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**FUTURE CHALLENGES IN OCEAN MANAGEMENT: TOWARDS INTEGRATED
NATIONAL OCEAN POLICY**

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ABSTRACT

This paper continues elaboration of approaches to the development of integrated national ocean policy suggested previously by Arid Underdal [2] and the author [1]. Brief summaries of the arguments therein are provided followed by presentation and application of a framework for comparative evaluation of the performance of national ocean policy decision systems. In addition, the analysis of multiple use conflicts as a critical element of change in forging integrated national ocean policy is considered and the paper concludes with formulation of advice to governments.

**ALTERNATIVE DIRECTIONS FOR OCEAN MANAGEMENT DURING THE 1990'S
AND BEYOND**

The Problem Defined

Let us first be clear on the nature of the problem for which we are seeking solutions. In an earlier article [1], I have argued that most of what currently passes for national ocean policy is quite primitive, both conceptually and analytically. This characterization is as true for most advanced industrial countries as it is for most developing countries. The major drawback is a widespread inability to formulate and implement ocean policy as an integrated whole, balancing the overall interests of the nation in the short- and long-term.

The reason for such widespread fragmentation in national policy-making structures and processes for the oceans seems to be a result of the fact that patterns of ocean use have developed largely in isolation from each other. Different technologies have given rise to separate networks, communities, and ways of thinking and doing.

These communities have matured into fully autonomous sectors with weak or no links between them.

This condition was not problematic when the pace of technological change was slow and when human use of neritic zones of the world ocean was limited. It is highly dysfunctional now when the rate of technological change is rapid, when human use of neritic zones is multiplying apace, and when different uses begin to generate adverse impacts (or negative externalities) for each other.

The challenge to the nation-state comes not only in the form of technological advance and its effects. There has simultaneously been a jurisdictional revolution in the law of the sea, enshrined in the concept of the exclusive economic zone (EEZ), which replaces the patchwork quilt of coastal state jurisdiction over specific activities in the ocean adjacent to its coast with generalized authority over the ocean and its resources out to 200 miles from shore and, in some cases, to 350 miles or the 2,500 metre isobath (whichever is greater) on the continental margin.

In this zone, the coastal state exercises sovereign rights over all living and non-living resources and other activities for the economic exploration and exploitation of the zone. In addition, the coastal state exercises jurisdiction of varying scope over:

- 1). the establishment and use of artificial islands, installations, and structures;
- 2). the conduct of marine scientific research; and
- 3). the protection and preservation of the marine environment.

Finally, as applied to archipelagoes, the implementation of the EEZ concept within the regime for archipelagoes, significantly extends coastal state sovereignty over the archipelagic waters enclosed therein.*

Collectively, this jurisdictional revolution is of tremendous global significance because it represents the consolidation of coastal state control over an additional 35-36% of the surface of the planet and precisely over those areas of the ocean most intensively utilized by human beings. But, anchored as they are firmly to the past, most coastal states continue to be oblivious to the opportunities now available and incapable of resolving the growing multiple use conflicts in the EEZ which they now face. Furthermore, the ocean as a whole continues to play a role in the national development process which is far below its potential for most coastal states. Changing the way ocean policy is made and practiced is proposed as the principal remedy for this unsatisfactory state of affairs. In particular, the argument is that to become more effective and efficient, national ocean policy must become more integrated.

* Archipelagic waters include the ocean enclosed by the application of straight baselines within an archipelago. These baselines are to join the outermost islands and drying reefs of the archipelago, provided that the main islands are included and that the ratio of the area of the water to the area of the land is between 1 to 1 and 9 to 1.

What is Integrated National Ocean Policy?

Underdal [2] has elaborated the first comprehensive response to the question posed above. He argues that since processes of ocean use are diverse and intensifying, they involve a significant exchange of externalities. Solutions for this problem must therefore be sought in increased coordination. An integrated policy, consequently, is one in which the diverse policy components are unified according to conceptual notions of the whole range of interests involved and it must meet the tests of comprehensiveness, aggregation and consistency.

Comprehensiveness is measured in terms of space, time, actors, and issues and it is most important at the input stage. *Aggregation* is the critical component of the input processing or analytic stage where the choice of policy options would depend on the aggregate evaluation of consequences in the short- and long-term. *Consistency* has both vertical and horizontal dimensions. In the vertical dimension, it means that specific actions taken by different agencies conform to general guidelines. In the horizontal dimension, it means that only one policy is being pursued at any specific period in time.

Aggregation may in fact be the single most critical phase of developing an integrated policy because a concern for the aggregate evaluation of consequences in the short- and long-term implies a concern for *net benefit*. Underdal reminds us that this concept need not be narrowly construed to imply trade-offs between ocean uses in every case. To the contrary, we are advised to seek Pareto-optimal solutions in order to avoid defections by those who see themselves as losers. If trade-offs are necessary, then those in charge should seek to provide compensatory arrangements to the losers. In any event, policy integration inevitably means weighing interests and setting priorities.

When and How Should We Seek to Integrate National Ocean Policy?

Underdal further reminds us that not everything should be integrated all the time and that, given its costs, the search for integrated policy should be pursued only where and when significant interdependencies exist. As an operational rule, also, we should not try to integrate beyond the point where the marginal cost of the integration effort equals the gain from policy improvement. Finally, Underdal distinguishes between two approaches to policy integration: the direct route via command and the indirect route via research, training, analysis, and institutional design.

Miles [1] sought to take Underdal's analysis one step further by designing an approach which is intermediate between the extremes of merely expanding the capabilities of the different sectors to deal with multiple use problems, on the one hand, and centralizing all ocean activities in a single ministry, on the other. Each extreme was in fact rejected. The first was rejected because it does not go far enough and would not solve the problems identified and the second because it would consume the energies of

all participants in a massive battle to protect and/or enlarge organizational domain (turf), which would deflect the entire attempt and render it unfeasible.

The intermediate solution recognizes that the individual sectors would and should continue to exist in order to foster the level of specialization required to manage operations characteristic of that sector. At the same time, it seeks to provide the state with a capability to integrate policy according to explicitly defined notions of national net benefit. This capability would be overlaid on the sectors and would be based on limited direct (command) approaches augmented principally by indirect approaches as identified by Underdal.

The limited direct approach would be to vest overall responsibility for *coordinating* sea-use planning and ocean development activities in a cabinet-level appointment. This need not be a new position. Indeed, it is preferable if one of the existing agencies be designated the lead agency, the choice contingent upon which ocean uses are most significant for the country in question.

The task of this agency vis-a-vis formulating and implementing integrated national ocean policy would be to harmonize sector policies in relation to national objectives and strategies. National objectives and strategies would be defined as a result of an explicit analytic exercise involving the bureaucracy, the legislature, and the marine user community. The exercise itself would pose and seek to answer four questions covering the entire suite of ocean uses in which the country is engaged:

- 1). What do we want?
- 2). What *should* we want, given our biogeophysical conditions?
- 3). How do we get there?
- 4). What are we prepared to pay to get there?

At the end of this exercise, the national decision system should have a clear idea on what activities need to be managed, when and where governmental regulation would be appropriate, and what more cost effective alternatives to regulation might be feasible. In addition, one would expect out of this exercise at least the following outcomes:

- 1). an articulation of short- and long-term goals;
- 2). goals should be few in number and ranked in order of priority;
- 3). an explicit process for coordinating policy across all marine sectors;
- 4). a requirement for annual reports to the nation evaluating performance in relation to stipulated goals;
- 5). creation of intersector links to facilitate communication and common awareness of problems; and
- 6). allocation of authority adequate to assigned responsibilities.

What is set out above constitutes a significant improvement over existing conditions and, indeed, several countries have systems in place which approximate this reasonable ideal. Realistically, however, the existing and almost universal model of institutional design will be a major constraint on getting from where we are to where we want to be. Let us therefore turn to an analysis of the existing situation as represented by a variety of national systems in an attempt to understand where the most significant elements of change might lie.

SEEKING THE MOST SIGNIFICANT ELEMENTS OF CHANGE: COMPARING NATIONAL OCEAN POLICY DECISION SYSTEMS

Given the large number of coastal states in the world (135)* and the significant variation potentially existing between them in terms of their ocean management systems, the onus is on the analyst to elaborate an approach to comparative evaluation which will be general enough to subsume all empirical examples while still allowing quite detailed investigation of particular cases. Moreover, since only a few detailed examinations of the systems and performance of some coastal states are currently available, it must be admitted that a comprehensive comparative evaluation cannot now be undertaken. But one can at least lay out an agenda for research on these issues and consider a few empirical cases.

The analytic approach herein adopted is based on some earlier work by Oran Young [3, 4] which suggests that comparative evaluation of national ocean management regimes should include at least three types of analyses:

- 1). Regime Dimensions
 - a). The structure of rules and rights:
 - i). ownership;
 - ii). use.
 - b). Procedures for decision making.
 - c). Approaches to conflict resolution.
 - d). Compliance mechanisms.
- 2). Criteria of Evaluation
 - a). Equity.
 - b). Efficiency.
 - c). Effectiveness.
 - d). Accountability.

* This total does not include new coastal states in process of creation as a result of the disintegration of the former Soviet Union.

3). Regime Dynamics (i.e., what causes variation?)

a). The role of the state.

In addition, I would add the following dynamics:

b). culture and philosophical approaches to ocean resources and ocean uses.

c). The nature of the resource:

i). short-term renewable (months to decades);

ii). long-term renewable (centuries to millennia);

iii). intrinsically important to life.

d). The value of the resource/ocean use.

e). Technologies of ocean use.

f). The structure of political coalitions.

As indicated above, we do not yet have the information available to permit a comprehensive evaluation to be attempted. In the time and space available to me therefore, and bearing in mind the desirability of focussing on the critical elements of change, I shall focus on only a few national systems and provide responses to the following specific questions:

1). what are the specific "engines" [dynamics] driving the policy sequences?

2). What consequences did they generate?

3). What are the critical levers for inducing change?

4). How manipulable are they over the short- and long-term?

5). What is the role of the government in each case?

6). What policy instruments were actually utilized?

7). How did the regime perform as judged by the evaluation criteria?

TABLE 1 summarizes in very general fashion the major successes and failures for the national systems of the U.S., Japan, Canada, Norway, and The Netherlands.

The national ocean management systems of these five states are all fully developed. They all have high technical capabilities to use the ocean and its resources and there exist significant ocean policy-making capabilities in each case. Japan and The Netherlands have explicitly stipulated lead agencies and coordinated decision processes but, in all cases except the U.S., the emphasis is placed to varying degrees on intersectoral coordination, policy harmonization, and negotiations across sectors at the ministerial level.

The specific situations differ within each country with respect to the nature of the resource, the value of the resource/use, and the technologies of use but it does appear that culture and philosophical approaches towards fisheries as a resource is the most important variable generating differences across countries as far as the role of the state is concerned. The structure of political coalitions is derived from the combined effects of culture/philosophy and the role of the state.

TABLE 1
National Ocean Policy: Comparing Systems

	<u>Successes</u>	<u>Failures</u>
U.S.	Comprehensive Participation; Legislative Infrastructure; High Technical Capability; Professional Ocean Policy Community	High Degree of Frag- mentation; Intense State/ Fed. Jurisdict. Conflict; Ocean is Low Priority; No Capability to Produce Integrated Management
Japan	Centralized/Coord. Ocean Policy Decision Process; Ocean High Priority; High Technical Capability; High Consistency of Policy; Implementation Easier	Fragmentation Moderate Public Input Limited
Canada	Ocean Stated as High Priority; Seeking Coord. Ocean Policy; Strategic Planning; Professional Ocean Policy Community; High Technical Capability	Questionable Implementation; No Public Participation
Norway	Coord. Policy Decision Process; High Technical Capability; Professional Community; Ocean is High Priority; Control over Implementation	Not Major; Time Lag Between Occurrence of Conflict and Policy Responses Long; Insti- tutional Capability Limited to Oil, Fish and Pollution; Shipping Quite Separate
Netherlands	Ocean High Priority Intense Multiple Use Conflicts; Systematic Develop. Process for making Integ. Ocean Policy; Cross- Sector Links at all levels	Not Major

Source: [11-19]

As will be seen from a detailed look at three sectors (fisheries/oil and gas/and shipping), one finds also that judgements on the criteria of evaluation vary independently. For instance, national systems or regimes can be efficient and effective but simultaneously mixed on equity and low on accountability. Conversely, they can be high on accountability, mixed on equity, and low on efficiency and effectiveness.

Fisheries

Let us now look at the detailed performance by sector beginning with fisheries in TABLE 2.

The basic management problems in fisheries are common to all coastal states. These are represented by the potentially severe imbalances which exist between fugitive but vulnerable stocks and the scale of fishing effort, however constituted. Beyond this commonality, one can note also that traditional social organization and culture in Japan combined with consensus decision-making at every level [5] can lead to the same kind of overall control of the management system achieved by New Zealand [6] after a formal decision was taken to maximize economic returns to society.

Extended coastal state jurisdiction was a significant stimulus to innovate in most cases but what was done differs markedly from place to place. Where extended jurisdiction was combined with centralized governmental control over fisheries and the will to use it, the result was a major impetus to optimize social benefits or to maximize economic returns to society (New Zealand and Canada). Where, however, extended jurisdiction was combined with the abdication of effective control and even responsibility by the central government, as in the case of the U.S., the results were quite chaotic [7, 8].

There are considerable commonalities in the role of the government. In most cases, the government is the unified coordinator, regulator, manager, and retains control over policy implementation. The government is also the source of information concerning the status of stocks, planning for management, research, and policy innovation. In addition, it is the government which usually negotiates foreign access agreements and sets policy applicable to joint venture agreements.

In the case of Japan, the chosen policy instruments are the same as the critical levers while, in New Zealand, the government relies principally on the individual transferable quota system. Canada relies on its Fisheries Act, federal authority (ownership) over the resource, and prescriptive regulation. The U.S., on the other hand, relies on prescriptive regulation under the Magnuson Fisheries Conservation and Management Act but federal authority is constrained by the sharing of jurisdiction with the states and a widespread tendency to be a rubber stamp for the regional Fisheries Management Councils. The process also suffers from a continuously interventionist

TABLE 2
Fisheries

<u>Countries</u>	<u>Engines</u>	<u>Consequences</u>	<u>Crit. Levers</u>	<u>Manipul- ability</u>	<u>Role of Gov't</u>	<u>Policy Instr.</u>	<u>Regime Evaluation</u>
Japan	<ol style="list-style-type: none"> 1. Potential imbalance between # fishermen, # vessels, capacity, stocks & market stability. 2. Traditional social org./culture of fisheries. 3. High priority of fisheries. 4. Consensus decision-making. 	<ol style="list-style-type: none"> 1. Comprehensive organization, coordination & regulation of fisheries. (at all levels of society). 2. High integration across levels. 3. Predominance of cooperatives over individuals. 4. Rapid Implementation. 5. High governmental capacity to control effort. 	<ol style="list-style-type: none"> 1. Allocation of prop. rights & control of vessel licenses. 2. Coord. Committees & Council plus compensation. 3. Regionalization provides flexibility. 	<ol style="list-style-type: none"> 1. Licensing system highly manipulable both short & long term. 	<ol style="list-style-type: none"> 1. Coordinate. 2. Oversee goals & implementation. 3. Negotiate international agreements. 4. Allocations. 5. Conflict Resol. 	Same as critical levers.	Small equity problems, but good on other criteria.
New Zealand	<ol style="list-style-type: none"> 1. Severe problems in inshore fishery, both biol. & econ. 2. EEZ designation. 	<ol style="list-style-type: none"> 1. World wide comparison of mgmt. systems. 2. Decision to adopt 	<ol style="list-style-type: none"> 1. Comprehensive authority & will to use rationally. 	Yes, for both short & long	<ol style="list-style-type: none"> 1. Unified regulator & Manager. 2. Monitoring 	ITQ system.	Seems quite good on all.

continued...

continuation of TABLE 2

Fisheries

<u>Countries</u>	<u>Engines</u>	<u>Consequences</u>	<u>Crit. Levers</u>	<u>Manipul- ability</u>	<u>Role of Gov't</u>	<u>Policy Instr.</u>	<u>Regime Evaluation</u>
New Zealand	<ol style="list-style-type: none"> 3. Prior failures (reg. & dereg.) 4. Decision of Gov't. to maximize economic returns society. 	<ol style="list-style-type: none"> ITQ approach. 3. Incremental application. 	<ol style="list-style-type: none"> 2. Approach to quota allocation & system design. 3. Capability to learn; both gov't & industry. 4. Coherent industry organizations. 	term.	<ol style="list-style-type: none"> & Auditing. 3. Seeks partnership with industry. 		
Canada	<ol style="list-style-type: none"> 1. Large resource base in EEZ. 2. Severe regional economic problems. 3. Conservation problems. 	<ol style="list-style-type: none"> 1. Schizophrenia. 2. Comprehensive drive to optimize net social benefits, but regional socio-econ; problems are leading to relaxation of license limits. 	<ol style="list-style-type: none"> 1. Comprehensive federal authority. 2. Severe constraints on provinces. 3. Centralized planning & implementation ability. 4. Major role of foreign components 	Yes, domestically trans-boundary stocks.	<ol style="list-style-type: none"> 1. Regulator. 2. Planner. 3. Research & info. 4. Innovation. 	<ol style="list-style-type: none"> 1. Fisheries Act. 2. Federal authority. 3. Prescriptive regulation. 	<p>Mixed. Low to moderate success.</p> <p>continued...</p>

continuation of TABLE 2
 Fisheries

<u>Countries</u>	<u>Engines</u>	<u>Consequences</u>	<u>Crit. Levers</u>	<u>Manipul- ability</u>	<u>Role of Gov't</u>	<u>Policy Instr.</u>	<u>Regime Evaluation</u>
Canada			reinforcing dominance of Feds.				
	1. Fragmented authority & fishing family. 2. Competing interests (zero-sum) 3. Very limited objectives; (biological conservation only). 4. High degree of politicization, interventionist Congress. 5. Culture; feds are stewards, frontier mentality of industry.	1. High transaction costs. 2. High conflict. 3. Inefficiency. 4. Constant turbulence. 5. Little or no capacity to innovate policy response. 6. Complicating foreign relations.	Only short-term, fractionated capacity. Too much internal turbulence.	Very low.	1. Steward 2. Research 3. Regulator 4. Game Warden	1. Prescriptive regulation.	Failure except on conserva- tion in Pacific NW.
U.S.							

Source: [5, 6, 7, 20-22]

Congress seeking to protect and advance the preferences of particular special interest groups.

What then are the determinants of effective performance which we can isolate as the critical elements of change? The first necessary condition is comprehensive and centralized authority over fisheries resources combined with the will to use it rationally. This will implies control over the award of fishing licenses to both domestic and foreign vessels with or without quota allocations. Japan, for instance, can maximize the economic rent directly and facilitate market stability via control over vessel licenses, even though the government chooses not to capture that rent via direct taxation. There is an indirect tax on economic rent which inheres in the principle that the winners (i.e., those who are left in the fishery in a time of fleet reduction) must compensate the losers (i.e., those forced to withdraw).

If a government chooses systematic allocation of property rights in fisheries and control over all fishing vessel licenses, this condition will facilitate the development of a coordinated planning capability and the emergence of an organizational capacity to learn from trial and error (single-loop learning) [9]. As New Zealand has shown, in these conditions a government can also enhance learning how to learn (double-loop learning) [9] by adopting a method of systematic prior search and evaluation of all major existing management systems.

Finally, it is also clearly necessary to have coherent industry organizations with the capacity to aggregate interests and demands of different groups of fishermen, processors, and the like and to negotiate solutions. When a single system combines all of the attributes identified above, it also develops the capacity to manipulate the critical levers in both the short- and long-term.

It is worth noting that the consequences of policy innovation in fisheries management can also differ markedly. Where control over implementation is tight and where mechanisms and approaches are consistent with management objectives, as in the cases of Japan and New Zealand, effectiveness can be high though efficiency will vary, given the large choice of options. Equity and accountability also vary significantly.

But, even where control over implementation is tight, as in the case of Canada, policy consistency can be derailed by severe regional socioeconomic problems which politically force the government to adopt policies which produce schizophrenic results and devalue major policy objectives. However, where control over implementation is loose and policy inconsistency is high, as in the case of the U.S., the results are high transaction costs, high conflict, large inefficiencies, and constant turbulence.

Outer Continental Shelf Oil and Gas

The engines of the policy process in this category as shown in TABLE 3 are:

TABLE 3
OCS and Gas

<u>Countries</u>	<u>Engines</u>	<u>Consequences</u>	<u>Crit. Levers</u>	<u>Manipul- ability</u>	<u>Role of Gov't</u>	<u>Policy Instr.</u>	<u>Regime Evaluation</u>
Japan	1. Nat'l Security 2. Desire to control up-stream & downstream	Divergence: vert. inte- grated up- stream not downstream. Increase in price	MITI authority. Finance & Diet acquiescence. Japanese industry. Japanese banks.	Partly, for both short & long-term.	Financing. Regulating.	JNOC. Control of Japanese market. Money	Med. equity Med. Effic. low accoun- tability.
Norway	1. Desire to control up-stream & downstream. 2. Secure rapid dvpmt. & develop Norwegian capability. 3. Social welfare.	1. Major Norwegian finds & capabi- lities. 2. Huge bureaucracy & bur. conflicts. 3. Success upstream, failure downstr. 4. High inflation	State oil licensing arrangements. Labor Unions. Gov't. stability. Nat'l juris- diction.	High	Owner. Partner. Regulator.	Licenses	High equity. Med. Effic. High effect. low accoun- tability
U.K.	1. Rapid development.	Major producer. Major source of revenues. Inflation.	U.K. oil Co's. Legislation. Ministry discretion. Nat'l jurisdiction.	High	Owner. Partner. Reg.	Licenses	Low equity. High effc. High effect. Low account.

continued.....

continuation of TABLE 3
OCS and GAS

<u>Countries</u>	<u>Engines</u>	<u>Consequences</u>	<u>Crit. Levers</u>	<u>Manipul- ability</u>	<u>Role of Gov't</u>	<u>Policy Instr.</u>	<u>Regime Evaluation</u>
Canada	1. Rapid development 2. Canadianization	Major finds. Major costs. Major conflicts with provinces.	Petroleum incentive program. Nat'l juris. Ministry energy &	High	Owner. Partner Reg.	Licenses	Med. equity. Low effic. Med. effect. Med. account.
U.S.	1. Revenue for feds.	Major finds. Major conflicts	Lease sales by DOI.	Low	Owner. Regulator.	Lease sales.	Low equity High effect.

Source: [10,23-26]

- 1). coastal state sovereign rights to its continental shelves and to portions of the continental margin (i.e., the shelf, the slope, and the rise) where applicable.
- 2). The desire for rapid development of domestic oil resources either to enhance energy independence or to generate significant revenues, or both.
- 3). In two cases, Japan and Norway, [10] there was also the desire to control both the upstream (i.e., exploration, discovery, and production) and the downstream (i.e., refining, marketing, and sales) dimensions *via vertically* integrated sectors.

The consequences of following these engines demonstrate that even for major advanced industrial countries it is possible to succeed in vertically integrating only the upstream activities and not the downstream. The latter are tightly controlled by the multinational oil companies. Moreover, while success in the upstream can indeed produce significant revenues, these benefits are often accompanied by high inflation and increasing social conflict which devalue the net benefit to be derived from such exploration and exploitation.

Not surprisingly, the critical levers are governmental authority, ministerial discretion, support infrastructure (industry, banks, unions), and governmental licensing arrangements and/or lease sales. All of the above, except for lease sales, are manipulable, in both the short- and long-term. Lease sales are manipulable only in the long term.

Compared to fisheries, the role of the government is much less complex. Where significant offshore hydrocarbon resources exist, the government plays the roles of owner, partner (through national oil companies), and regulator. The U.S. is again an exception here, compared to Norway, the U.K., and Canada, since it has eschewed the role of partner (there is no U.S. national oil company). But where no significant offshore hydrocarbon resources exist, as in the case of Japan, the government can only play the roles of financier (partly) and regulator.

The chosen policy instruments are even more limited since the primary reliance is on licenses for exploration and production and, in the case of the U.S., lease sales. What is surprising though is that the performance actually varies considerably as between the "scores" achieved on equity, efficiency, effectiveness, and accountability criteria. Equity and accountability vary from low to medium, while the spread on efficiency ranges from low to high, and effectiveness ranges from medium to high.

Shipping

The primary engines of the shipping policy process, as shown in TABLE 4, are:

- 1). defense/national security interests.
- 2). Economic interests relating to trade and costs of freight.

TABLE 4
Shipping

<u>Countries</u>	<u>Engines</u>	<u>Consequences</u>	<u>Critical Levers</u>	<u>Manipul-ability</u>	<u>Role of Govt.</u>	<u>Primarily Policy Instr.</u>	<u>Evaluation</u>
U.S.	Defense Consid- erations.	Inefficient system & policy. Contradictory themes.	Congress. Subsidies & proviso re ships constructed with U.S. funds	Low	Promoter & Regulator. Referee.	Subsidies & Proviso.	Low Efficien. Med. Effect.
Japan	Trade/Exports Nat'l Security.	Overcapacity. Large shipbuilding industry.	Corporate capability. Consensus. Systematic plan. Subsidies.	High	Coordinator. Referee. Planner.	Planned phased reductions in capacity.	High Efficien. High Effect.
U.K.	Economies of FOC's Diseconomies of U.K. flag fleet (non-wage crew costs).	Major decline in U.K. Flag fleet.	Taxation. Subsidies.	Low	Planner. Regulator.	Royal Commission.	Low Efficien. Low Effect.

continued.....

continuation of TABLE 4
Shipping

<u>Countries</u>	<u>Engines</u>	<u>Consequences</u>	<u>Critical Levers</u>	<u>Manipul- ability</u>	<u>Role of Govt.</u>	<u>Primarily Policy Instr.</u>	<u>Evaluation</u>
Canada	Low freight rates.	Avoid building large nat'l flag fleet.	Ministry of Trans.	Low. Shippers coalition oppose nat'l flag fleet. Dominant.	Regulator. Could have been an innovator.	MOT Shippers.	High Efficien. High Effect.
Indo./ Malay/ Philip.	Symbolic value of nat'l flag fleet. Reaction to discrim. closed confs. Employment.	High failure rates. Subsidies.	Gov't investment.	Low	Promoter. Owner. Regulator.	Subsidies. Special Regs. UNCTAD Code.	Low Efficien. Low Effect.
S'gapore	Economic Dvpmnt. policies. Geography.	Major successes with multiplier effects.	Specialization based on location. Investment in support industries.	High	Promoter. Innovator.	Specialization. Policy facilitator. Investment.	High Efficien. High Effect.

Source [27-35]

- 3). The symbolic value of a national flag fleet and resentment against discrimination by closed Conferences.
- 4). Shipping services as stimuli for economic and technological development.

But the evidence clearly shows that the consequences of employing these engines of policy development are usually unfortunate in the sense that they produce significant inefficiencies, overcapacity, rising costs, shifting of national flag fleet to open registries, and continuing subsidies of one kind or another. One avoids these unfortunate consequences only where one avoids building a national flag fleet, as in the case of Canada, or where it is possible to take advantage of geography or other national attributes to carve out a niche in the support infrastructure, as in the case of Singapore which has focussed on ship repair and the construction of specialized, artificial installations.

Like the sector of OCS oil and gas, the role of the government in the shipping sector is restricted to promoter/owner/regulator. The primary policy instruments are subsidies, regulation, and information generation via formal inquiries. In terms of overall performance, subsidies tend to drive down efficiency but they have a mixed impact on effectiveness.

Results of the Comparative Evaluation

Even within the sectors per se, all is not well. The biggest problems and the greatest complexity are encountered in the fisheries sector but there are significant problems also in OCS oil and gas and shipping. The critical elements of change in fisheries relate to overall system design and the effective use of centralized authority. With respect to oil and gas and shipping, they relate primarily to policy objectives of national governments. We note, too that no systematic links between the sectors emerge, although in many countries fisheries, oil and gas, and shipping impinge significantly on each other. We therefore now turn to the analysis of multiple use conflict problems as a critical element of change.

THE ANALYSIS OF MULTIPLE USE CONFLICTS AS A CRITICAL ELEMENT OF CHANGE IN FORGING INTEGRATED NATIONAL OCEAN POLICY

To return to Underdal [2], we are concerned with multiple use conflicts because it is necessary to reduce the negative externalities different types of marine uses create for each other. As Andresen and Fløistad [16] point out, certain uses of the sea are tied together in such a way that they create problems for each other but considerable variation exists in the strength of the linkages and among geographic areas. *All* ocean

uses are *not linked* in such a way as to require any single management system to cover all activities.

Andresen and Fløistad conclude that:

- 1). most complex externalities exist at the local or regional level within and between nations; and
- 2). conflicts tend to be bisectoral rather than multisectoral in most cases, thereby requiring less comprehensive coordination units.

On the basis of a perusal of the existing literature [17-19 and 36-41], I would add that:

- 1). management does not occur unless the conflicts are severe and continuous;
- 2). a triggering event is required in order to create the perception of a need to manage multiple use conflicts; and
- 3). it is better to adopt a self-consciously experimental, adaptive stance to solutions of such conflicts.

The types of conflicts observable can be differentiated in the following way:

- 1). competition for ocean space and therefore conflict over value of space to the respective interests.
- 2). Operational impacts.
- 3). Ecosystem impacts.
- 4). On-shore impacts.

Within the EEZ, conflicts occur most frequently between fisheries and OCS oil and gas development and, where exploitation of hydrocarbons is especially intense, between oil and gas development and shipping (navigation). In addition, exploitation of ocean resources and ocean space can generate pervasive and adverse ecosystem impacts and one also finds to varying degrees conflicts between fishing and marine cables and fishing and military uses. Finally, it would appear that OCS oil and gas development can often generate significantly adverse on-shore impacts in terms of crowding, degradation of the near-shore environment, and recreation and tourism.

Any attempt at solving these conflicts requires coordination, which implies the need for policy integration at some level. Approaching these problems from a primarily sectoral perspective usually produces *ad hoc* adjustments which may or may not maximize the net benefit which can be derived from all activities. It is therefore the focus on maximizing net benefit that is as crucial to effective resolution of multiple use conflicts as it is to the development of integrated national ocean policy as a whole.

It is important to understand that while conflicts have both objective and subjective components, the latter tend to take on lives of their own. Since *perception* of conflicts is crucial, facilitating communication between the parties involved is vital for

achieving resolution. Planning and regulation, environmental standard setting and mediation are also effective contributors to conflict resolution.

Planning entails rather detailed analysis of the various activities differentiated according to their operational phases. This is necessary because the scale and timing of activities may vary within each phase and such variation may generate fluctuations in levels of conflict. Moreover, when the magnitude and location of conflicts vary widely along different time and space scales, one should seek to determine what effects are likely to be generated if a decision were taken to increase X activity by some percentage under Y conditions.

The types of claims one set of parties makes vis-a-vis the other are another important factor in multiple use conflicts. Compensation can have important conflict reducing impact in many situations but its utility is limited if true value is sought by an aggrieved party. For instance, it is easier for oil companies to provide compensation for gear damage to fishermen from debris and suspended well heads than it is for them to agree to pay for loss of space, and therefore fishing opportunity, and/or reduced marketability of products on a continuing basis.

A decision process which is fragmented on a sectoral basis cannot easily respond to these kinds of problems and one can never guarantee that *ad hoc* resolutions won't create even greater difficulties sooner or later. Not only does one need to have an integrated decision process but managers need to involve all parties affected by the conflict. Rather than attempting to impose a solution from the top down, more stable relationships appear to be created in the long run if the management system instead forces the parties to engage in negotiations directly. In this case, it is important that the locus of ultimate decision authority be clear and that the constituted authorities expend considerable effort in the search for variable sum outcomes.

We need to recognize also that the approach recommended here represents an enormous hurdle for developing countries most of which suffer from extreme bureaucratic fragmentation, lack of technical skills, lack of information, lack of funds, and inadequate planning and decision processes. It is therefore necessary for both multilateral and bilateral donors to focus on developing the capability to formulate and implement integrated national ocean policy in the Third World and increasingly to concert their efforts to this end.

As one looks at the ways in which different coastal states have organized themselves to formulate and implement national ocean policy, two countries come closest to the ideals of an integrated decision process and integrated ocean policy. These are Japan and The Netherlands. Perhaps this state of affairs is not coincidental since these two countries exhibit the densest concentration of multiple ocean uses and conflicts off their shores. The Japanese system evolved over a period of about 400 years

or so and is deeply embedded in Japanese social structure and culture. The Dutch system is recent, deliberate, and analytically sophisticated. Consequently, it may have the clearest lessons to teach us all on how one could proceed.

Since there has already been a presentation in this Conference on the Dutch system, I shall not go into detail. Instead, using the existing literature [17-19] as a base, I shall restrict myself to outlining the *essential steps* in the recent transformation of the Dutch ocean management system. It seems to me that the first lesson we learn is there must be a trigger which forces the state to conclude that it must integrate its decision process and its policies. *A powerful trigger is the ratio of EEZ space to density of use.* The corollary to this inference is that if we have a situation characterized by large space and low to medium density of use (e.g., the U.S.), the coastal state is unlikely to view integrating national ocean policy as an attractive proposition. Only if space is limited and density of use is high, is the trigger present.

In the Dutch case we have to a most unusual degree a combination of small space and very high density of use involving shipping, OCS oil and gas development, fishing, military activities, marine cables, recreation, sand and gravel, land reclamation, and waste disposal/incineration. Not surprisingly, this set of conditions generates severe policy problems particularly with respect to competition for space, marine pollution, and overfishing. Management authority relative to fisheries is now in the hands of the EEC Commission but the Dutch Government retains control over enforcement of management regulations.

In this situation, the proposal by the North Sea Island Group (an industry organization) to expand the density of artificial installations in the Dutch EEZ was the finger that pulled the trigger since the weight of public opinion was such that the Dutch Parliament put the whole issue at the top of their national agenda. Once this occurred, decisions were taken to embark on a large-scale analytic effort and to engage in institutional re-alignment. The analytic effort focussed on developing a systematic inventory of trends in ocean use, administrative structure and regulations, and an assessment of actual and potential damage and losses.

The approach to institutional re-alignment seems to me critical. Happily, the Dutch Government did not choose to try a totally centralized approach, which would probably have been counter-productive. Instead, they chose to designate a lead agency, (not surprisingly, in this case, the Ministry of Transport and Public Works), and an Inter-ministerial Board consisting of six agencies concerned with North Sea affairs called MINCONA.

Since all parties have to have a voice in the decision process, MINCONA is staffed by an interagency unit drawn from the bureaucracy of the six agencies involved (ICONA) and it interacts with both a Special Commission of the Parliament on North

Sea Policies and a non-governmental advisory council (ACONA) which includes representation from industry, public interest groups, and the scientific community. ACONA therefore has a voice in both the executive and legislative dimensions of the Dutch Government.

The next major choice made by the Dutch Government was to reject creation of a decision process based upon a fixed set of rules allocating priorities across sectors of ocean use. Instead, in order to maximize flexibility, the decision was made to seek *harmonization* of policy across the six agencies involved. Coordination is therefore achieved via an agreed set of general objectives, a policy framework, and a program of action. Where two or more Ministers share implementation responsibilities, the Minister with the greater or greatest level of involvement has the supervisory initiative.

Finally, the overall objectives, which exist in five categories (economics, use of space, environment, social/cultural/scientific, international/administrative), guide harmonization over time of each set of sector objectives. The policy framework and action program are derived from the split level harmonization of overall and sector objectives, and the system includes mechanisms for monitoring and evaluating performance and updating the balance of interests as events unfold.

CONCLUSION

The major challenge of the future facing those of us engaged in national and international ocean management consists in shifting course from the traditional approach based on a single sector focus to a broader focus which attempts to define the overall interests of the nation in the ocean, its resources, environment and patterns of use and to balance sector development into the overall definition.

Not only is this analytically difficult but it is entirely novel. As such, it is against history and none of us should assume that success will come easily. We must adopt the long view and put our efforts into education, training, and changing the analytic perspectives of decision makers. In other words, the direct route to policy integration is unlikely to be ours except in very few cases. Our path is the indirect one. As such, there is a vast field of research awaiting enterprising scholars and graduate students. The fact is that we have very few comprehensive case studies in depth of how most coastal states of the world, even the major ones, go about the task of making and implementing national ocean policies. We need those profiles if we are to do the analytic work that is pre-requisite for getting from where we are to where we want to be.

We also need to pay attention to issues of institutional design. In this connection, I would offer the following advice to governments of coastal states:

- 1). avoid large-scale fights over major re-organizational initiatives (e.g., creation of a new ministry gobbling up significant activities of others). Seek instead an incremental approach.
- 2). Seek to broaden the scope of narrowly focussed sectoral planning to take account of interactions and dependencies.
- 3). Involve all agencies and interest groups concerned with diverse marine and coastal interests and activities.
- 4). Seek to develop an overall focus with defined national interests.
- 5). Ensure that organizational innovations are compatible with local culture. What works in one country is not necessarily directly transferable elsewhere.
- 6). Seek to develop both horizontal and vertical integration (i.e. across and within sectors) in planning.
- 7). Foster the capability to evaluate ocean development projects from sectoral as well as national perspectives.

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