



Lessons Learned in Preparing for Oil Spill Response and Assessment

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Quote

“ In the realm of ideas, everything depends on enthusiasm; in the real world, all rests on perseverance. ”

— Johann Wolfgang von Goethe





Oops.....



Early Drivers , Challenges

- What it is perceived Vs What is real
- Media, fear
- Early answers
- Panic by RP ...
- Setting priorities
- Lack of experienced people
- Trust in the team
- Chaos, fatigue
- Science vs legal vs media
- Decision makers uninformed
- Logistics
- Delays in mobilization



Training and Orientation Before an Event

Successful spill response depends on recognition that a major spill is a dynamic among:

- > Science
- > Law
- > Process
- > Precedents
- > Personalities and egos of key players
- > Politics/Media
- > Technical options and strategies



Context: Seminal Events in the US

Exxon Valdez 1989

Oil Pollution Act (OPA)1990

Natural Resource Damage Assessment (NRDA)
Requirements



More Recent Events and Drivers

Macondo Gulf of Mexico Blowout

Montara 2009

NOPSEMA



What Are the Recent Trends?

- Greater Dollar Demands with Small Pollution Incidents
- Greater Third Party demands regardless of actual business impact
- Impacts not limited to US

Baseline Considerations and NOPSEMA



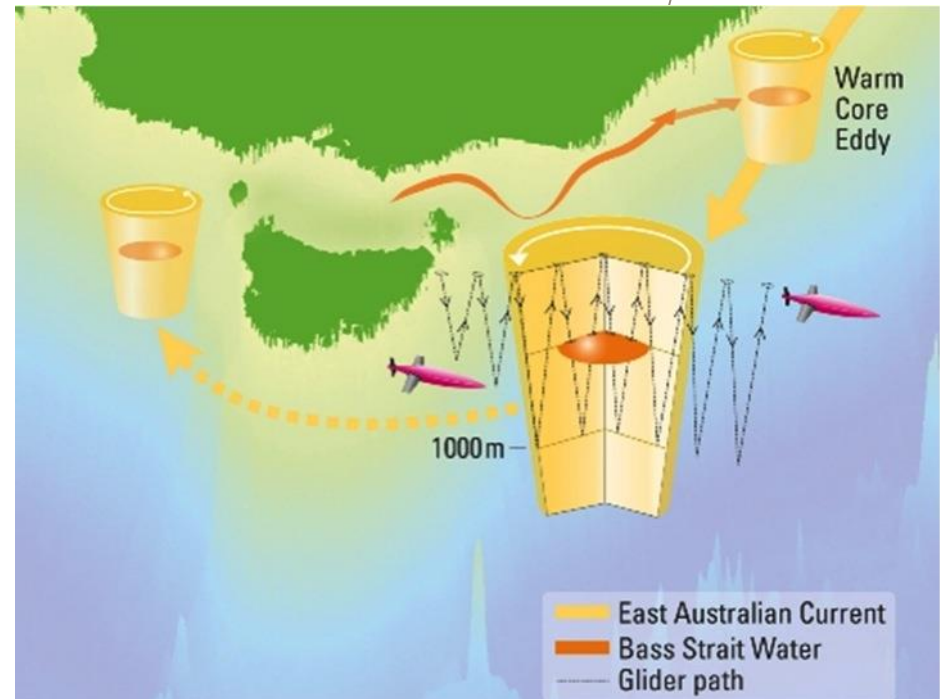
Things to consider re baseline

- > Variability within communities
- > Importance of seasonality
- > Physical factors, e.g. complexity of currents
- > Use of baseline data, degree of precision needed for necessary decisions



Physical Factors Key for Baseline Design

- > Physical transport influences distribution of plankton and other biota
- > Physical features can concentrate fishes and other vertebrates
- > Ocean physics can be used to develop robust baseline sampling plans



Ocean physics guides baseline development

Potential Spill Magnitude Defines Baseline Scale

- > Baseline physical dimensions defined by spill scenario
- > For example, Montara 2009 spill
 - oil concentrated within 23 km² of release site
 - ~76 m water depth
 - potential baseline sample universe of 1,748,000 m³
 - oil observed over 6,000 km² - so much larger sampling universe possible
- > Baseline temporal scale defined by spill
 - August 21 – November 3, 2009
 - spill duration of 74 days plus longer-term effects
 - identifies relevant season and duration for baseline



Greatest Assessment Challenges

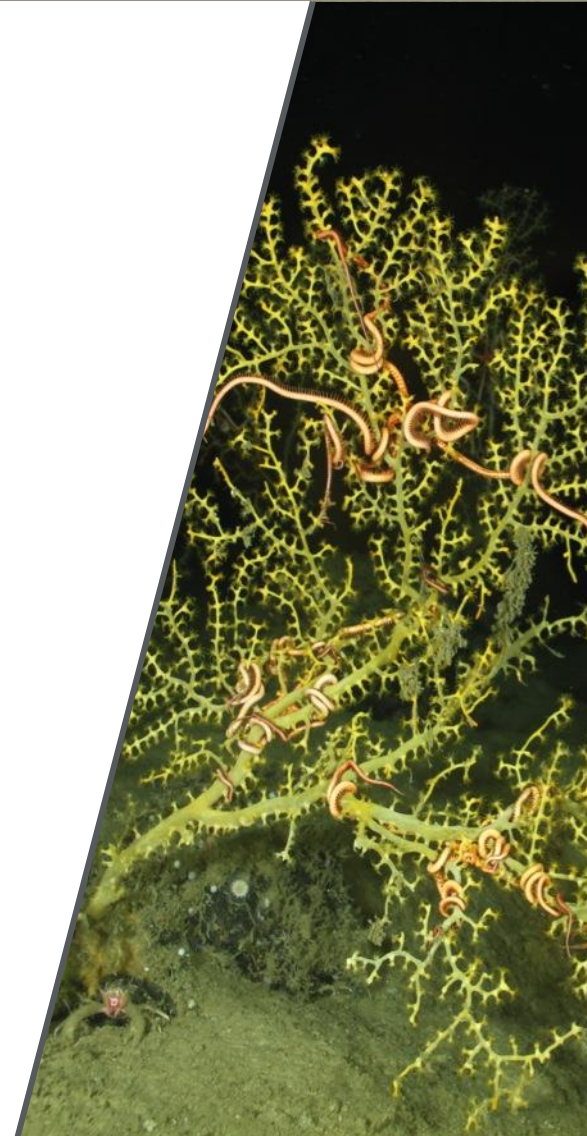
Water column: planktonic and pelagic populations:

- > Actual impacts hard to impossible to capture
- > Impacts inferred from water column concentrations and toxicology studies
- > Value of baseline data in water column key to sample design



Challenges in Quantifying Offshore Baseline

- Big
- Dynamic
- Patchy
- Spatial-temporal variability
- Sampling Difficulty
- Logistics/Statistical Power/Costs



What
to do ?



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Preparation



Team Building Practice



Define and Know Your Team and Practice

As in war, logistics in response and assessment,
can make the difference between success and
failure

- > equipment
- > transportation
- > timing
- > people/teams
- > communication

Be Realistic
Be Safe



Begin With the End in Mind



Science, Wisdom and Being Prepared

“there's no harm in hoping for the best as long as you're prepared for the worst.”

— Stephen King, *Different Seasons*

“Everything must be made as simple as possible. But not simpler.”

— Albert Einstein

“The good thing about science is that it's true whether or not you believe in it.”

— Neil deGrasse Tyson

“By three methods we may learn wisdom: First, by reflection, which is noblest; Second, by imitation, which is easiest; and third by experience, which is the bitterest.”

— Confucius

