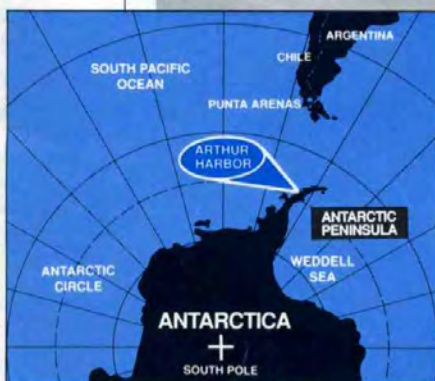


# The Antarctic Century

NUMBER 3

APRIL 1989



Bahia Paraiso on the rocks in Arthur Harbor

© Jody Boyman, 1989

## Antarctica, The Impact of a Tragedy

The story of the recent oil spill at Arthur Harbor continues to unfold, although with the onset of the Antarctic winter, press coverage has ceased almost completely. The grounding of the **Bahia Paraiso** likely represents the continent's worst-ever, biological and environmental disaster — and raises a number of questions that need to be considered seriously.

Few people expected the perils of modern times to reach Antarctica's pristine shores so shockingly. With the entire Arthur Harbor ecosystem at risk, it is easy to suggest, paraphrasing Yeats, that "all has changed, changed utterly." The spill's tragic consequences cannot be doubted or ignored. Yet, this particular accident offers unexpected chances to explore some pertinent issues rather quickly and vigorously, as the Antarctic Treaty countries actually respond to unfolding events. Not to do so might be a missed opportunity — and an even greater misfortune.

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The spill also has serious implications for the ratification of the new Antarctic Minerals regime and the Consultative Parties' treatment of the issue of vessel safety, and some fairly immediate effects on Antarctic shipboard tourism.

### Special Thanks to:

The Tinker Foundation, whose generous support has made publication of this Newsletter possible.

## On A Clear Day in Arthur Harbor

### The Setting

In late January, as reported in **The Antarctic Century Newsletter, No. 2**, the Argentine supply vessel and tourist ship, **Bahia Paraiso** ("Paradise Bay") hit submerged rocks while leaving Arthur Harbor on the south side of Anvers Island in the Antarctic Peninsula. The accident occurred within two miles of the United States' Palmer Research Station, and close to Torgersen Island, a beautiful little island with a large Adelie Penguin colony (9-12,000 breeding pairs). The area also is home to numerous Blue-eyed Shags, Kelp Gulls, South Polar and Brown Skuas, Weddell and Elephant Seals (and occasional Leopard Seals), and Wilson's Storm-Petrels.

Picture a beautiful, blue-sky, calm, Antarctic summer day: the local skuas — those fierce, predator-eagles of The Ice — are waking up and beginning their aerial chases; Torgersen's Adelies continue their chick-rearing, the chicks getting so large that fledging is just a matter of days, not weeks, away; scientists tend to the krill tanks and other experiments, including an effort to test the effect of a depleted ozone layer on the microbiology of southern ocean waters.

The station's "tourist liaison" officer also is busy: he's expected to be visited by three tourist ships during the day. Whereas last season, visits to Palmer by these cruise ships was severely limited, the restrictions were removed as long as the vessels didn't interfere with the station's scientific work, and gave the Treaty's recommended 24-72 hours' notice. Thus far, the more open policy has avoided last year's complaints by American passengers that they didn't have a chance to see their tax dollars at work.

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*Adelie Penguins at Torgersen Island*

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By mid-morning, the first batch of tourists arrives, coming-in from the Argentine supply ship/tour vessel **Bahia Paraiso**, laden with fuel and supplies and bound for the various Argentine scientific stations in the area. For years, **Bahia** has carried passengers to help finance these expensive supply operations. More than 300 people are on board this day, of which 60 or so are *bona fide* tourists. Indeed, the many American tourists are quite insistent on visiting Palmer, even though the crew is rather more concerned about delivering the supplies they have so painstakingly brought across the Drake Passage. But, they will indulge; after all, the passengers are partly financing their mission.

A few miles away, the tour ship **Society Explorer** steams her way toward Palmer, expecting to visit the Torgersen Adelines initially, before going to the station. The **Society Explorer**, of Bahamian registry, is staffed by a U.S.-based company essentially owned by West German interests, carries about 110 passengers, leaders, and lecturers, predominantly Americans, with West German officers and a European and Asian crew of about 60.

A bit further away and "around the corner" at Port Lockroy, a third tour ship, the **Illyria**, is off-loading passengers for a visit to the local Gentoo Penguin and Blue-eyed Shag colonies. **Illyria** will make an even later visit that day to Palmer. **Illyria**, staffed and chartered by a U.S.-based company, carries about 125 passengers, leaders, and lecturers, again mostly Americans, with Greek officers, crew, and registry.

While the **Bahia's** passengers make their rounds about and through the station on this beautiful, blue-sky day, savoring the krill tanks, chatting with on-site scientists, buying souvenirs, and partaking of coffee and cookies in the station mess, Palmer's liaison officer tends to a rather ominous matter. Contacting the **Bahia**, he advises that the ship came to anchor through a very dangerous channel that

should have been avoided. The problem, noted on the navigational charts, is unsurveyed, underwater "rocks and pinnacles." His serious concern seems to be noted and understood.

### **The Accident**

As the visit ends and the passengers return to the **Bahia** for lunch, the anchor is weighed, the ship turns to course, and off she goes — very unfortunately, right back through the same dangerous channel and, even worse, at full speed. The howling, grinding noise is palpable and very frightening. Many surrounding the lunch tables want to know why the waiters are streaming out of the dining hall, and few of the tourists understand the strident Spanish flowing forth from the loud-speakers. Fortunately, impatience turns to worried gazes out the portholes, and the imminent danger becomes readily apparent. The **Bahia** has hit rocks, full bore, producing a 30-foot gash, is sinking, and is spewing lots of diesel fuel. (More descriptively, the **Bahia** struck the "r" in the "rocks and pinnacles" noted on the chart for this channel.)

### **The Response**

Many rally quickly to the cause. Palmer personnel and the **Explorer** and the **Illyria** work feverishly to unload all passengers and crew safely and quickly from the damaged ship, and to provide some basic human comfort. Palmer Station quickly becomes a refugee camp. Food starts running short, but soon the grateful passengers and crew are on their way home, transferred by the tour ships to the Chilean Station, Teniente Marsh, to be flown out. The "Antarctic Spirit" prevails once again. All human lives are saved, but the outlook for Arthur Harbor's marine life seems much less hopeful.

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**Anvers Island Panorama**

© Ron Naveen, 1989



*Romping Adelie Penguins*

© Ron Naveen, 1989

Within a week, the **Bahia** shifts position and comes to rest with its stern protruding slightly. The risk: a total spillage of **Bahia's** 250,000 gallons of diesel, and of untold amounts of other contaminants like aviation fuel and bottled gas.

Dead krill begin washing ashore soon after the accident. Oil soon reaches most shorelines in the vicinity. Adelies returning to Torgersen drip oil and tramp it into their guano-covered walkways and nest sites, skuas began cannibalizing chicks (not necessarily their own), and seals begin appearing lethargic and ill. The Adelie chicks — getting ready to fledge and go to sea — obviously are unaware that their watery surroundings are laden with lethal contaminants. Also facing mortality are long-standing projects and studies of Palmer's biologists.

In concert with the Argentines, the Chileans and other U.S. agencies, the U.S. National Science Foundation (NSF), which operates the Palmer facility, begins an effort to try containing the slick. Fifty tons of oil containment equipment are shipped south, and various damage assessment experts pack bags for the same journey. Argentine and Chilean vessels race to Arthur Harbor, bringing equipment that might refloat the **Bahia** or drain its remaining fuel, and also helicopters to extract dislodged fuel barrels that, now, are floating aimlessly in the vicinity. Frogmen will try to seal the **Bahia's** hold.

The weather proves formidable. High winds and ice-laden seas cause some delay in the equipment's arrival (it takes 10 days to two weeks) and, unfortunately, the winds and the ebb and flow of the tides produce further contractions and expansions of the slick.

Efforts to contain, siphon, and control the slick and to limit the damage continue for all of February and into April. The early assessment is: extensive damage to the rocky intertidal zone, with algae, limpets, and other invertebrates taking a beating, and some clearly detrimental impacts on Arthur Harbor's more obvious denizens like penguins, seabirds, and seals. Whether the damage is long-term, and

whether or not the stocks can recover — and when — are still open matters.

Worse, there is no guarantee that the ship can be fully secured. Indeed, she still is being battered about by the winds and seas, creating new holes and leaks, and it's unclear whether and how she will be removed from her difficult perch. Some hope that she breaks-up and sinks before the onset of spring. Dynamiting is another suggestion. Others advocate cutting her up and dumping her remains farther at sea.

## The Issues Raised by the Tragedy

### Clean-up

One of the last tourists, standing on Torgersen, asks some rather timely questions: Where is the Coast Guard and the booms? Who's in charge? Who's responsible? Who pays? Is there containment equipment on-site?

The answers, of course, are that there is no local police force or Coast Guard, no on-site equipment, and no one, particularly, is in charge. Payment presumably goes with responsibility, but there are no written rules. This is The Ice, where the only prevailing commodity is the "Antarctic Spirit," the community of effort that always has typified operations in the deep south. That the U.S., Argentina, and Chile move as best they can to try and minimize the spill's damage is hopeful. Now comes the hard part: What to do the next time?

One suggestion is that the various stations should keep booms and other clean-up equipment on-site in anticipation of the next disaster. The expense is such that the suggestion likely will die young, although the thought of maintaining this materiel at a centralized location, within relatively easy reach of a number of stations, makes some sense. In this vein, and given the concentration of so many research stations (and ships supplying them) in the Peninsula area, one possibly suitable location would be at the Chilean Teniente Marsh Station,

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*Adult with soon-to-fledge chick*

© Ron Naveen, 1989



# The Antarctic Century BOARD

## Editorial From Ron Naveen

April, 1989

### KEEPING THE ANTARCTIC SPIRIT ALIVE

If winter is for reflection, then this one in the Antarctic is especially poignant.

Parsing through the news, there must be some truths, some experience to be gained, some indication of what's lurking ahead. It is human nature to look for bright spots on the horizon, rather than dregs and offal at our feet. But, no matter how high we gaze — literally or in our dreams — into that beautiful Antarctic sky, we can't erase the oil stains that will tar our vision next spring. The scourges of the other 90% of the world finally reached Antarctica. No doubt, the williwaws — the strong winds — of change are starting to blow.

For more than 75 years after Amundsen's and Scott's heroic ventures to the South Pole, we've had virtually free access to The Ice — as scientists, tour companies, expedition leaders and lecturers, diplomats, and interested citizens. Now, with outrage and concern building over this season's **Bahia Paraiso** accident and the grounding of the Peruvian **Humboldt** in Marian Cove (see **TAC Board**, this issue), there are portents that, soon, our footsteps will be watched more closely.

I have an ominous feeling reading the new enforcement procedures that the U.S. National Science Foundation (NSF) promulgated in February. No one knows how vigorously the U.S. intends to use these procedures and, because of the intricacies of ship and tour company ownership and the presumed freedom to travel on the high seas, there are many legal questions about who may be a "U.S. citizen" for these purposes. Nevertheless, the new rules seem to allow any "complainant" to file papers and initiate enforcement proceedings — very easily. The stark reality is that each violation of the U.S. Antarctic Conservation Act and its accompanying regulations potentially carries a maximum penalty of \$10,000 and a one-year jail term.

Some who clamor for restricting access to "protect" the continent think that this might be the right "club" to use. But, if the U.S. utilizes these procedures, vigorously and often, will other nations be tempted to do the same? Is this what is needed to maintain Antarctica as Earth's last relatively pristine ecosystem? My view is that this scenario is a bit too Kafka-esque. In fact, I think that if this route becomes Antarctica's last chance for survival, then the continent will have been lost.

That's because I am hooked on that good old Antarctic Spirit — cooperation that has prevailed for the whole of this century, most recently evidenced by the multinational effort to save the **Bahia**'s passengers, and to try containing the spill and saving Arthur Harbor's wildlife. Sure, it's a bit naive to think that 38 countries, their citizens, and an ark full of tourists, expeditioners, environmentalists, and assorted other hangers-on can survive congenially, but the system's worked pretty well up until now on this basis, and may continue to do so in the years ahead.

I'm not enough of a philosopher or historian to know whether this summer's environmental insults indicate a new age when these gross episodes potentially become a more regular occurrence on The Ice. The **Bahia** accident, for sure, can't be condoned, but it highlights some serious issues that the Treaty countries need to address in October at the Paris Consultative Parties' Meeting. It's an opportunity that shouldn't be lost.

The Treaty has survived this long because the parties have managed to keep the system slightly ahead of the curve, and always on a course that was evolving positively. Before the guns start blazing and Antarctica becomes a new playground for lawyers, judges, and enforcement hearings, let's encourage our delegations to bring home some workable recommendations that address our serious concerns about vessel safety, tourism, and wise, environmentally sound use of the continent.

Ron Naveen

## • Enforcement Procedures.

On February 16, 1989 (54 **Federal Register** 7132-7139) the U.S. National Science Foundation (NSF) adopted new **enforcement procedures** in conjunction with its administration of the U.S. Antarctic Conservation Act and its accompanying regulations. These are the laws and regulations by which the U.S. carries forth and administers the provisions of the Antarctic Treaty and Recommendations adopted by the Treaty's "voting members." The new rules appear to allow "complainants" (broadly defined to include virtually any person) to file papers that start the enforcement process. Copies of the new rules may be obtained by writing to: the General Counsel, National Science Foundation, 1800 G St., NW, Washington, DC 20550 (USA).

## • Sites of Special Scientific Interest.

Also, NSF has proposed regulations to implement additional **Sites of Special Scientific Interest** (SSSIs) designated at the last Consultative Parties' Meeting in 1987. SSSIs are special areas that are set aside because scientific work is planned and there is a risk of interference that would jeopardize the work. Generally, they are totally off-limits to visitors; permits allowing entry only may be obtained if consistent with the management plans established for each SSSI. The other kinds of restricted locations under the Treaty are called **Specially Protected Areas** (SPAs); permits allowing entry to SPAs must show a compelling scientific purpose that can't be served elsewhere, and the entry must not jeopardize an SPA's natural ecology.

## • Paris Meeting.

There will be preparatory meetings in May for this October's biennial, Antarctic Treaty Consultative Parties' Meeting in Paris. Among the issues to be considered are: a Treaty Secretariat; new protected area designations; the application of marine pollution restrictions to the Antarctic; and, undoubtedly, vessel safety and tourism.

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## • **Tourism Guidelines.**

The *ad hoc* tourism guidelines being developed by a group of internationally based expedition leaders (see **TAC Board, The Antarctic Century Newsletter**, No. 1) will be formally announced in the next issue of the **Newsletter**. Participating in this multinational effort are Ron Naveen (U.S.), Tui De Roy (Galapagos/Ecuador), Mark Jones (Galapagos/Ecuador), and Colin Monteath (New Zealand).

## • **Second Ship Accident.**

A second ship accident occurred in February in Marian Cove, between Maxwell Bay and Potter Cove on the south side of King George Island, in the Antarctic Peninsula. The Peruvian scientific vessel, **Humboldt**, grounded during a severe storm, necessitating the temporary rescue of her men by the British **HMS Endurance**, which was in the area and could render assistance. The ship was refloated by off-loading fuel onto the Chilean vessel, **Yelcho**, after which the **Humboldt** was freed, and headed home — as far as we know, safely.

## • **HMS Endurance.**

We were pleased to host Captain Tom Sunter of **HMS Endurance** (our interview subject in the last **Newsletter**) and a number of his senior officers during their visit to Washington, DC in April. Captain Sunter's visit occurred while **Endurance** made a week's port call in Savannah, Georgia, on her homeward leg. Captain Sunter was able to bring us up-to-speed on the ship's activities during its last three work periods (subsequent to Ron Naveen's and Frank Todd's working with **Endurance** at South Georgia). The ship successfully concluded most of its season's work, but it wasn't easy. At one point, she endured a nasty encounter with Weddell Sea ice, causing some damage that, fortunately, was repaired rather quickly and efficiently. Then, there was the incident involving the Peruvian **Humboldt**. **Endurance's** efforts insured the survival of all 64 people on board. A major accomplishment was some charting and sounding near Adelaide Island, in locations last visited more than 30 years ago.

## AT A GLANCE Roald Amundsen

Like others who preceded him, and many more to follow, the great Norwegian Antarctic explorer Roald Amundsen was awed by The Ice. Humbled. Sensitized.

*We human beings have intruded in this fairy tale landscape to wrest its secrets from it; those secrets which have been hidden for millenia.*

Indeed, Amundsen lived his own fairy tale, a successful, 57-day rush to the South Pole with four mates and 18 dogs, culminating on December 14, 1911. He made the wise choice of choosing the ice shelf at the Bay of Whales as his starting point, lopping almost 90 miles from the route that Commander Scott would be using. A few years previously, Ernest Shackleton had considered this jumping-off location, but declined, fearing the collapse of the ice into the Ross Sea. As a result, Shackleton had to abort his venture at 88° 23' S., and managed (as he always seemed to do) to bring his team back safely.

Amundsen examined the diaries of earlier adventurers, and concluded that this section of the shelf had remained stable for years, and would likely remain so for a while longer. His gamble paid off.

The most emotional moment of the South Pole trip occurred when Amundsen actually passed Shackleton's 88° 23':

*I find it impossible to express the feelings that possessed me at this moment. ... 88°23' was past; we were further south than any human being had been. No other moment of the trip affected me like this. The tears forced their way to my eyes; by no effort of will could I keep them back... We all shook hands, with mutual congratulations; we had won our way far by holding together, and we would go farther yet — to the end.*

*We did not pass that spot without accounting our highest tribute of admiration to the man who — together with his gallant companions — had planted his country's flag so infinitely nearer to the goal than any of his precursors. Sir Ernest Shackleton's name will always be written in the annals of Antarctic exploration in letters of fire. Pluck and grit can work wonders, and I know of no better example of this than what that man has accomplished.*

Standing at the Pole, the emotions again overcame him:

*I had decided that we would all take part in the historic event; the act itself of planting the flag. It was not the privilege of one man, it was the privilege of all those who had risked their lives in the fight and stood together through thick and thin. It was the only way I could show my companions my gratitude here at this desolate and forlorn place... Five roughened, frostbitten fists it was that gripped the post, lifted the fluttering flag on high and planted it together as the very first at the Geographical South Pole.*

## • **Future Antarctic Tours "Down Under".**

With the November 1990 International Ornithological Conference in New Zealand as the impetus, a number of tour companies are planning to operate sub-Antarctic and

Antarctic trips from New Zealand and Australia during the 1990-1991 tourist season.

## • **60th Anniversary.**

The next issue of the **Newsletter** begins our celebration honoring **Larry Gould** and the 60th anniversary of his incredible sledge trip to the Queen Maud Mountains.

## Let's Hear From You.

The Antarctic Century Newsletter is being distributed to members of Congress, interested Congressional staffers, zoos, parks, and aquaria, scientists, educators, scientific institutions, and contributors to Oceanites. Please let us know if there are any other present or future Antarcticists whom we might have missed. Help us grow! Also, please keep us up-to-date on any news and information about Antarctica, and feel free to comment on the Newsletter and its contents. WE NEED TO HEAR FROM YOU!



*Antarctic Brown Skua*

© Ron Naveen, 1989

Maxwell Bay, King George Island, where there also is an airstrip that can accommodate C-130s and other large cargo planes.

## **Biological Impacts**

As to the precise biological consequences, the dwindling media coverage in late February shifted to a few exaggerations and understatements, all focusing on whether the area was biologically "dead" and the meaning of finding just a few penguin "bodies." Frankly, there were — and to date, are — no precise figures on how much oil was released or recovered, or how much diesel may have evaporated after its release. It will be a long time before we can assess the impacts.

Potentially, up to 44,000 Adelie Penguin chicks and adults went to sea through the slick, but no one knows how thoroughly the slick may have spread through the water column. Moreover, with the prevailing winds and currents at Arthur Harbor being offshore, the presence of just a few dead penguins means nothing. Oiled birds often sink; in this case, they may have been swept way offshore.

The key is to have scientists on-site next spring (September-November) to count the Adelies returning to Torgersen, as well as continuing the examination of other aspects of the ecosystem. To this end, and despite the onset of the Antarctic winter, NSF did send a team south to collect as much "baseline" data as possible. Arthur Harbor — like it or not — has become a real-life study of oil spill consequences in high latitudes.

## **Effects on Tourism**

The stakes for Antarctic shipboard tourism also are high. Because the **Bahia** was partly a tourist vessel, the spill adds ammunition to the argument that tourists potentially despoil The Ice. The spill's impact on this industry may be enormous.

First, there are some arguments that Antarctica should be off-limits to tourists and scientists or, at least, that tourism and science activities should be severely restricted. The questions, though, are: Who does the regulating? How is it accomplished? Do we need more

Recommendations from the Treaty countries, or can individual countries act alone? Given that the major Antarctic tour companies have U.S. offices and that most Antarctic travelers are Americans, the U.S. National Science Foundation might be pressured to utilize its new — and seemingly more rigorous — enforcement procedures (see **TAC Board**, this issue).

Regarding better supervision of tourists and other visitors, one suggestion favors the placement of "qualified" Treaty representatives on the tour ships and at other important sites, to insure that there is no interference to sensitive habitats or to Antarctic wildlife. A variation would be a form of the "Galapagos Model," whereby certain visitor areas and walking paths are officially designated, and to which tourists would be confined. Previous Treaty Consultative Party meetings have considered a multiple use designation allowing both science and tourism at certain sites, but no action has yet been taken.

Another argument favors the industry doing a bit of "self-regulation" to show that it is part of a solution, and not a problem in and of itself. A number of experienced Antarctic expedition leaders are independently developing a set of suggestions and guidelines that might assist this effort (see **TAC Board**, this issue).

## **The Minerals Debate**

Clearly, oil spills are a major concern of everyone examining the new Antarctic Minerals Treaty that is now open for signature. How will this regime provide for clean-up if a minerals, oil, or gas project actually creates an environmental hazard? Bad dreams already may be drifting on the surface of Arthur Harbor.

The guts of the new Treaty are environmental standards that would govern any future, Antarctic prospecting, exploration, and development. However, the parties have not yet agreed on the liability for damages caused by these activities, and the issue has been left for further negotiation. If the **Bahia** is a very painful preview of what oil exploration and development potentially might bring to The Ice, then the timetable for evaluating the liability and responsibility issues has moved forward rather dramatically. As a political matter, certainly in the U.S., the **Bahia** accident will heighten the effort to enact strong implementing legislation that insures that the new Treaty's environmental standards are met.

## **Vessel Safety**

It has been presumed that most Antarctic research ships, supply vessels, and tour ships act responsibly, and utilize safe vessels that are reinforced for working in The Ice. While the **Bahia** tragedy renews questions about vessel safety in the Antarctic, it also is obvious that this issue only goes a certain distance: competence cannot be legislated. The **Bahia**, apparently, had a reinforced hull, but in this incident that made little difference. However, a number of ships operating in the Antarctic lack even this basic protection.

One idea is that the Antarctic Treaty countries need to establish a mechanism to certify, register, and, perhaps, inspect vessels operating

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in The Ice. Again, there's a question of how to get the job done. Actually, the vessel safety issue may fit into expected discussions about a central Treaty Secretariat at this October's Consultative Parties' Meeting in Paris. At present, there is no unit that administers the various record and information-keeping aspects of the Treaty. If a Secretariat is established, it might be one way to keep track of vessel certifications, registrations, and inspections if they become a requirement under the Treaty.

A number of captains also have suggested that a system be started so that all Treaty countries may share up-to-date information about new soundings and routes, well before such information makes its way on to "official" charts and maps (which may take years).

As to the matter of ice ratings, and the suitability of ships to work the Antarctic, there is much complexity. The tour ships **Society**

**Explorer** and **World Discoverer** are considered ice-reinforced, meaning that they are capable of pushing ice, but not breaking ice. On the other hand, the tour ship **Illyria** is a single-hulled vessel that normally operates in much warmer climates. While some have argued that a non-reinforced vessel is inherently dangerous, **Illyria**, this past season, had on board as icemaster, Captain Pietr Lenie, who formerly commanded the U.S. Antarctic Research ship, **Hero**, and whose charts are considered the "best in the business." So, where do you draw the line?

There's little doubt that many captains, while in The Ice, readily share information — be they masters of government vessels or tour ships. The question, then, is how to make this newly discovered information available to all?

## The Future

Clearly, the **Bahia Paraiso** disaster adds vessel safety and tourism to the litany of Antarctic issues already on the threshold: the potential review of the basic Antarctic Treaty in 1991; the ratification and implementation of the new minerals, oil, and gas regime; and, the interest in applying newly applicable, international, anti-marine pollution requirements to Antarctic waters.

The downside of the **Bahia** accident is obvious — and the story still unfolds at Arthur Harbor. Let's hope that the scientific effort to evaluate and assess the impacts continues. If there's an upside, it's that we've gained some very practical experience in handling an unexpected clean-up crisis, which might stimulate some meaningful Recommendations at the upcoming Antarctic Treaty Meeting in Paris.



*Adelle Penguin*

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