

## Abbreviated Summaries of Breakout Group Discussions

### **Group 1**

#### Scientific Unknowns:

- 1) Need a synthesis of existing information

#### Research Needs:

- 1) Develop proxy measures of performance
- 2) Good habitat mapping in nearshore

#### Opportunities for Research Collaborations:

- 1) “East-West linkages” in the form of connections among watersheds, estuaries and the ocean.
- 2) Biological and economic information is needed
- 3) Knowledge of scientists and fishermen by port; stakeholders and ocean users would help to frame the questions that would be asked of these experts

### **Group 2**

#### Scientific Unknowns:

- 1) Connectivity among various habitats
- 2) Life history parameters
- 3) Coastal shelf processes
- 4) How much variability is due to natural vs. human-associated changes

#### Research Needs:

- 1) Ranges of and connectivity between breeding populations
- 2) Current patterns

#### Opportunities for Research Collaborations:

- 1) Education for the general public about MPAs and reserves
- 2) Collecting physical oceanographic data in partnership with fishermen
- 3) Collaboration between natural and social scientists

### **Group 3**

#### Scientific Unknowns:

- 1) Substrate distribution
- 2) Range of natural variability
- 3) Spatially explicit catch rates
- 4) Ontogenic changes
- 5) Common currency of non-market values
- 6) Effects of pollutants on species
- 7) Compensation mechanisms for stakeholders

#### Research Needs:

- 1) Species-habitat associations
- 2) Expectations for performance of marine reserves
- 3) Alternative, non-destructive sampling and comparison with traditional methods
- 4) Historical perspectives of fishermen
- 5) Movement patterns of species
- 6) Ocean conditions and processes
- 7) Long-term ecological monitoring that involves stakeholders

#### Opportunities for Research Collaborations:

- 1) Link between estuarine and marine scientists
- 2) More stakeholder involvement

### **Group 4**

#### Scientific Unknowns:

- 1) Basic ecology of many species (e.g., habitat use, home range)
- 2) Elements of marine reserve design
- 3) Current patterns and the influence of these on larval dispersal

#### Research Needs:

- 1) Long-term research over multiple decades
- 2) Compilation of socio-economic information, including fishing effort
- 3) Strategies to engage stakeholders in the process (i.e., evaluate past attempts)
- 4) Determinants of size of reserves

#### Opportunities for Research Collaborations:

- 1) Integrated studies (i.e., food web, trophic levels)

## **Groups 5 and 6**

### Scientific Unknowns:

- 1) Natural variability
- 2) Appropriate methods for assessing ecosystem condition
- 3) Ontogenic information
- 4) Appropriate metrics for measuring reserves

### Research Needs:

- 1) Relative role of marine reserves in accomplishing conservation and fisheries management objectives
- 2) Mapping of habitat
- 3) Life history information (e.g., dispersal, recruitment)
- 4) Scale for considering marine reserves

### Opportunities for Research Collaborations:

- 1) Coupled physical/biological processes
- 2) Studies of social and economic impacts and costs

## **Group 7**

### Scientific Unknowns:

- 1) Species distribution
- 2) Habitat distribution
- 3) Status of areas (e.g., pristine vs. damaged)
- 4) Ocean conditions
- 5) Non-market benefits of ecosystems

### Research Needs:

- 1) Databases
- 2) Baseline inventory of status of areas (see above)
- 3) Distribution of fishing effort
- 4) Financial alternatives to destructive fishing

### Opportunities for Research Collaborations:

- 1) Scientists on fishing boats and vice versa
- 2) Sharing information between terrestrial and marine ecologists in terms of reserve design
- 3) Oral history from retired fishermen

## **Group 8**

### Scientific Unknowns:

- 1) Life history and relationship to habitat and oceanographic processes
- 2) Social and economic impacts of MPAs

### Research Needs:

- 1) Socioeconomic effects of displaced effort
- 2) Survey perceptions of reserves by port

### Opportunities for Research Collaborations:

- 1) Involvement of stakeholders