A West Coast Oil and Gas Industry
What Might it Look Like?

1. Is there oil and gas off BC?
2. What activities are expected?
3. Probable industry regulation.
4. Risk, risk control, & concerns.
5. Benefits of O & G production?

A Responsible Industry

- Offshore O & G industry is worldwide
- In earthquake zones, extreme weather, and environmentally sensitive areas
- Alaska, California, UK, Norway, Africa, Mexico, Cdn Atlantic/Arctic - ***even*** Lake Erie
- Proven technology, tight regulation, & experienced people reduce risk & impact
- Industry is a long term activity and hence long term involvement with communities
- Projects must pass benefits tests

“Do It Safely or Not At All”

- Management of risk to health, safety and environment (HS&E) planned from the start
- HS&E Managers are senior team members
- HS&E Plans detailed and thorough, and consider local environmental conditions
- HS&E Plans benefit from and draw on worldwide industry experience
- Careful oversight by regulatory boards

Environmental Management Plans

- Environmental Management Plans are part of the operating plan for any project
- EMPs incorporate risk and impact reduction into project design, operating procedures, equipment selection and staff recruitment / training
- EM plans establish routine monitoring & standards: e.g.
  - Shutting down seismic if there are whales
  - Operating liaison committees with fishers
  - Measuring oil content in any discharges
  - Weather and oceanographic monitoring

Typical Concerns

- Concerns similar worldwide: socio-economic benefits/impacts; impact on fishing/tourism/wildlife, sensitive areas; risk & impact of spills/blowouts; operational safety; shipping hazards
- These concerns are considered in risk assessment and management plans
- Risk work focuses on areas with:
  - High probability (even if minimal impact)
  - Significant impact (even if low probability)
  - High public concern (even if low probability & impact)

Risk Assessment

- Identify hazards
  - What might happen or go wrong? How likely?
- Assess the consequences
  - What impacts? How serious?
- Risk Management Plan: project design & location, equipment choice, crew selection & training, operational plans, monitoring, emergency exercises/simulations.

THE OFFSHORE HAS RISKS

- THE OFFSHORE HAS BOTH BENEFITS AND RISKS
- SIMILIAR TO ANY BUSINESS – OR LIFE

Accidents Have Happened

Industry has learned from past incidents…

and there have been fewer problems in the last 30 years

The "Titanic principle" is key!

Sinkings
- Ocean Ranger
- Roncador

Fires
- Piper Alpha

Blowouts
- Five majors in early years

Roncador Production Platform 2001

- Onboard explosion
- Emergency sub-sea systems worked
- Small crude spill from “riser” and small diesel fuel spill
- “Titanic Principle” worked

Every Mariner's Nightmare - Fire at Sea
The Piper Alpha Disaster – North Sea

- Very heavy casualties
- The disaster was ***extensively*** investigated
- The experience is used in current industry production system designs

WORLD OFFSHORE BLOWOUTS

- 5 blowouts over 150,000 bbl (Exxon Valdez tanker 260,000 bbl)
- Four of five early days: 1960-1980
- Four of five in third world countries
- US: none over 1,000 bbl since 1992
- US federal waters: none over 1,000 bbl since 1970
- Cdn east coast: no oil blowout in 30+ yrs. (1-1,500 bbl condensate release)

IS OFFSHORE IS A MAJOR WORLD OCEANIC POLLUTER?

General marine traffic	45.2%
Municipal/industrial runoff	36.2%
Atmospheric	9.2%
Natural seeps and erosion	7.2%
Offshore oil and gas industry	2.2%

(Source: S.L. Ross 1995)

- WORLD BASIS: OFFSHORE O&G LESS THAN 1/3 OF NATURAL SOURCES
- N.A. WATERS: 1% FROM OFFSHORE O & G (NRC 2002)

CONCERN: SEISMIC DAMAGE

- NO DAMAGE TO FISH UNLESS ***VERY*** CLOSE
- TRY TO TIME OFF MIGRATIONS, SPAWNING
- EXPLORATION PHASE, SHORT TIME ON SITE, OFTEN ONE TIME, SMALL FOOTPRINT
- FAR LESS HARM THAN FISHING!!!

Concern:

BC NORTH COAST

WATERS WORST IN THE WORLD

NL 2002 SPILL STATISTICS

- 104 million bbl crude: total product spills 0.04 bbl crude & 0.06 bbl condensate
- 21spills (153 bbl) total: 19 of them totaled 2.1 bbl (mainly hydraulic oil and fuel)
- 2 spills of synthetic based mud comprised 98.6% (151 BBL) of the total

2002-3 Annual Report - Canada Newfoundland Offshore Petroleum Board

NL SPILL STATS 1997 - 2002

- Crude production 273 million bbls
- 138 spills all fluids totaling 256 bbl
- 201 bbl synthetic based mud
- 55 bbl all sources of hydrocarbons
- Tight operations, controls, and monitoring – the system works

2002-3 Annual Report - Canada Newfoundland Offshore Petroleum Board

CONCLUSIONS

- Zero risk=zero benefit – there is ***some*** risk in any resource industry
- Excellent 30+ year offshore record in developed countries
- Environmental risks very low as proven in Atlantic Canada
- Systems and regulation will minimize risks and impacts