



Making EAM operational in Canadian fisheries management

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EAM in Canada

‘Sustainable Fisheries Framework’ has guidelines for treatment of ecological aspects of ‘Integrated Fisheries Management Plans’ (IFMP)

ATTRIBUTES	OBJECTIVES	STRATEGIES with associated pressures
yield biomass recruitment size/age structure spatial extent spatial occupancy population richness predator forage community assemblage (‘special species’) trophic structure habitat structure (‘special places’) pollutant deaths/disorders physical hazard deaths behavior disturbance	Productivity <ul style="list-style-type: none">• Keep fishing mortality moderate<ul style="list-style-type: none">- Promote positive biomass change when biomass is low- Manage discards for all harvested species• Allow sufficient escapement from exploitation of spawning biomass• Limit disturbing activity in spawning areas/seasons• Control alteration of nutrient concentrations affecting primary production at the base of the food chain by algae Biodiversity <ul style="list-style-type: none">• Control incidental mortality for all non-harvested species• Minimize unintended transmission of invasive species• Distribute population component mortality in relation to component biomass Habitat <ul style="list-style-type: none">• Manage area disturbed of bottom habitat types• Limit introduction of contaminants, toxins and waste in habitat• Minimize deaths from lost gear/equipment• Control noise and light disturbance	



Four aspects of sustainability...

2011



Report of the
Commissioner of the
Environment and
Sustainable Development

DECEMBER

Chapter 4
A Study of Managing Fisheries for Sustainability



Spectrum of objectives for sustainable fishery?

Ecological objectives

- Productivity and trophic structure
- Biodiversity
- Habitat and ecosystem integrity

Economic objectives

- Economic viability and prosperity,
- Livelihoods,
- Distribution of access and benefits,
- Regional economic benefits to community

Social objectives

- Health and wellbeing,
- Sustainable communities,
- Ethical fisheries

Institutional objectives

- Legal obligations including to indigenous peoples,
- Good governance structure,
- Effective decision-making processes

**Including potential performance indicators
Linked explicitly to policy statements**



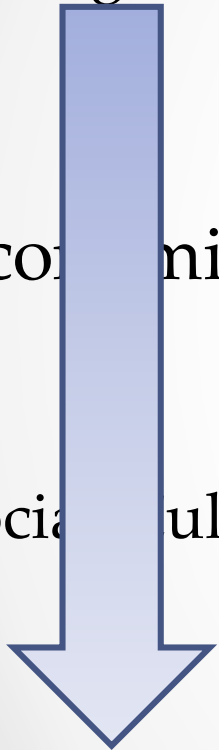
A review of Integrated Fisheries Management Planning in Canada



Use in IFMP's

	Objectives?	Information?	Analyses?	Used in decisions?
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Ecological	Yes	Yes	Yes	Yes
Economic	Yes	Yes	Yes	Yes
Socio-cultural	General Variable	No	No	Yes
Institutional	Yes			



A framework for comprehensive evaluation of fisheries

Applied to all fisheries

Comprehensive set of Objectives

Ecological

-
-
-

What do we care about?

Economic

-
-

What are we trying to achieve?

Social

-
-

What should we be tracking?

Institutional

-
-



A framework for scenario comparison



Management options

Objectives

	Scenario A	Scenario B	Scenario C
Ecological: productivity and trophic structure; biodiversity; habitat and ecosystem integrity			
Economic: economic viability and prosperity; sustainable livelihoods; distribution of access and benefits, regional economic benefits to community			
Social: Health and well-being; sustainable communities; ethical fisheries			
Institutional: legal obligations including to indigenous peoples; good governance structure; effective decision-making process			

Scenarios may be compared in several ways...relatively, qualitatively or quantitatively

Common framework for EAM/IM?

	Fisheries	Aquaculture	Transport	Energy	Other	
Ecological - - -				Scenario A	Scenario B	Scenario C
Economic - -			Ecological - - -			
Social - -			Economic - -			
Institutional - -			Social - -			
			Institutional - -			

Allows:

- Consideration of multiple objectives of EAM
- Comparison of scenarios
- Examination of tradeoffs
- Evaluation of cumulative impacts





Closing thoughts

- “intent without the recipe”
- Major GAP – Governance/Institutional
 - No forum to develop integrated advice
 - No management advisory process
 - CSAS process is restricted to ecological advice
 - No ‘body’ requesting social / economic aspects of sustainability.
- An institutional process that will allow and promote a Framework is key.

