# Ocean Science Trust Study Overview

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Prevention First Symposium
October 20, 2010

Project Approach

- Evaluate range of potential options
- Describe overall regulatory and legal context
- Select options for in-depth analysis
- Conduct in-depth analysis
  - Focus on choice between options
  - Describe and evaluate major sources of impact
  - Develop decision model for more detailed examination
- Investigate legal and liability issues
- Interact with EAC at key points in the process

Overview of Options Considered
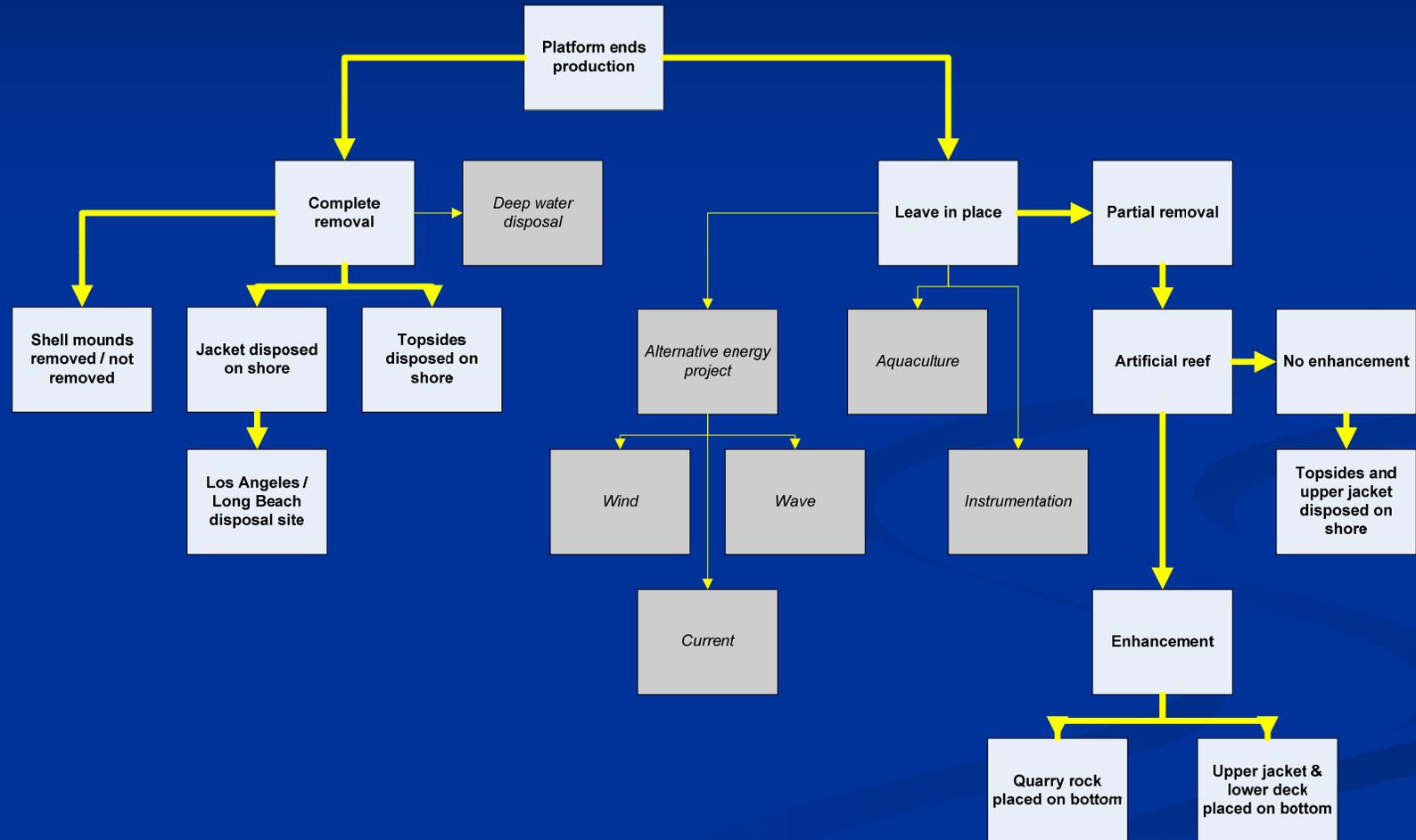
Criteria for Selecting Options

- Viability within ten-year timeframe
- Existing legal framework for implementation
- Technical feasibility
- Economic viability
- Degree of acceptance by managers
- Degree of interest from proponents
- Relevance to the majority of S CA platforms

Features of the Analysis

- Many aspects identical (well abandonment, topsides removal)
- Use available data / information
    - Published literature, reports, monitoring data
    - Mix of quantitative and qualitative information
    - Many data gaps
- New information for
    - Fish production on platforms
    - Worst-case air emissions
    - Minor costs (dredging, reef enhancement, cathodic protection)

Factors Excluded From Analysis

Reason excluded	Likely effect
Identical in both options	
■ Well abandonment ■ Platform preparation ■ Pipeline/power cable disposition ■ Platform deck removal ■ Closure shoreside facilities ■ Aesthetics	■ None ■ None ■ None ■ None ■ None ■ None

Factors Excluded From Analysis (cont.)

Reason excluded	Likely effect on analysis
Data poor, hard to quantify, small	
■ Employment ■ Broader regional, state economy ■ Tax consequences ■ Mitigation costs or credits ■ Non-MMS permitting costs	■ Very small ■ Very small ■ Small to moderate depending on magnitude and policy implications ■ Small based on lack of legal basis and precedent for artificial habitats ■ Small because permitting requirements likely to be similar for both options

Key Findings

- Impacts not equally likely or significant
- Localized and short-term
  - Benthic communities
  - Birds
  - Marine mammals
  - Water quality
  - But larger chance of impact under complete removal
- Mix of potentially positive and negative
  - Socioeconomic due to changes in ocean access
  - Fishing, nonconsumptive, shipping

Key Findings (cont.)

- **Potentially larger impacts**
  - Air emissions (Harmony alone)
    - NOx: 600 tons vs. 89 tons
    - CO_2: 29,400 tons vs. 4,400 tons
    - PM_{10}: 21 tons vs. 3 tons
  - Biological communities
    - Standing stock
    - Recruitment and production
  - Costs
    - $1.09 billion for complete removal
    - $478 million for partial removal

Desired Option

- No way to make an objective choice
- Depends heavily on preferences

Complete	Partial
Ecosystem integrity	Air emissions
Strict compliance	Biological production
Clear ocean access	Cost / funding
Potential liability	Recreational fishing
	Water quality

Partial Removal: Legal and Liability

- Well-defined pathways for ownership transfer
- Well-developed mechanisms for managing liability
- Funds available from avoided costs
- CA would require new legislation
  - Acceptance of ownership of reefs in OCS
  - Expanded artificial reef program
  - Acceptance / management of avoided costs
  - Liability containment

Ownership Transfer Pathways
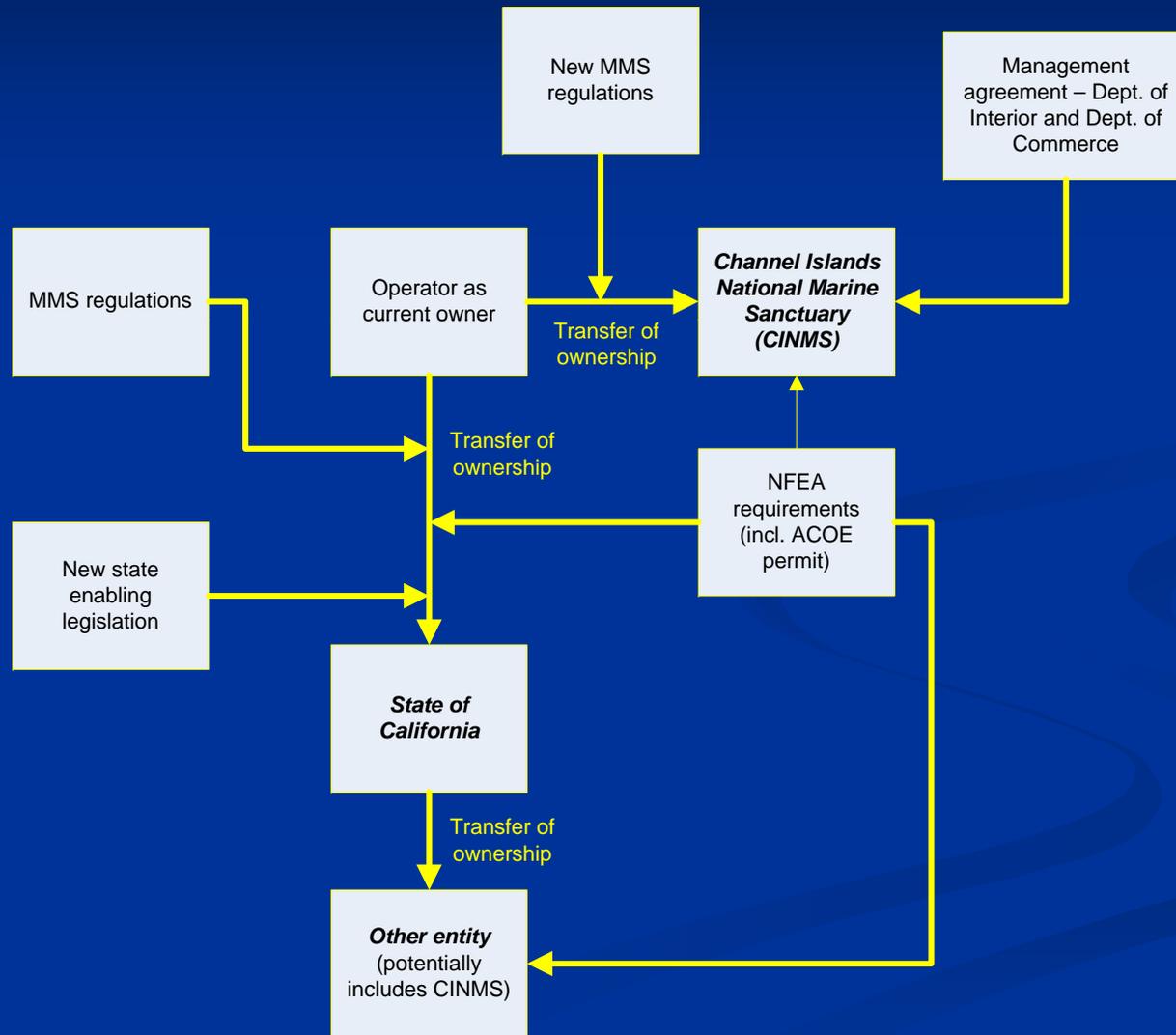
Modeling the Options

- Many alternative options and preferences
- Difficult to analyze exhaustively
- Important to enable stakeholders to examine implications of assumptions and values
- Decision model loaded with all data and assessments used for the analysis
- Integrates quantitative and qualitative aspects

Model User Interface

Defining Decommissioning Scenarios

Defining Specific Impacts

Embedded Data

Edit Table - Input Decommissioning Costs

Edit Table of Input Decommissioning Costs ($)

Decommissioning Cost Categories ▼

Platform ▼

	Platform A	Platform B	Platform C	Edith
Proj mgmt & Engr & Planning	0	0	0	0
Permitting & Regulatory Compliance	0	0	0	0
Platform Preparation	957.71K	957.71K	957.71K	1.163564M
Conductors	4.157409M	4.329792M	3.316694M	1.650362M
HLV Mobilization & Demobilization	0	0	0	0
Abrasive Cut Spread Mob/Demob	0	0	0	0
Deck - removal	1.759372M	1.759372M	1.759372M	2.45146M
contingency portion	1.46502M	1.46502M	1.46502M	2.11302M
Pile - removal	1.515498M	1.515498M	1.584834M	4.095035M
Jacket - removal	558.032K	558.032K	558.032K	2.804512M
contingency portion	280.54K	280.54K	280.54K	1.801392M
Transportation & Disposal (metal)	1.327488M	1.327488M	1.327488M	3.086592M
Transportation & Disposal (conductor)	363.358K	379.381K	288.32K	136.641K
Site Clearance	709K	709K	709K	709K
Shell Mound Removal	0	0	0	0
Reef Enhancement	0	0	0	0

Explicit Assumptions

- Causal structure
- Explicit documentation / explanation

Uncertainty Analysis