staff feels that USGS support for the vessel program was not high initially and that USGS did not fully appreciate the relatively high cost of obtaining fisheries data from the Great Lakes. However, the LSBS staff hopes that support for vessel programs will increase in the next few years, especially as the Great Lakes Science Center and its stations develop comprehensive vessel management plans and new budgeting strategies such as classifying vessels as facilities. The LSBS staff believes that their station will have a large-vessel program on Lake Superior as long as there is a need for assessment and they have the support of their partner agencies. The basic mission of the LSBS and the KIYI of providing deepwater fish population assessments mainly via trawling and acoustics is unlikely to change in the next 20 years. The KIYI is new, designed for that mission, and other agencies on Lake Superior do not yet have this capability and therefore support this USGS effort. The LSBS staff believes that acoustics and other remote sensing will be used more in the future for assessment of fish and fish habitat, and that the KIYI will do more contract work for other agencies on the lake. The station administrator would like to increase staffing by one biologist so that more than one biologist will be onboard the KIYI for every cruise and so that the data that are collected can be processed more rapidly and made available in a timely manner to our partners who use the data to manage the fish resources of the lake.

VESSEL FITNESS AND FUTURE: The KIYI is a new American Board of Shipping (ABS) certified vessel that, according to a recent ABS survey, should last 50 years based on duty cycle. In the opinion of the vessel engineer, the KIYI could last at least 100 years if properly maintained. The KIYI provides a safer and more stable platform from which to sample in deep water and in severe sea conditions than did its predecessor, the Siscowet. The KIYI's large size denies it access to some of the small, shallow harbors previously used by the Siscowet, and makes it unsuitable for trawling in shallow water. However, the KIYI's 2,000-mile, 8-day cruising endurance allows it to reach all suitable harbors and anchorages around the lake needed to support the major LSBS deepwater sampling programs and to initiate other large-scale open-water work, including lake-wide, around-the-clock acoustic assessment of fish stocks. LSBS staff believe that the operating expense of the KIYI is reasonable considering what it can do and compared to vessels of similar size. One of the biggest concerns of the Lake Superior Biological Station staff is to obtain a suitable permanent dockage near the station somewhere along the Bayfield Peninsula in Chequamegon Bay. The current dockage is a defunct ore dock in Ashland, which is close to the station but

problematical with regard to ice-in in the fall and ice-out in the spring, and lacks dockside shop facilities for repair and maintenance. Currently, USGS does not have a vessel replacement plan but one is being developed as part of a management plan for Great Lakes Science Center vessels. A replacement of the KIYI is not being considered at this time.

12. Appendix B – Small Vessel Programs

SGLFMP AGENCIES LACKING A LARGE-VESSEL GREAT LAKES PROGRAM

A number of SGLFMP-signatory agencies do not have large-vessel programs, at least not on all of their Great Lakes waters, but do conduct partial to full assessment programs using smaller boats. These agencies include the Minnesota Department of Natural Resources (MNDNR) on Lake Superior, the Illinois Department of Natural Resources (ILDNR) on Lake Michigan, the Native American tribes that make up the Chippewa/Ottawa Resource Authority (CORA) on Lake Michigan, Lake Huron, and Lake Superior, the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) and affiliated Native American tribes on Lake Superior, the U.S. Fish and Wildlife Service-Fishery Resource Offices (USFWS-FRO) on all the Great Lakes, and the Ontario Ministry of Natural Resources (OMNR) on Lake Superior.

Minnesota Department of Natural Resources (MNDNR)

The MNDNR Lake Superior Area Fisheries Program (LSAFP) at Duluth, MN uses a 25-foot fiberglass Boston Whaler with twin 115 hp outboards and a hydraulic gill-net lifter to fish gill nets to assess adult lean lake trout in May and September, siscowet lake trout in June, juvenile lean and siscowet lake trout in July-August, spawning lean lake trout in October-November, and lake herring in September-October. The assessments take about 92 operation days and are done in near-shore to 1-2 miles offshore except for the siscowet assessment, which is up to 10 miles offshore. The boat is operated and assessment sampling done by a crew of two biologists and 1-2 summer interns. LSAFP staff believes that they will continue to have a vessel program during the next 20 years similar to what they have now. They have no plans to move up to a large-vessel program but are looking into contracting a large vessel to do special projects that involve acoustics, trawling, and substrate mapping. Possible vessels to contract include the University of Minnesota BLUE HERON and the U.S. Environmental Protection Agency LAKE EXPLORER, both located in Duluth, and the USGS KIYI in Ashland, WI.

Illinois Department of Natural Resources (ILDNR)

The ILDNR Lake Michigan station contracts a 50-foot commercial gill-net tug to assess fish populations in Illinois waters of Lake Michigan with variable-mesh gill nets. The ILDNR establishes the sampling protocol and the contractor operates the boat, sets and retrieves the nets, and maintains the nets. ILDNR personnel assist the contractor collected assessment data. Forage and predator fish populations are assessed in April, yellow perch are assessed in June, and a lake trout spawning assessment is done on Julian's Reef in October-November. Assessments are done from near-shore to 25 miles offshore and involve about 31 operation days annually. The ILDNR would like to continue this contracted program for the next 20 years. They would like to expand their program to include alternative sampling gear such as trawls, trap nets, and vertical gill nets, but are restricted to gill netting with the currently contracted vessel. Although the ILDNR does not have any current plans to embark on a large-vessel program of their own, it may become a necessity if the current contracted commercial fisher goes out of business. The commercial fishery in Illinois waters is currently not economically viable and won't be until there is a significant revival of yellow perch populations.

Chippewa/Ottawa Resource Authority (CORA)

The CORA out of Sault Ste. Marie, MI operates the Intertribal Fisheries and Assessment Program (ITFAP) for five Native American tribes with fishing rights in eastern Lake Superior and northern Lake Huron and Lake Michigan. ITFAP has a fisheries staff of biologists and technicians that use a 26-foot fiberglass Privateer with twin outboards, a forward cab, a gill-net lifter, and rigged for small trawling jobs to assess populations of spring and fall lean lake trout, siscowet lake trout, lake whitefish, shallow-water fish communities in the upper three Great Lakes, and lake

herring and associated fish community in the St. Marys River. Commercial fishers are often contracted to do some of this work. These assessments are done during May-November and involve about 50 operational days. The Sault Ste. Marie CORA occasionally uses 16- to 18-foot boats for small near-shore projects. A person classified as a Fishery Technician/Vessel Captain operates the 26-foot boat with the remainder of the crew made up of fishery technicians, fishery aides, or biologists. The Sault Ste. Marie CORA staff believes they will have some kind of a Great Lakes program 20 years from now but doubts that it will be a large-vessel program. Since CORA has responsibilities on all three upper lakes and limited budget and staffing, they believe that having small boats that can be trailered from one lake to the next and occasionally contracting commercial fishing boats is the best strategy. They would like to have a somewhat longer and wider boat with a better cab arrangement than the current 26-footer.

In addition to ITFAP, most tribes represented by CORA have or are developing their own fisheries management programs. Examples of established and developing Great Lakes program among CORA tribes are the Bay Mills Indian Community (BMIC) at Bay Mills, MI and the Little Traverse Bay Band of Odawa Indians (LTBB) at Petoskey, MI. The BMIC has two Boston Whalers, 22- and 17-foot respectively, that are used to assess lake trout and lake whitefish in Lake Superior and lake whitefish in Lake Huron. These assessments are done with gill nets fished out to 4 miles from shore for approximately 40 operation days during April-September. These boats do not have a designated crew. Biologists and technicians operate the boats and conduct the assessments with assistance from seasonal employees. Commercial fishers are sometimes contracted to do some of the assessments. The BMIC fisheries staff believes they will have a Great Lakes program during the next 20 years. They have recently contracted with the Schaefer Boat Company of L'Anse, MI for a 27-foot aluminum boat with dual 150 hp Mercury outboard engines. This larger boat will improve safety and their ability to assess offshore fish stocks. However, they have no plans at this time to expand to a large-vessel program. The LTBB are in the process of developing a Great Lakes fisheries program in Lake Michigan waters and has acquired a 27-foot aluminum trap-net boat. Their plans for 2001 include monitoring tribal commercial fishers to obtain biological data from the catches, fish gill nets to assess stocks of lake whitefish, lake trout, yellow perch, burbot, and spawning stocks of chinook salmon and lake trout. They will also use the boat to study effects of egg and fry predators on lake trout recruitment. Most of the work will be done during April-November. Biologists and technicians will operate the boat and conduct the assessments and other studies. The LTBB has not contracted any work but does work cooperatively on several projects with the Michigan Department of Natural Resources and U.S. Geological Survey. The LTBB fisheries staff expects to have a Great Lakes program 20 years from now but it will likely not be expanded to a large-vessel program.

Great Lakes Indian Fish and Wildlife Commission (GLIFWC)

The GLIFWC provides fisheries and other biological services to Native American tribes with fishing rights on western Lake Superior waters. The GLIFWC uses a 25-foot fiberglass Boston Whaler with twin 150 hp outboards and a gill-net lifter to assess spawning lean lake trout populations within 2 miles of shore during October-November and siscowet lake trout populations within 5 miles during June-August. They also use an 18-foot aluminum Lund with a 40 hp outboard to assess lake sturgeon populations within 0.5 miles of shore during May-September. These assessments take 40-60 operational days. A GLIFWC Great Lakes Technician serves as captain of the 25-foot boat with a biologist and two seasonal employees making up the rest of the crew. The GLIFWC also contracts with commercial fishers to do fall lake whitefish assessment in Lake Superior and expects to continue to do this for an unknown number of years. The GLIFWC fisheries staff believes that they will have a Great Lakes vessel program 20 years from now but it will be similar to the current program. They would like a larger vessel because the current vessel is open with a small amount of deck space and is limited by weather. However, GLIFWC fisheries staff does not expect to expand to a large-vessel program in the foreseeable future due to a limited budget and agency priorities.

The tribes affiliated with the GLIFWC have fisheries programs of their own, which involves monitoring and collecting biological data from tribal commercial fish catches and assisting with GLIFWC projects. None of these tribes currently have a large vessel program and do their work either by contracting with a commercial fisher or using their own small boats. Typical of these programs is that of the Red Cliff Band of Lake Superior Chippewas located at Bayfield, WI. The Red Cliff Fisheries Department had a large-vessel program a few years ago using a 37-foot gill-net tug, the Queen of Bayfield. This vessel was determined to need extensive restoration and was taken

out of service. The Red Cliff Fisheries Department not contracts commercial fishers or uses small boats to conduct spring, summer, and fall lake trout assessments, and fall lake whitefish assessments. These assessments require 19-29 days during April-November. Red Cliff biologists and technicians work with the contracted commercial fisher to collect data and crew the small boats. The Red Cliff Fisheries Department staff believes they will have a Great Lakes program as long as there is a viable tribal commercial fishery. They are looking to restore the Queen of Bayfield and resume a large-vessel program.

U.S. Fish and Wildlife Service-Fishery Resource Offices (USFWS-FRO)

The USFWS has Fishery Resource Offices (FRO) on each of the Great Lakes. They use small boats for various assessments and projects in Great Lakes waters. The following describes the program at the Lake Huron FRO at Alpena, MI. The Alpena FRO has four boats, the largest being a 22-foot fiberglass Boston Whaler with twin 100 hp outboards. The other three are all 18-foot long with 25-50 hp outboards and one is specifically designed for electro-fishing. The 22-foot boat is rigged for fishing small trawls for aquatic nuisance species (ruffe, goby, etc) assessment in near-shore waters in Lake Huron and a few stations in Lake Michigan and Lake Superior. Short-gang gill nets are also fished from this boat. The other boats are used in bays and near-shore waters of Lake Huron and Lake Erie, coastal marsh studies, and lake sturgeon assessment in Great Lakes connecting waters. The combined days of operation for the four boats is approximately 90 days during April-October. There is not a designated crew for these boats but all FRO personnel who operate a boat must become certified Boat Operators. This training is provided by the USFWS through a program involving both classroom and on-the-water training. The Alpena FRO expects to have a Great Lakes program 20 years from now and would like a somewhat larger boat (25- to 27-foot) to assess lake trout and lake whitefish populations in near-shore Lake Huron, but have no plans for a large-vessel program. The Alpena FRO currently uses the USFWS Jordan River National Fish Hatchery vessel Togue for lake trout assessment in offshore waters of Lake Huron and also contracts commercial fishing boats to do lake trout early life history studies. They expect to continue using the Togue or its replacement and to continue contracting with commercial fishers for large-vessel work during the next 20 years.

Ontario Ministry of Natural Resources (OMNR)

The OMNR has large-vessel stations on all of its Great Lakes waters except Lake Superior. The OMNR Lake Superior stations at Thunder Bay and Sault Ste. Marie currently monitors commercial fishing catches or contracts commercial fishers to assess lake trout and lake whitefish populations, have an arrangement with the USGS Lake Superior Biological Station out of Ashland, WI to obtain forage-fish assessment data, and receives vessel support from the OMNR research vessel out of Owen Sound, Lake Huron for special projects. The OMNR expects to continue to obtain assessment data for fish populations in Lake Superior during the next 20 years by monitoring commercial fishers and contracts or arrangements. However, they are attempting to obtain a large vessel for their program on Lake Superior. They would like to initiate and conduct a number of their own index and research programs, which would be more intermittent and less amenable to contracting or other arrangements.

13. Appendix C – Interview Questionnaires

QUESTIONNAIRE –Captain and Crew

VESSEL DESCRIPTION:

Review Vessel Description Form.

VESSEL OPERATION:

1. How many hours were accumulated on your vessel's main and auxiliary engines for each of the last three seasons?
2. How much fuel was used in each of the last three seasons? What did it cost?

VESSEL MAINTENANCE:

1. How much was spent on maintenance and repairs in each of the last three years?
2. When was the last haul-out and how much was spent on haul-out maintenance and repairs?
3. What is your normal haul-out cycle?
4. What new equipment was installed within the last three years and what did the equipment cost?
5. Do you get adequate support for maintenance and repairs?
6. What kind of work is done by crew and by contract mechanics?
7. How often are the following maintenance projects done: hull sandblasting, hull inspection, hull and deck painting, engine maintenance, engine overhaul, and electrical inspection?
8. Who schedules the above projects (vessel captain, station head, or other agency personnel)?
9. What criteria are used for establishing the schedule (manufacturer's specifications, etc.)?
10. How are unforeseen (emergency) repairs handled during the operational season?
11. Do you have ready access to parts suppliers or repair facilities for the equipment on your vessel?
12. Have unforeseen repairs caused significant down time in the past (e.g. cancellation of a survey)?
13. Has the frequency of unforeseen repairs increased in recent years?
14. How are unforeseen (emergency) repairs handled during the operational season?

15. Do you have ready access to parts suppliers or repair facilities for the equipment on your vessel?
16. Have unforeseen repairs caused significant down time in the past (e.g. cancellation of a survey)?
17. Has the frequency of unforeseen repairs increased in recent years?
18. How is the vessel buttoned up and stored for the non-operational season (dry dock or wet dock)?

VESSEL STAFFING:

1. How many permanent vessel staff are currently employed to run your research vessel?
2. How long have they been in these positions?
3. How has this staffing changed compared to 20-25 years ago?
4. For each of the crew positions, what are the job qualifications?
5. For each of the positions, what is the starting, 10-year and top pay?
6. Does the crew qualify for overtime compensation?
7. If so, what is the compensation?
8. How much overtime was worked (include time and pay) by each crewmember in each of the last three years?
9. What was the travel costs for the crew in each of the last three years?
10. How are crewmembers recruited and hired for your vessel?
11. What is your crew composition in terms of job classification and number, and are they full or part time?
12. How experienced is your vessel crew (years doing their job)?
13. What licenses, certifications, or special training are required for these classification levels?
14. What is the line of supervision within the crew?
15. Does the agency provide/facilitate training or access to training that is required for the above licenses or certifications?
16. Is there a career ladder to allow for advancement of crewmembers?
17. What is the makeup of the onboard scientific staff (number and job classification)?
18. Does the scientific staff work well with the crew?
19. Do they assist or share jobs with crewmembers or do they just do jobs not involving crewmembers?
20. Does the vessel crew work on non-vessel related projects?
21. If so, when, why, and what percentage of their time is on non-vessel projects?

22. What kinds of work are involved in these non-vessel projects?
23. Do you and/or your crew appreciate this job diversity or would you/they prefer only vessel-related jobs?
24. Are there any crew staffing issues that you think are important?
25. If there are, what remedies would you suggest?

SAFETY:

1. What types of training does the crew receive for safety, maintaining skills, or advancement?
2. Describe your vessels fire-fighting equipment and fire-fighting training experience?
3. When was the last inclining experiment (stability test) done on your vessel?
4. Have there been any modifications to the hull since this last stability test?

SURVEYS, INSPECTIONS and FITNESS:

1. What inspections were conducted during the last ten years?
2. When was the last inclining experiment (stability test) done on your vessel?
3. Have there been any modifications to the hull since this last stability test?
4. When were the main(s) and auxiliary last overhauled?
5. Has your vessel been surveyed? If so, what were the findings? Have their recommendations been implemented?
6. In your opinion, what is the current state of fitness of your vessel – hull and mechanical systems?
7. Are there any current problems with your vessel that need attention?

PROGRAM DESCRIPTION:

FUTURE PROGRAM:

VESSEL SUITABILITY:

1. Is your vessel meeting the needs of the scientific staff (any complaints)?
2. What are the strengths and weaknesses of your vessel?

3. How could specific complaints be rectified (new or retrofitted vessel, newer or different equipment, more operational funds, improved or more technical staffing, etc.)?
4. Do you think inadequate budget, staffing, or design (sea-state, weather, docking, winter storage, or other limitations) limits your vessel's operation?
5. How would you characterize your agency's support of your vessel?
6. How flexible is your boat and crew to new ideas?
7. Do you think your station will have a vessel program 20-25 years from now?
8. In your opinion, what is the current state of fitness of your vessel – hull and mechanical systems?
9. Do you think your vessel has a remaining serviceable life of 20-25 years?
10. If not, have you had a comprehensive survey done by a qualified marine surveyor?
11. If not, what is your best estimate of its life?
12. If not, could a major rehab extend the vessels operating life?
13. Who determines if and when your vessel should be refitted or retired?
14. If your vessel is retired, do you think it will be replaced?
15. What are the criteria for vessel replacement (vessel age, vessel condition, repair frequency, program needs)?
16. What is your specific input to this action?
17. Would you be involved in the design and specifications of a new or replacement vessel?
18. Who else would be involved?
19. Is your vessel currently a safe work place for the crew?
20. Does your vessel meet current and projected program needs?
21. Compared to other boats of similar size, are your vessels' operating expenses reasonable?
22. Has there been any serious talk of a vessel replacement in the foreseeable future?
23. If so, for what reason?
24. What specifications of a new or replacement vessel do you think are most important to handle needs of the current and foreseen vessel tasks?
25. What shipyard or ship builder would you use to refit your existing vessel or build a new one?
26. Do you know of any others that are capable of doing these jobs?

QUESTIONNAIRE –Administrators/Scientists

VESSEL DESCRIPTION:

VESSEL OPERATION:

VESSEL MAINTENANCE:

1. How much oversight do scientists/administrators have over the maintenance of your vessel?
2. What specifically is scientist's role, if any, in scheduling and completing maintenance tasks?
3. What is the scientist's role regarding dealing with unforeseen repairs during the vessel operating season?
4. Does your station have ready access to repair facilities that can handle hull, engine, or electrical problems with a minimum of down time?
5. Has unforeseen repairs ever caused cancellation of all or a part of a survey?
6. Has need for repairs increased in frequency in recent years?
7. Do you have any concerns that vessel maintenance has constrained your ability to implement program?

VESSEL STAFFING:

1. Who is responsible for your vessel's operational budget?
2. Who is responsible for your vessel's staffing and who supervises the crew?
3. How are crewmembers recruited and hired?
4. Do you have any problems recruiting qualified people to run your vessel?
5. Is there a career ladder so that crewmembers can advance within the ranks of the crew?
6. For the scientists, do you have a permanent biologist that does all the vessel work or are there several biologists that assist the crew?
7. Are the on-board biologists responsible for all aspects of the survey, i.e., data collection, tabulation, analysis and report writing?
8. How do the vessel crew and the biologists work together, is there a sharing of jobs among the scientific staff and the vessel crew, or does each have specific jobs?
9. Do the scientific staff and vessel crew work well together?

SAFETY:**SURVEYS, INSPECTIONS and FITNESS:****PROGRAM DESCRIPTION:**

1. Describe your current vessel program (provide copy of vessel field schedule)?
2. How does your 2000 vessel program compare with your program in 1980?
3. How many months/days did your vessel operate in each of the last 3 field seasons?
4. What is the earliest and latest date your vessel can operate (maximum length of field season)?
5. What percent of the time is the vessel operating during that period?
6. What percent of vessel operation is allocated to fisheries survey (assessment), habitat survey, specific research projects, law enforcement, cooperative work with other agencies, or contract work for other agencies?
7. What gear do you use on each survey?
8. Are any surveys done in cooperation with other agencies or groups?
9. Is your scientific staffing adequate to enable full utilization of your research vessel?
10. If you do contract work, is the contract work necessary to fund vessel operations or just to maximize utilization of the vessel?
11. What are the strengths and weaknesses of your vessel?
12. Does your vessel accommodate the basic needs of the crew for comfort and safety?
13. Does your vessel and/or staff meet your current program needs?
14. If not, what aspects of vessel operations do not meet your needs?
15. What is required of your vessel or program to better meet your needs?
16. Have you considered other vessel-support options such as contracting other agency or private vessels to meet the unmet needs?
17. What is your attitude and that of your agency regarding outside contracting?
18. Do contract dollars flow back to your program?
19. If not, is this an issue?
20. Who is responsible for the vessel's operational budget (captain, lab director, other)?

21. What is the source of funding for your vessel program (general tax revenue, fishing license dollars, Federal Aid etc.)?
22. Is the vessel's operating budget and level of staffing adequate for your current vessel program?
23. Has your vessel's operating budget constrained, in any way, your program within the last 10 years?
24. What has been the trend in your vessel-operating budget in the last 10 years?
25. Do you normally get all the operating dollars you request or do you normally get a portion of your request?
26. If you have not received what you requested, what has been the impact on your program?
27. How would you rate your agency's support of your vessel program (scale 1-5; 5= Outstanding)?
28. Do you foresee the current support changing in the next 20-25 years?

FUTURE PROGRAM:

1. What changes in your vessel program do you foresee in the next 20-25 years (programs discontinued, new programs)?
2. What kind of staffing changes might you see in 20-25 years?
3. What, if any, vessel changes would be required to meet these new program needs?
4. Have you considered vessel replacement or a mid-life refit of your existing vessel?
5. Is there a process in place for securing agency and budgetary support for upgrading or replacing your vessel to meet these new program needs?
6. Are there alternatives being explored through cooperation or contracting with other agencies to meet these needs?
7. How would your vessel program change if your operational budget were doubled (expand existing operations, undertake new operations)?
8. How would your vessel program change if your operational budget were halved (scale back or eliminate existing operations)?
9. Do you think your station will still have a vessel program in 20-25 years?

VESSEL SUITABILITY:

1. Have you considered vessel replacement or a mid-life refit of your existing vessel?

2. Is there a process in place for securing agency and budgetary support for upgrading or replacing your vessel to meet these new program needs?
3. Are there alternatives being explored through cooperation or contracting with other agencies to meet these needs?
4. Have you had a recent comprehensive survey of your vessel by a surveyor, marine engineer or architect?
5. If so, did they indicate the serviceable life of your vessel?
6. Do you think that your vessel has a remaining serviceable life of 20-25 years?
7. If not, what is your estimate of your vessel's serviceable life?
8. What guidance have you received, if any, regarding moving ahead with a planned replacement or midlife refit?
9. Have you developed a strategy for addressing this issue?
10. Is the fiscal environment within your agency suitable for funding a vessel replacement?
11. How would purchase of new or replacement vessels be financed?
12. Who in your agency determines if a vessel should be retrofitted or when a vessel is no longer seaworthy, not repairable and must be retired from operation?
13. What criteria are used in determining that a vessel should be retired (age, seaworthiness, repair frequency, program changes)?
14. Who or what process determines if a new or replacement vessel will be acquired for your vessel program?
15. Can you estimate the minimum time it would take to purchase a replacement vessel, or to build a new vessel?
16. What would be your role in determining the specifications and acquiring a new vessel for your station?
17. Who else would be involved?
18. What specifications of a new or replacement vessel do you think are most important for your program?
19. Once the need is established and approved, how long do you estimate it would take to replace your existing vessel via purchase of an existing vessel or build a new vessel?
20. What shipyard or ship builder would you use to retrofit or replace your existing vessel?
21. Do you know of any others that are capable of doing these jobs?