Marine Insurance and Legal Update

Dennis Nixon

2008 Research Vessel Operators' Committee Annual Meeting

April 22, 2008

Old Dominion University

Norfolk, VA

OUTLINE

- Overview of World Insurance Market
- Legal Issues Affecting Oceanographic Research Vessels
- Conclusions

Overview of the World Insurance Market

Global Marine Insurance Report 2007

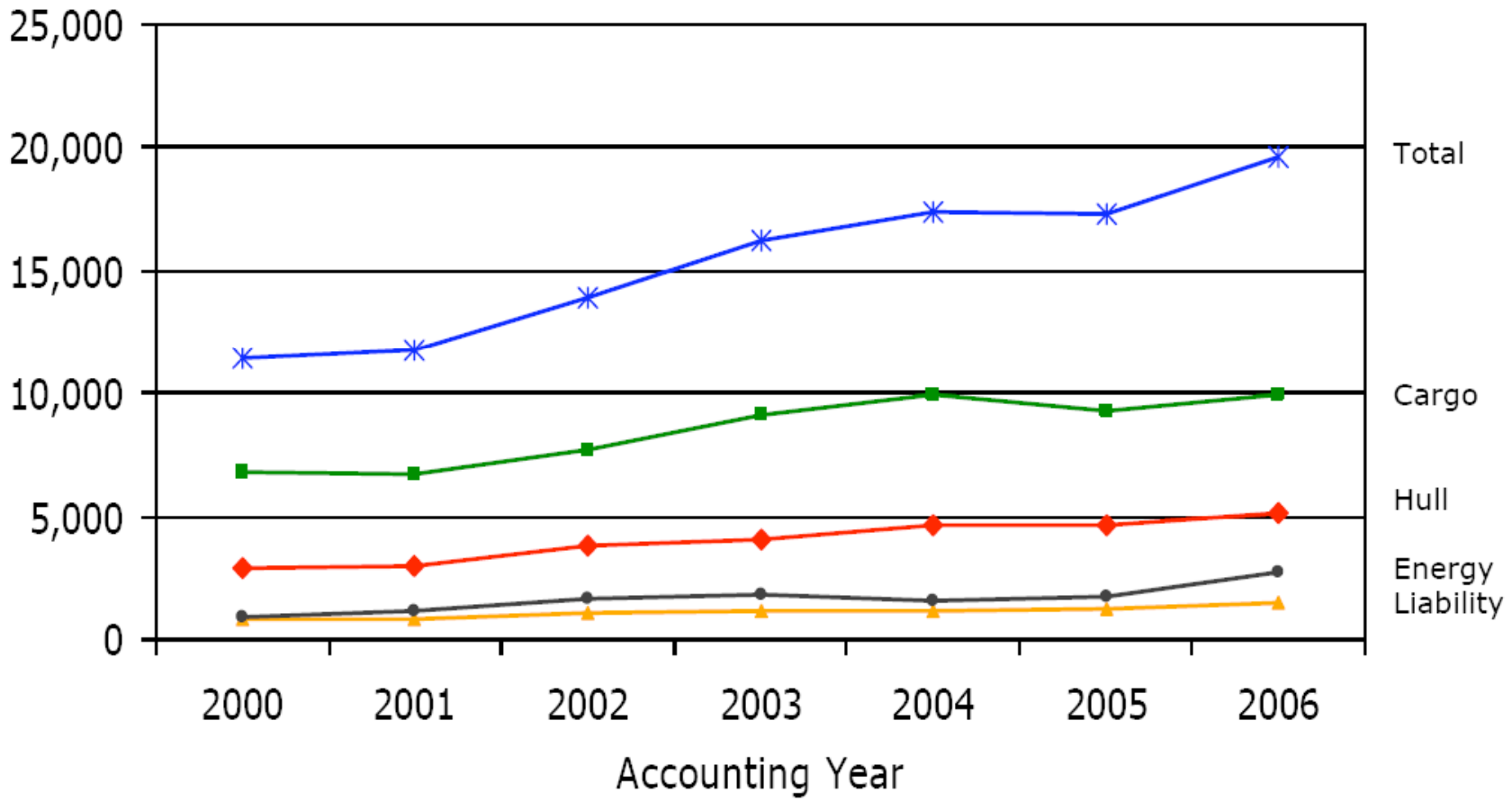
Copenhagen

Astrid Seltmann, Facts & Figures Committee
Analyst/Actuary, CEFOR, Norway

Thanks also to Pamela Frood and Cédric Charpentier

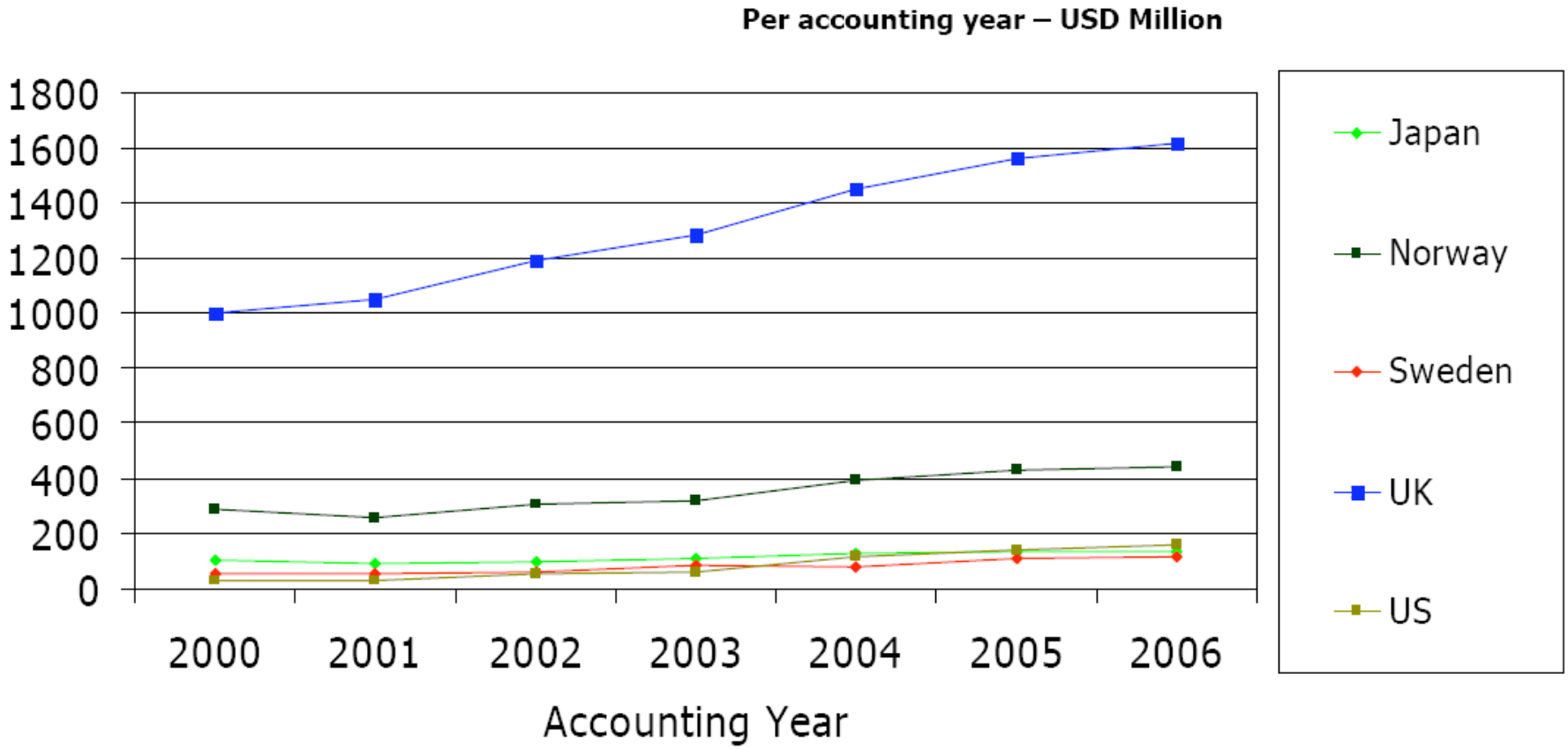
Global Marine Premium 2000 - 2006

(USD Million), as reported



MARINE MUTUAL MARKET SECTOR

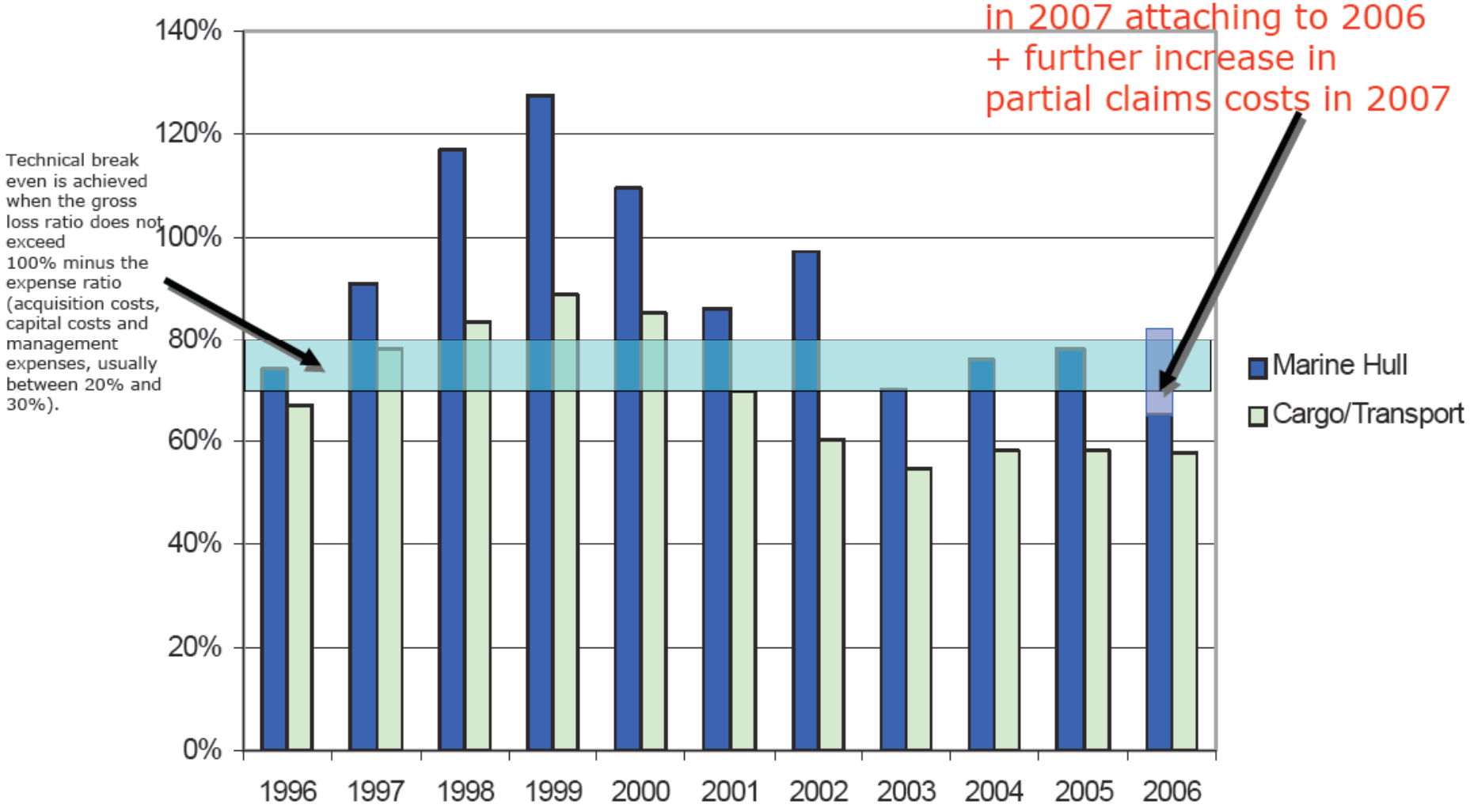
Gross Calls (Premium) – Operational location



Source: Standard & Poors Marine Mutual Report 2007

Marine Hull and Cargo/Transport
Gross Ultimate Loss Ratio

U/W Year 1996 to 2006



MARINE
LLOYD'S MARKET AVOIDS LARGE INDUSTRY LOSSES

2007 highlights

- → Competition remains intense.
- → Fifth consecutive year of prior year releases.

2007 combined ratio

95.0%	Accident year
(7.6%)	Prior year reserve movement
87.4%	Calendar year

The most significant classes of business within the Lloyd's marine sector are hull, cargo, marine liability and specie.

2007 PERFORMANCE

The marine sector achieved gross written premium of £1,226m (2006: £1,153m), an increase of 6.3%.

The two largest marine classes, hull and cargo, remain highly competitive. As a consequence, rates remain under pressure with reductions experienced during the year.

By contrast, the value of risks has increased, as the booming growth in world trade leads to a demand for bigger and faster ships to transport goods.

This has led to increased exposures and higher premiums, despite lower rates; ie a masking of the softening conditions.

Overall, rates in the marine liability account reduced during the year. The International Group of P&I Clubs programme constitutes a major part of this class of business.

Specie, the insurance of highly valued items such as fine art, remains a very competitive market, with rate reductions experienced during the year.

ACCIDENT YEAR PERFORMANCE

In 2007, the global marine market saw major hull losses running at levels not experienced since the 1980s, when there were structural failures amongst the ageing bulk carrier fleet. In recent years, Lloyd's syndicates have exercised caution in this market, particularly in relation to blue water fleets where the impact of a single loss can be severe. The benefit of this caution has been that Lloyd's syndicates have been able to avoid several of these losses.

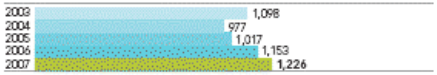
Within the rest of this sector, the International Group of P&I Clubs programme and specie also experienced notable losses, while the cargo account experienced a second year of favourable claims activity.

Whilst market conditions have softened, the overall decrease in the level of claims has resulted in an improvement in the accident year combined ratio to 95.0% (2006: 99.0%).

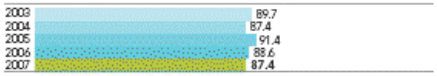
PRIOR YEAR RESERVE MOVEMENT

An overall release from prior years' reserves reduced the combined ratio by 7.6% for the year (2006: release of 10.4%). This has continued the trend for prior years to develop within expectation with a surplus arising for the fifth consecutive year.

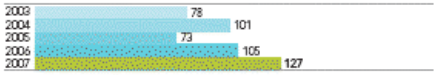
Gross written premium
£m



Combined ratio
%



Underwriting result
£m



LOOKING AHEAD

Following the loss experience during 2007, the 2008 January renewal season for the hull class was flat, and rate increases were experienced in the International Group of P&I Clubs programme. However, other classes of business within the marine sector continue to experience softening market conditions.

The size and number of blue water fleets have increased over recent years to meet the demand from the growth in world trade. A collision involving one of these vessels would be a major catastrophe and the current rating environment is marginal.

With shipyards around the world operating at full capacity to meet the demand for new vessels, repair facilities and trained engineers are at a premium. This, allied to the continuing rise in the price of commodities, has resulted in an increase in the costs of the vessels, their repair and the cargoes they are transporting.

The shortage of experienced officers and crew together with new regulations aimed at improving crew members' hours and working conditions, whilst laudable, unfortunately coincides with the launch of an increasing number of ships. As a result the number of adequately experienced mariners will be spread ever more thinly.

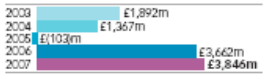
P&I clubs are also affected by new legislation and changes to existing laws, which may give rise to additional liabilities, as well as having to prepare for a more demanding regulatory environment.

This potential for increased loss frequency and severity heightens the continued need for underwriting discipline on both rates and terms and conditions.

- → Lloyd's achieved a profit before tax of £3,846m (2006: £3,662m) and a combined ratio of 84.0% (2006: 83.1%) reflecting continued strong performance.
- → Return on investments of 5.6% (2006: 4.7%) the highest for five years.
- → Overall surplus on prior years of £856m (2006: £270m) as claims develop within projections for the third successive year.
- → Pre-tax return on capital of 29.3% (2006: 31.4%) reflecting a second successive year of excellent results.
- → Central assets increased by 34% to £1,951m (2006: £1,454m).

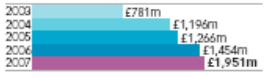
Gross written premium £16,366m

Profit/(loss) before tax £3,846m

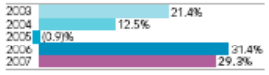


Capital, reserves and subordinated debt and securities £14,461m

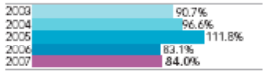
Central assets £1,951m



Return on capital 29.3%



Combined ratio 84.0%



VISION: OUR VISION IS TO BE THE PLATFORM OF CHOICE

For more information see page 30.

WE HAVE A CLEAR STRATEGY TO ACHIEVE OUR VISION

Lloyd's has set out its vision to be the platform of choice for insurance and reinsurance buyers and sellers to access and trade specialist property and casualty risks.

1 PERFORMANCE FRAMEWORK →
An overarching, consistent performance management framework across all key aspects of a managing agent's business, that supports the achievement of superior operating returns as part of an effective enterprise risk model.

2 CAPITAL ADVANTAGES →
A capital framework in which the benefits of mutuality demonstrably outweigh the costs and which cannot readily be duplicated outside Lloyd's.

3 SECURITY AND RATINGS →
Stable insurer financial strength ratings (currently at least 'A') necessary to attract specialist property and casualty business.

4 MARKET ACCESS →
Cost-effective, easy access to the major markets supported by a global brand and licence network.

5 OPERATING ENVIRONMENT →
An efficient, cost-effective operating environment that allows managing agents and brokers, irrespective of their location, to deliver excellent service to customers.

STRATEGIC PRIORITIES:

→ MANAGING THE CYCLE
→ MARKET ACCESS
→ OPERATING ENVIRONMENT

Financial Overview & Outlook for Global Marine Insurers

Clear Sailing or Rough Seas?

International Union of Marine Insurers

Copenhagen, Denmark
12 September 2007

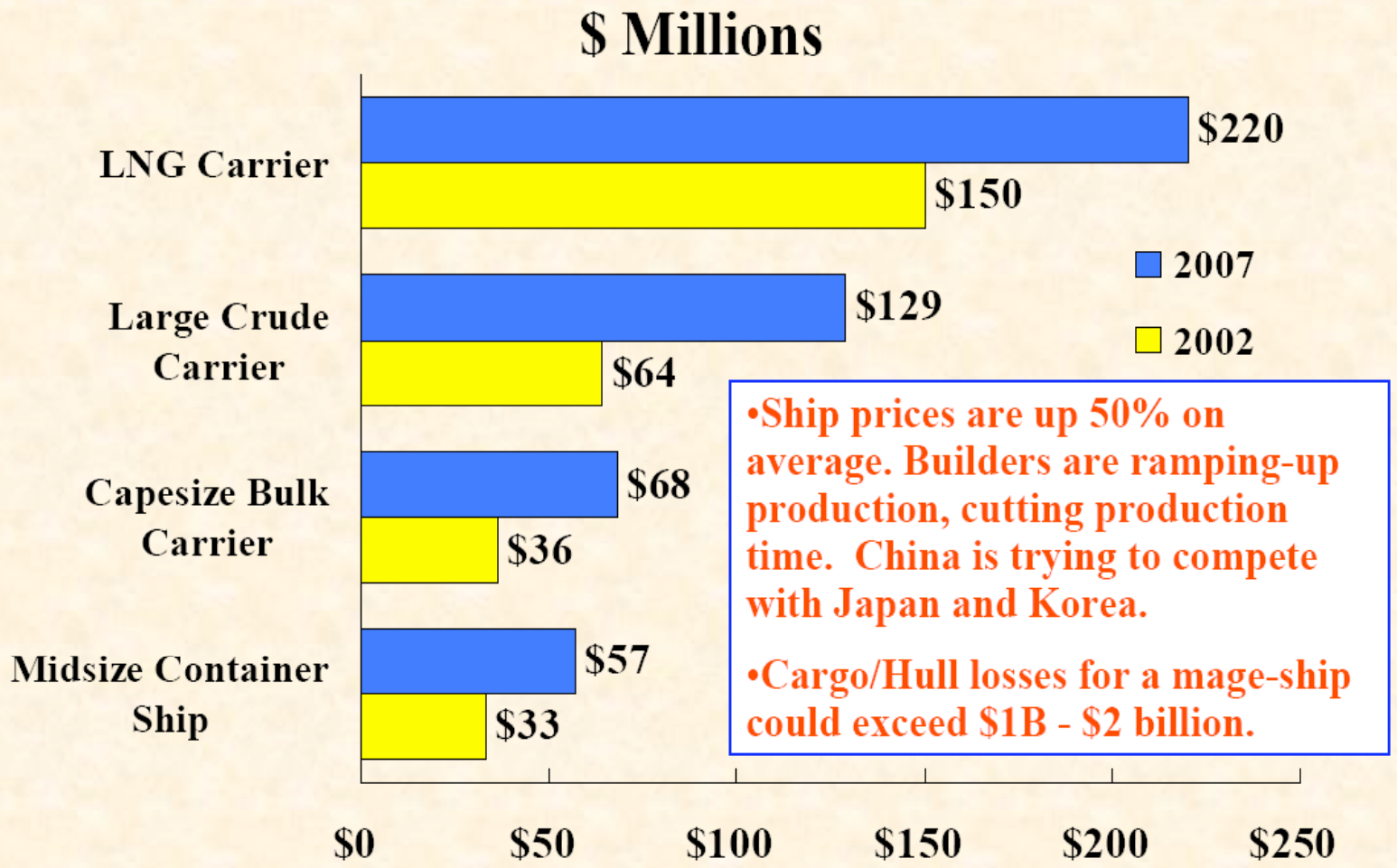
Robert P. Hartwig, Ph.D., CPCU, President
Insurance Information Institute ♦ 110 William Street ♦ New York, NY 10038
Tel: (212) 346-5520 ♦ Fax: (212) 732-1916 ♦ bobh@iii.org ♦ www.iii.org

Changes in Global Economy are Pushing Shipping Industry Changes

- **Strong demand for shipping**
- **Building of ever larger ships**
  - **Creates concentration of risk problem**
- **Significant number of new ships under construction**
  - **Shipyards are building for or have orders for in 2007/2008 as much as 20% of the current world fleet**
- **Manpower (crew) shortages are more likely**
- **Port and lock log jams; New routes needed**
  - **Expansion of Panama Canal**
  - **Arctic routes**
- **Eventually shipping industry will see overcapacity and falling transport prices**

Source: Aon Marine Insurance Review, 2006; Insurance Information Institute.

Ship Prices Rising: Bigger Ships, Strong Demand



- Ship prices are up 50% on average. Builders are ramping-up production, cutting production time. China is trying to compete with Japan and Korea.
- Cargo/Hull losses for a mage-ship could exceed $1B - $2 billion.

Source: Clarkson Research Services, Insurance Information Institute

China's Trade With The World ($ billion)

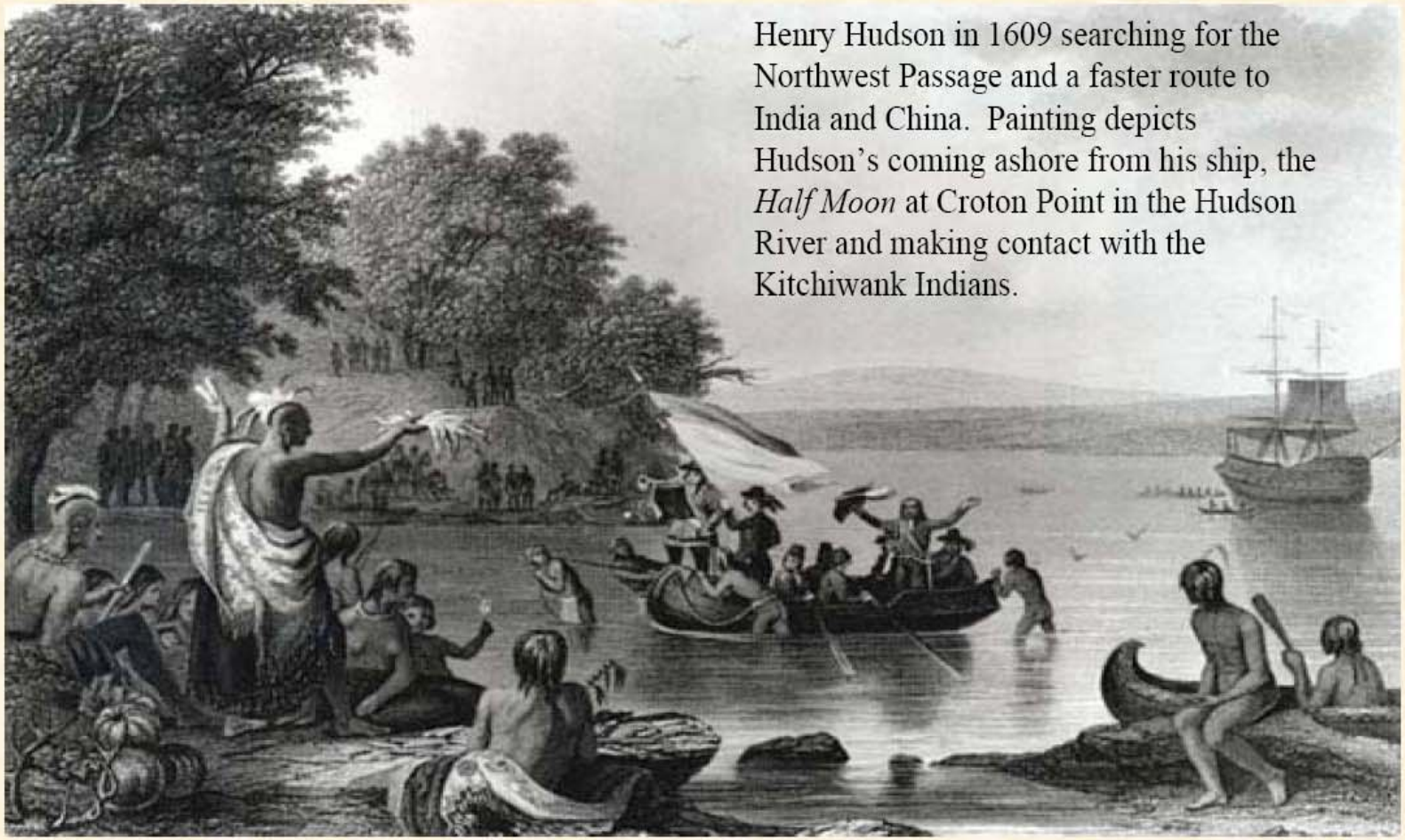
Note: PRC exports reported on a FOB basis;
Sources: U.S. China Business Council; PRC General Administration of Customs, China's Customs Statistics; and the National Bureau of Statistics.

Scenarios of Potential Maritime Terrorist Activity

- **Use of a commercial container ship to smuggle chemical, biological, or radiological (CBR) materials for an unconventional attack carried out on land or at a major commercial port, e.g. New York, Los Angeles**
- **Use of a "trojan horse", such as a fishing trawler, resupply ship, tug, or similar to transport weapons and other materials**
- **Hijacking of a vessel as a fund-raising exercise to support a campaign of political violence directed toward ethnic, ideological, religious, or separatist designs**
- **Scuttling of a ship in a narrow SLOC (sea lines of communication) in order to block or disrupt maritime traffic**

Source: RAND: Maritime Terrorism Risk and Liability, 2006

The Arctic: Maritime Challenge for the 21st Century?



Henry Hudson in 1609 searching for the Northwest Passage and a faster route to India and China. Painting depicts Hudson's coming ashore from his ship, the *Half Moon* at Croton Point in the Hudson River and making contact with the Kitchiwank Indians.

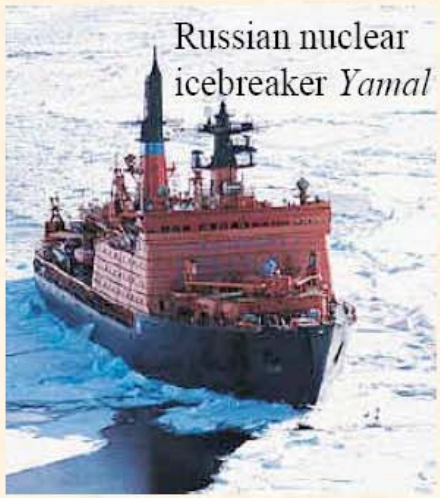
Why the Icy Arctic is Such a Hot Issue for Marine Interests

- **Claims under 1982 United Nations "Law of the Seas" must be made soon (Russia, 2009; Canada, 2013, Denmark, 2014; US never ratified it)**
- **Immense natural resource deposits—high prices globally**
- **Fishing rights—dwindling stocks elsewhere**
- **Shorter shipping routes between Europe to Asia—burgeoning international trade**
- **Climate change—less ice makes travel, exploration and extraction easier**

Source: *The Economist,* August 18, 2007; Insurance Information Institute

Arctic Holds Immense Economic Opportunity Marine Interests…

Shell's *Frontier Discoverer* in Dutch Harbor, Alaska

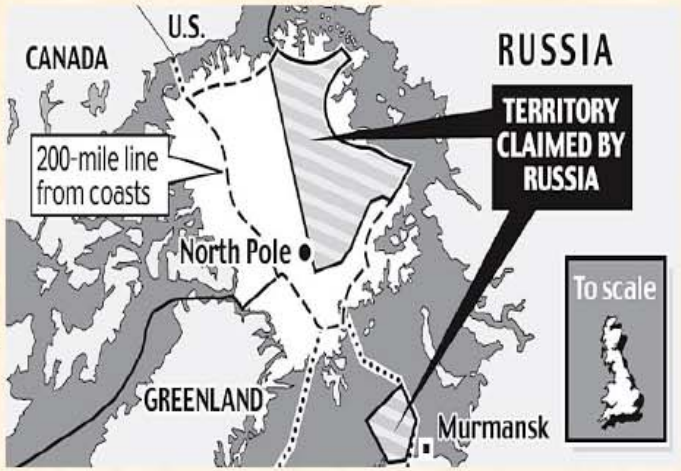


Russian nuclear icebreaker *Yamal*

"Pirate" Russian fishing boats in Svelty Harbor

- **Region holds 25% of world's undiscovered supplies of oil and gas**
- **Estimate 10 billion metric tons of oil and gas deposits. Also significant deposits of diamonds, gold, tin, manganese, nickel, lead and platinum**
- **Climate change is expanding trans-Arctic shipping, fishing, offshore mineral extraction opportunities.**
- **Arctic route cuts 2,500 miles off Europe to Asia voyage**

...But Arctic Economics Spur Territorial/Sovereignty Disputes



Denmark to commit $25 million to search for oil of Greenland coast

•PROBLEMS: Disputes over territory heating up. Russia very aggressive, claiming North Pole is Russian territory on Lomonosov Ridge which Russia says is an extension of its continental shelf. Russian planted its flag on the seabed at the Pole in August 2007.

...Arctic Exploitation Leads to Huge Environmental Concerns

- Climate change means more open water over longer period
- More ship traffic
- More chances for collisions, accidents and spillage of toxic cargo and oil
- Who's responsible for cleaning up a mess in disputed territory?
- Saber rattling will grow
- Rights of native peoples?
- Arctic wildlife in jeopardy
- Polar bears extinct in wild by 2050?
- Whaling?
- Overfishing?

Legal Issues Affecting Oceanographic Research Vessels

R/V THETIS

Owner: CNR

Launched: 2000

Tonnage: 200

Length: 32 m

Width: 7 m

MSC ELENI

Builder: Hanjin

Owner: Naviera Eleni - MSC

Flag: Panama

Tonnage: 21586

Length: 295 m

Width: 20 m

Petr Mikhejchik, of the Russian Federal Research Institute of Fishery and Oceanography, did not survive the collision (Photo from CNR).

Vincenzo di Stefano (left) and Giusy Buscaino survived the sinking of the research vessel *Thetis*.

Nature 448, 635; 2007.

- According to Italian news sources, the Captain of the MSC Eleni will be charged with involuntary manslaughter.
- A full inquiry of this incident is underway.


Oceana is an international non-profit organization designed to protect and restore the world's oceans.
The organization operates with over 300,000 members in more than 150 countries.
OCEANA RANGER

Oceana Ranger

- Researchers were recording activities of 80 French fishing boats using driftnets, banned in the EU since 2002.
- A group of 7 French driftnetters carried out a concerted attack:
  - Threw ropes/buoys to entangle Oceana Ranger's propellers
  - Demanded camera equipment be handed over
  - Border control and French Navy helicopters caused attackers to flee
- Footage of the attack can be seen at: http://www.oceana.org/europe/media/oceana-video/oceana-ranger-attacked/

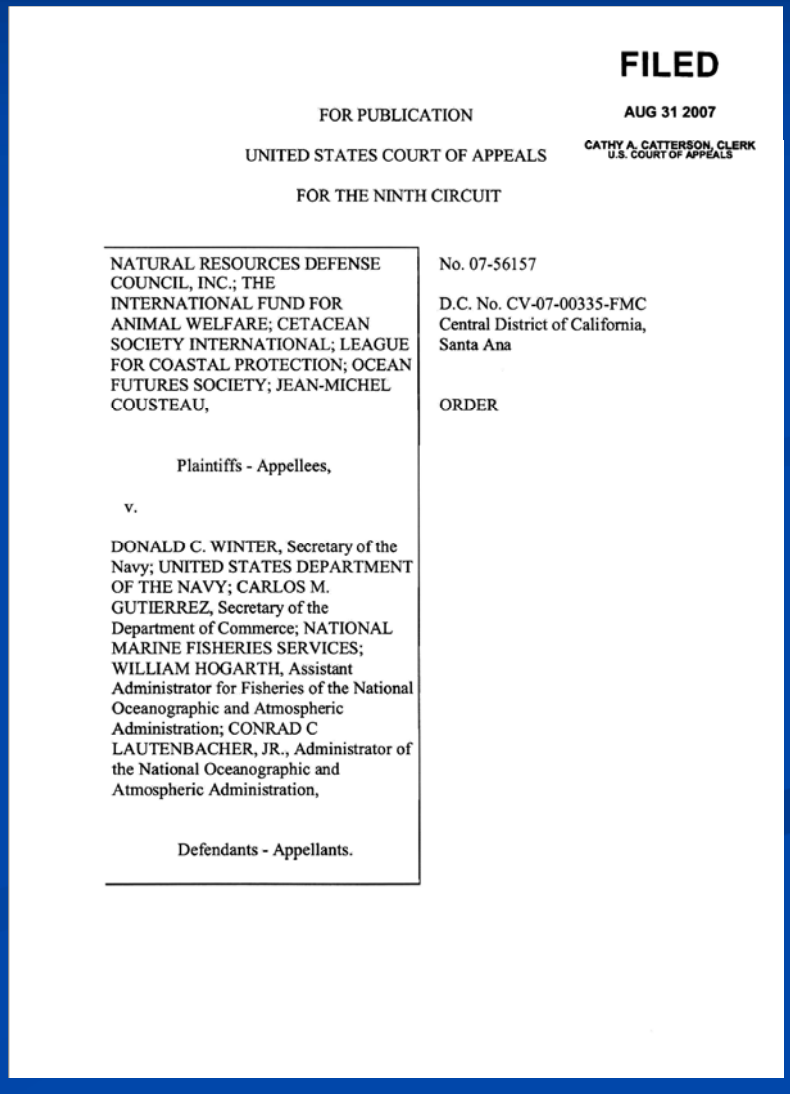
Arctic Maritime Safety Information System to Expand

- Research in the Arctic Ocean continues to grow due to:
  - A greater ability of vessels to access the Arctic Ocean
  - The initiation of the International Polar Year (IPY) during 2007 – 2009
- An intensified research interest has led to a greater number of ocean research sensors in the Arctic.
- This has produced a higher probability of vessel collision with a sensor (a mooring, buoy, AUV or ROV).

Natural Resources Defense Council, Inc.
vs.
Donald C. Winter, Secretary of the Navy

Issue: The Navy proposed to use medium frequency active sonar with no mitigation measures.

Holding: A temporary injunction against the Navy is lifted but further appeal is underway.



FILED

AUG 31 2007

CATHY A. CATTERSON, CLERK
U.S. COURT OF APPEALS

FOR PUBLICATION

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

NATURAL RESOURCES DEFENSE COUNCIL, INC.; THE INTERNATIONAL FUND FOR ANIMAL WELFARE; CETACEAN SOCIETY INTERNATIONAL; LEAGUE FOR COASTAL PROTECTION; OCEAN FUTURES SOCIETY; JEAN-MICHEL COUSTEAU,

Plaintiffs - Appellees,

v.

DONALD C. WINTER, Secretary of the Navy; UNITED STATES DEPARTMENT OF THE NAVY; CARLOS M. GUTIERREZ, Secretary of the Department of Commerce; NATIONAL MARINE FISHERIES SERVICES; WILLIAM HOGARTH, Assistant Administrator for Fisheries of the National Oceanographic and Atmospheric Administration; CONRAD C LAUTENBACHER, JR., Administrator of the National Oceanographic and Atmospheric Administration,

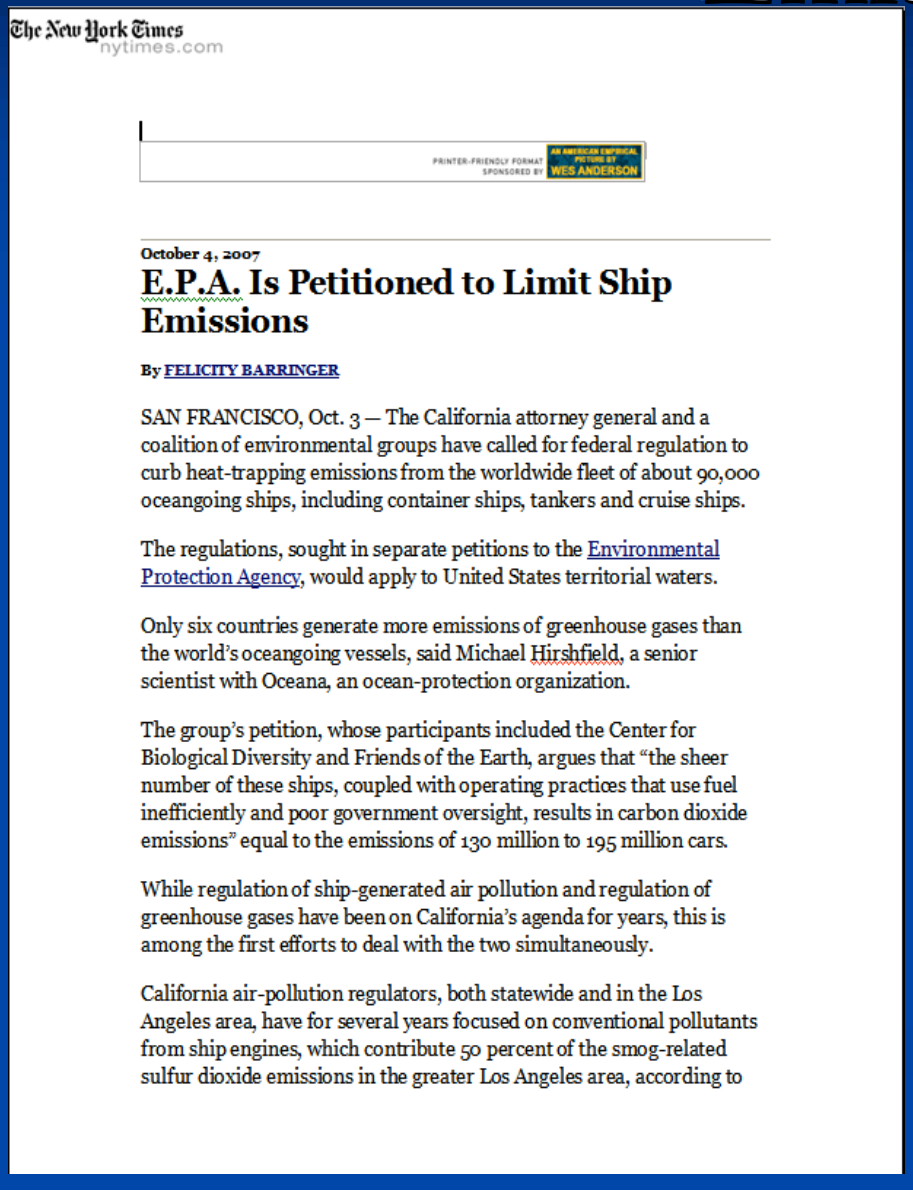
Defendants - Appellants.

No. 07-56157

D.C. No. CV-07-00335-FMC
Central District of California,
Santa Ana

ORDER

EPA Is Petitioned to Limit Ship Emissions



The New York Times
nytimes.com

PRINTER-FRIENDLY FORMAT
SPONSORED BY AN AMERICAN EMPIRICAL PICTURE BY WES ANDERSON

October 4, 2007

E.P.A. Is Petitioned to Limit Ship Emissions

By FELICITY BARRINGER

SAN FRANCISCO, Oct. 3 — The California attorney general and a coalition of environmental groups have called for federal regulation to curb heat-trapping emissions from the worldwide fleet of about 90,000 oceangoing ships, including container ships, tankers and cruise ships.

The regulations, sought in separate petitions to the Environmental Protection Agency, would apply to United States territorial waters.

Only six countries generate more emissions of greenhouse gases than the world's oceangoing vessels, said Michael Hirshfield, a senior scientist with Oceana, an ocean-protection organization.

The group's petition, whose participants included the Center for Biological Diversity and Friends of the Earth, argues that "the sheer number of these ships, coupled with operating practices that use fuel inefficiently and poor government oversight, results in carbon dioxide emissions" equal to the emissions of 130 million to 195 million cars.

While regulation of ship-generated air pollution and regulation of greenhouse gases have been on California's agenda for years, this is among the first efforts to deal with the two simultaneously.

California air-pollution regulators, both statewide and in the Los Angeles area, have for several years focused on conventional pollutants from ship engines, which contribute 50 percent of the smog-related sulfur dioxide emissions in the greater Los Angeles area, according to

- The CA attorney general and environmental groups have called for federal regulations to curb exhaust emissions from the worldwide fleet of oceangoing vessels.
- Suggestions to curb vessel emissions include:
  - Reducing ship speed
  - Change to a higher grade fuel

ISOM Research Vessel Code of Conduct

Code of Conduct for Marine Scientific Research Vessels

International Ship Operators Meeting (ISOM)

Qingdao, China 17-20 October, 2007

Preamble

Recognising the importance of vessel-based marine scientific research, we strongly encourage the utilisation of environmentally responsible practices. Acknowledging the potential impact that the conduct of marine scientific research may have on the environment, the delegates to ISOM have approved the following code of conduct for persons responsible for the management and execution of scientific operations at sea. Those subscribing to this code consider preservation of the environment as paramount, and consequently have elected to adopt the precautionary approach as the basis for the proposed mitigation measures.

Environmental Impacts and Responsible Research Practices

Every vessel conducting marine science should develop a marine environmental management plan. The following are common areas where certain operations may have an impact and the complexity of these measures will vary on a case-by-case basis depending on such factors as vessel size, duration of voyage, geographical location, and mission type.

A. Ship Operations:

Activities:

- Oil spills
- Exhaust emissions
- Garbage/plastics disposal
- Sewage discharge
- Anchoring
- Hazardous waste release
- Vessel noise emission
- Grounding/collision events
- Ballast water release
- Use of fuel saving measures

Mitigation:
Every research vessel should be operated in compliance with the International Safety Management (ISM) code (or equivalent), which addresses all the above listed potential activities. Where there are special requirements for operations in sensitive areas (including marine protected areas, polar latitudes etc), additional measures such as specialised training, procedures, crew, or equipment may need to be incorporated into the cruise plan.

B. Science:

(1) Physical Impacts:

Activities:

- Dredging
- Grab & core sampling
- Lander operations
- Trawling
- Mooring deployments
- Remotely Operated Vehicle (ROV) sampling
- Jetting system operations for cable burial
- High Intensity lighting for camera operations

Mitigation:
The cruise plan should be designed to employ the most appropriate tool(s) to collect the scientific information while minimising the environmental impact. The number of samples taken should be

minimised, and in particular, scientists should consider available existing biological and physical data and/or samples from the target site. Where appropriate a pre-site survey should be conducted to determine possible impacts and suitable mitigation measures. The sampling methodologies should be designed to match the site-specific characteristics of the area, in particular through the use of less intrusive tools in sensitive/protected areas. During trawl surveys due care and consideration should be taken when dumping samples of fish, in particular the sensitivity of locations where fish are being discarded e.g. Special Areas of Conservation. Per and Steen raised this but wasn't entirely sure exactly where and how we should fit this in. Your thoughts?

(2) Acoustical Impacts:

Activities:

- Seismic surveying
- Sub-bottom profiling
- Multibeam or single-beam surveying
- Sidescan surveying
- Acoustic positioning
- Scanning fish-finding sonar operations
- Acoustic Doppler Current Profiling (ADCP)
- Rock drilling and chipping

Mitigation
The minimum acoustic source level and duration to achieve the desired results should be used and the acoustic frequencies chosen in order to minimise impacts on marine life. In areas where marine mammals are known or are suspected to exist, additional measures may be required including, for example, soft-starts, visual surveillance and acoustic monitoring.

(3) Chemical Impacts

Activities:

- Tracer (dyes, fluorescent beads, SF6 etc.)
- Seeding (CO_2 sequestration)
- Expendable Bathythermograph (XBT) – copper, batteries

Mitigation:
The use of chemical tracers and expendable devices containing hazardous materials XBT's should be kept to a minimum; however, where there is no alternative to these techniques, every effort should be taken to minimise the levels used.

(4) Accidental

Incidents:

- Behavioural impacts on marine life
- Chemical discharge – e.g. hydraulic fluid leakage from ROV; release of radio-isotopes
- Cross-contamination of biological communities
- Pollution resulting from loss of equipment – e.g. batteries and instruments
- Discharges from drilling or coring into shallow oil/gas
- Physical disturbance of delicate habitats – ROV umbilical, errors in manoeuvring and anchoring

Mitigation:
Efforts should be taken to undertake a risk assessment of all cruise activities before any equipment is deployed. If necessary, the operator should consider modifying the equipment and/or expertise employed in order to reduce risks to an acceptable level. In some cases it may be necessary to develop contingency measures in order to recover lost equipment (including collaboration with other research vessel operators.)

Updates to the ISM Code

- IMO working on strengthening implementation and enforcement of Code
- Three fatality investigations focused on the vessel's Safety Management System: Plan what you do, do what you plan!

  (1) OCEANIC ANGEL – fall from cargo hold ladder

  (2) THOMSON CELEBRATION – seaman crushed while assisting in docking of passenger tender

  (3) FR8 VENTURE – waves swept seamen overboard while securing anchors

TOP TEN LAWSUITS FOR 2007

1. U.S. v. Richard Oba – Captain sentenced to six years in prison after 3 deaths on a charter fishing trip
2. Cabezas v. U.S. – Bosun lost thumb in flag flying incident; no safety meeting analysis in violation of Safety Management System
3. Caraska v. Washington – crewman attacked by intoxicated passenger; should have been stopped from boarding under vessel's Safety Management System
4. Lee v. Great Lakes dredge – is a CRAB, a three wheel amphibious vehicle, a vessel for Jones Act purposes?
5. Crawford v. Electric Boat – no warranty of seaworthiness for vessel undergoing sea trials where Crawford caught infection

TOP TEN LAWSUITS FOR 2007

6. Park v. Stockstill – despite long hours on board, vessel found seaworthy in slip and fall case even though deck covered in "faded, old paint"
7. Gruver v. Lesman Fisheries – does a fight on board a ship between a seaman and his former maritime employer give rise to admiralty jurisdiction?
8. Lockheed v. Morganti – Is Lockheed responsible under LHWCA for engineer who drowned on Lake Cayuga during equipment tests?
9. Weeks v. Salinas - back injury leads to finding of unseaworthiness because dolly not available to move batteries
10. Smith v. Tidewater – seaman falls overboard, swims miles to shore, and then fired when he returns to his vessel. Not a good idea.

Conclusions

- A return to profitability in marine insurance should stabilize market factors.
- Several serious incidents reveal the continuing danger of conducting marine science at sea.
- There is a rising expectation in the international community that marine science will be conducted according to the highest environmental standards.

Questions?