

The background of the slide is a photograph of a vast, deep blue ocean under a clear sky. A bright, colorful rainbow is visible on the left side, arching over the water. The text is overlaid on this image.

POINT SUR Operations in the Antarctic: The Little White Boat that Could

RVOC
April, 2013

Stewart Lamerdin
Moss Landing Marine Labs

The idea.....

Science and Agency Support:

- Similar non-UNOLS ships have operated in the area in the past
- NSF has an opportunistic funding model
- A need from the science community

R/V Hero, 1968 Palmer Station



Other options.....



Ex USS Spot (built in 1944) arrives at Palmer in 1979



The Planning begins....

Pre-Cruise Organization and Logistics

Equipment added:

- GMDSS
- MSD
- OWS
- FLS
- Thermal imaging camera
- Water purification system
- Ice gear
 - Heaters, Ice handling equip
 - Spare parts
 - Survival equipment

Planning:

- Insurance Approval
- Risk Management Plan
- Surveys
 - NSF
 - ABS (5 year Special Insp.)
 - Independent Surveys
- Crewing Matrix***
- The “PQ” process and the Prime Contractor
- Agent Support
- Weather/Ice Forecasts



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May 10, 2012
Wrecked Brazilian Ship Leaking Oil in Antarctica



A Brazilian ship is wrecked and now trapped in ice and spilling fuel in Antarctica. The only hopes of containing the damage will not come until the long South Pole winter eases next October.

The Endless Sea capsized and sank in 39 feet of water in April near where Chile and Brazil have navy bases. The crew was rescued to safety without injury, but poor weather kept

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Antarctic Tourist Ship Foundering in Drake Passage

DECEMBER 7, 2010 BY JONBOWERMASTER 43 COMMENTS SHARE

The Antarctic tourist ship *Clelia II* is making slow headway north of the Shetland Islands, having yesterday lost power and communications in the midst of 30-foot seas in the notorious Drake Passage.



"Clelia II" In Trouble off Tip of Antarctic Peninsula, Photo Copyright Stewart/McIntosh

None of the 88 passengers on board, all from the United States, are reported injured; one of the 77 crew members apparently suffered minor injuries.

The ship was slowed in heavy seas after reported thirty to forty foot seas broke windows in its bridge, taking out its communications equipment. It left the Antarctic Peninsula 24 hours ago, headed for a two-day return to port in Ushuaia, Argentina. The ship's captain reported that in the 159 trips he'd made to the Peninsula he'd "never seen such weather."



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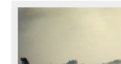
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Stricken Antarctic ship evacuated

More than 150 passengers and crew have been rescued from a stricken tourist ship after it hit ice off Antarctica.

The M/S Explorer is now lying on its side close to the South Shetland Islands, in the Antarctic Ocean.

Gap Adventures, which owns the ship, said 91 passengers, nine guides and 54 crew members were safely evacuated to lifeboats and then to another ship.

After staying the night at a base on a Chilean island, they are expected to fly to Chile's mainland on Saturday.

Gap Adventures said 23 Britons, 17 Dutch, 10 Australians, 13 Americans and 10 Canadians were among the 154 on board.

VIDEO AND AUDIO NEWS
The captain of the vessel talks about the rescue
Watch

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Sea Shepherd Returns for a Fourth Season of *Whale Wars* to Put an End to Antarctic Whaling

In the United States, Animal Planet's Emmy Award-nominated docu-reality series *Whale Wars* returns for a fourth captivating season beginning **Friday, June 3, at 9 PM E/P** with 10 exhilarating episodes documenting Sea Shepherd Conservation Society's dramatic whale defense campaign on the Antarctic high seas.

Sea Shepherd's interventions continue to enthrall audiences who have witnessed the cat-and-mouse game at the far end of the globe between the conservationists and the illegal whalers. For seven whaling season, Captain Paul Watson and his dedicated international crew of volunteers have taken to the high seas in attempt to stop the Japanese ships from illegally killing whales in the Southern Ocean Whale Sanctuary, and this time there is no compromise – the bloodshed must stop once and for all.



The adrenaline-pumping new season features Captain Watson and several of his right-hand crewmembers including captain of the *Bob Barker* Alex Cornelissen and captain of the fast, new

**Join the fight
Donate Now!**



Sea Shepherd Store

**Get Your
Gear**

Watch *Whale Wars*

USA Season 4 Premiere:

• Friday, June 3rd, 9pm ET/PT

New to *Whale Wars*?

Miss the first seasons?
Buy the DVDs here



Pre-Cruise Organization and Logistics

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Risk Register:

Risk Identification						Risk Analysis						Response Planning				Risk Monitoring and Control				Action			
Risk #	Risk Category	Trigger Point	Potential Outcome	Revised By**	Date Revis	Source	Impact	Prob-ability	Metri-c	Qualitative Impact	Financial Impact	Scheduling Impact	Risk Strate	Response Measure/Plan	Owner	Trigger Date	Metri-c	Item	Owner	Target	Status	Comments	Due Date
1.1.1	Safety - Vessel	Vessel encounter brackish	Longer transit time, unable to enter area	VC	03/01/12	Other	0.2	0.7	0.14	Would need to develop or alter course if possible, potential risk in encounter	N/A	Low (1-6 days)	Accept	We will discuss the scenario with ABS and other experienced engineers, will develop an Ice Encounter Plan that will describe a suggested course of action, part the plan in the handbook	VOICE		Plan and any alteration to the vessel will be made prior to the ship's departure at the end of the year	Develop Ice Navigation Plan for vessel	IA/VC	*****	Planning	12/20/12: T	Internally c
1.1.2	Safety - Vessel	Vessel encounter significant ice	Vessel unable to continue on present course	VC	03/01/12	Other	0.4	0.3	0.12	The vessel would be prevented from entering an area, could affect transit time and science operations	N/A	Med, (7-14 days)	Accept	This scenario and others like it will be part of an Ice Encounter Plan and the response to the encounter will be documented and clearly understood by the vessel	VOIMS		Plan is being developed to address issues associated with ice encounters, will rubricize to satellite ice imagery report	Develop Ice Navigation Plan for vessel	IA/VC	*****	Planning	12/20/12: T	Internally c
1.1.3	Safety - Vessel	Failure in critical mechanical system on vessel	Cancellation of cruise, significant delay to science operations	CE/VC	05/21/12	Status Meeting	0.4	0.3	0.12	Science operations	Med., (\$10,000 - \$50,000)	Cancel	Mitigate	Insurance, science teams and associated ship's critical systems have or will be evaluated by outside technicians before sailing, list of spare parts has been generated and in the process of being acquired, extensive preventative maintenance	CE		Accumulation of spare parts is ongoing, numerous new systems have been installed and will be well tested before departure	Develop and acquire a complete list of manufacturer recommended spare parts for all critical systems	CE	*****	Planning	11/23/12: P	contacted a
1.1.4	Safety - Vessel	Docking at Palmer Station	Unable to afford heavier gear, prolonged re-positioning effort, damage to vessel	VO/CE/SHIP/SHS	07/31/12	Status Meeting	0.2	0.5	0.10	Delay in schedule, possible damage to vessel	N/A	Med, (7-14 days)	Mitigate	Review detailed plan of existing pier, discuss docking issues with ECO Captain, review pier status with home manager prior to arrival, pre-arrival meeting with scientists and dockmaster	VC		Continue to monitor changes to pier status during bi-weekly meetings with Project Team, develop site-specific docking plan	Develop Palmer Station Docking Plan for vessel	VC	*****	Planning	12/20/12: T	Developed, c
1.1.5	Safety - Vessel	Significant weather or ice conditions while docked at Palmer Station	Damage to vessel, delay in science operations	VO/CE/SHIP/SHS	07/31/12	Status Meeting	0.2	0.7	0.14	Delay in schedule, possible damage to vessel	N/A	Med, (7-14 days)	Mitigate	Close monitoring of changing weather conditions, develop weather criteria for safe departure from pier	VC		Ensure adequate mooring lines available to double-up if necessary, review condition of all lines, maintain adequate watch to ensure rapid donning and removal	Develop weather criteria for determining when to leave pier	VO/IA	*****	Planning	12/20/12: T	determine p
1.1.6	Safety - Vessel	Development of structural icing on vessel	Vessel could become unstable	VO/CE/MS	08/13/12	Status Meeting	0.4	0.1	0.04	Reduced speed, potential for crew injury, damage to vessel	Low, (\$1000 - \$10,000)	Low (1-6 days)	Mitigate	Review impact of icing with naval architect's who developed stability book for vessel, confirm accuracy of stability program and ability to simulate icing program if needed, acquire adequate de-icing equipment and supplies	VC		Review weather conditions regularly while deployed, have de-icing equipment on board, evaluate any external piping for possible freezing	Discuss options with Glendon and Associates for stability program update and icing evaluation on vessel; develop list of de-icing	IA	*****	Planning	11/05/12: G	icing evaluat
1.1.7	Safety - Vessel	Unintentional impact with discrete floating ice	Damage to vessel, injuries or loss of life, abandonment	VO/MS/PS	*****	Project Sponsor	0.8	0.3	0.24	Cancellation of all science operations, need for advanced medical treatment or evacuation, potential abandonment	Severe, (>\$50,000)	Sev, (15-21 days) if Cancellation	Mitigate	Vessel has installed high resolution, low-light and heat tracing cameras to help identify floating ice, ship will sail with an extra AB while deployed on all bridge officers will have an additional lookout while transiting, structural integrity of hull will be evaluated by numerous independent surveyors, replacement of damage control locker with supplies and equipment specific to addressing a hull breach while deployed on the peninsula, water-tight bulkhead doors tested regularly with rams, mechanisms recently rebuilt, damage control isolation valves tested regularly with one replaced in	VO/CE		Testing of water-tight doors tested regularly, crew continue to familiarize themselves with low-light camera system, investigating damage control training for the crew being deployed to the peninsula, parts of briefing while deployed by Ice Advisor on current ice conditions in the operational area			*****	Planning	11/6/12: Co	personnel s
1.1.8	Safety - Vessel	Communication Failure	Lack of telemedicine support, reduced ability to receive weather forecasts, internet communication	VO/ST/SH/MS	05/21/12	Status Meeting	0.4	0.3	0.12	Delay for repair, cancellation of operations, reduced scientific capabilities	Low, (\$1,000 - \$10,000)	Sev, (15-21 days)	Mitigate	The vessel has installed the latest Ku-band antenna for Internet connectivity, there are two independent Fleet Broadband systems for Internet and voice communication, de-dispatched Infrared phone system that is tested daily during the ship's radio comm's with home office, complete GMDSS suite with two separate Sat C antennas for voice and limited data	VO/ST		Continued to test each of the installed system during scheduled re-arming cruise from vessel home port, interface with Palmer Station Base Manager for changes or upgrades to system, currently being used on station, interface with USAP network technicians currently deployed on ECO vessel, evaluate the need for			*****	Identified	12/16/12: Co	operations e
1.1.9	Safety - Vessel	Vessel grounding	Fuel spill, hull breach	CE/VO/MS/PS	09/11/12	Project Sponsor	0.8	0.1	0.08	Cancellation of all science activities, costly repair or salvage, environmental mitigation	Severe, (>\$50,000)	Cancel	Accept	Continue to test ship's portable de-watering manually. Evaluate and purchase an additional de-watering "trash" pump with adequate horsepower and capability. Ensure all water-tight doors continue to be tested regularly. Provide crew with damage control training. Ensure all equipment and instrumentation associated with the safe navigation of the vessel, is in good condition and within manufacturer specifications. Re-evaluate damage control locker inventory and replacement equipment used to address a hull breach. Confirm	MS/VO/PS		Continue to discuss options for addressing a grounding with insurance underwriters. Evaluate other grounding that have occurred on the Palmer Peninsula and the responses. Review options for salvage with insurance underwriters, discuss lessons learned from other grounding (R/V Western Flyer in Mexico, response effort of M/V Bahia near Palmer Station). Discuss grounding response planning for ECO vessel NBP and LMG.	Evaluate and purchase additional portable pump and barge that could be used to help de-water the vessel. Develop Navigation in Poorly Charted Area document	CE/VC	*****	Planning	The O/E is c	have the at
1.2.1	Safety - Crew	Serious medical injury to crew member during transit	Delay to schedule, loss of key personnel	MS/VC	03/01/12	Status Meeting	0.2	0.3	0.06	Would require additional crew, delay arrival at Palmer Station, morale	Low, (\$1,000 - \$10,000)	Med, (7-14 days)	Mitigate	The ship's medical inventory is currently being evaluated against inventory currently being carried on the LMG and NBP. The medical inventory is also being evaluated against MAS's off-shore medical bag inventory and will be supplemented to support extended care	VO/MS		Maintain high level of vessel safety while at sea, conduct regular drills, comply with all medical pre-qualification procedures	Review ship's medical locker inventory and acquire additional medication as required	VC	*****	Planning	11/16/12: M	all addition

Formalized Internal Documents Developed:

- Sea Ice Navigation Plan
- Navigation in Poorly Charted Waters Plan
- Deck Safety Plan
- Small Boat Use Plan
- Boot Washing Plan
- Palmer Station Docking Plan
- Ship to Ship Fueling Plan

Pre-Cruise Organization and Logistics

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The Crewing Matrix....

	<u>Antarctic Crewing Schedule, 2012/2013</u>							
	Transit	<i>Port call:</i>	Antarctica	Antarctica	<i>Port call:</i>	Transit	<i>Port call:</i>	Regional Ops
	M1	Punta Arenas	M2	M3	Punta Arenas	M4	Mazatlan	M4+1
	December		January	February		March		April/May
Captain	Rick		Rick	Rick		Diego		Rick
Chief Mate	Matt Davis		Diego	Diego		Matt Davis		Matt Davis
2nd Mate	Leah		Leah	Leah		Amy Biddle		Matt S.
Chief Engineer	Peters		Barrett	Barrett		Barrett		Peters
Assist. Engineer	Jack		Jack	Jack		Kim Gardner		Jack
AB	Angelica		Scott	Scott		Scott		Dutch
AB	Dutch		Alex	Alex		Dutch		Alex
"extra" AB			Amy	Amy				
Cook	India		Tara	Tara		Steve Lamb		Tara
Marine Tech	Rob Hagg		Stian	Stian		Tina/Robb		Stian

Hired within 6 months of departure:

- Captain
- Chief Mate
- Second Mate
- Senior Technician
- AB

Relief Crew:

- Hire
- Evaluate
- Train
- Hope...

* Previous year (2011) saw the lowest number of days on POINT SUR schedule.

Pre-Cruise Organization and Logistics

Equipment added:

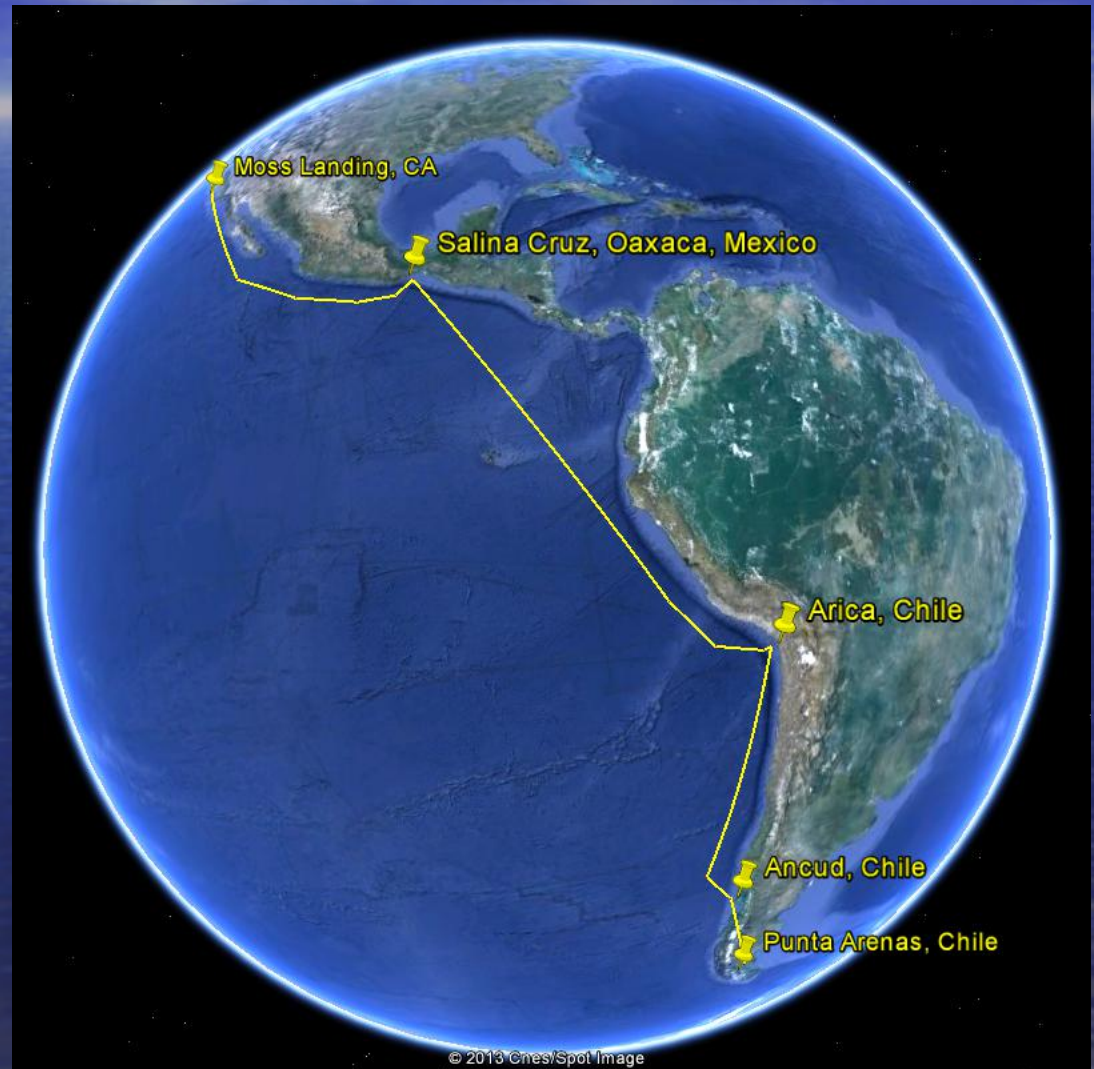
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POINT SUR's Transit South

- Departs Nov. 28th 2012
- 31,000 Nautical Miles
- 38 Days Transit
- 31,000 Gallons Fuel used (approx.)
- Two re-fueling stops
- 1 Christmas tree



POINT SUR arrives in Punta Arenas, Chile



Typical Drake Passage Crossing:



The POINT SUR crossing.....



Crossing time: 4 days from Punta Arenas, Chile to Palmer Station

POINT SUR arrives in Antarctica!



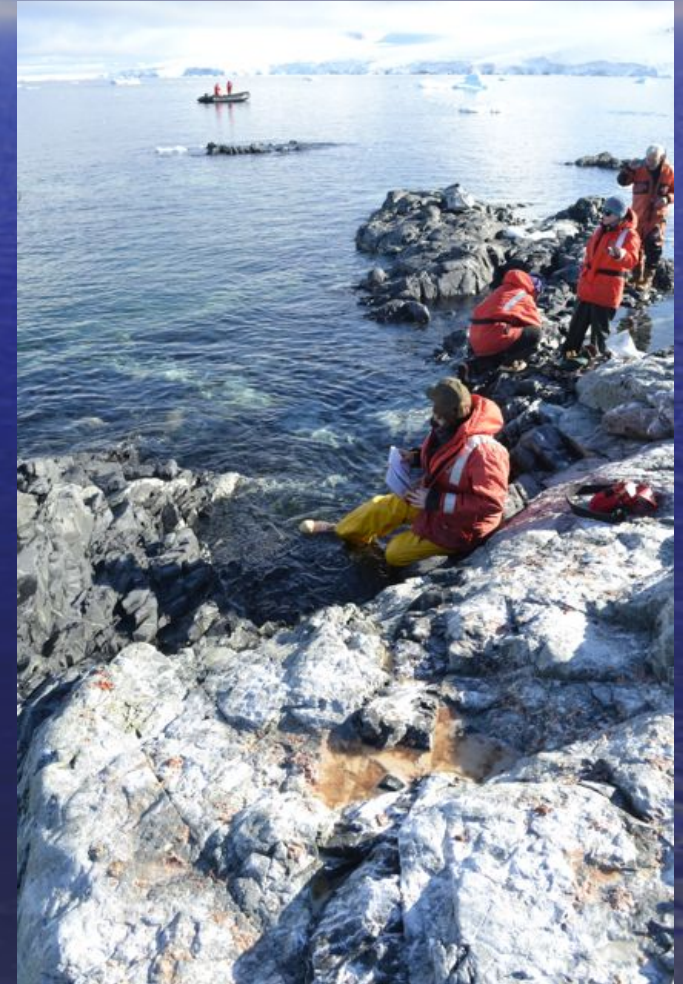
Science Operations on the Antarctic Peninsula

Research Disciplines Supported by the POINT SUR:

- Geology
- Marine Mammals
- Krill and Zooplankton
- Physical Oceanography
- Penguins
- Sub-Tidal

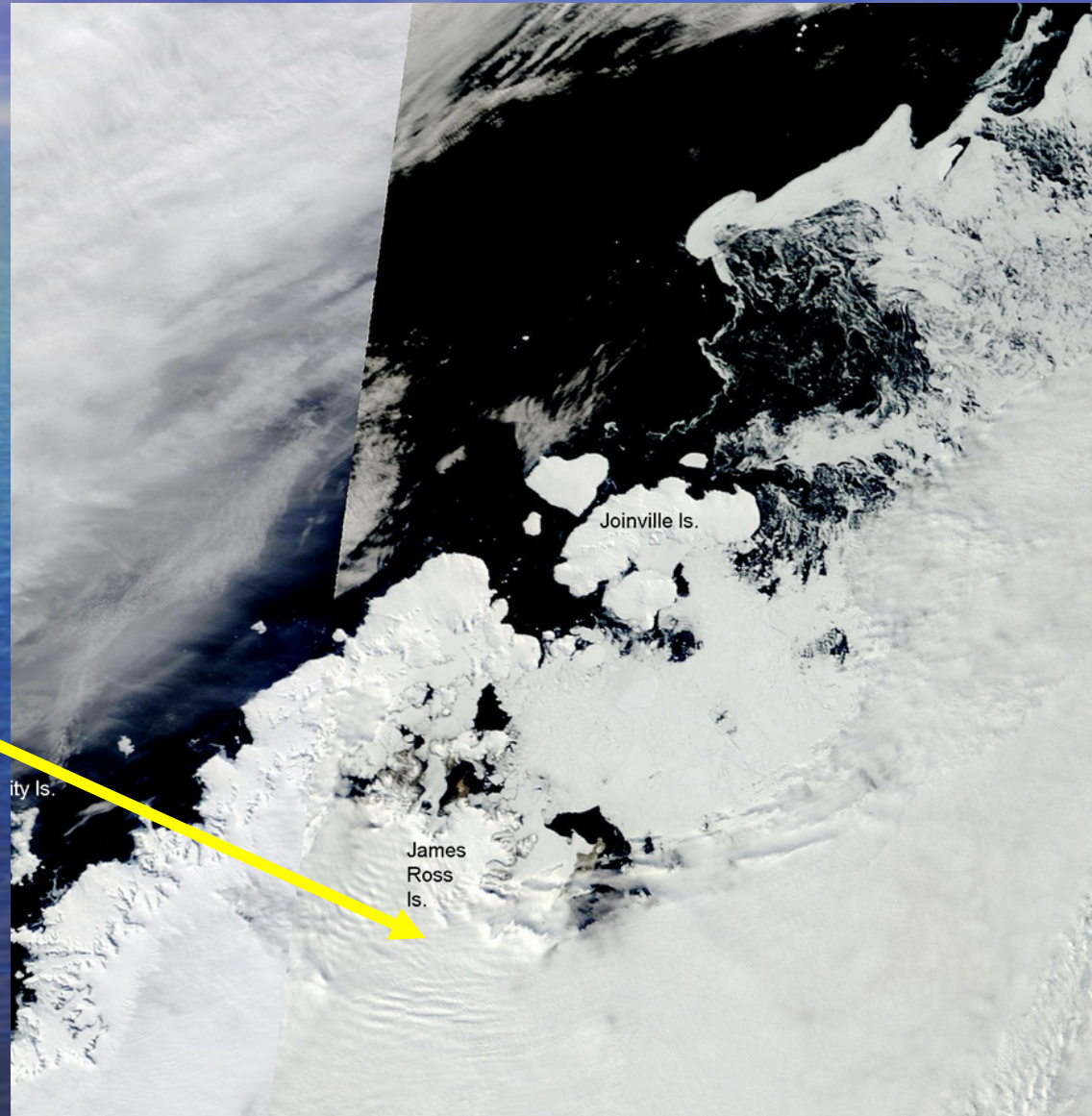
Barbeau Team

University of South Carolina



Sea Ice imagery

Proposed
Field Camp



Friedlaender Team, Duke University



photo by Ari Friedlaender, Australian Antarctic Division Permit # C12-0006



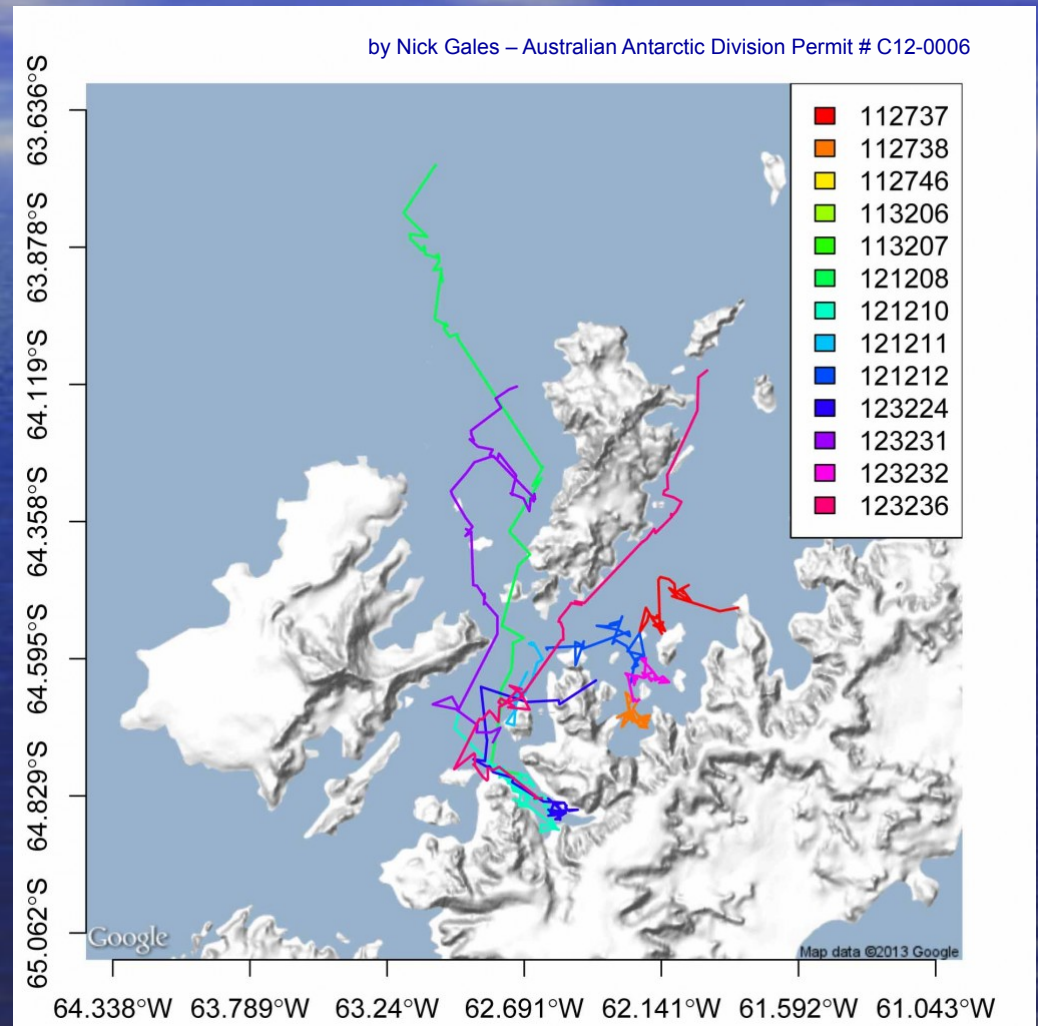
photo by Tara Pastuszek



photo by Ari Friedlaender, Australian Antarctic Division Permit # C12-0006

Friedlaender Team (cont.)

- Tagged over 50 whales
- Minke, Humpback, Orca
- First confirmed Minke tagged
- First confirmed male Orca tagged





photos by Ari Friedlaender, Australian Antarctic Division Permit # C12-0006

Leopard Seal Lunch...



Antarctic Peninsula LTER Group



Photos by TPastuszek

Antarctic Peninsula LTER Group



Amsler Dive Team University of Alabama



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Long Stemmed Seaweeds, Magnificent Cliffs, with Memories of Old Heroes

Written by Chuck Amsler

I suppose that anyone who has once been with a hero would always want to be with one again. From 1968 until 1984, Palmer Station and US Antarctic research on the Antarctic Peninsula was supported by a beautiful 125 ft. in length, wooden research vessel called the *Hero*. Maggie sailed on the *Hero* during her first two seasons at Palmer in the early 80s and I was at the ship's decommissioning ceremony in California in 1984. You can see more about the *Hero* at [the Hero page on PalmerStation.com](#).

The *Hero* was replaced by the *Polar Duke*, which I sailed on my first season here in 1985-86 and then by the *Laurence M. Gould* which just transported our group down to Palmer. Both were and are much more capable oceanographic vessels, but for some things like diving, whale research, field camp support, and similar "low tech" missions, a smaller vessel like the *Hero* was equally as good. In fact for getting close to shore, the 14 ft. draft (how deep the hull extends below the surface) of the *Hero* was even better. So lots of us in the US Antarctic science community have been hoping that there would be enough demand to justify another vessel of that size for Antarctic science.



Enter the *Point Sur*, which is a member of the National Science Foundation's (NSF) main (everywhere-but-Antarctica) research vessel fleet. The *Pt. Sur* is based out of Moss Landing Marine Lab in California and is very similar to the *Hero* in size, being 135 ft. in length and having a draft of only 9 ft. This year NSF decided to have the *Pt. Sur* come to the Peninsula as a test. The groups working here were able to submit requests with justification to use her during this test year, and our group was fortunate to be selected.

In our normal work from Palmer Station, we do our diving from rubber Zodiac boats that we launch from the station. The maximum distance we can safely go from the station is a bit over two miles. That gives us access to lots of small islands that are wonderful places to collect and do experiments, but we are always in the market for an opportunity to compare what we find

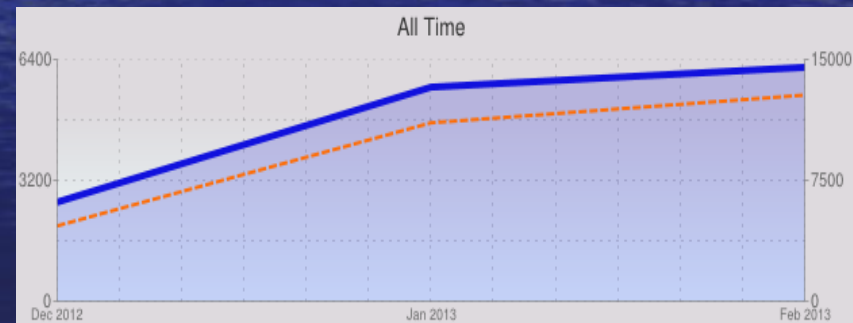
Outreach and Education

Public Interactions:

- Daisy Ingraham Elementary School (Westbrook, CT)
- Leesburg Elementary School (Leesburg, FL)
- Toro Park Elementary School (Salinas, CA)
- Numerous other science specific blogs


POINT SUR blog stats:

- Over 14,000 hits since the ship departed
- Over 29,000 page views



Point Sur Tracking and BLOG

<http://www.mlml.calstate.edu/>

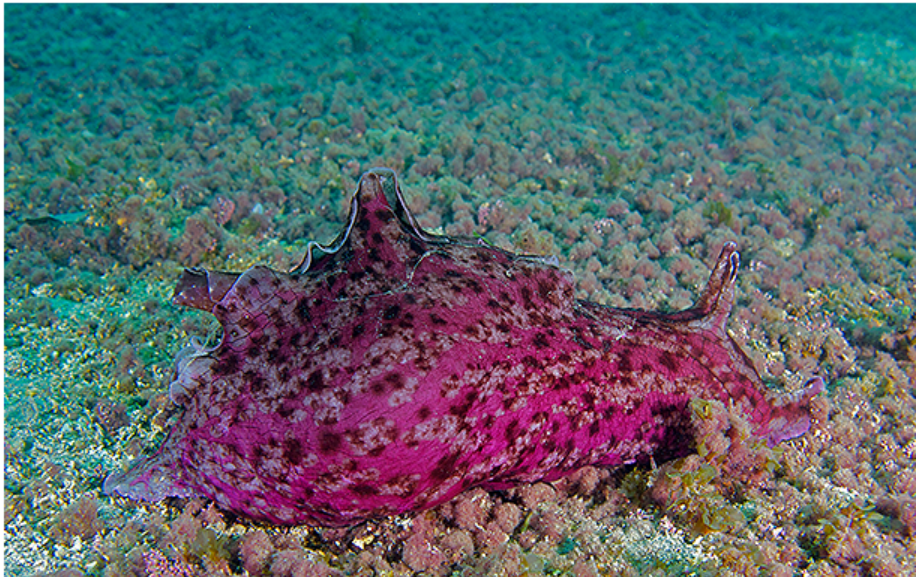


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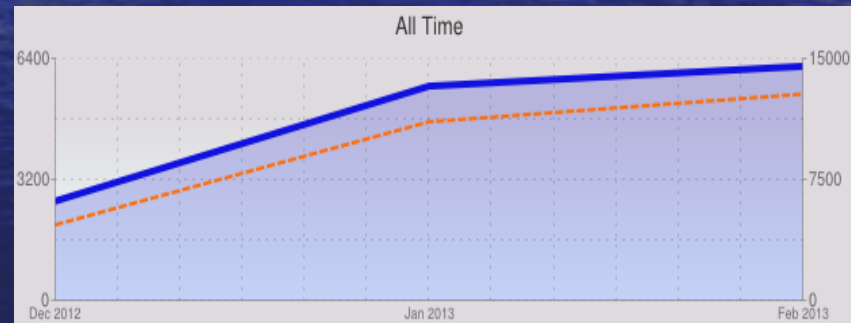
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- Marine Chef, Tara Pastuszek

Not without challenges....



Fueling while at Palmer Station

Two refueling
operations:

2,000 gallons

5,000 gallons



Weather is always a factor...



Other Factors

Environmental



Ice



Who we are and where we came from....



A wide-angle photograph of a calm ocean under a vast blue sky. A faint rainbow is visible on the horizon to the left, its colors reflecting on the water's surface. The text "In Summary" is centered in the middle of the image.

In Summary

Benefits of using a Regional-Class vessel on the Antarctic Peninsula and beyond

- Lower cost
- “Unique” project specific science opportunity
- Operate in shallower waters
- Available throughout the Eastern Pacific



The crew of the POINT SUR



