



**THE UNIVERSITY  
OF QUEENSLAND**

The University of Queensland  
Marine & Shipping Law Unit

## IMO WORLD MARITIME DAY 2007 SEMINAR



### **ENVIRONMENTAL CHALLENGES FOR SHIPPING: AUSTRALIAN RESPONSIBILITIES & INTERESTS**

Thursday 4 October 2007

supported by

**BLAKE DAWSON WALDRON**

L A W Y E R S

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**Emerging Environmental Management Issues facing  
Australian Ports**  
**Dr Rick Morton**  
General Manager Planning and Environment  
Port of Brisbane

# KEY ISSUES

- Air quality
- Capital dredging and dredge material placement
- Environmental windows
- Environmental offset policies
- Marine pests
- Green technologies/sustainable design & practices



# AIR QUALITY

- Major issue for North America and some European ports – mainly those with existing poor air quality (West Coast USA and EU)
- Initially “smog” related issues (NO<sub>x</sub>, SO<sub>x</sub>) but now includes Greenhouse Gas (GHG)
- Entire port logistics chain under review (road, rail, sea) in terms of particulates (diesel) and carbon emissions



# AIR QUALITY

- Friends of the Earth suing US EPA over failure to regulate ship emissions (September 2007).
- Ports of Los Angeles/Long Beach region : 2M people considered to have increased cancer risk, 29 premature deaths, 750 asthma attacks, 6,600 lost work days etc due to port activities (US EPA data)

*"The ships burn dirty, asphalt-like bunker fuel that is thousands of times dirtier than diesel used by trucks or trains and most operate on engines that pre-date even weak international standards. Just one ship pulling into port can pollute as much a 350,000 cars in one hour and major ports receive hundreds of ship calls a month.*

*The diesel death zones around port and coastal communities continue to expand with no relief," said Teri Shore of Friends of the Earth in San Francisco.*

*Sarah Burt of Earthjustice said "EPA's cavalier approach to the Clean Air Act is forcing polluted communities to take this issue to the courts."*

*"With shipping growth over the next decade expected to bring about a doubling of total ship pollution, the world cannot wait for industry to do the right thing on its own," said Teri Shore, Clean Vessels campaign director for Friends of the Earth."*



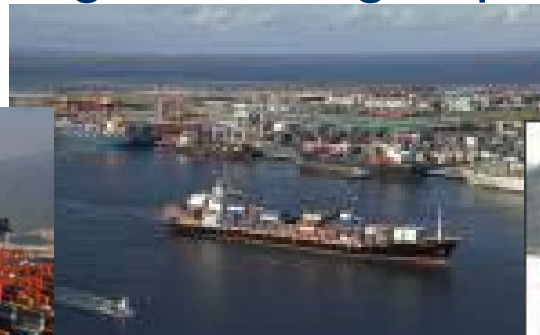
# AIR QUALITY

- Cold-ironing of vessels (plug-in shore power) perceived as requirement for “best practice” ports
- Driven by need for NO<sub>x</sub>/SO<sub>x</sub>/PM reduction rather than GHG
- Carbon emission issues will lead to major changes to ports and shipping (Rotterdam aims to be the world’s low C/energy port)



# AIR QUALITY

- Australian conservation groups requesting information on emissions – GHG perspective
- Australian ports are small GHG contributors (nationally and globally)
- Questions on plug-in shore power (Australian electricity is mostly coal derived)
- Ship and operational vehicles coming under scrutiny – changes coming to port equipment



# AIR QUALITY

- Key area of concern = loading/unloading fine products (ores, coal, clinker, cement)
- Effects to nearby urban areas (visual, property, & health impacts), other port users (eg. imported cars) and the environment



# AIR QUALITY

- Esperance - lead (fauna, human health)
- Karumba - zinc (human health)
- Dalrymple Bay - coal (aesthetics/residential)
- Gladstone - coal (aesthetics/residential)
- Dampier - iron ore (human health)



# AIR QUALITY

- Major reviews of facilities/equipment for dust control
- Enhancement/creation of buffers (land use planning)
- Baseline air quality monitoring and computer models being developed (predictive)
- Increasing attention to fuel types, hybrid vehicles, energy efficiency



# DREDGING AND DREDGE MATERIAL PLACEMENT

- Major capital work programs occurring – most extensive for decades
- Mainly new import facilities for containers and export facilities for mineral resources
- Often near “sensitive” habitats
- General public opposition to at-sea placement
- Monitoring requirements increasing



# DREDGING

- Limited understanding of both baseline conditions and impacting processes
- Reliance on, and expectations of, turbidity plume modelling (impact prediction and works management)
- Public perceptions that all dredging causes long term impacts (beach erosion, toxic sediments)
- Researching alternatives to at-sea placement



  
**PORT of BRISBANE**  
Here for the future



# ENVIRONMENTAL WINDOWS –

- Restrict works (e.g. dredging) to specific time periods for environmental purposes (coral spawning, prawn/fish migration, turtle nesting)
- Common management technique
- Often based on limited data/research (“precautionary principle”)



# ENVIRONMENTAL WINDOWS

- Data for remote areas limited therefore strong emphasis on precautionary principle
- Often applied with anecdotal basis not risk based
- Opportunity for better State and Commonwealth coordination
- Once established become accepted and difficult to “redefine”



*Photos courtesy of website of CRC Reef Research Centre*

# ENVIRONMENTAL OFFSETS

- An environmental offset = compensatory mechanism to counteract an environmental impact (range from partial to net gain)
- Commonplace in Europe and USA
- No one accepted formula
- EU experience with loss of agricultural land for compensatory bird habitat



# ENVIRONMENTAL OFFSETS

- Being increasingly proposed/adopted (WA, NSW policies)
- No overarching principles between States/ Commonwealth agencies



# ENVIRONMENTAL OFFSETS

- Just starting to affect ports, difficult to address
- Quantification (easy for emissions, difficult for flora/fauna/biodiversity)
- Consistency (1:1 vs. 1:3 ratios, same habitat or different?)
- Remote areas (if the region has few degraded areas how to compensate?)



# MARINE PESTS – Overseas Trends

- Major issue worldwide
- Have resulted in restrictions on shipping trade
- Still no accepted treatment mechanism and reliance on at sea exchange of ballast waters



*Photos courtesy of website of CRC Reef Research Centre*

# MARINE PESTS

- A quarantine issue perceived as a “port” issue
- Shipping/ports considered a key beneficiary (more so than environment or fishing industry)
- States developing different approaches to management
- Ballast water introductions vs. hull fouling (commercial vs. recreational vessels)



# BASELINE/MONITORING DATA

- Many ports near high value environmental resources (esp. Queensland and NW Australia)
- New ports planned in undisturbed areas
- Datasets typically limited
- Level of “acceptable” impact is reducing



# BASELINE/MONITORING DATA

- Greater appreciation by management that baseline data investment is required & beneficial
- Benefits of long term monitoring (natural variation and recovery processes)
- Large port projects required to have extensive monitoring



# GREEN TECHNOLOGIES & SUSTAINABILITY

- Linked to climate change
- Sustainability = resource conservation/pollutant minimisation
- Becoming part of standard business practice
- New technologies influencing commercial design (e.g. buildings, pavements, equipment)



# GREEN TECHNOLOGIES & SUSTAINABILITY

- Port tenants/users are willing to pay the additional “upfront” costs
- Leading to major changes to port operations (e.g. hybrid vehicles for intra port movement)



# A SLEEPER ISSUE ?

- Number of Humpback whales migrating up east coast growing rapidly
- 8000 now increasing by 10%/yr
- Prewhaling days 30,000 (14 years away)
- Right whales off Boston coast threatened by ship strike leading to changing ship routes/ shipping lanes etc
- Potential for Australia??





**Thank you**



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