

Are we prepared to deal with the unintended maritime crisis and emergency management consequences of eco-tourism?

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Abstract

The grounding of the coastal tanker *Jessica* and resulting oil spill off San Cristobal Island in the Galapagos Islands should be a warning that we are unprepared to deal with potential catastrophes resulting from the rapid growth of the expedition cruising and eco tourism industry. The tourist industry and the Ecuadorean government failed to create the crisis and emergency management infrastructure required to deal with a threat to the environment resulting from the increased presence of ecologically minded tourists. The Galapagos is but one example of a location where the maritime risk created by the eco tourism industry has not been addressed by the international community or by host nations. In many areas the ability to minimize the consequences of an accident is minimal or non existent. For example the tourism industry attracts adventurous tourists to cruise the water of Antarctica, the Arctic, the coast of Alaska, and the coast of Patagonia. This paper examines international conventions in force, industry, host nation, and flag state practices. It describes the crisis and emergency management consequences of eco-tourism and discusses risk management alternatives available to deal with these consequences

Introduction

On January 16, 2001, the Ecuadorean flag coastal tanker *Jessica* ran aground off San Cristobal island in the Galapagos Islands. Two weeks later, observers concluded that a potential environmental catastrophe had been averted as the 240,000 gallons of diesel oil and bunker fuel intended for use by the islands' tour boats dissipated either by evaporation or through wind and current dispersion into the open ocean. The Galapagos Islands are a unique eco tourism destination and the eco tourism industry is attracting an increasing number of visitors eager to see the wildlife that has fascinated scientists since Charles Darwin. A robust transportation and tourist infrastructure has been developed in the Galapagos in order to accommodate these visitors. Part of this infrastructure are the tour boats that require the fuel that was to be delivered by the single hulled, sub standard tanker *Jessica*.

The Galapagos island tour boats are just one example of the increasing phenomena of expedition cruising and eco tourism. Passenger vessels from small island tour boats to new mega cruise ships are responding to an increasing demand to see and experience nature, albeit in relative comfort. The cruise industry transports approximately 900,000 people each summer through the pristine waters of the Alaska coastline. The economic footprint of this many people visiting a state with a population of approximately 600,000 is significant. The potential environmental and safety issues are of serious concern. Expedition cruises range from trips to the Antarctic, Arctic on board state of the art polar icebreakers (www.quarkexpeditions.com) to cruises up the Amazon or along the coast of Bali on small passenger vessels. These trips are expensive, but they appeal to the relatively rich and environmentally aware baby boom generation in the U.S. and Europe (“Eco-Tourism targets baby boomer dollars”, John Roach, Thursday, August 24, 2000, www.enn.com).

Managing the consequences

The premise of this paper is that the maritime and environmental risks created by the eco cruise industry have not been adequately addressed by the international community or by host nations. In many areas the ability to minimize the consequences of an accident is virtually non existent.

There are serious questions that have not been answered :

1. Are international conventions adequate to ensure safety of passengers and protection of the environment?
2. Who is responsible for funding the creation, operation and maintenance of adequate maritime rescue capability in remote areas?
3. What is the division of responsibility between the flag state of the vessel, the host country, and the tour industry for crisis preparedness and crisis management?
4. Who would be in charge of rescue operations in remote international waters?
5. What responsibility to the nations that supply the eco tourist demand have to support a host country that cannot manage the response to an environmental or safety crisis?
6. Who is responsible for assessing the safety and environmental risks of eco tourism and for implementing risk reduction interventions?

The cruise industry is historically a safe and environmentally aware industry. It is, however, an industry that presents both the problem of a mass casualty event, as experienced in Europe in the *Herald of Free Enterprise*, *Estonia*, and *Scandanavian Star* casualties. The International Council of Cruise Lines, the industry trade association, justifiably highlights the industry’s historical safety record in its Statement on Cruise Line Safety (www.iccl.org). There have, however, been near misses that illustrate the difficulty responding to potential maritime catastrophes in remote areas. On October 4, 1980 the Holland America cruise line vessel *Prinsendam*, enroute from Vancouver to Singapore reported a fire on board 120 miles from the Alaskan coast. All 324 passengers and 200 crew members were airlifted out of lifeboats by U.S. Coast Guard and Air Force helicopters without serious injury. Rescuers were able to use the nearby super tanker *Williamsburgh* to receive the survivors. Had there been no ship in the vicinity, the outcome would have been

different. There are no supertankers conveniently cruising the waters in the Arctic and Antarctic nor are their Coast Guard and Airforce rescue squadrons located within range. A second near miss was the sinking of the Greek cruise vessel *Oceamos* after an engine room explosion and fire on August 4, 1991 off the coast of South Africa. All passengers were safely rescued from the vessel and from lifeboats by South African military helicopters. Again, the outcome would have been different had the vessel been beyond the range of the land based helicopters.

The eco-tourism and expedition cruise industry presents two issues relating to a potential mass casualty event at sea:

1. The traditional cruise vessel industry is sending larger and larger vessels on environmentally oriented cruises such as to Alaska and Patagonia. The *Prinsendam* carried 524 passengers and crew. Typical cruise vessels currently employed in the Alaska trade carry 2000 to 2,600 passengers plus crew. Cruise vessels with capacities of 5,000 to 6,000 passengers are entering the trade, and may be employed in remote cruise locations if the market demand exists.
2. The expedition cruise industry is operating far from any reliable safety and medical support. Although the cruise vessels to the Arctic, Antarctic, and other remote locations typically carry less than 100 passengers, they are operating without a safety net. There are no salvage vessels, powerful tug boats, or rescue ships and planes within a thousand miles of their destinations. A minor technological problem such as an engine failure or a minor medical emergency can become a major crisis as weather and distance prevent an adequate response.

In addition to the safety issues, the expedition cruise and eco tourism industry leaves a significant environmental footprint. As was seen from the *Jessica* incident, the fact that the industry can provide comfort and amenities to tourists does not mean that infrastructure adequate to respond to an oil spill or other environmental incidents is present. The International Convention on Oil Spill Preparedness, Response and Co-operation (www.imo.org) which entered into force in 1995 was written to provide an international system to respond to major oil spills from tankers that could occur at any point on the world's seaways. The cruise industry, however, visits places well off the beaten path and has, in the Caribbean and in Alaska, been the source of deliberate environmental pollution. Under various plea agreements Royal Caribbean Cruise Lines (RCCL) has agreed to pay a total of \$27 million in criminal fines for illegal and intentional discharge of oil in the Caribbean. (North, 1999) Cruise ships are also potential sources of catastrophic oil spills, particularly considering the environmentally sensitive locations they visit. The large cruise ships now coming into service carry more bunker fuel than the cargo carrying capacity of traditional coastal tankers. Who is responsible for providing oil spill response equipment and capabilities in remote areas in second and third world countries?

Are current rules and systems adequate?

The international ship safety structure is based on international conventions developed by the International Maritime Organization (IMO). Internationally mandated standards are enforced by the flag states that register passenger and cargo vessels and are monitored and enforced by the port states these vessels visit. The international standards contained in the Safety of Life at Sea Convention as amended (SOLAS), the Convention on the Standards of Training, Certification, and Watchkeeping (STCW),

the Marine Pollution Convention (MARPOL), the International Convention on Load Lines, the International Safety Management code (ISM) and the OSPRC Convention govern the design, construction, and operation of vessels as well as setting professional standards for crew. Whether or not this regime proves to be adequate for the eco tourism cruise industry is, in my opinion, still an open question. Who, for example, is responsible for enforcing standards on a cruise vessel registered in the Cayman Islands, operated by an Asian ship operating company, owned by a European group, crewed by an international crew, carrying European and American passengers on Antarctic cruises from a base in southern Argentina? The IMO Marine Safety Committee has endorsed the position that a “ship is its own best lifeboat” and that when an emergency such as a fire arises on a ship that passengers should be evacuated to a safe haven on board rather than attempting to abandon ship. The focus then should be on the survivability of the vessel until a rescue and assistance effort can restore the vessel to operation or tow the vessel to a nearby port. How does this strategy work when a vessel is disabled in Arctic ice or drifting off of the Antarctic coast thousands of miles from the nearest assist tug? If passengers are forced to abandon ship from a 3,000+ passenger vessel in Alaskan waters, will the crew be adequate to supervise the operation and will there be adequate rescue forces to repeat the *Prinsendam* rescue on this much larger scale? A significant amount of research on shipboard evacuation spurred by the European passenger vessel tragedies described above is currently being conducted in Europe and the U.S. However, what are the plans for ensuring survival once passengers are evacuated to a temporarily safe haven?

As the *Jessica* incident unfortunately illustrated, the preparation, planning, and resource mobilization required to respond to oil spills resulting from the increased cruise vessel traffic has not received adequate attention. The OPRC convention was drafted with the objective of providing a worldwide response capability for international tanker traffic, not for providing a capability to respond to an oil spill caused by a grounded cruise vessel. These vessels carry large supplies of bunker fuel that could seriously damage the sensitive eco systems that are the object of their cruise itineraries. Cruise vessels do not carry pollution response equipment nor are their crew trained in response procedures. As seen in the Galapagos, there are no resources in many of the areas that eco tourists visit, and staging resources is difficult and time consuming.

Where should we go from here?

It is time to take a systematic risk management approach to eco cruising in remote areas. Figure 1 is the taxonomy used in a series of maritime risk assessments by a research team from George Washington University, Rensselaer Polytechnic University and Virginia Commonwealth University, adapted for the problem of eco cruising (Merrick et al., 2000, Grabowski et al., 2000, van Dorp et al. 2001). Figure 2 shows that risk reduction interventions can occur at multiple points in the chain. The existing IMO conventions provide risk reduction interventions that primarily impact the early part of the causal chain—the reduction of root causes and immediate causes. The net result is a reduced probability of an incident that could result in a serious catastrophe. However, in remote environments there are no internationally sponsored measures, no government or industry sponsored external capability that will prevent a routine accident from becoming a catastrophic event. For example, in a recently

advertise Antarctica cruise from Ushuaia across the Drake Passage to the Antarctic Peninsula, and South Shetland Islands on board a 71.6 meter converted Russian research vessel, potential passengers are warned that rough seas and wind may be encountered but are assured that the Captain will make all decisions on itinerary based on “the interest of the safety of the vessel and all passengers on board.” No mention is made of alternative plans if the Captain’s seamanship is not enough to prevent serious problems. The advertising brochure makes no mention of the Captain’s qualifications, the vessels classification society, or its safety record. Looking at figure 2, it would seem that we are placing all our hopes in risk reduction in the earliest stage of the causal chain. Would it not be prudent to provide extra inspections of vessels intending to transit hazardous waters (category II and III), or to have some external organization or individual assist the Captain in determining if the exposure to a hazardous environment is beyond the acceptable level of risk (category III)? Would it not be particularly prudent to have emergency response resources sited and available to assist vessels in distress in hazardous environments (categories IV and VI).

Ed Wenk (1986) has pointed out that low probability high consequence events have a unique characteristic. If they have not yet happened, we tend to focus on the low probability and assume that they never will occur. However, once the accident has occurred, we react strongly to the unacceptably high consequence and demand that the negligent owners, operators, and government regulators who failed to implement now obvious risk reduction interventions be called to task. The fact that the public seems relatively unconcerned about the risks of eco-tourism and expedition cruising should not be seen as an acceptance of these risks.

The Maritime Accident Event Chain

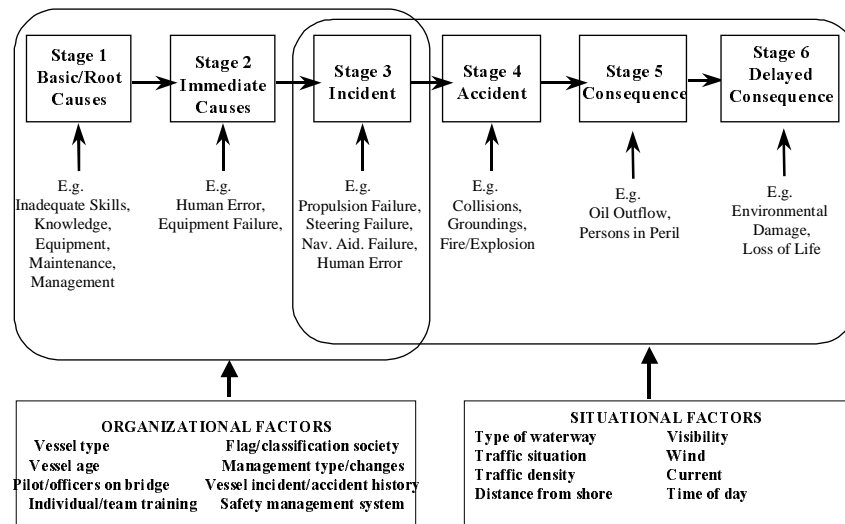


Figure 1

RISK REDUCTION INTERVENTION STRATEGIES AND STAGES

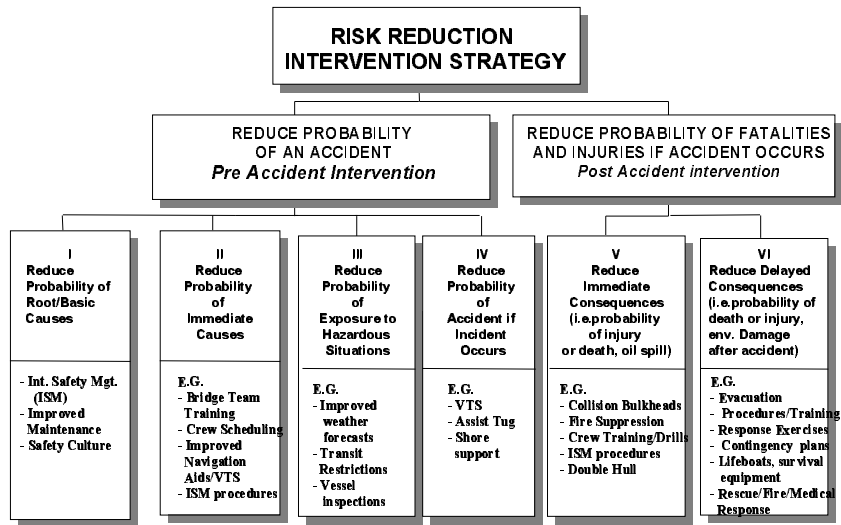


Figure 2

Conclusions

The International Maritime Organization, the U.S. Coast Guard and other government bodies, and the cruise lines themselves are working to make expedition cruising as safe as possible. However, as Charles Perrow states in his classic book *Normal Accidents: Living with High Risk Technologies*, we can neither anticipate nor prevent all potentially catastrophic events. The catastrophic accident will always be with us and we must be prepared to deal with the consequences. Eco tourism and expedition cruising tests this premise. The probability of an accident involving one of these vessels is small, but our failure to anticipate and prepare for potential consequences increases the probability that a routine accident could have catastrophic consequences.

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