



# Ecology Action Centre



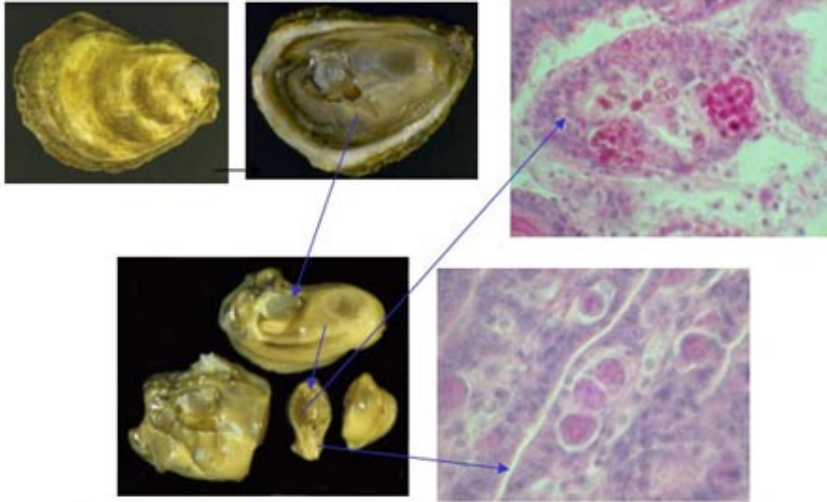
- A respected and independent voice for Nova Scotia's environment since 1971
- We focus on critical environmental issues important to Nova Scotians and our membership base is provincial



# Today's presentation

- Jennifer Graham, Coastal Coordinator, Ecology Action Centre
- The proposed White Point Quarry in the context of the need for coastal policy and integrated coastal zone management
- Gretchen Fitzgerald, incoming Director of the Sierra Club of Canada, Atlantic Chapter
- Risks of marine bioinvaders and ballast water

# Invasion is Forever ...



**MSX OYSTER PARASITE,  
CAPE BRETON ISLAND**

**TUNICATES FOUL  
MUSSEL LINES ON  
PEI**



**TUNICATE COVERS  
+225 SQ KM ON  
GEORGES BANK**

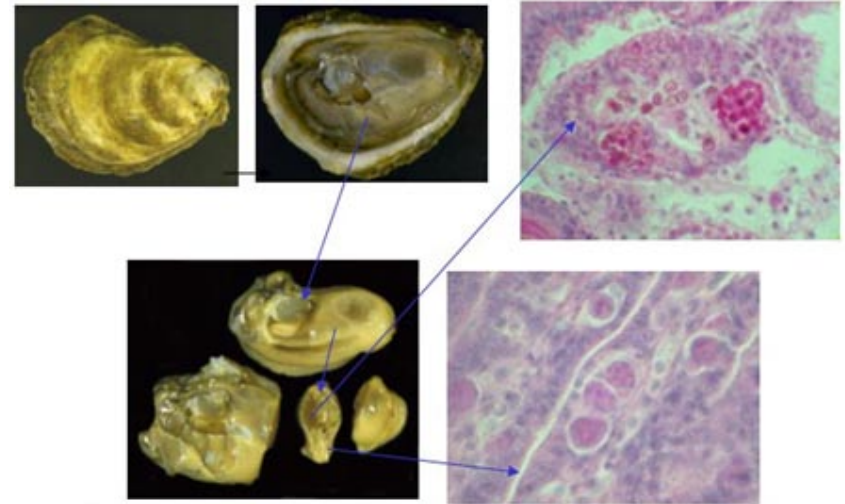
.. except in some *rare* and  
*expensive* cases

<p><i>Caulerpa taxofolia</i> California</p>	<p><b>\$ 4.5 Million USD</b> (does not include costs for time and support of gov't agencies)</p>
<p>Black striped mussel (<i>Mytilopsis</i> sp.) Australia</p>	<p><b>\$2.2 million AUD</b> (<b>excluding</b> labour costs for 270 people involved in eradication efforts. Source: <a href="http://www.cabi-bioscience.ch/wwwgisp/gtc5cs23.htm">http://www.cabi-bioscience.ch/wwwgisp/gtc5cs23.htm</a>)</p>

# Those that can't be eradicated (Pimenthal et al. 2005)

- \$120 billion in the US per year (experts estimate similar costs for Canada)
- 42% of the rare and endangered species in the US are threatened by invaders
- Green crab ~ \$44 million
- Zebra mussel - ~ \$5 billion

# LOSSES DUE TO MSX IN CAPE BRETON



- \$900,000 / year expanding oyster industry
- \$250,000 was allocated to help restore the oyster industry in the region  
(<http://www.ecbc.ca/e/newsreleases/20040813.asp>)
- monitoring (and costs) are ongoing
- THERE WAS NO COMPENSATION

# Lobster Disease

## (Pearce and Balcom, 2005)

- 99% decline in lobster catches in Long Island Sound 1999
- State emergency funds required
- “Perfect storm”
  - Warmer water
  - Increased density of lobsters
- Pesticides not a factor

# Number of Organisms in Ballast Water

(Carver and Mallet, 2002)

- 29 tankers, 21 bulk carriers, 17 container vessels, and 31 general cargo ships
- Highest number of taxa and cell density seen in bulk carriers and tankers from the US east coast



# Number of Organisms in Ballast Water

(Carver and Mallet, 2002)

## **Maximum numbers:**

- 68 phytoplankton taxa per 50 L sample
- 218,000 cells of phytoplankton per litre

## **Average Numbers (COASTAL EXCHANGE)**

- 3700 cells of phyto. / L -> coastal exchange
  - 25,000,000 L ballast discharged per trip ?
- = 92 500 000 000 phyto. cells per vessel

# Ecological Roulette

92 500 000 000 phytoplankton cells per vessel

25% of phytoplankton (**phyto**) species observed in the study were non-indigenous  
1 - 3% (5 - 14 species) were toxic

23 125 000 000 non-indigenous phyto cells per vessel

925 000 000 toxic phyto cells per vessel



# Conclusion

“Given the scope of ballast water issues, it may be advisable to focus on developing strategies to minimize the impact of regular ballast-water discharges in ecologically sensitive areas.”

Carver and Mallet, 2002. pp. vi

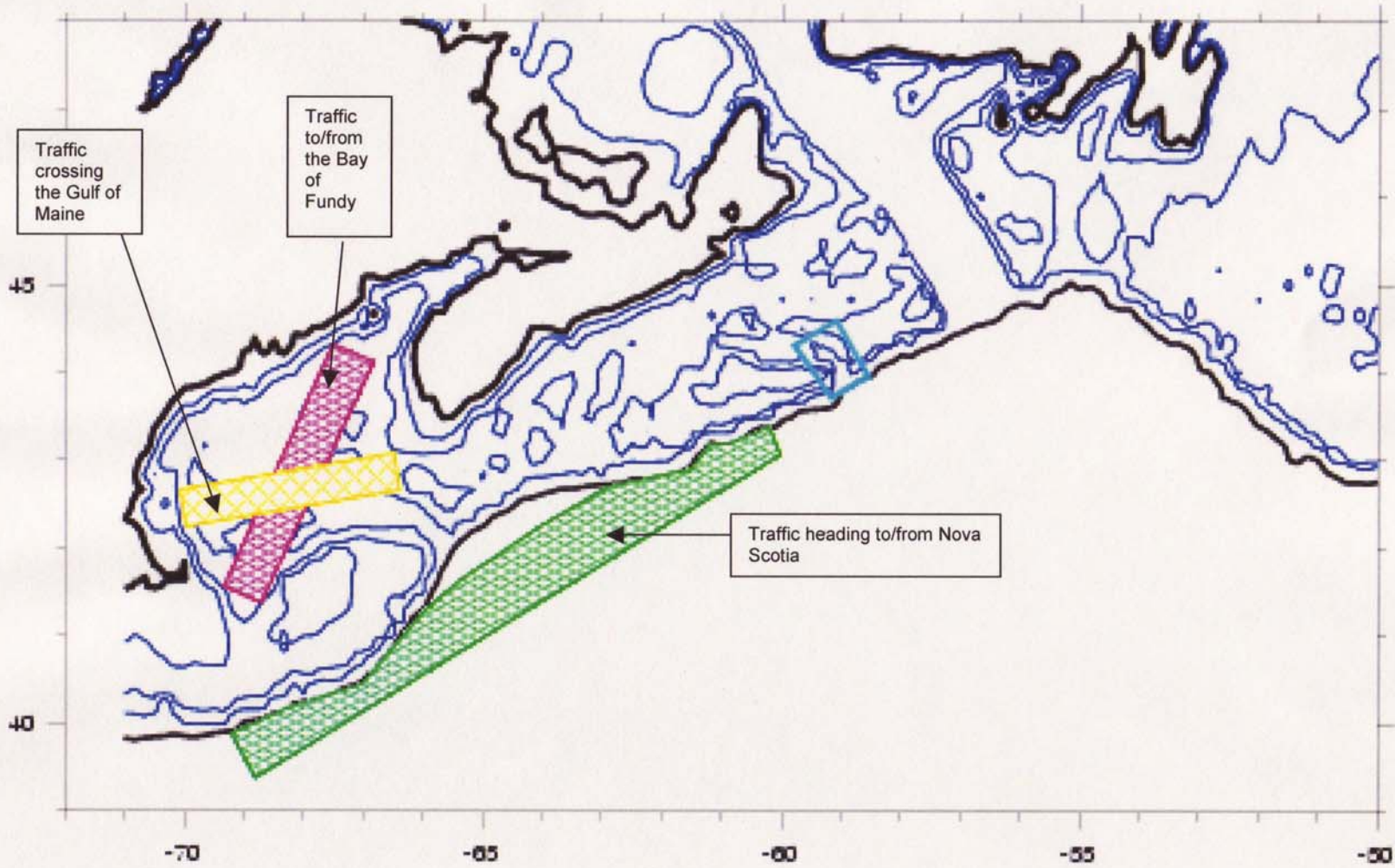
# Ecological Roulette

- Mallet Research Services, 2003  
(Hudson / Raritan Estuary)
- Harmful algae / phytoplankton (chronic algal blooms in Raritan Bay): 5 species
- Ascidians: 5 species
- Crustaceans: 2 (plus one! Chinese Mitten Crab)
- Molluscs: 2 species
- Parasites: 7 organisms  
= 21 potential bioinvaders

# Ecological Roulette (cont'd)

Residual Sediments in Ballast Tanks

Hull Fouling organisms



# Ballast and Hull Fouling Organisms - High Risk

- Mallet Research Services identified water in NJ as high risk
- Short voyages - less time to exchange, greater surviveability of organisms
- Large volumes of ballast water
- Digby area is relatively pristine and productive

# Marine Environment Environmental Effects Invasive Species Marine

## **Marine Transport - Invasive Species**

### **Potential Effects**

- Transport / release of invasive marine species through ballast water into BoF marine ecosystem

### **Mitigation**

- Ballast Water Management in accordance with Canadian Ballast Water Control and Management Regulations (Canadian Shipping Act)
- Vessel operator to implement ballast water management plan

### **Monitoring**

- Compliance monitoring (conducted by Transport Canada)
- Baseline monitoring (Phyto-/zooplankton) at Whites Point and New Jersey Port for future reference and decision making

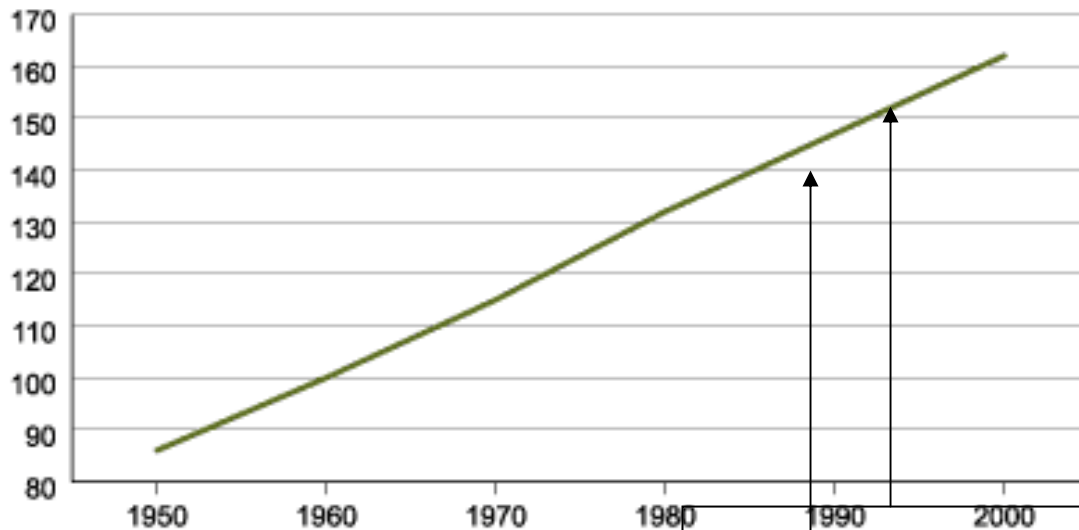
### **Conclusion**

- Operation in compliance with regulatory framework
  
- **No significant adverse effects likely to occur**



# (Lack of) Impact of Regulation of Ballast Water

Cumulative number of aquatic invasive species discovered in the Great



Ballast water  
regulations  
Voluntary  
(US)  
Guidelines

Commissioner of the  
Environment and Sustainable  
Development, 2002

# **Ballast Water Control and Management Regulations**

## **SOR/2006-129**

- (5) It is not necessary to manage ballast water if one of the following emergency situations occurs:
- (a) the discharge or uptake of ballast water is necessary for the purpose of ensuring the safety of the ship in emergency situations or saving life at sea.

# Ballast Water Control and Management Regulations

## SOR/2006-129

4. (1) For the purposes of this section, a ship manages ballast water if it employs, either separately or in combination, the following management processes:
- (a) the exchange of ballast water;
  - (b) the treatment of ballast water;**
  - (c) the discharge of ballast water to a reception facility; and**
  - (d) the retention of ballast water on board the ship.

# **International Convention for the Control and Management of Ships Ballast Water & Sediments - *Resolution A.868(20)***

- Includes a requirement to sample for salinity*
- Encourages timely removal of sediments*
- Encourages minimal uptake at “high risk” times*

## **- Annex - Section C Additional measures**

A Party, individually or jointly with other Parties, may impose on ships additional measures to prevent, reduce, or eliminate the transfer of Harmful Aquatic Organisms and Pathogens through ships' Ballast Water and Sediments.

# Coastal Policy

- Is an overarching framework guiding decisions around coastal uses
- Recognizes the ecological value, economic significance and vulnerability of coastal areas and develops measures to protect and enhance these values
- Can be developed and applied at many levels
- includes a “package” of measures and tools including: legislation, regulations and guidelines, land use planning, community plans, and zoning

# Integrated Coastal Management

- is a **tool for managing use of coastal areas in a coordinated and integrated manner.**
- **addresses appropriate and sustainable use of coastal areas**
- **focuses on the coastal zone as an entity**
- **uses a multi-stakeholder approach and broad-based community input.**
- **provides a process for avoiding conflicts** around use of the coastal zone
- **is a transparent and information-based process**

# Coastal Land Use Planning

“Land use planning is an essential element in the integrated management of Canada’s coastal zone as human usage of land and water invariably results in impacts to the environment. For planning in the coastal zone - a broad region including watersheds and lands bordering the ocean as well as the coastal ocean itself- this means looking at and involving social , economic, political and environmental elements”

Steward *et al* in  
A Guide to Land Use Planning in Coastal Areas of the Maritime  
Provinces.  
January 2003

# Community Participation

- Community articulated visions nestled within overarching coastal policies and plans
- Incorporate local knowledge, values, and existing uses
- Community vision statements and other less formalized processes are also community plans
- Municipal planning strategies and land use bylaws
- Stakeholder processes and management bodies
- Ongoing role



# Principles for Land Use planning in the coastal zone (Steward et al)

- Coastal planning activities and collaborative approaches to oceans management
- Inclusive and transparent planning
- Integrated approach to land use planning
- Consider adjacent lands and coastal watersheds
- Should incorporate higher levels of protection in natural and undeveloped areas
- Planning should use the precautionary approach
- Short and long term planning and development goals

# Coastal Management

- Ecosystem-based management
- Precautionary principle
- Adaptive management
- Public Participation
- Traditional Ecological knowledge

# WHY DOES THE STATE REGULATE COASTAL LAND?

**“New Jersey's coastline is a rich and diverse fabric of natural wonders and economic engines that improve our quality of life and enrich our economy. Businesses, tourists, and residents are drawn to New Jersey's coast for its many economic and recreational opportunities. Coastal industries contribute enormously to New Jersey's economy. Coastal land provides crucial habitat for a wealth of wildlife, including migrating birds, commercially valuable fish and shellfish, and sporting and recreational species. Yet our coastline is under threat from human activities. Hasty, uncoordinated development along the New Jersey shore has already had an impact on this fragile ecosystem. Regulation is necessary to prevent pollution, destruction of vital wildlife habitat, increases in rainwater runoff, and destruction of the natural beauty that attracts visitors. Regulation of coastal activities is also necessary in some cases to prevent loss of life and property from coastal storms, erosion, and flooding.”**

# Who has coastal policies?

- US Coastal Zone Management Act
- US National Coastal Zone Management Program
- US National Estuary Program
- State of Maine Coastal Program
- Massachusetts Wetland Protection Act
- New Brunswick Coastal Area Protection Policy
- Prince Edward Island Planning Act and Subdivision Regulations
- British Columbia Strategic level coastal plans and local level coastal plans
- Scottish National Planning Policy Guideline NPPG 4:  
LAND FOR MINERAL WORKING

# National Planning Policy Guideline

## NPPG 4: LAND FOR MINERAL WORKING

- “Given their potential size and scale, superquarries are likely to have significant impacts on their locations, where development does take place. In recognising the complex economic, environmental and social issues involved, the Government believes that a cautious approach is required to the further development of coastal superquarries. The Government's strategy is to provide a national framework for any such developments, enforced through normal planning procedures and development control, in conjunction with broad locational guidance, an upper limit on superquarry numbers, and periodic reviews of policy.”

(<http://www.scotland.gov.uk/Publications/2005/03/3085211/52177>)

Who doesn't have a coastal  
policy?

# How would coastal policy help when quarries come to town?

- **Avoid the conflict**, hard feelings and cynicism
- A **transparent process** which involves all stakeholders and provides a **continuing role** in the process making it **more accountable**.
- Identifies areas that are suited for different types of economic development opportunities and those that are **environmentally sensitive**
- The baseline information is in place to ensure a **better understanding** of the development and its environmental impacts
- **Proactive, inclusive and transparent**

# Integrated coastal management would look at the negative impacts

- Habitat loss and alteration
- Disturbance of fish habitat
- Changes in hydrology and run off
- Potential impacts on right whales
- Noise, lights, dust
- Wetland loss and alteration
- Human health
- Green house gasses
- Social conflict
- Loss of traditional coastal livelihoods
- **...etc.**



# Integrated Coastal Management

- Considers all the issues and the connections between them
- Considers cumulative impacts
- Creates a process and a framework for decision making that incorporates multiple uses, respects local visions for the area, recognizes and values existing assets and uses, and minimize negative impacts
- Integrated coastal management is a proven approach, Many other communities have done it.

# A quarry without a coastal policy

- Unacceptable ecological, economic and social consequences
- Precludes other more sustainable options and may prevent future coastal planning and integrated management
- Is contrary to existing visions for the future articulated by local communities

# Recommendations to Panel

- Reject White Point Quarry proposal
- Recommend that Provincial Government work with key stakeholders to develop a provincial coastal policy that incorporates principles of integrated coastal management and community participation
- Freeze on large scale industrial extraction projects on the coast until such policy is developed

# Press Release - April 2<sup>nd</sup>, 2004

- “Lafarge Aggregates UK has announced today that it is withdrawing from the proposed coastal quarry at Lingerbay on the Isle of Harris, Scotland.”
- It follows the decision in the Scottish Supreme Court sourcing medium and long term supplies of mineral in the UK remains unresolved and calls for a serious public debate about where the building materials of the future will come from

[http://www.foe.co.uk/resource/press\\_releases/harris\\_superquarry\\_saga\\_fi\\_02\\_042004.html](http://www.foe.co.uk/resource/press_releases/harris_superquarry_saga_fi_02_042004.html)

# In Conclusion

- All proposed mitigation measures based on the premise of strategic (and democratic) coastal plan
- No plan – No quarry
- No quarry - how about a plan?

# Questions for Panel

- Why are sediments ponds placed in the identified coastal buffer zone?
- What type of ballast water management are they proposing?
- What amount of ballast will be discharged?
- How often will exchange be possible?
- What density of organisms will be discharged?

# Questions for Panel (cont'd)

- Where will barges and other boats used in construction be coming from?
- Have fisheries and aquaculture industry representatives been consulted regarding what invasive species are of most concern?
- What response is planned for when invaders are detected?
- Are funds set aside for rapid response?
- What monitoring of ships' ballast and hulls will occur?