

**A PROGRAM FOR IMPROVING
MANAGEMENT AND RESEARCH OF FISHERIES
IN THE SOUTHEAST REGION**



SOUTHEAST REGIONS VESSELS PROGRAM

Project Bluebook - 2004

**Alaska Department of Fish and Game
Division of Commercial Fisheries
Southeast Region**

December 2004

TABLE OF CONTENTS

LIST OF TABLES	iii
INTRODUCTION	1
Overview of Southeast Region Vessels Program	1
VESSELS.....	1
<i>Background</i>	1
<i>Staffing</i>	2
<i>Vessel Program Characteristics</i>	2
History, Capabilities, and Limitations of the R/V Medeia	5
Missions	5
Limitations.....	6
History, Capabilities, and Limitations of the R/V Kestrel.....	7
Missions	7
Limitations	7
History, Capabilities, and Limitations of the R/V Kittiwake III.....	8
Missions	8
Limitations	8

LIST OF TABLES

<u>Table</u>	<u>Page</u>
Table 1. Capabilities of Southeast region vessels.....	4
Table 2. Southeast Region vessels proposed maintenance plan.	9
Table 3. Summary of future major maintenance costs, 2005–2007 (in thousands of dollars).	9

INTRODUCTION

Overview of Southeast Region Vessels Program

Alaska's Constitution mandates the management of fish and wildlife resources according to sustained yield principles and for the maximum benefit of the public. In order to fulfill this responsibility, the Alaska Department of Fish and Game (ADF&G) operates a wide variety of research and management programs for both fish and wildlife. ADF&G also assists its sister agencies such as the Department of Public Safety, Department of Environmental Conservation, University of Alaska, and some federal agencies when their responsibilities coincide with those of the department or during an emergency, for example during oil spill response.

In Southeast Alaska (Region I) this requires the department to carry out programs aimed at researching and managing marine and anadromous fishes, marine invertebrates, and marine mammals. Effective management of these resources requires a broad understanding of the biological and physical characteristics of the marine environment these species depend on. A wide variety of research and management projects are conducted throughout the year to gather this information. These projects require the services of vessels in the 40 to 110 foot class to gather the necessary information and provide department staff with on-site facilities.

VESSELS

Background

The Southeast Region vessels program owns and supports the operations of two large research vessels within the region: the 110-foot Research Vessel (R/V) *Medeia* is home-ported in Juneau and the 106-foot R/V *Kestrel* is home-ported in Petersburg. The region also owns two smaller research vessels, one of which (42-foot R/V *Kittiwake III*) is operated by vessels staff and one of which (32-foot R/V *O'kisutch*) is designated an 'unmanned' vessel that is not operated by vessels staff but rather by departmental biologists and technicians. The R/V *O'kisutch* is primarily used in Sitka.

Although the region is still in possession of the R/V *Kittiwake III*, this vessel will be re-stationed in Kodiak and maintained by the Westward Region. Region I has no plans to use or continue maintaining the R/V *Kittiwake III*.

Commercial Fisheries Division's Southeast Region is directly responsible for research and management of a wide variety of species important to commercial, subsistence, and personal use fisheries. Those fisheries harvest salmon, herring, groundfish, crab, shrimp, sea cucumbers, sea urchins, geoducks, and other miscellaneous fish and shellfish in the Southeast and Yakutat areas. As the primary user of these vessels, Southeast Region is tasked with the responsibility for operation and maintenance. The region's vessels section, which includes professional licensed vessel staff, works with the region's supervisory staff and professional contractors to operate and

maintain the program. While there is a large capital investment in the region's vessels, as well as substantial operating expenses for salaries and premium pay, these expenditures are necessary and in fact are highly efficient in providing management and research platforms for a wide variety of tasks. The region's vessel program represents a long-term commitment to research and management of the state's resources.

Staffing

The vessel program in Region I has suffered from inadequate stable funding to maintain a crew that is necessary for vessel operations that support the region's research and management programs. Consequently, the region has relied heavily upon leasing the vessels to external parties to generate funds required to support salaries of permanent full-time and season vessel staff. This has resulted in reducing the availability of the region's vessels to important programs such as shellfish, groundfish and dive fisheries stock assessment. As a result, vessel time for surveys within these programs is contracted out to external bidders to ensure completion of the work. This approach generates funds to supplement the vessel program, however it reduces consistency of surveys, adds complexity to survey logistics, and it detracts from the mission of the vessel program, which is to support the region's research and management programs.

An increase in funding levels for vessel staff would reduce the region's need to rely on leasing of vessels. The result would be a more stable survey planning, fewer logistic problems, more consistency in survey methods, better understanding of project goals between project leader and skipper, fewer difficulties with vessel scheduling and an overall more efficient vessels program.

Vessel Program Characteristics

The following characteristics are found within the vessel program:

Professionalism: Southeast Region vessels employ licensed crews that are experienced and have undergone extensive specialized training, particularly in aspects of vessel safety. These crews help ensure the highest possible levels of safety and competency in vessel operation. While a few private vessels also meet this standard, those vessels are typically engaged in fishing, tendering, or other research activities. It is difficult, especially on short notice, to obtain the services of qualified vessels and to assess the qualification and safety consciousness of any given vessel crew.

Confidentiality: Department vessels are often used in situations where confidentiality of information is required by law. Results of crab surveys, amount and location of fisher's catches, and amount of product purchased by processors are examples of confidential information with which state vessel crews routinely deal. Giving private vessels access to this information may create a perception of conflict of interest or favoritism that detracts from the department's ability to carry out its mission.

Consistent and Reproducible Results: One of the hallmarks of the scientific method is the need to have consistent and reproducible results. This requires using similar gear in a similar manner

over a long time period. Southeast Region vessels are equipped with a wide variety of crab and shrimp pots, dive support gear, longline gear, and other equipment that is well suited to the vessels and can be fished or used in a consistent manner from year to year. Southeast Region vessel crews have fished a wide variety of gear for many years and have become competent and knowledgeable in the use of that specific gear. Southeast Region vessel crew also fish the same locations from year to year and develop insights into the best ways to fish certain areas. A chartered vessel would be starting from scratch each time it set a string of pots or net.

Local Knowledge: Safety and reliability of scientific results require that crews be intimately familiar with the weather, sea characteristics, location of safe harbors, geography, bottom types, and many other aspects of a region. While charters are often required to have a certain level of experience in the local area, any given charter vessel may have never operated in the specific areas where the vessel must go.

Availability: Availability of suitable vessels for charter is highly variable and depends on fishing and tendering opportunities, as well as other charter opportunities. Unfortunately, the department often needs vessels at exactly the same time that private vessels are engaged in these other activities. For example, one of the primary duties of Southeast Region vessel is to act as a mobile field office for management of the herring fishery. During this fishery, nearly every suitable vessel is engaged in either fishing or tendering herring and it is extremely difficult to find a suitable vessel for charter. When fish prices are high and catches are good, it may be virtually impossible to charter a suitable vessel with a professional crew for any purpose. During emergencies, such as an oil spill, suitable vessels may have long-term contracts for clean up and not be available for department use. In either case, chartering a suitable vessel may require the state to compete on price with profits from lucrative fisheries or charter rates paid by some of the largest and most profitable corporations in the nation.

Cost Effectiveness: Southeast Region vessels have proven themselves cost effective and efficient. Costs to operate state owned vessels are competitive, especially considering that they are often outfitted with special equipment to perform the special jobs required by fisheries researchers. There is also a savings in time for staff using the vessels. Chartering private vessels requires scientific staff to spend large amounts of time preparing and evaluating bids, assessing the suitability and safety of numerous vessels in order to select the best vessel available, dealing with appeals to the award, and adapting state owned fishing and scientific gear to an unfamiliar vessel. There are also safety and efficiency considerations with chartering the lowest bidder. Occasionally such vessels are poorly maintained, subject to breakdowns, and may not have adequate safety equipment for the size of a scientific party. Dealing with these issues further detract from the staff's ability to do their job.

Table 1. Capabilities of Southeast region vessels.

Vessel Characteristics	<i>R/V Medeia</i>	<i>R/V Kestrel</i>	<i>R/V Kittiwake III</i>
Length	110 feet	106 feet	42 feet
Beam	26	26 feet	13
Draft	10	7.5 feet	4.5
Horsepower	1,250	644	600
Berths	16	13	4
Crew Members	4	3	1
Scientific Party	12	10	3
Annual Days At Sea	113	145	45
Approx. Cost Per Day	\$3,200	\$3,000	\$900
Primary Areas of Operation	SE Alaska	SE Alaska Nearshore Waters	SE Alaska Nearshore Waters
Cruising Range	7,200	7,000	500
Trip Length	30 days	20 days	10 days
Vessel Capabilities	<i>R/V Medeia</i>	<i>R/V Kestrel</i>	<i>R/V Kittiwake III</i>
Bottom Trawl	X		
Mid-water Trawl	X		
Longline	X		X
Salmon Seine			
Herring Seine			
Pot Gear	X	X	X
Dive Support	X	X	X
Hydroacoustic Gear	X	X	X
Oceanographic sampling	X	X	X
Field Camp Support	X	X	X
Skiff Equipped	X	X	
Submarine Support	X	X	
ROV Support	X	X	X
Emergency Response	X	X	X
Search and Rescue	X	X	X
Shoreside Support	X	X	X

History, Capabilities, and Limitations of the R/V Medeia

The *R/V Medeia* was built by Universal Ironworks, in Houma, Louisiana and was completed in 1982. The vessel was purchased by the State of Alaska from Survey Boats, Inc., Patterson, Louisiana in October 1992. The vessel originally conducted high precision survey work for the oil industry in the Gulf of Mexico.

The *R/V Medeia* is over 20-years old and the mechanical systems need periodic replacement or overhaul. This maintenance requires substantial annual CIP funds to keep the vessel in a seaworthy condition.

The *R/V Medeia* is 110 feet length overall with a keel length of approximately 100 feet. The beam is 26 feet and draft of 10 feet. The steel hull is powered by two diesel engines and twin propellers. The vessel is configured with the wheelhouse forward and gross tonnage is 246 tons ITC, with a displacement of 400 long tons. The vessel can provide accommodations for up to twelve scientists at a time. The fuel capacity is 24,000 gallons and water capacity is 8,000 gallons. Service speed is 10 knots with a range of 7,200 miles. Provisions can be stored for voyages up to 30 days. Annual utilization of the vessel has averaged 113 days over the past two years, having operated 147 days last fiscal year.

Missions

Currently, the *R/V Medeia* supports Region I research efforts for crab, rockfish, shrimp, and herring. Management operations include supporting herring fisheries through inseason hydroacoustic surveys and providing a platform for staging management personnel. Herring trawl surveys are conducted in winter. The vessel also functions as a platform for Steller sea lion research in conjunction with ADF&G's Division of Wildlife Conservation and the National Marine Fisheries Service.

The vessel is used to survey stocks of king crab, Tanner crab, and shrimp with pot gear. The vessel is also a platform supporting other marine fisheries research: demersal shelf rockfish (DSR) research using a two-man submersible and herring trawl sampling for age and size estimates. Additionally, the vessel works under contract to support juvenile sea lion capture/tagging projects through use of scuba, hauling freight for the National Marine Fisheries Service, and performs search and rescue work as needed. The vessel is not currently utilized for longline surveys, however the vessel has the capability for these gear types. The vessel is not capable of seine fishing.

Herring hydroacoustic surveys occur in conjunction with management of spring herring fisheries and research sampling. Hydroacoustic means are primarily used to locate herring rather than estimate abundance.

Limitations

The *R/V Medeia* has a current Stability booklet. The vessel displays excellent stability characteristics and is normally operated well below the limitations specified in the stability letter.

The *R/V Medeia* is 22-years old and in relatively good condition. Due to the age of the vessel, a marine surveyor should estimate repairs and offer professional opinion on the cost advantage of replacing the vessel. Within the next few years plumbing and wiring needs to be thoroughly inspected. The need for this work was considered and anticipated at the time the vessel was purchased. Following is a list of the minimum maintenance that should be performed during the refitting of this vessel.

1. Plumbing:

Replace all freshwater piping, most saltwater piping, hull penetrations, and about 50% of hydraulic piping and valves. This is normal major maintenance for a vessel of this age.

2. Wiring:

Replace main panel and all sub-panels, replace lighting fixtures and outlets. Examine wiring runs, assume replacement of at least 50%. Incorporate present loadings into design of new panels. Replace alarm systems.

This is also normal for a vessel of this age. Electrical demands are quite different than 10 years ago, and components deteriorate with age.

3. Tophouse reconfiguration:

Reconfigure wheelhouse, incorporating bridge wings. Extend office area aft about 6 feet. This is necessary due to changes of patterns of use and to the much expanded electronics suite over the past 10 years.

4. HVAC:

Replace all components, including ducting. This system is old, has been repaired numerous times, and ducting is beginning to deteriorate.

5. Accommodations:

Remove and replace paneling and overheads as determined to be feasible by naval architect. Replacements should be of fire retardant material. Insulate inside of hull as feasible.

6. Mechanical:

Replace stuffing boxes. Balance and true shafts and propellers. Replace main hydraulic pumps. Overhaul hydraulic engine. Pull rudders and replace bearings and steering components.

History, Capabilities, and Limitations of the R/V Kestrel

The *R/V Kestrel* was built by Allied Shipbuilders, Ltd. in 1990 for the Canadian Department of Fisheries and Oceans (DFO). In February 2003, the Alaska Department of Fish & Game purchased the vessel from DFO and has entered it into service for the State of Alaska with the primary mission of supporting research dive operations in Southeast Alaska. This vessel will also support other fishery research and management activities involving a variety of gear types.

The *R/V Kestrel* is 106 feet in length with a beam of 26 feet and a draft of 7.5 feet. Fuel capacity is 12,600 gallons with water capacity of 2,300 gallons, augmented by a watermaker and additional water storage in ballast tanks. The vessel has an all-welded steel construction up to the level of the forecandle deck, with an aluminum tophouse. The vessel has an open aft deck approximately 9 meters in length. There are 13 berths, however the vessel is expected to typically travel with less total personnel while conducting dive operations. Service speed is 10 knots with a range of 7,000 miles. Voyages can be up to 20 days with most trip lengths of 10 to 15 days. Typical annual utilization of the vessel will be approximately 145 days.

Missions

The *R/V Kestrel* will be utilized in near-shore waters primarily for herring and invertebrate research and management. The department will use the *R/V Kestrel* mainly to support scuba surveys for herring spawn deposition and population estimates of sea cucumbers, sea urchins, and geoduck clams. The vessel will also be used to conduct research surveys for shrimp and will serve as a platform to monitor commercial herring and shrimp fisheries. This vessel may also be leased for charter opportunities, for example to support sea lion capture and re-sighting studies conducted by the Wildlife Division. A minor role may be played transporting equipment and facilities for field camp activities.

The *R/V Kestrel* is a far superior vessel than the vessel it has replaced, the *R/V Sundance*. The size, configuration and condition of the *R/V Kestrel* make this vessel highly capable of completing its mission. It is considered a stable and safe vessel and although its daily operational costs are higher than the *R/V Sundance*, it is expected that improvements in overall efficiency will make this vessel more economical by reducing the number of unworkable vessel days that are caused by poor weather and mechanical failures.

Limitations

The *R/V Kestrel* is 13-years old and is in excellent condition. The vessel is outfitted to support dive operations and has scuba tank compressors, capable of producing 36% NITROX. This vessel will be capable of other scientific and fishery management operations with relatively minor additions or reconfigurations of deck equipment. The current deck configuration limits its ability to perform pot surveys, however some options are being considered to increase versatility of the deck and vessel.

History, Capabilities, and Limitations of the R/V Kittiwake III

The *R/V Kittiwake III* was built by Lindel in Camano, Washington. In 1999 the Alaska Department of Fish & Game purchased the vessel from a private individual and entered it into state service after major modifications that included replacing the main engine, control systems, hydraulics, electrical wiring and electronic equipment.

The *R/V Kittiwake III* is 42 feet in length with a beam of 13 feet and a draft of 4.5 feet. Fuel capacity is 675 gallons with water capacity of 150 gallons. There are four berths, however the vessel typically does not travel with more than three personnel because of space limitations. Service speed is 11 knots with a range of approximately 500 miles. Voyages can be up to 10 days with most trip lengths of 7 to 10 days. Typical annual utilization of the vessel has been approximately 45 days over the past two years.

Missions

The *R/V Kittiwake III* is utilized in near-shore waters primarily for Dungeness crab surveys, support of shrimp fishery management, and support of monitoring salmon stream escapement. The vessel has also played a minor role in providing a platform for management of herring fisheries. The size of the vessel, including shallow draft, makes it ideal for conducting near-shore pot surveys for Dungeness crab.

Limitations

The *R/V Kittiwake III* is 14-years old and in relatively good condition. Stability tests have not been conducted, however stability of the vessel is not a major concern due to the relatively light-duty work done in nearshore waters. Although the vessel can accommodate up to a total of four, space and capacity limitations allow three crew to be comfortable.

PROPOSED MAINTENANCE PLAN

Table 2. Southeast Region vessels proposed maintenance plan with cost in thousands of dollars.

FY 05	Cost
<i>R/V Medeia</i>	
1. Supplement vessel staff salary (6mm BOI, 2mm BOII, 3mm BOIII, 1mm BOIV)	\$26.8
2. Replace aging sonar system	\$29.0
<i>R/V Kestrel</i>	
1. Haulout, bottom paint and replace zincs	\$24.0
FY 06	
<i>R/V Medeia</i>	
1. Supplement vessel staff salary (6mm BOI, 2mm BOII, 3mm BOIII, 1mm BOIV)	\$28.0
2. Install winch/conductivity, temperature, depth (CTD) recorder or replace/upgrade echo sounding equipment.*	\$50.0
3. Major refitting: painting, re-wiring, re-plumbing	\$550.0
<i>R/V Kestrel</i>	
1. Haulout, bottom paint and replace zincs.	\$24.0
FY 07	
1. Supplement vessel staff salary (6mm BOI, 2mm BOII, 3mm BOIII, 1mm BOIV)	\$29.0

*These electronic upgrades will be done in close consultation with scientific staff in order to meet most critical needs at that time.+

Table 3. Summary of future major maintenance costs, 2005–2007 (in thousands of dollars).

Fiscal Year	<i>R/V Medeia</i>	<i>R/V Kestrel</i>	Total
2005	\$ 55.8	\$ 24.0	\$79.8
2006	\$ 628.0	\$ 24.0	\$652.0
2007	\$29.0	\$ 0.0	\$29.0
Total	\$ 712.8	\$ 48.0	\$760.8

The Alaska Department of Fish and Game administers all programs and activities free from discrimination based on race, color, national origin, age, sex, religion, marital status, pregnancy, parenthood, or disability. The department administers all programs and activities in compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972.

If you believe you have been discriminated against in any program, activity, or facility, or if you desire further information please write to ADF&G, P.O. Box 25526, Juneau, AK 99802-5526; U.S. Fish and Wildlife Service, 4040 N. Fairfield Drive, Suite 300, Arlington, VA 22203; or O.E.O., U.S. Department of the Interior, Washington DC 20240.

For information on alternative formats for this and other department publications, please contact the department ADA Coordinator at (voice) 907-465-4120, (TDD) 907-465-3646, or (FAX) 907-465-2440.