Protected areas and climate change:

Resilience through site-level planning

Jamison Ervin, UNDP Senior Advisor

NBSAPs

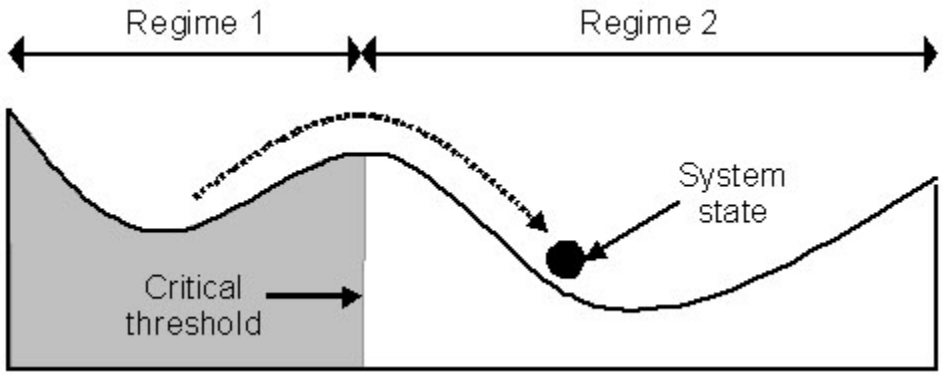
- PoWPA Action Plans
- Climate resilience and adaptation plans
- Valuation studies
- Incentives

- 5th National Report
- PoWPA reporting
- PA resilience
- Biodiversity resilience
- PA valuation studies
- Biodiversity valuation studies

CLIMATE CHANGE IS BECOMING PERSONAL…

Key Concepts

- **Regime shift**
- Tipping point
- Resilience
- Adaptation
- Mitigation

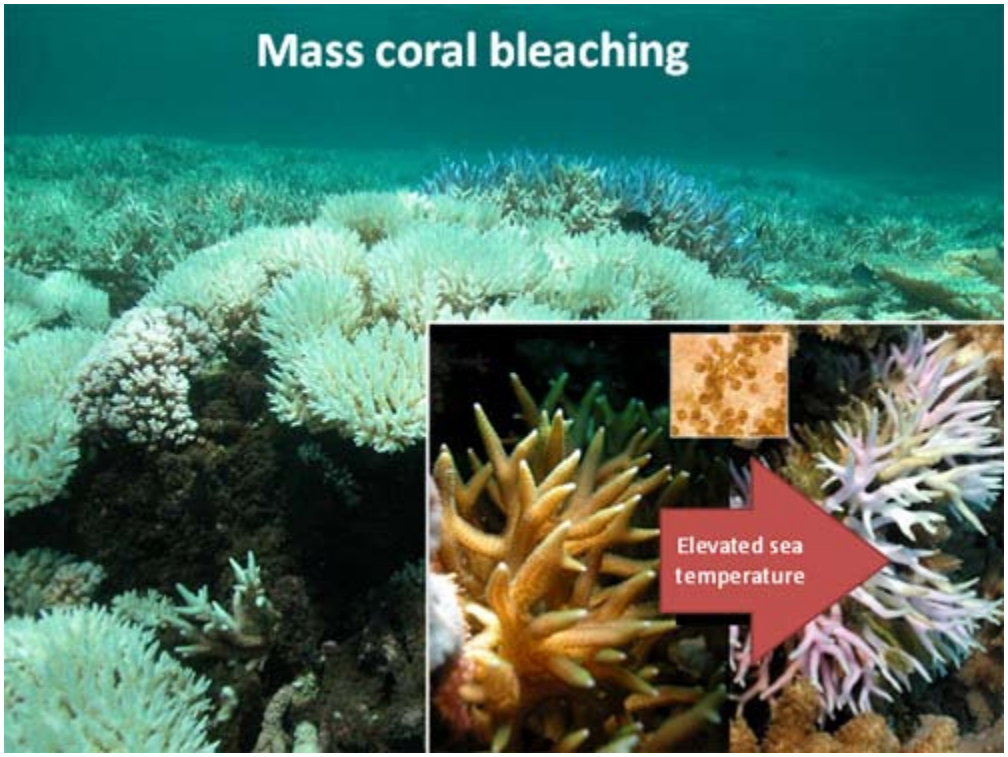


"…large, persistent changes in the structure and function of ecological systems"

www.regimeshifts.org

Key Concepts

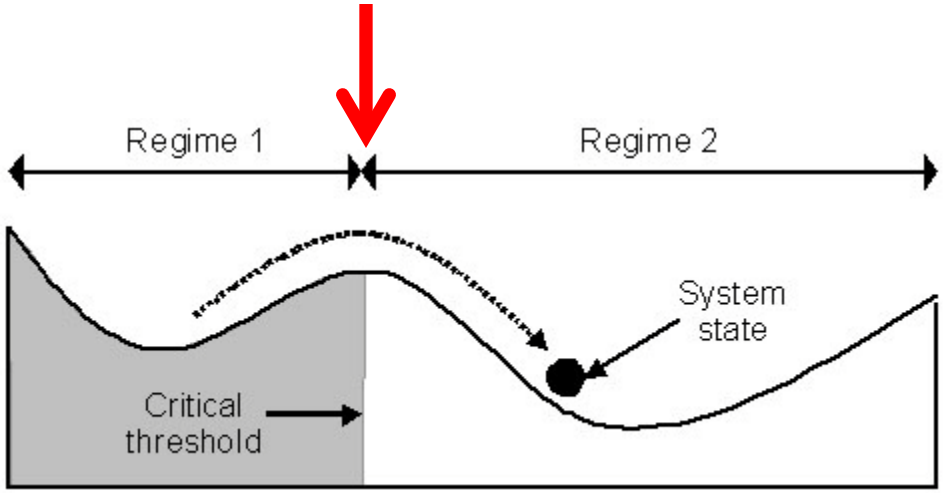
- **Regime shift**
- Tipping point
- Resilience
- Adaptation
- Mitigation



www.regimeshifts.org

Key Concepts

- Regime shift
- **Tipping point**
- Resilience
- Adaptation
- Mitigation



Definition: The point at which a driver causes a significant regime shift that is considered unalterable, or recoverable on only very long timescales

Drivers: Overfishing, disease, invasive species, climate-related event

Key Concepts

- Regime shift
- Tipping point
- **Resilience**
- Adaptation
- Mitigation

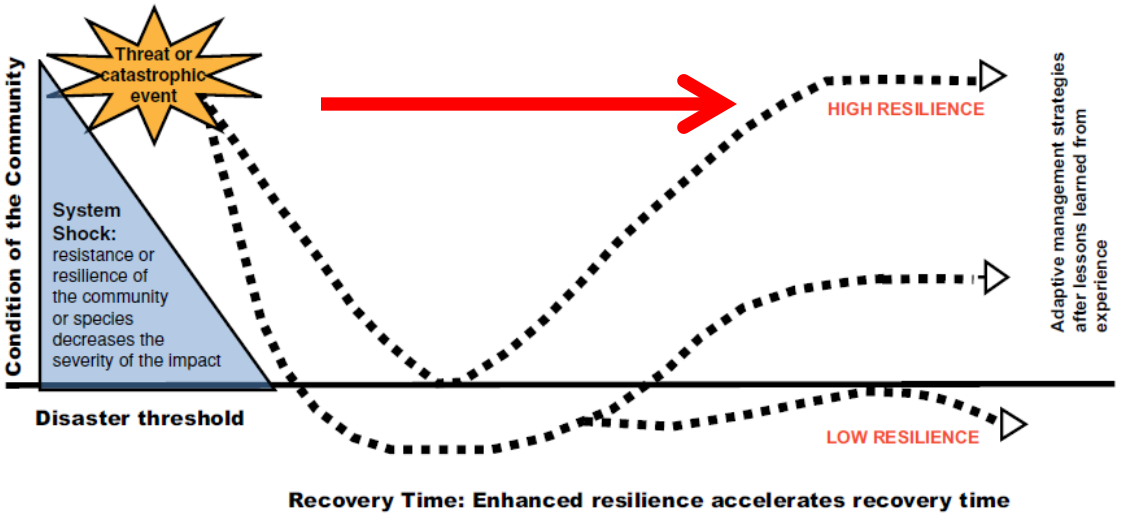
Definition

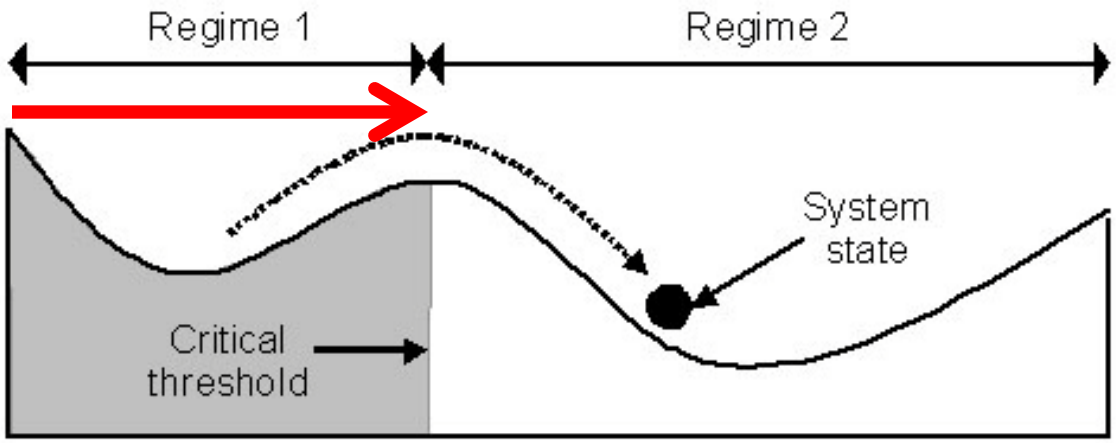
"….the ability of an ecosystem to maintain key functions and processes in the face of stresses, or pressures, by either resisting or adapting to change"

www.reefresilience.org

Key Concepts

- Regime shift
- Tipping point
- **Resilience**
- Adaptation
- Mitigation





www.reefresilience.org

Key Concepts

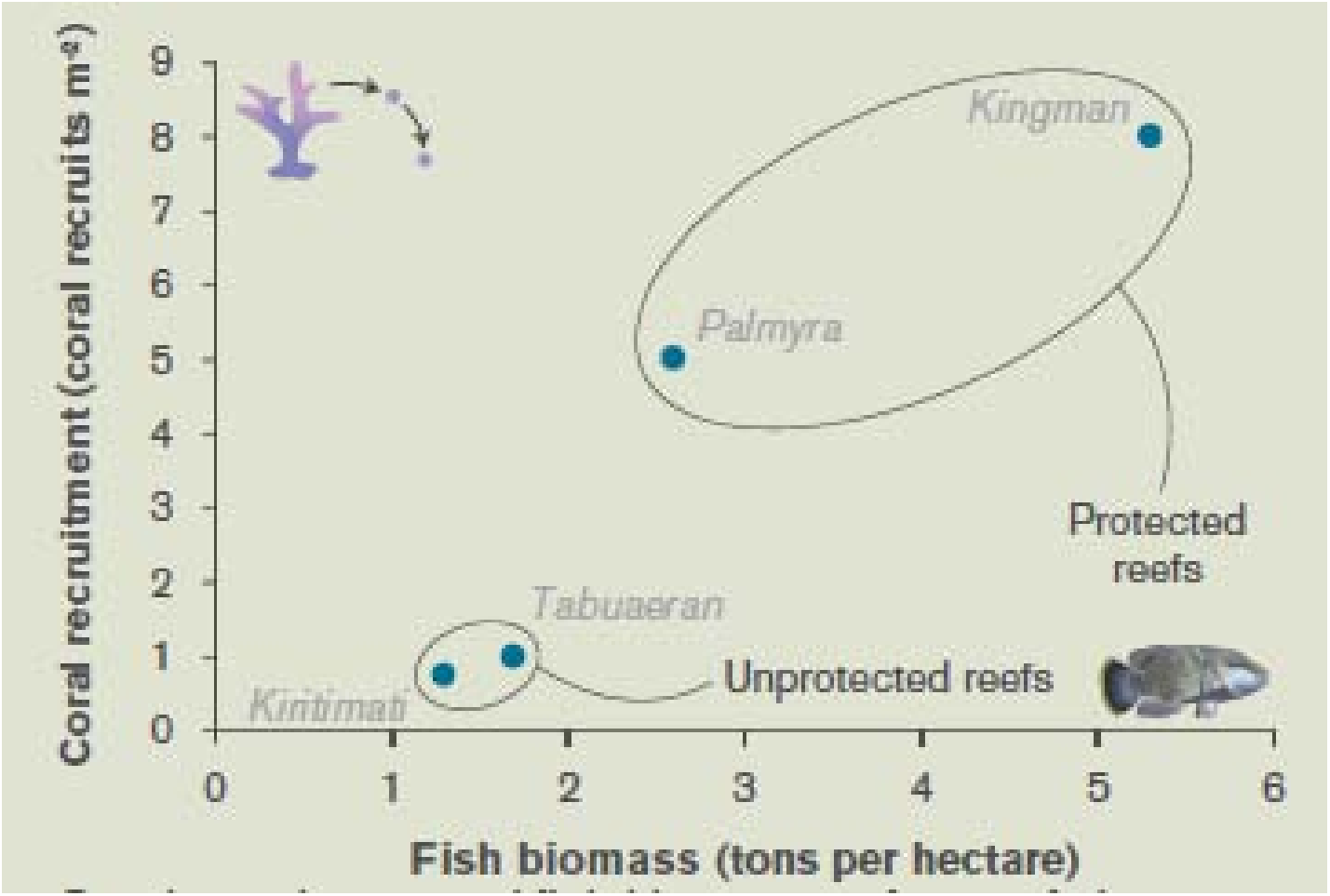
- Regime shift
- Tipping point
- **Resilience**
- Adaptation
- Mitigation

Principles of reef resilience:

- **Representation**, replication, redundancy and risk spreading
- **Critical habitats** for replenishment and recovery
- **Connectivity** among reefs
- **Effective management** by reducing threats

www.reefresilience.org

Healthier reefs showed more resilience (faster recovery) from 1997-98 bleaching event



SCIENCETOACTION

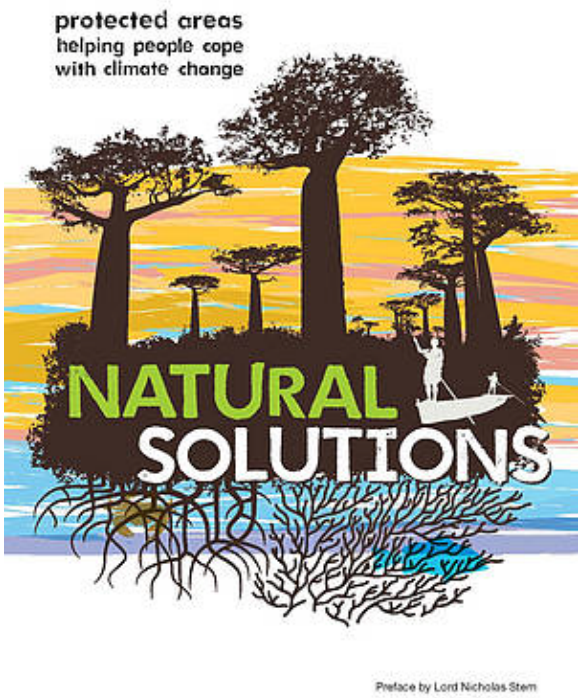
Key Concepts

- Regime shift
- Tipping point
- Resilience
- **Adaptation**
- Mitigation

- **Nature's** ability to adapt to climate impacts (often through human intervention); and….

Key Concepts

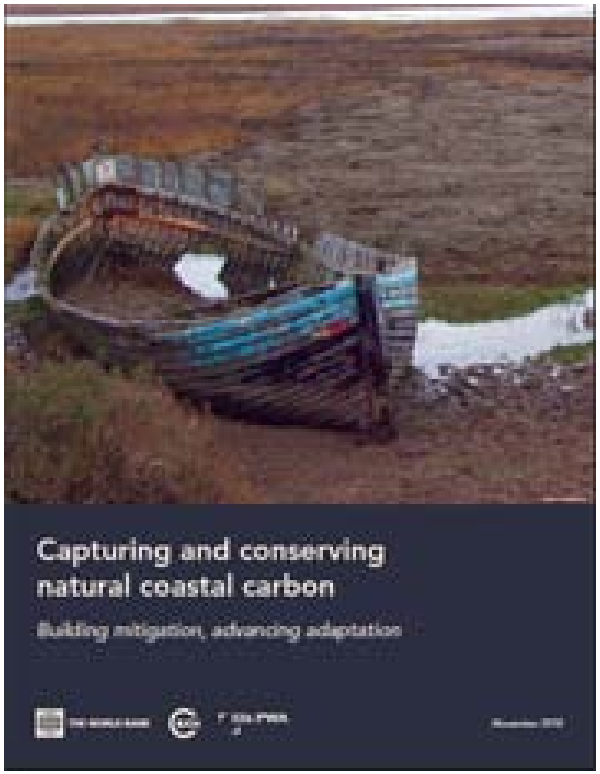
- Regime shift
- Tipping point
- Resilience
- **Adaptation**
- Mitigation



- **Human's** ability to adapt to climate impacts (often through nature's buffering and provisioning services)

Key Concepts

- Regime shift
- Tipping point
- Resilience
- Adaptation
- **Mitigation**

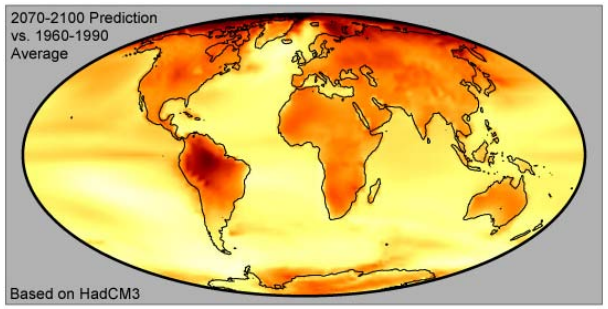


...reducing the scope and magnitude of climate change and its impacts…

Strengthening resilience by incorporating climate into site-level PA management:

Management planning

Participation and benefits



Threat assessments

Management effectiveness

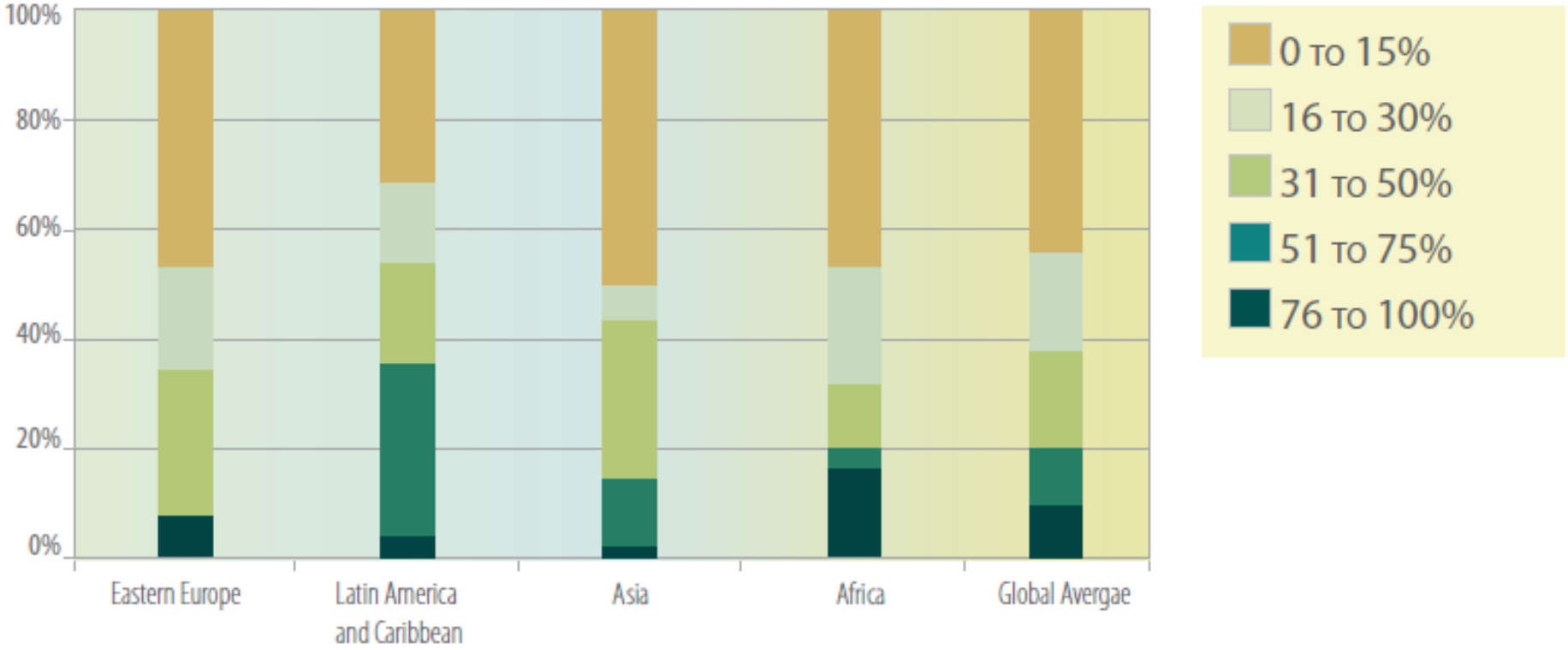
Restoration plans

Capacity needs assessments

Research and monitoring

Management Planning

Management Planning



- About 90,000 (>2/3) of the world's protected areas do not have management plans
- Of those plans that do exist, only a miniscule fraction incorporate climate change issues

Management Planning – typical elements

- Specific **goals and objectives**
- Important **areas and species**
- Identification and prioritization of **key threats**
- Identification and prioritization of **critical actions**
- Identification of protected area **zones and regulations**
- Develop **indicators** for measuring biodiversity

Management Planning for resilience

- Develop **specific goals and objectives** for improving climate resilience
- Identify **areas and species** of particular importance to climate adaptation, mitigation and resilience
- Identify and prioritize **threats** that exacerbate climate impacts
- Identify and prioritize **critical actions** for strengthening resilience
- Identify areas important for climate change adaptation and mitigation into **protected area zones and regulations**
- Develop **indicators** of climate resilience

Management Planning

Discussion questions:

- How well do the management plans in your country incorporate climate resilience and adaptation?

- What is the single most important thing you could do to incorporate climate resilience and adaptation into management plans in your country?

Threats Assessment






- **Threat assessment**: An assessment of the degree to which human activities impact the integrity of biodiversity

Threats Assessment

Protected Areas Threats: Data Sheet 2

Please tick all relevant existing threats as either of high, medium or low significance. Threats ranked as of **high** significance are those which are seriously degrading values; **medium** are those threats having some negative impact and those characterised as **low** are threats which are present but not seriously impacting values or **N/A** where the threat is not present or not applicable in the protected area.

1. Residential and commercial development within a protected area

Threats from human settlements or other non-agricultural land uses with a substantial footprint

High	Medium	Low	N/A	
√				1.1 Housing and settlement
				1.2 Commercial and industrial areas
		√		1.3 Tourism and recreation infrastructure

2. Agriculture and aquaculture within a protected area

Threats from farming and grazing as a result of agricultural expansion and intensification, including silviculture, mariculture and aquaculture

High	Medium	Low	N/A	
				2.1 Annual and perennial non-timber crop cultivation
		√		2.1a Drug cultivation
				2.2 Wood and pulp plantations
√				2.3 Livestock farming and grazing
	√			2.4 Marine and freshwater aquaculture

- Typical protected area threat assessments are a one-page (or a one-paragraph) summary of existing threats within the protected area

Threat assessments – incorporating climate

- Identify species and systems that **enable resilience and adaptation**
- Incorporate **resilience thresholds** and principles into threat assessments
- Assess the **synergies** between a variety of threats
- Conduct species and ecosystem climate **vulnerability assessments**
- Develop **threat scenarios**

Assessing threats with climate in mind

Discussion questions:

- What are the threats to your protected areas that will likely be exacerbated by climate change?

- Which threats are most likely to lead to a regime shift?

Protected Area Restoration

- Most restoration efforts focus on the past, not the future
- Few restoration plans or actions consider climate resilience or adaptation

Setting traditional restoration targets and priorities

- Focus on **historical ranges of variation**
- Focus on areas of **high threat**
- Areas important for **species habitat**
- Restore **large and potentially intact habitat** patches
- Focus on **vulnerable species**

Incorporating climate into restoration priorities

Focus on:

- **Resilience thresholds** as well as historical ranges of variability
- Those areas most likely to have **negative synergistic threats** and impacts
- Areas important for **species adaptation**, including ecotones, altitudinal, latitudinal and longitudinal gradients, and riparian and connectivity corridors
- **Refugia and areas important for climate resilience**, including large and intact habitat patches, particularly areas with a history of resilience and resistance to stressors
- Those species most **vulnerable to the impacts of climate change**

Restoration

Discussion questions:

- How well do your restoration plans and priorities include climate resilience and adaptation issues?

- What's the single most important restoration priority in your country for strengthening climate resilience and promoting climate adaptation?

Protected Area Capacity

- Inadequate capacity is one of the most limiting factors of effective management
- Lack of capacity to effectively address climate change impacts will further limit the effectiveness of protected areas in the future

Traditional Capacity Areas:
Protected area policy
Management planning
Threat assessment
Communication
Participation
Site design
Resource management
Monitoring and research

Protected Area Capacity

Capacity Areas:	New skills needed:
Protected area policy	Designing new policies and working with **new sectors** to address climate change
Management planning	Incorporating climate issues into management plans; assessing **species vulnerability** to climate change
Threat assessment	Incorporating climate into threat assessments; understanding **climate impacts and predictions**
Communication	Communicating **the value of protected areas in climate change** resilience and adaptation
Participation	Identifying new **constituencies**
Site design	Adapting site design for improved **resilience**
Resource management	Understanding **tipping points and thresholds**, and managing natural resources for climate resilience
Monitoring and research	Identifying **climate-related indicators** for vulnerable species and ecosystems, and for affected human communities

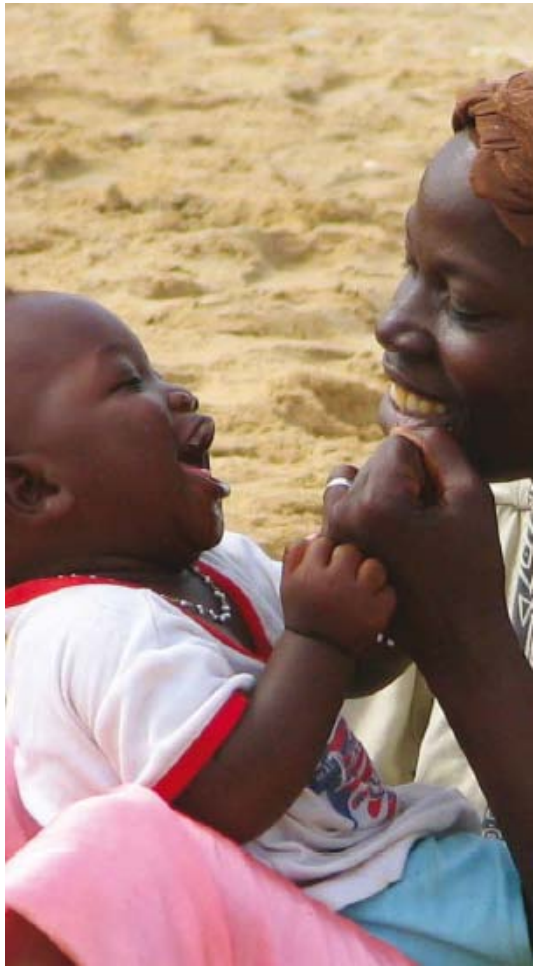
Capacity

Discussion questions:

- What are your most important capacity weaknesses relative to climate change resilience and adaptation?

PA Participation and Benefits

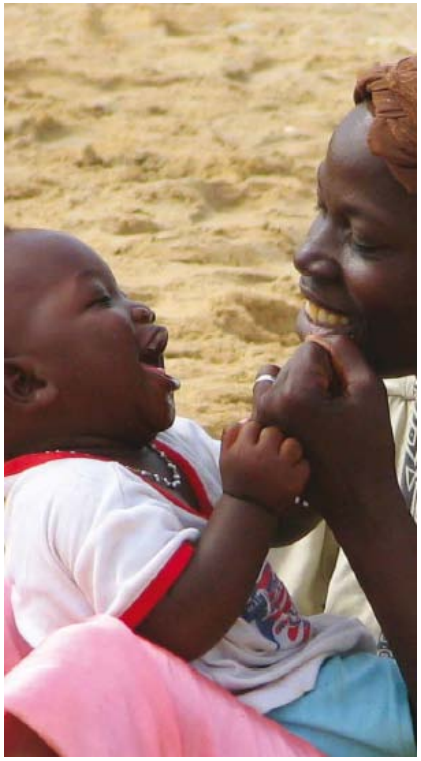
Traditional focus on participation and benefits



- Focus on consultation
- Focus on finding representative and diverse community members
- Emphasis on rights and benefits for resource use

PA Participation and Benefits

Emerging focus on participation:



- Providing an **early detection** and warning system for climate-related threats
- Identifying **localized impacts** of climate change
- Sharing **traditional resource management knowledge** to promote resilience
- Participating in **resource management** trials for climate resilience, adaptation

Participation and benefits

Discussion questions:

- Who has the ecological and agricultural knowledge needed to contribute to climate change resilience?

- Who is best placed to detect climate change impacts on the ground, monitor impacts and provide early detection services?

PA Management Effectiveness Assessments

- Traditional focus on degree to which management achieves PA objectives (biodiversity conservation)

PA Management Effectiveness Assessments

Management Effectiveness Elements
Threats
Planning and design
Inputs (staff, funding)
Processes (management planning, participation, resource management)
Outputs (resource management, restoration)
Outcomes (ecological integrity)

PA Management Effectiveness Assessments

PAME Elements	New Questions to Consider
Context & Threats	How are climate-related threats impacting, or likely to impact, biodiversity and ecosystem services within the protected area?
Planning	How suitable is the PA design for climate resilience? Do landscape/seascape linkages account for climate change?
Inputs	Are there adequate data systems for monitoring climate impacts?
Processes	How well do PA staff understand climate-related issues, and how well are these issues incorporated into management plans? Are research and monitoring priorities aimed at climate resilience?
Outputs	Are restoration efforts aimed at climate resilience?
Outcomes	Is the protected area resilient to climate change? Does it enable adaptation of human and natural communities

Management effectiveness

Discussion questions:

- What are some practical steps that you could take to assess and improve management effectiveness for climate resilience and adaptation?

PA Research and Monitoring

- Traditional monitoring focuses on current status and trends in biodiversity health
- Research priorities are largely driven by researcher interests and funding

PA Research and Monitoring

EMERGING PRIORITIES

- Determine the **potential magnitude and rate** of climate change impacts on protected areas

- Predict ecosystem structures and functioning and services under **different climate scenarios**

- Conduct cross-sectoral research on the impacts of climate change on human wellbeing, and on **relationships between climate and poverty**

PA Research and Monitoring

EMERGING PRIORITIES

- Determine **resilience thresholds** for a variety of ecosystems

- Estimate the cascading effects and negative **synergies of multiple threats**

- Assess the impact of climate change on **large-scale migration patterns**

Research and Monitoring

Discussion questions:

- What are the most urgent climate-related research and monitoring needs in your protected areas?

Developing a PA climate resilience plan

Capacity needs assessments

Participation and benefits

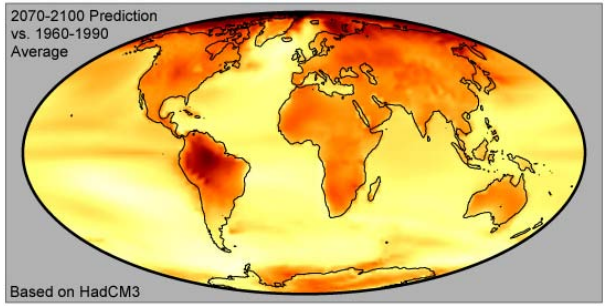
Management effectiveness

Research and monitoring

Restoration plans

Threat assessments

Management planning



PA climate resilience and adaptation plan

Exercise

EXERCISES: NAME: COUNTRY:

What are the 3-4 most important strategies for improving climate resilience through **site-level planning**? Identify specific actions.

STRATEGY:	SPECIFIC ACTIONS AND PLANS:
Identify key climate research needs	Review existing literature; consult with key researchers and climate experts; develop draft list of research needs
Assess climate capacity needs	Conduct climate needs assessment as part of overall capacity assessment; develop training program
Incorporate climate into management plans	Identify 5-7 most important climate issues; seek input from park managers; hold workshop; develop guide
Integrate climate into restoration plans	Identify key restoration needs for climate resilience; develop draft priorities; consult; develop restoration plan

Protected areas and climate change:
Resilience through spatial and sectoral integration

Jamison Ervin, UNDP Senior Advisor

WHY INTEGRATE PROTECTED AREAS?

Protected areas alone will not be enough to conserve biodiversity into the future…

WHY INTEGRATE PROTECTED AREAS?

…especially under climate scenarios….

WHY INTEGRATE PROTECTED AREAS?

….we need to look at broader landscapes, seascapes and sectors to create climate-resilient landscapes

BUT WHAT DOES PROTECTED AREA INTEGRATION MEAN?

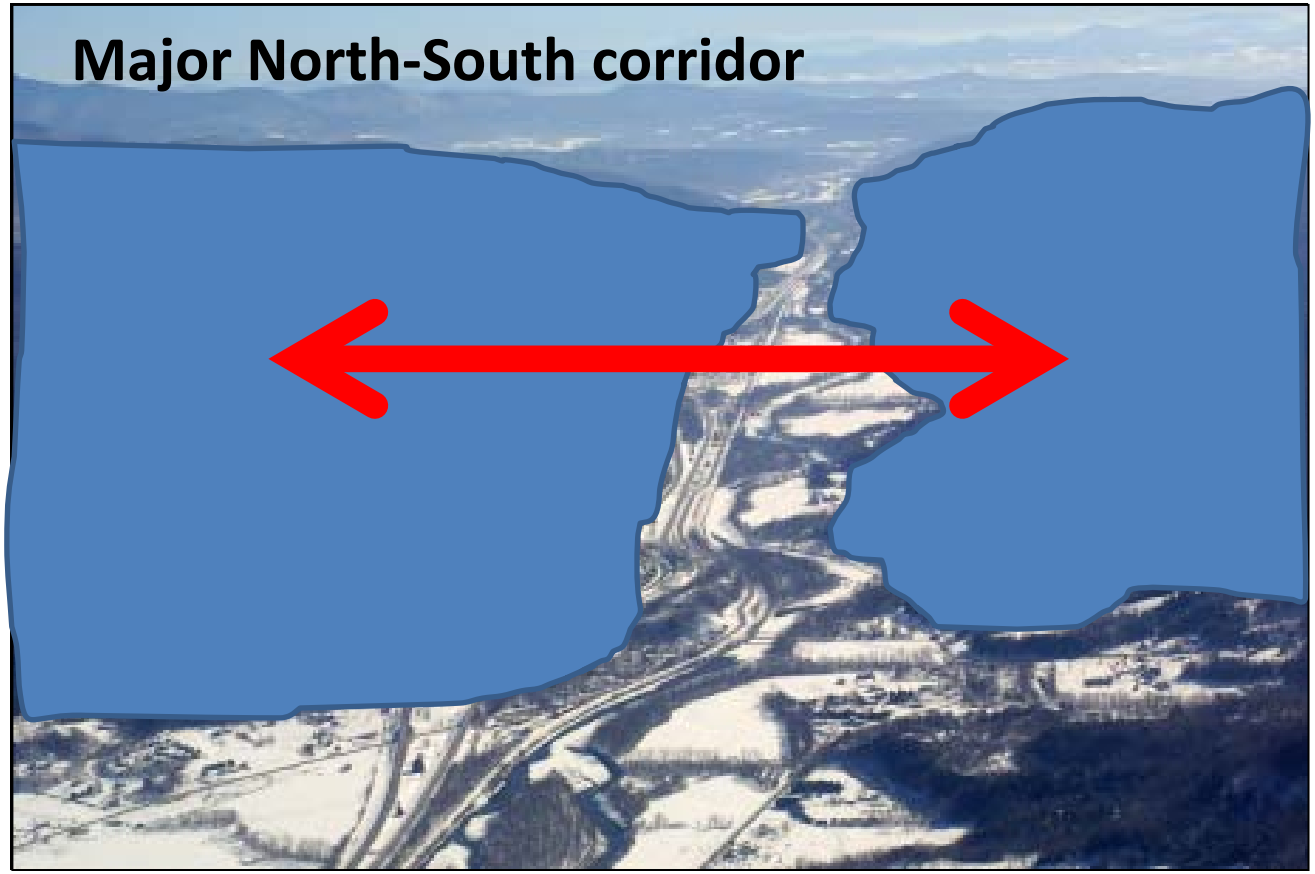
1. Spatial integration
2. Sectoral integration

WHAT DOES PROTECTED AREA INTEGRATION MEAN?

1. **Spatial integration**
2. Sectoral integration

SPATIAL INTEGRATION

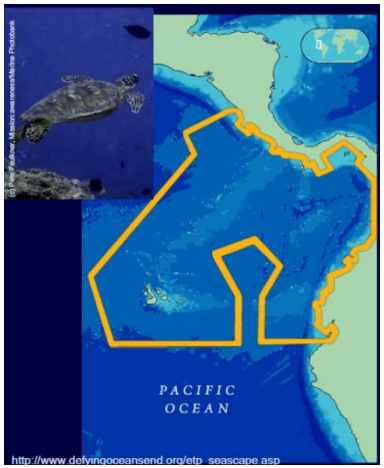
Ensuring that ecological processes, such as migration, can occur at landscape-level scales



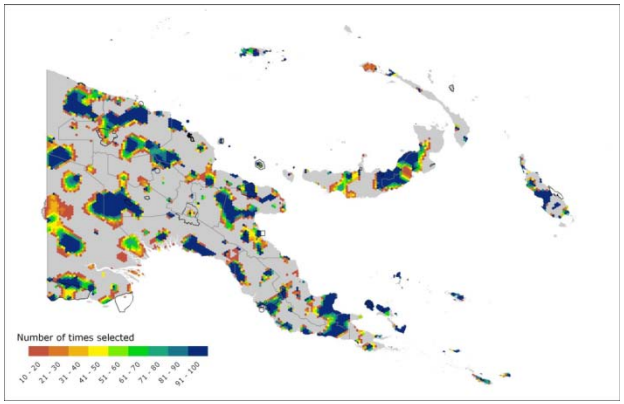
Resilience through PA spatial integration

Ridge to Reef Approach

Transboundary areas

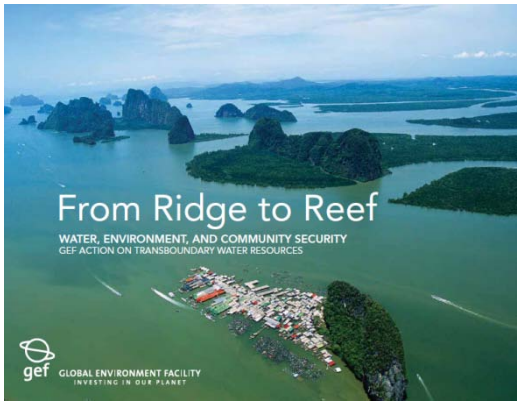


Regional networks



Improved gap assessments

Strengthening climate adaptation by taking a “Ridge to Reef” approach:



Ridge to Reef

Example of a Ridge to Reef Approach

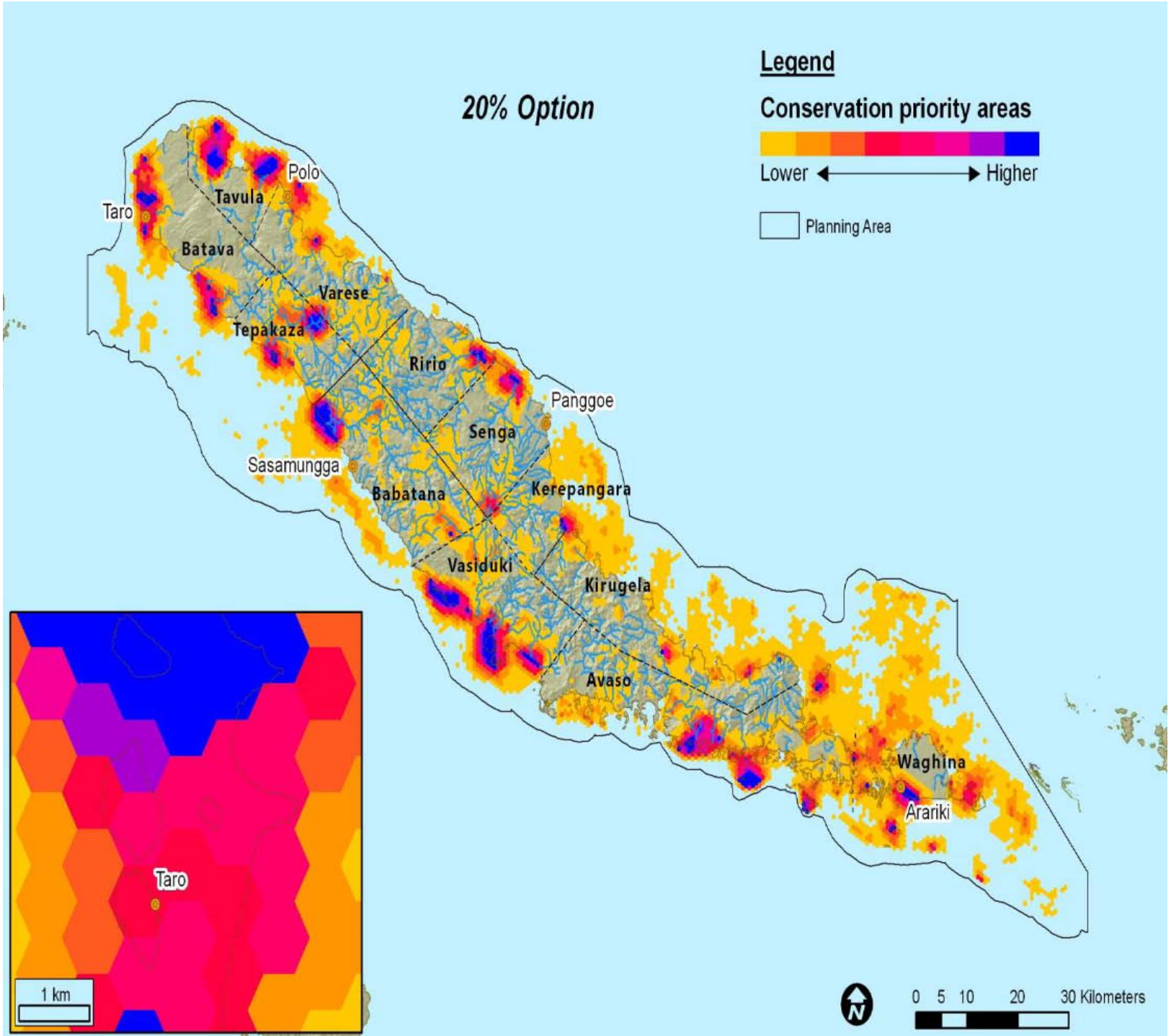
Ridge to Reef Approach in Japan

Elements of a Ridge to Reef Approach

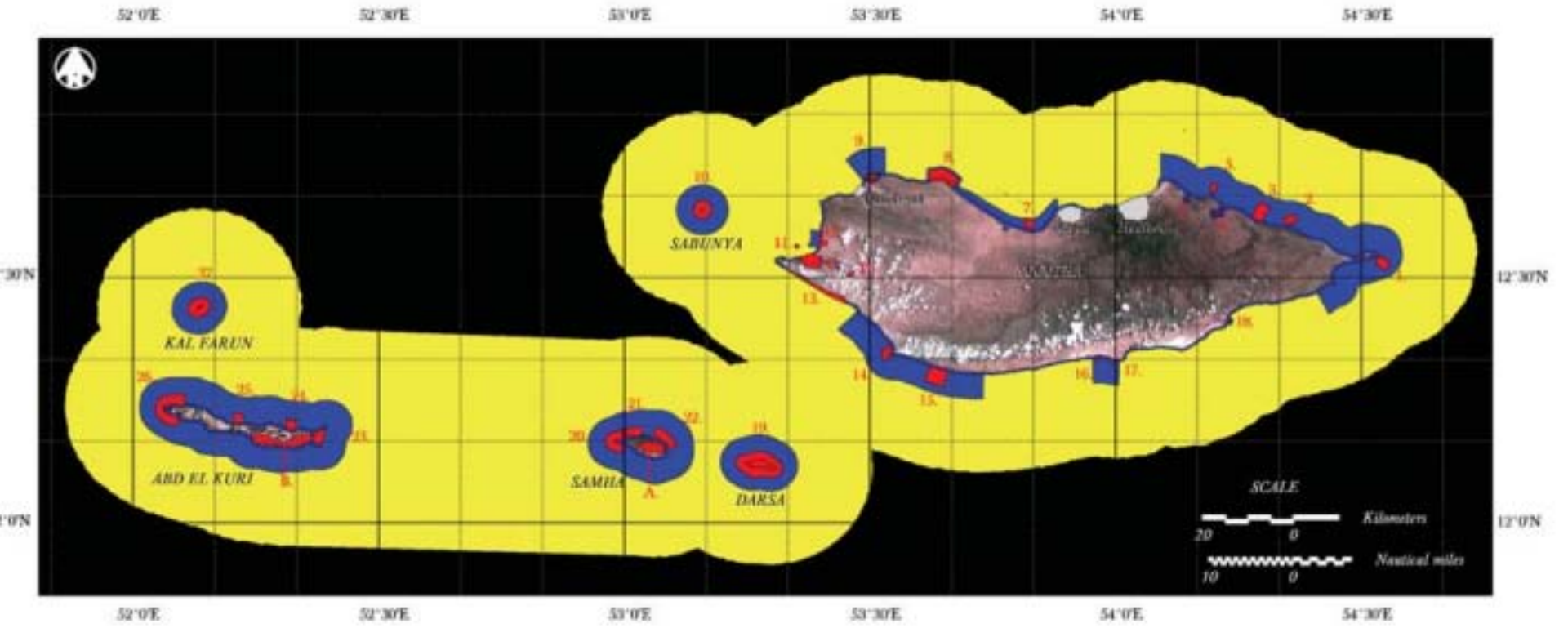
- Considers the entire island, coast, near shore and ocean as one entity
- Focuses on the overall resilience of the entire set of ecosystems
- Examines upstream impacts on downstream and coastal processes

Elements of a Ridge to Reef Approach

- Identifies ecological, social and economic priorities throughout the area, including terrestrial, coastal, marine
- Includes a wide varieties of sectors (e.g., forestry, agriculture, hotel development) and looks at a wide variety of threats


20% Option
Legend
Conservation priority areas
Lower
Higher
Planning Area
Polo
Taro
Tavula
Batava
Varese
Tepakaza
Ririo
Panggoe
Senga
Sasamungga
Babatana
Kerepangara
Vasiduki
Kirugela
Avaso
Waghina
Arariki
Taro
1 km
N
0 5 10 20 30 Kilometers

Socotra Islands, Yemen



Socotra Marine Zoning Plan

- Resource Use Reserve (12nm offshore)
- General Use Zone
- National Park (3nm offshore and 500m inshore)
- Nature Sanctuary

Marine and Coastal Nature Sanctuaries

1. Galas
2. Roosh
3. Rhiy di Adhoh to Di Timri
4. Khor Qaryih (land)
5. Rhiy di Hamri
6. Khor di Lishiah (land)
7. Ras Qatalni -Alamo
8. Qadama and Medina
9. Diduah
10. Sabunya islands to 1nm
11. Shuab Markab (wreck)
12. Shuab Mangrove (land)
13. Neet Mangrove (land)
14. Qatanin
15. Muthaz (Barbara)-Zeraghnin
16. Qashor
17. Qasharhin of Maharef
18. Qasharhin of Mahfrehin
19. Darsa to 1nm mile
20. West Samha
21. North Samha
22. East Samha
23. Anjara Bay
24. Bir Al Agooz Area
25. Bayt Eissa Area
26. Khaiset en Naum
27. Kal Farun islands to 1nm
A. Samha highlands (land)
B. Djabe (coastal)
C. Jouanins Petrel Cliff (land)
D. Wadi Shuab (land)

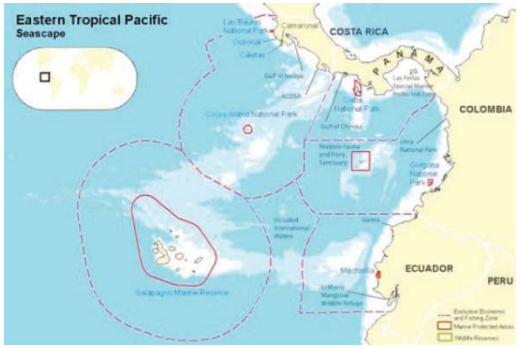
Discussion Questions

- Is your country adopting a “Reef to Ridges” approach? Explain

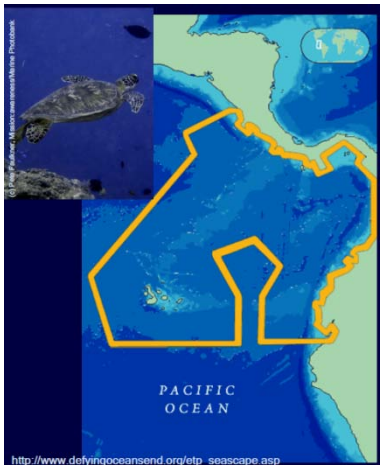
- What aspects of a “Reef to Ridges” approach might be especially helpful in strengthening climate resilience?

Resilience through PA spatial integration

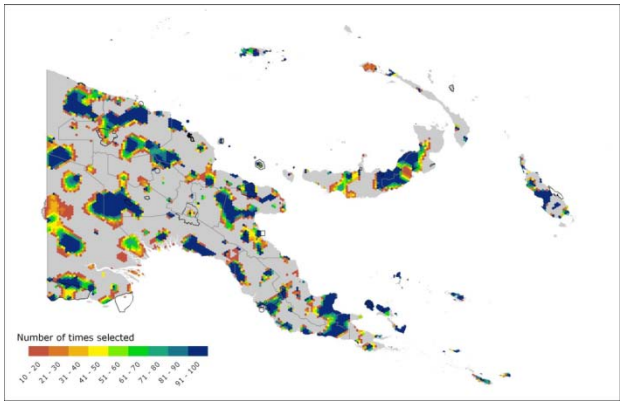
Ridge to Reef



Transboundary areas

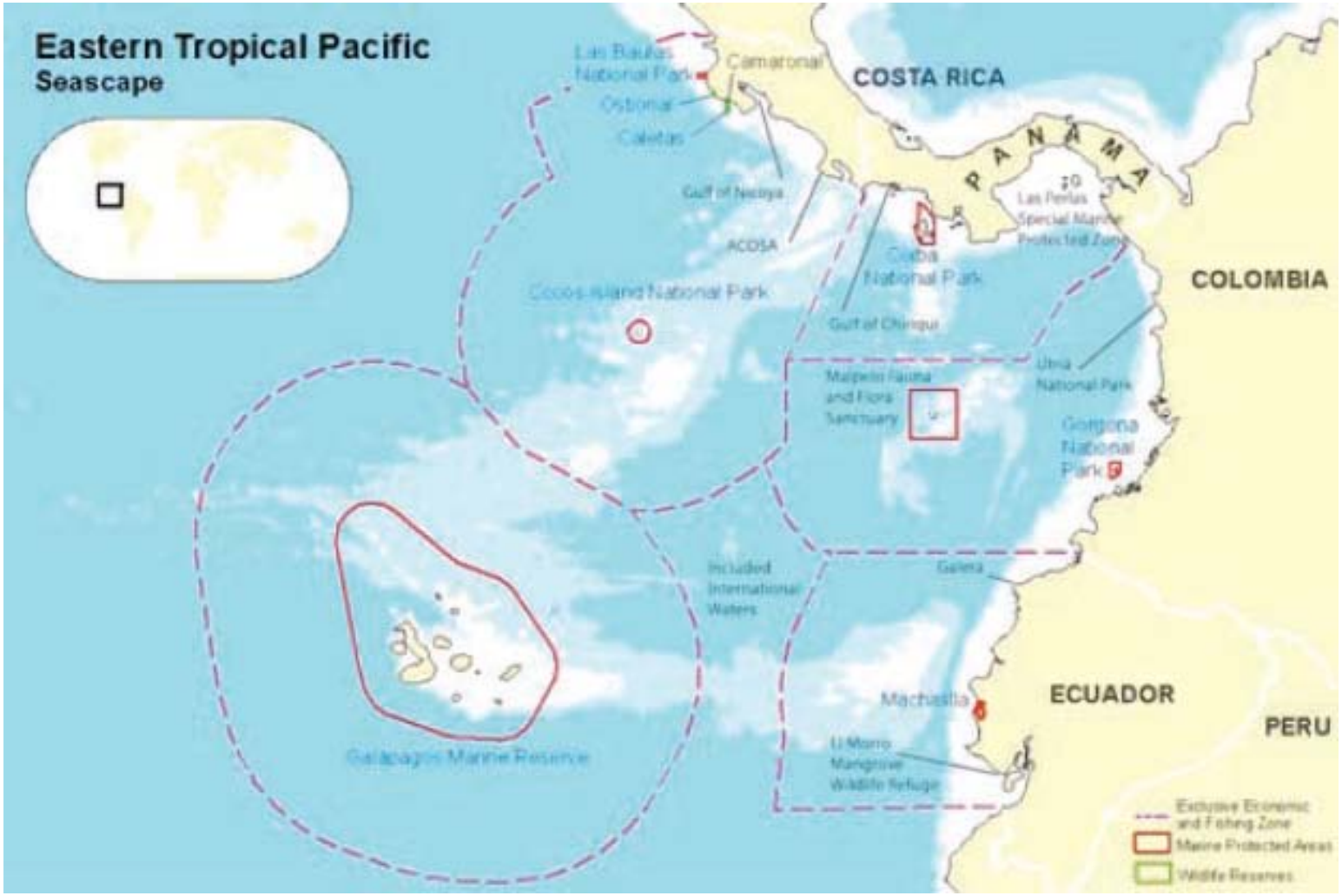


Regional networks

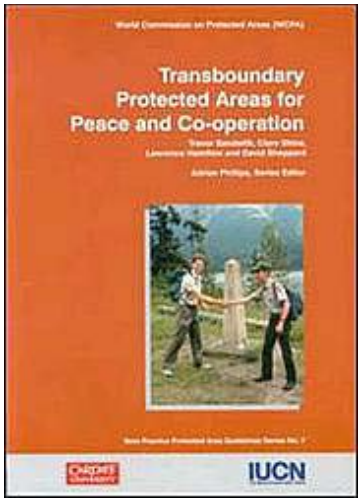


Improved gap assessments

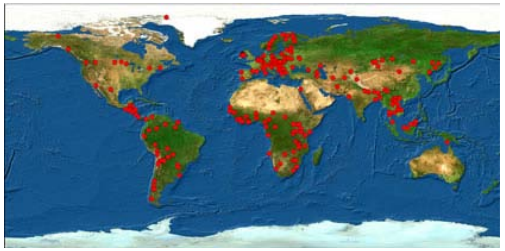
Transboundary PAs and MPAs



Transboundary PAs and transboundary resource management



Transboundary protected area: Area of land or sea that borders two states where both parties are dedicated to the protection and maintenance of biological diversity through legal or other effective means

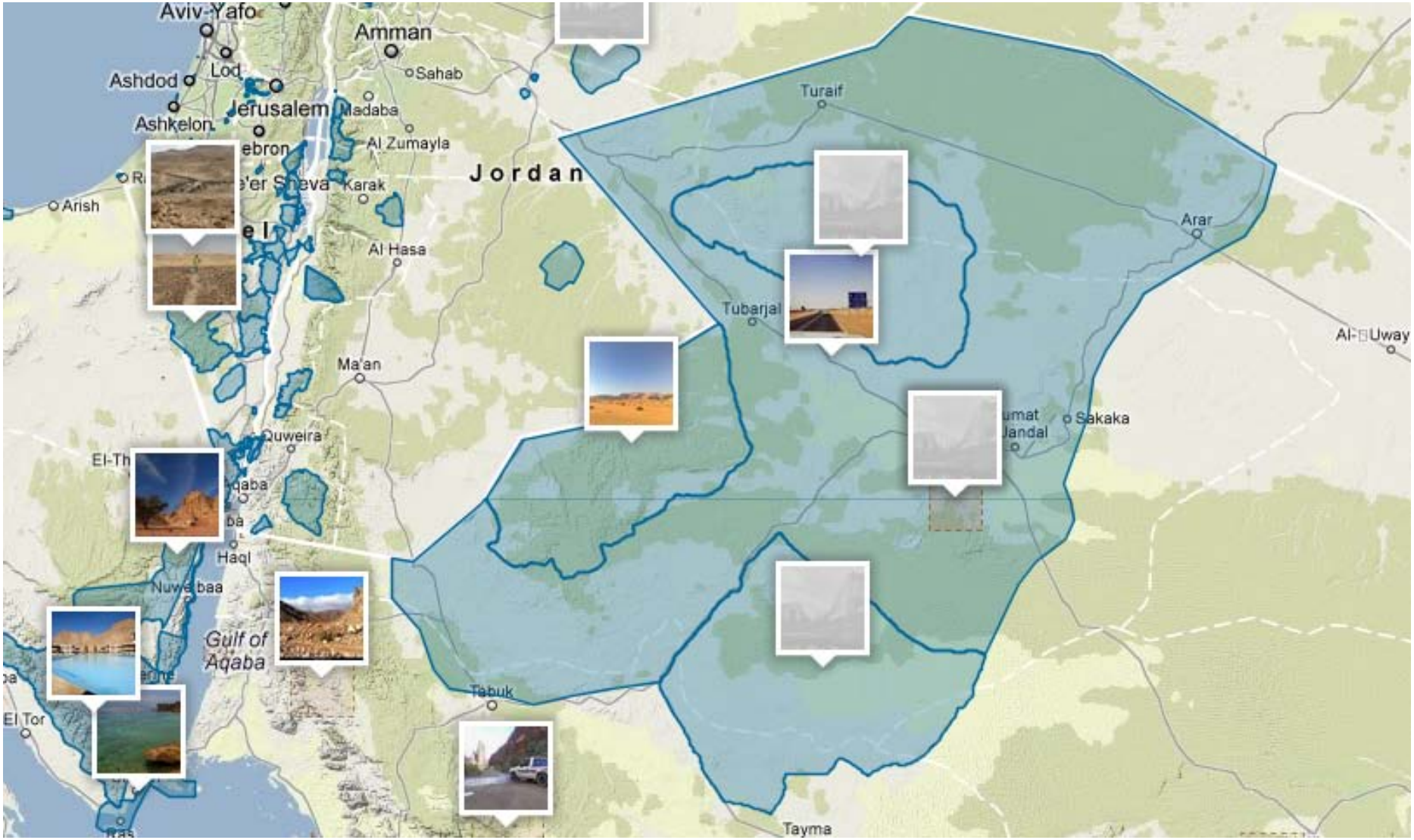


Transboundary resource management: Any collaboration across boundaries that increases the effectiveness of achieving conservation goals

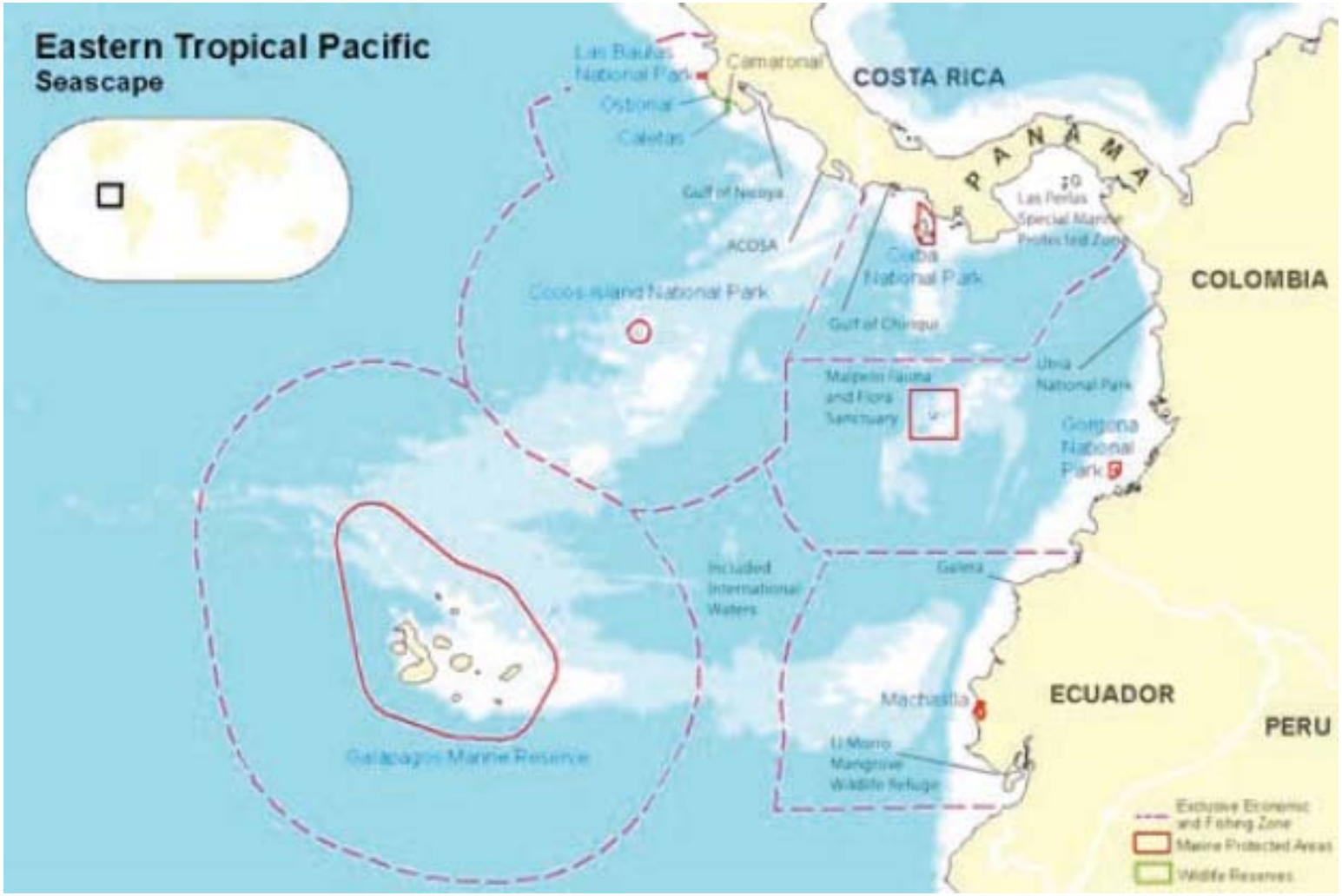
The role of transboundary protected areas in strengthening resilience

- Allows species to **shift their distribution ranges**
- Allows for **natural processes** to occur at large scales
- Increases **resilience to extreme events** and disturbance
- Increases **species population viability**
- Reduces **synergistic threats**
- Increases **reproductive success**
- Increases the likelihood of protecting areas of **climate refugia**
- Expands the **diversity of the population gene pool**

Transboundary protected area



Transboundary MPAs: Eastern Tropical Pacific Seascape



Transboundary MPAs: Eastern Tropical Pacific Seascape

Countries: Costa Rica, Panama, Colombia, Ecuador

Area: Complex geography, valuable fisheries, high diversity and endemism

Important coastal habitat: mangroves, estuaries, rocky cliffs, sea grass beds, sandy beaches; major migration corridor

Protection: 4 world heritage sites, numerous MPAs

Transboundary MPAs: Eastern Tropical Pacific Seascape

Rationale: Ecological connectivity; shared uses for fishing, transport, tourism; shared vulnerability to climate events

Objectives:

- Establish a regional framework
- Promote multilateral cooperation
- Secure funding
- Promote multi-stakeholder participation

Strategies that improved climate resilience

- Conducted region-wide **climate vulnerability assessments**
- Documented and shared data on **species migration, range** and **habitat shifts**
- Identified pockets of **resistance** and **climate refugia** (e.g., to coral bleaching) and **large intact areas** at a transboundary scale
- Developed plans to address **transboundary-scale threats**
- **Restored habitat** that was regionally critical
- Developed transboundary **agreements on fisheries**

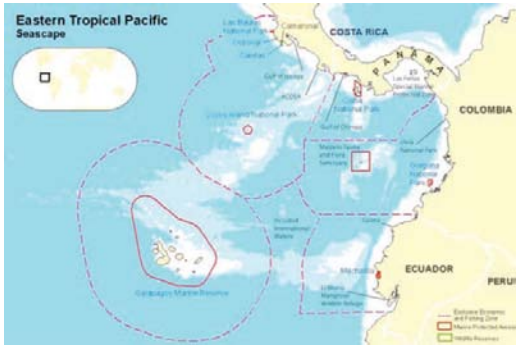
Discussion Questions

- What opportunities are there for you to increase transboundary collaboration and transboundary protected areas?

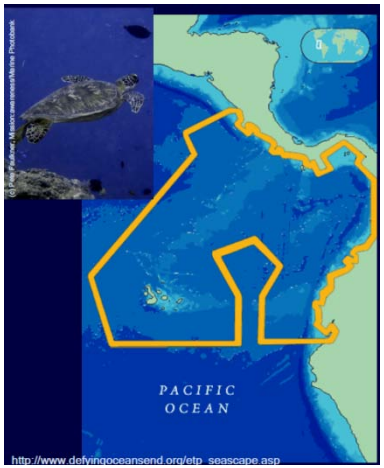
- How important are these areas in your context for strengthening climate resilience and promoting climate adaptation?

Resilience through PA spatial integration

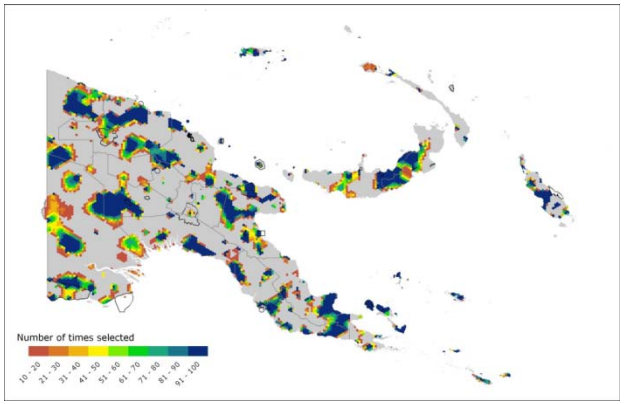
Ridge to Reef



Transboundary areas

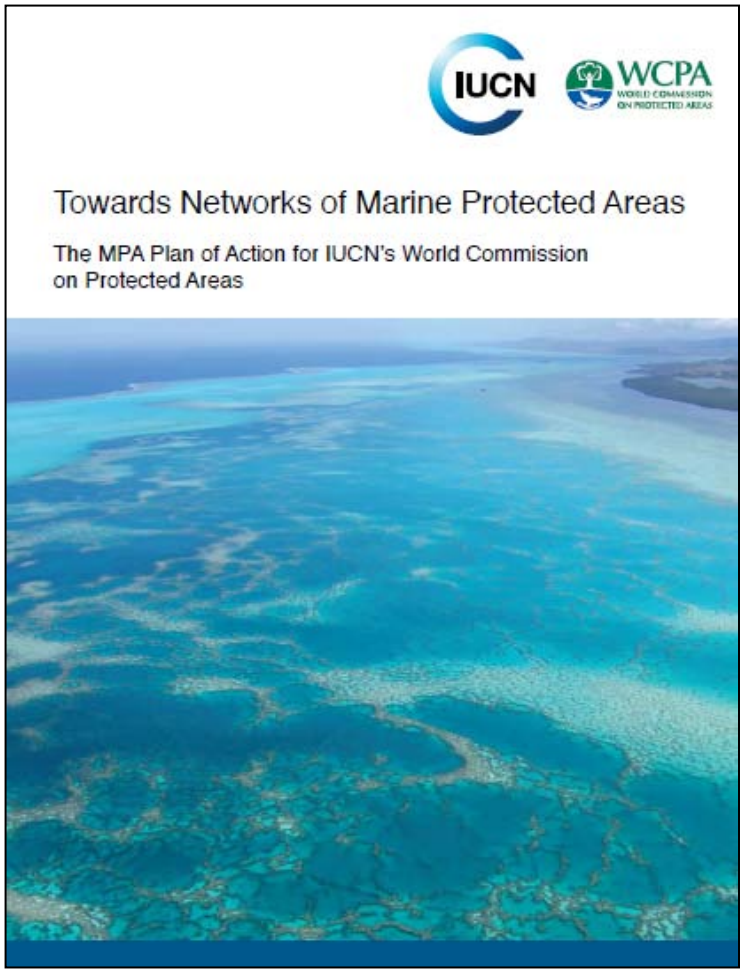


Regional networks



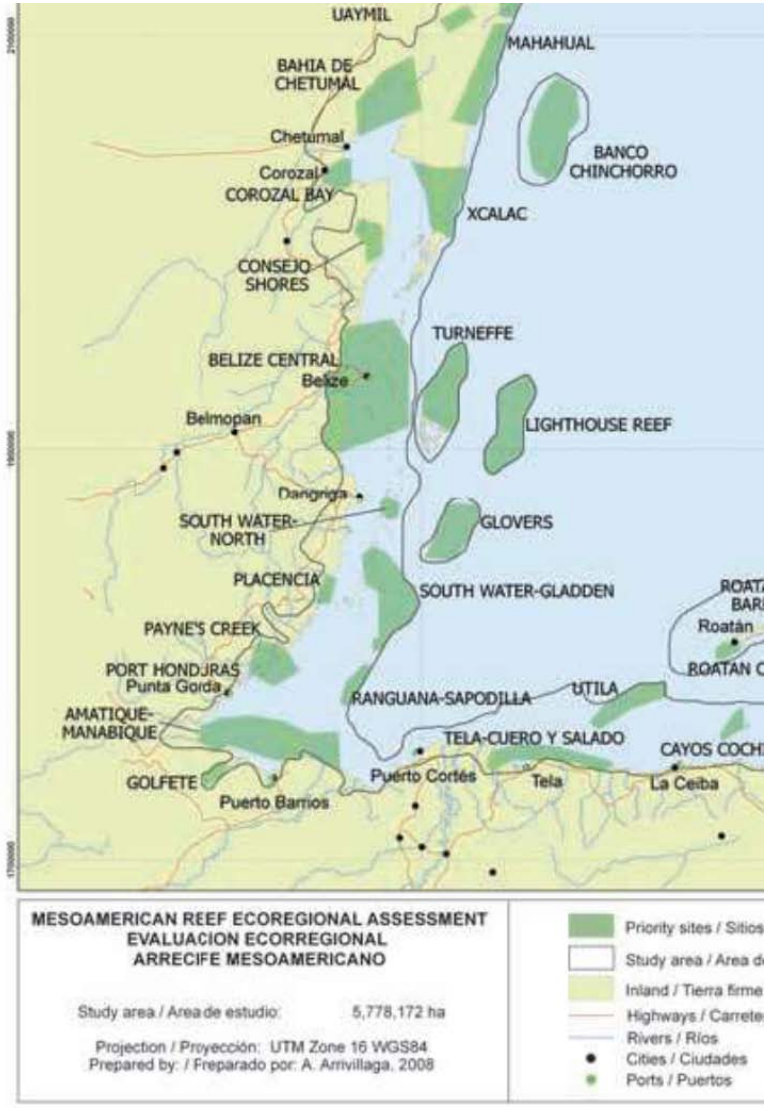
Improved gap assessments

Regional MPA Networks



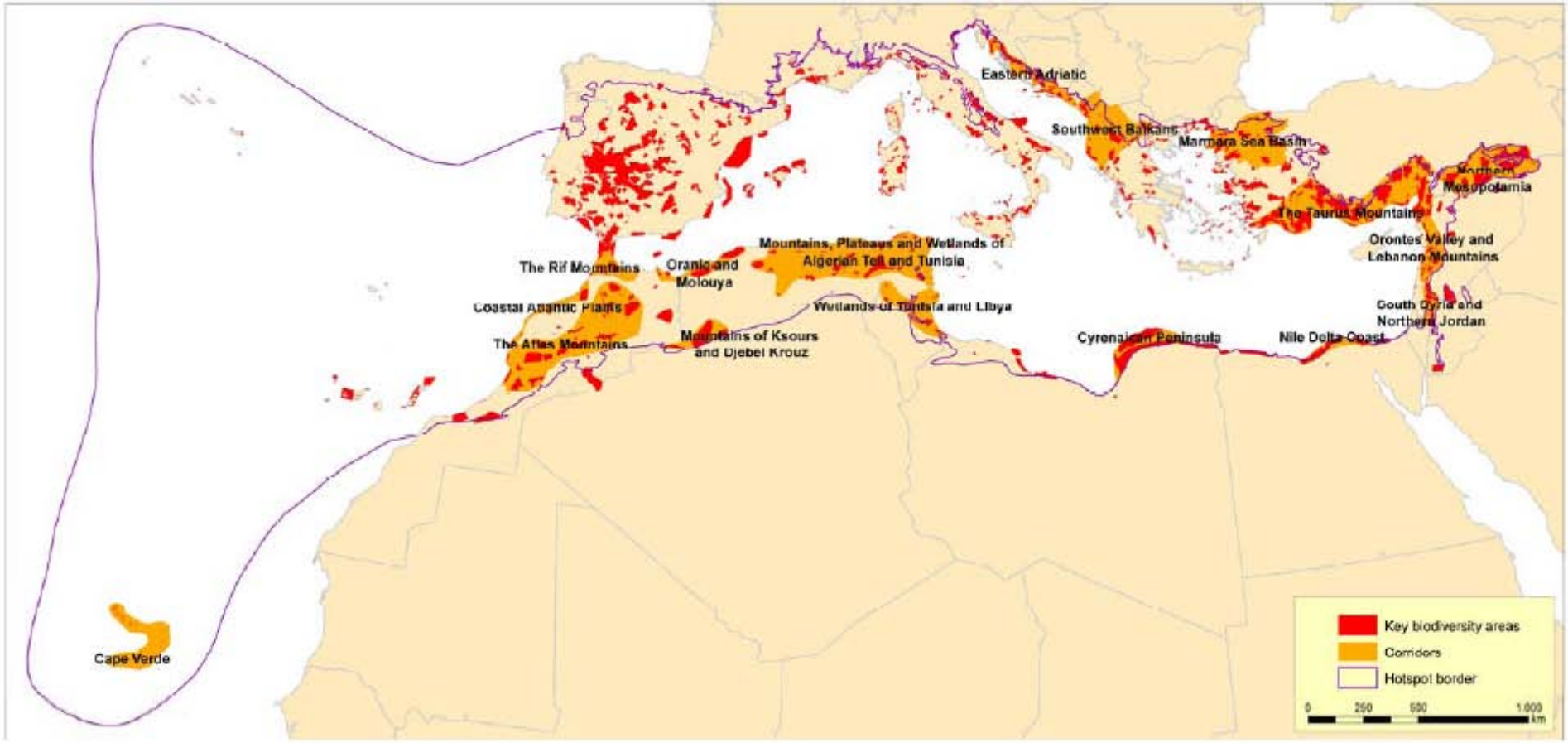
"A collection of individual MPAs or reserves operating co-operatively and synergistically, at various spatial scales and with a range of protection levels that are designed to meet objectives that a single reserve cannot achieve." WCPA/IUCN, 2008

Examples of Regional MPA Networks



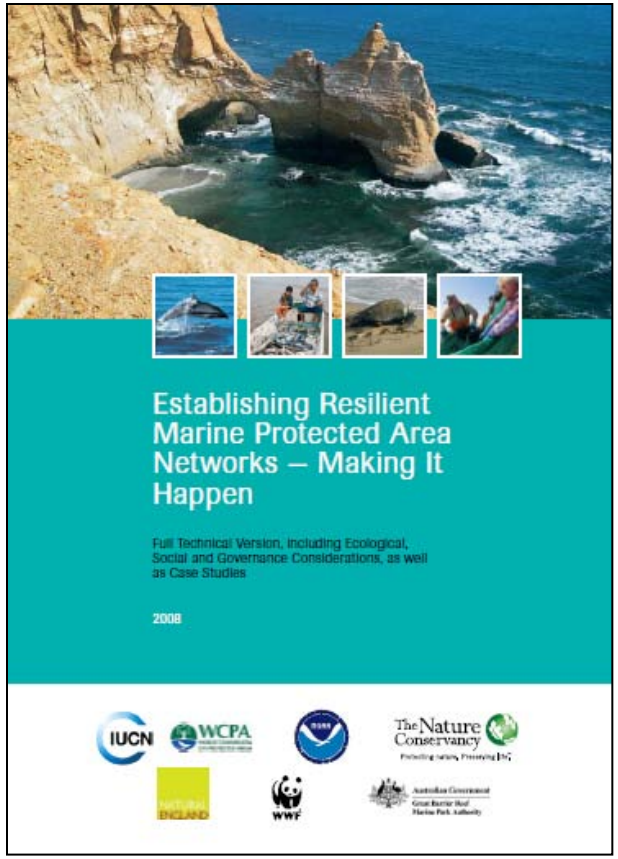
- Meso-American Barrier Reef
- B2B –Baja California to Bering Sea
- Scotian Shelf/Gulf of Maine
- Eastern African Marine Ecoregion (EAME)
- Western Africa Regional Network
- Sulu-Sulawesi Marine Ecoregion
- CMAR –Corredor Marino

Examples of Regional PA Networks



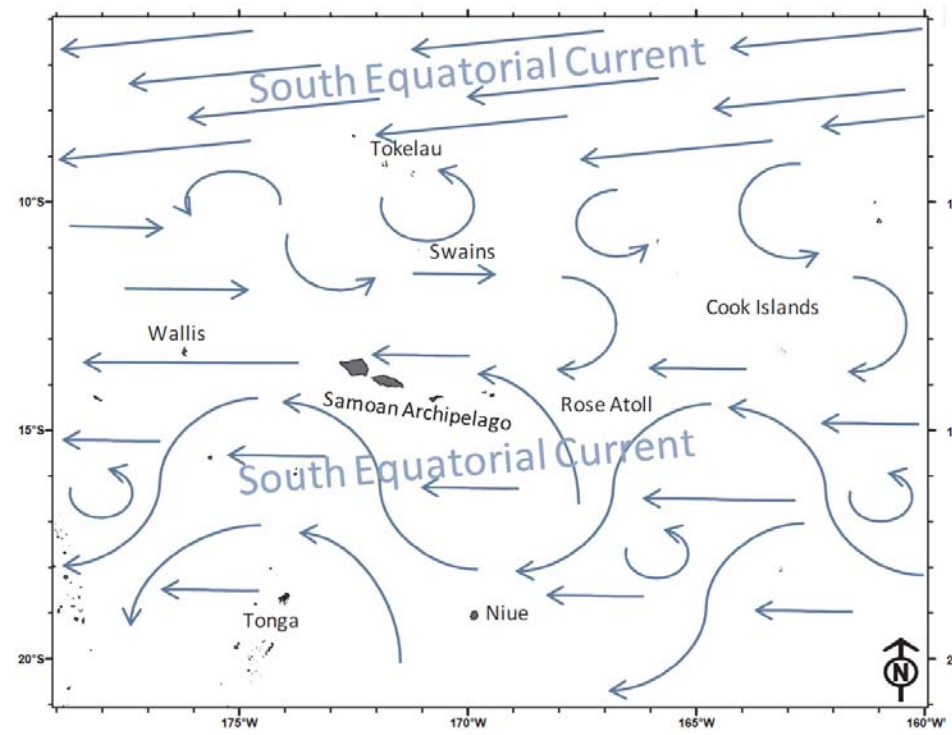
- Key biodiversity areas and critical corridors across the Mediterranean

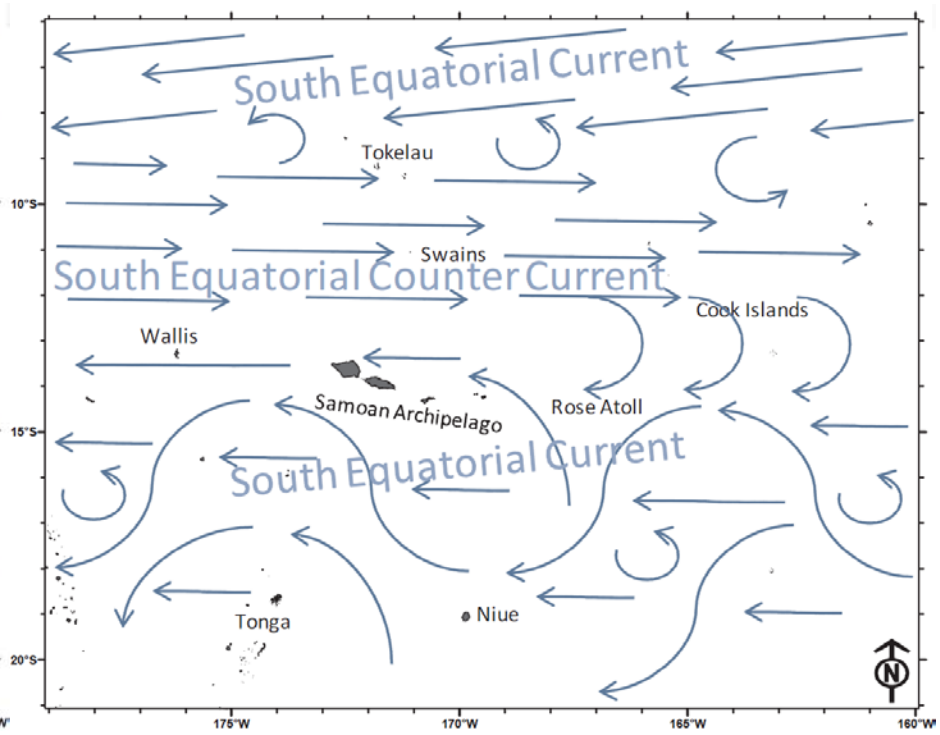
Incorporating resilience principles into MPA network design:



- Plan regional MPA networks at large landscape/seascape, national and regional scales
- Focus on protecting large, intact functioning ecosystems that will serve as biodiversity sources
- Include pockets of marine resilience (e.g., from bleaching events)
- Pay attention to spacing, larval distribution, habitat patchiness
- Focus on connectivity patterns

Incorporating connectivity principles into MPA network design



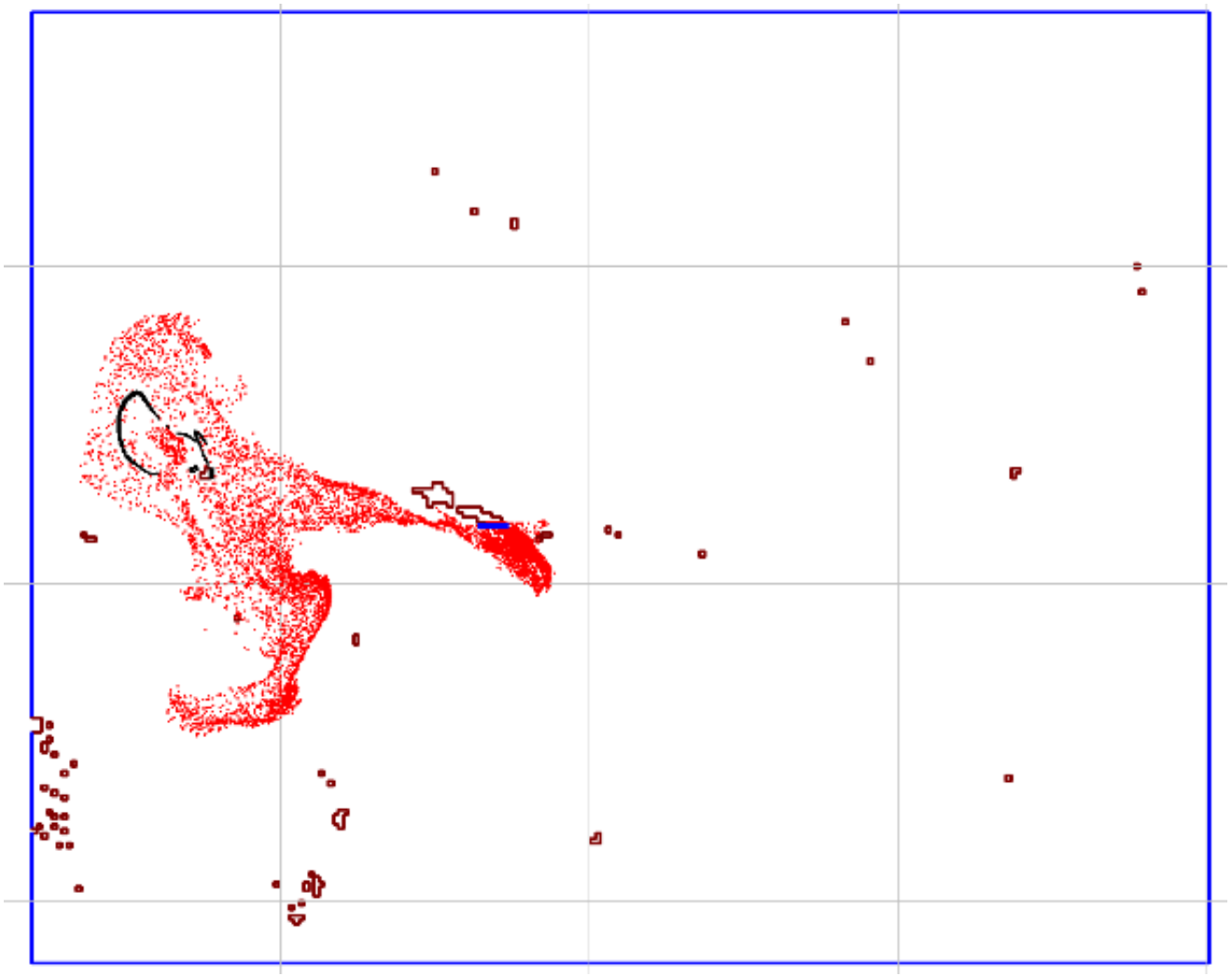


A Biogeographic Assessment of the Samoan Archipelago

Matthew Kendall and Matthew Poti (Editors)

Prepared by NOAA/NOS/NCCOS/CCMA Biogeography Branch
with Support from NOAA's Office of National Marine
Sanctuaries and Coral Reef Conservation Program

Incorporating connectivity principles into MPA network design




Migratory paths: from Khram Island
Thailand
Cambodia
Vietnam
Malaysia
Indonesia

Migratory paths: from Huyong Island

Incorporating resilience principles into MPA network design: Marine EBSAs

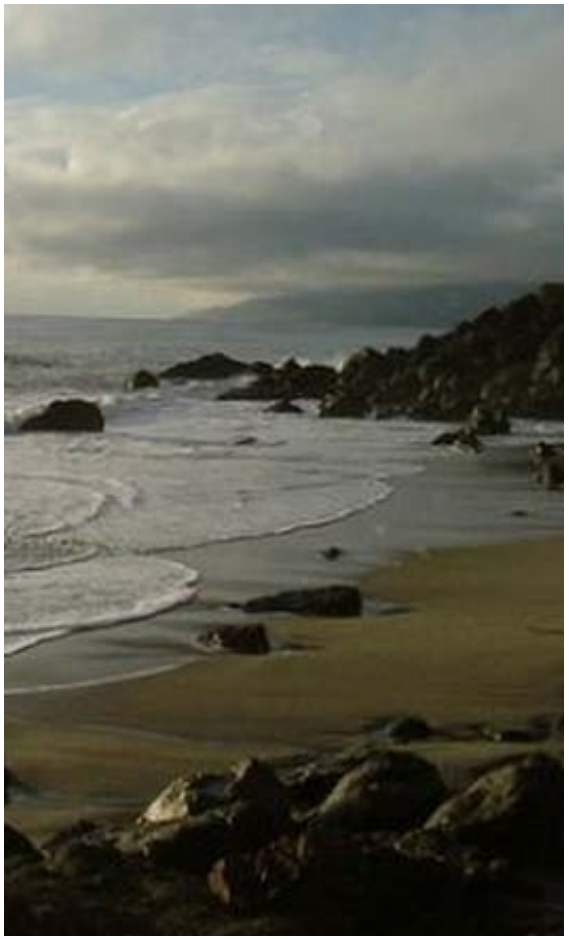
- Uniqueness or rarity
- Special importance for life-history stages
- Importance for threatened species
- Vulnerability, fragility, sensitivity
- Biological productivity
- Biological diversity
- Naturalness

Incorporating social resilience principles into MPA network design:

Design the MPA network to:

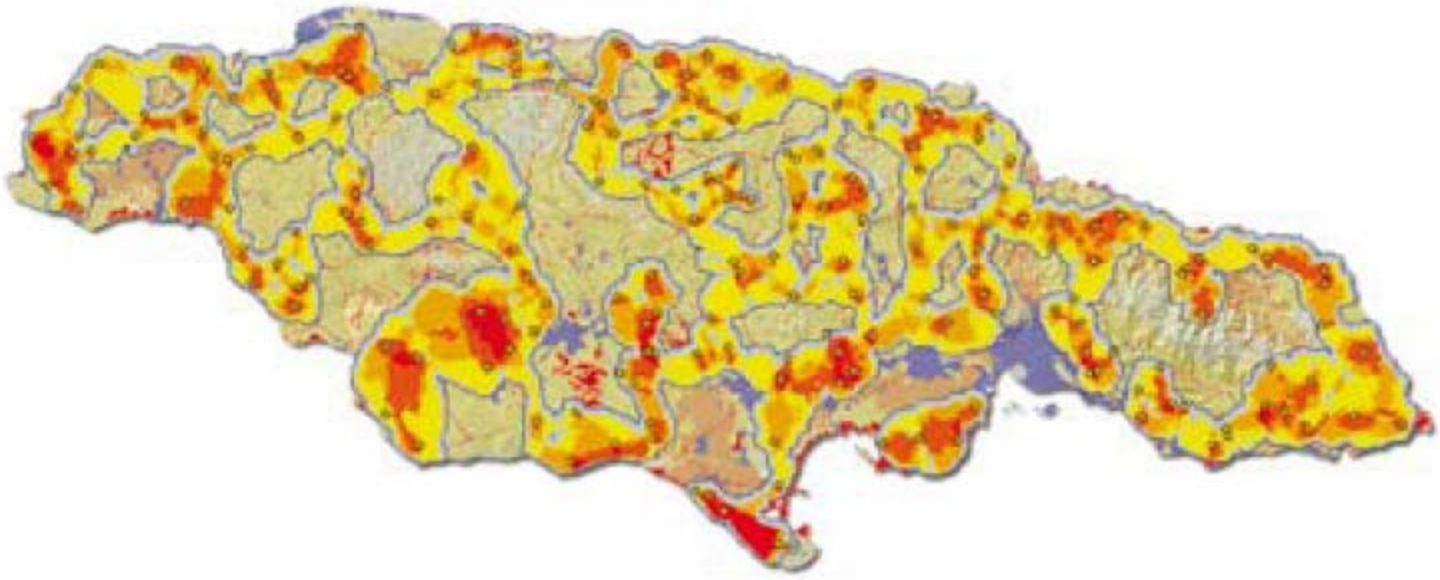
- Buffer human communities from **natural disasters**
- Protect areas important for **food security**
- Protect **water resources**
- Sustain **livelihoods**

Incorporating resilience principles into MPA network design: California



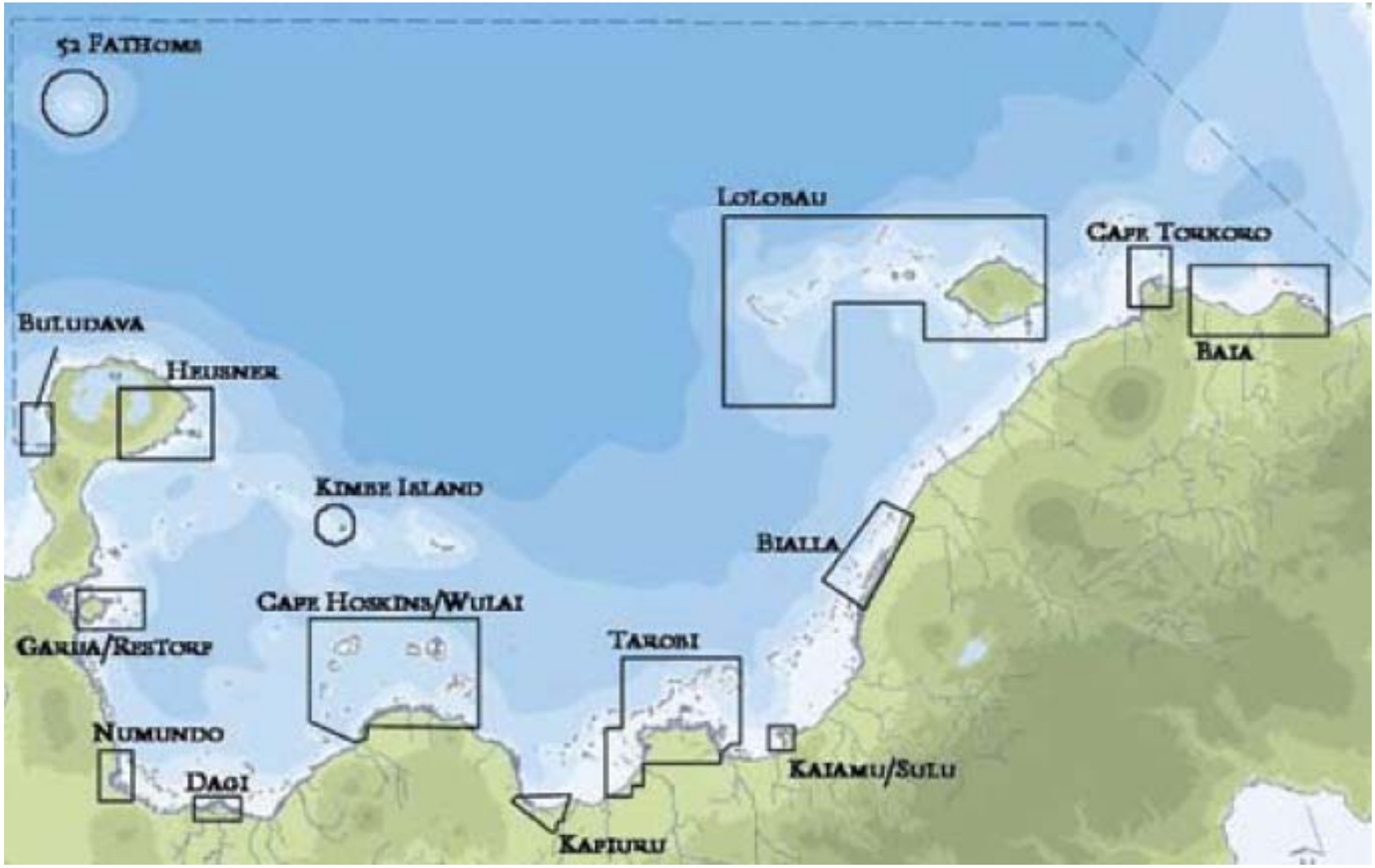
- Minimum size of MPA is 25 km^2; optimal is 45 – 100 km^2
- Minimum shoreline of 5-10 km; optimal is 10-20 km
- Extend boundary of MPA from intertidal zone to deep waters offshore (to protect nursery, spawning and feeding areas)
- Space MPAs no greater than 50 – 100 km from each other to facilitate dispersal

Improving connectivity to promote climate resilience: Jamaica



- The planning process explicitly included the **connectivity needs** for a range of species under **various climate scenarios**

Designing for marine resilience, Kimbe Bay, PNG



Designing for marine resilience, Kimbe Bay, PNG

Representation and risk spreading:

- 20% of each habitat type protected, and distributed these across seascape

Critical areas and key habitats:

- Areas resistant to coral bleaching
- Areas with variety of habitats in close proximity
- Turtle nesting areas
- Key fish aggregation areas

Connectivity

- Used entire ecological units (e.g., whole offshore reefs, seamounts) and large buffers

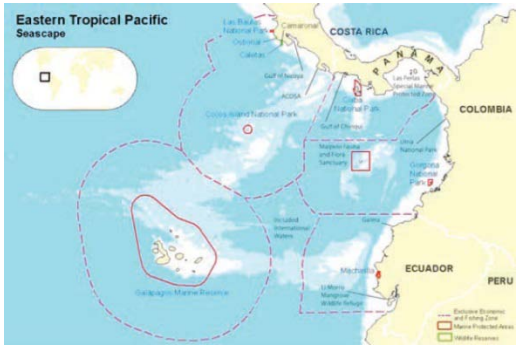
Discussion Questions

- How well is your protected area network designed for climate resilience?

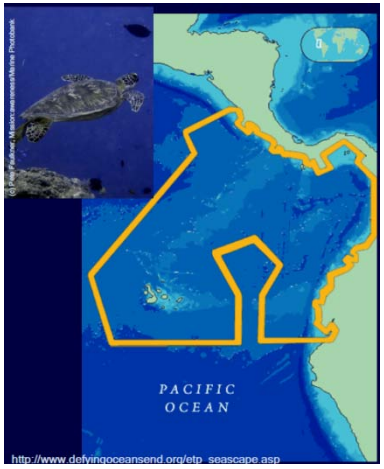
- How well does your protected area network buffer human communities from the impacts of climate change?

Resilience through PA spatial integration

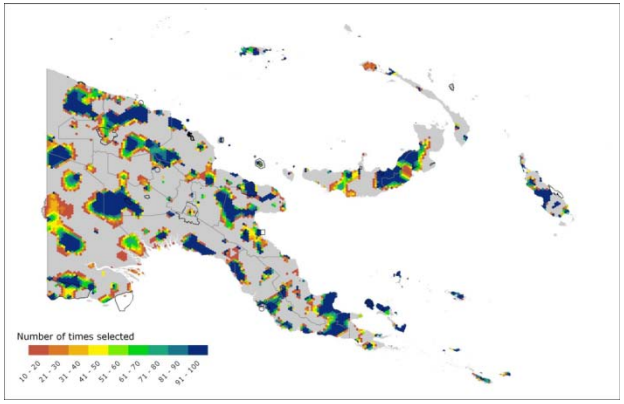
Ridge to Reef



Transboundary areas

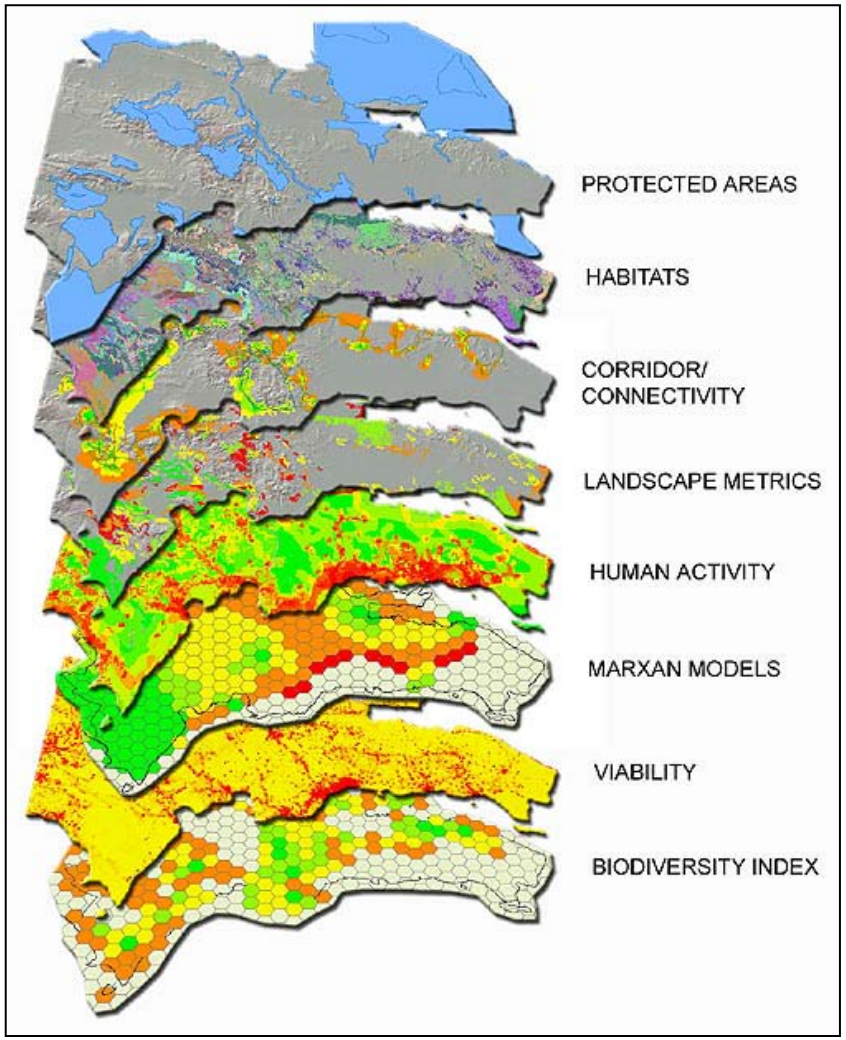


Regional networks



Improved gap assessments

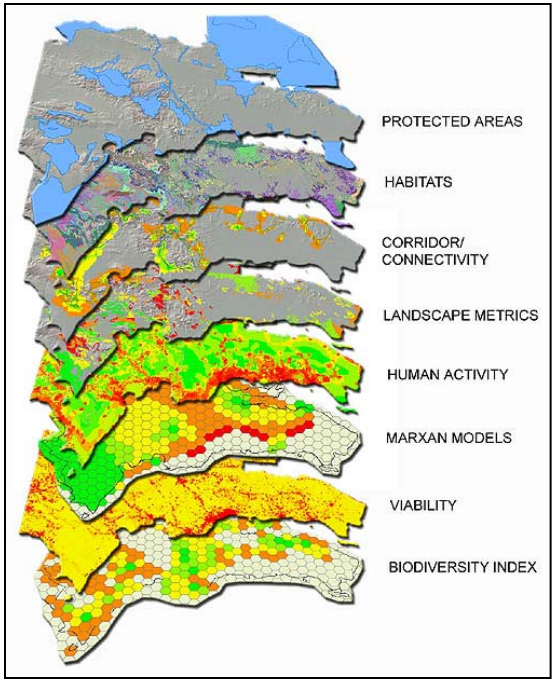
Incorporating resilience principles into gap assessments:



GAP ASSESSMENT:

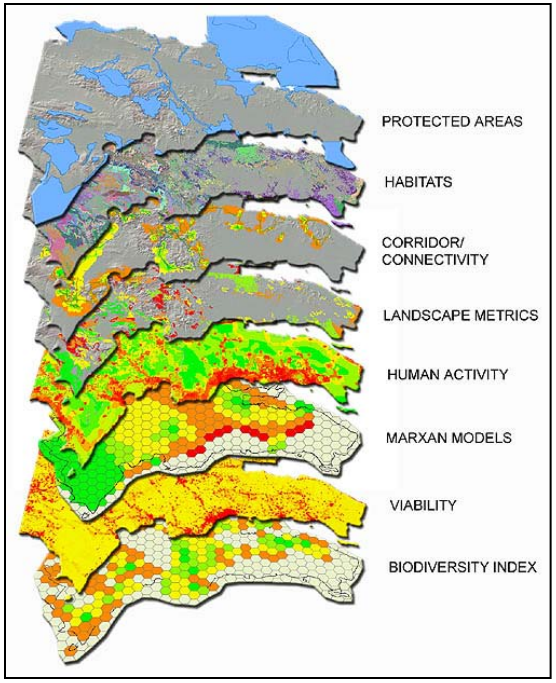
A comparison between the status of **biodiversity** and the status of **protection** within a country

Incorporating resilience principles into gap assessments:



- Focus on **underlying features** (e.g., intertidal systems, coral reefs, upwellings, sea mounts)
- Include species and ecosystems most **vulnerable** to climate change
- Include species and ecosystems most **resistant** to climate change
- Include goals to **diversify the distribution of protection**

Incorporating resilience principles into gap assessments:



- Include **connectivity** under climate scenarios in gap assessment
- Incorporate threats that drive **climate-related regime shifts**, as well as climate-related thresholds and **tipping points**
- Incorporate predict**ive climate modeling** into gap assessment

Climate Change in Pacific Islands

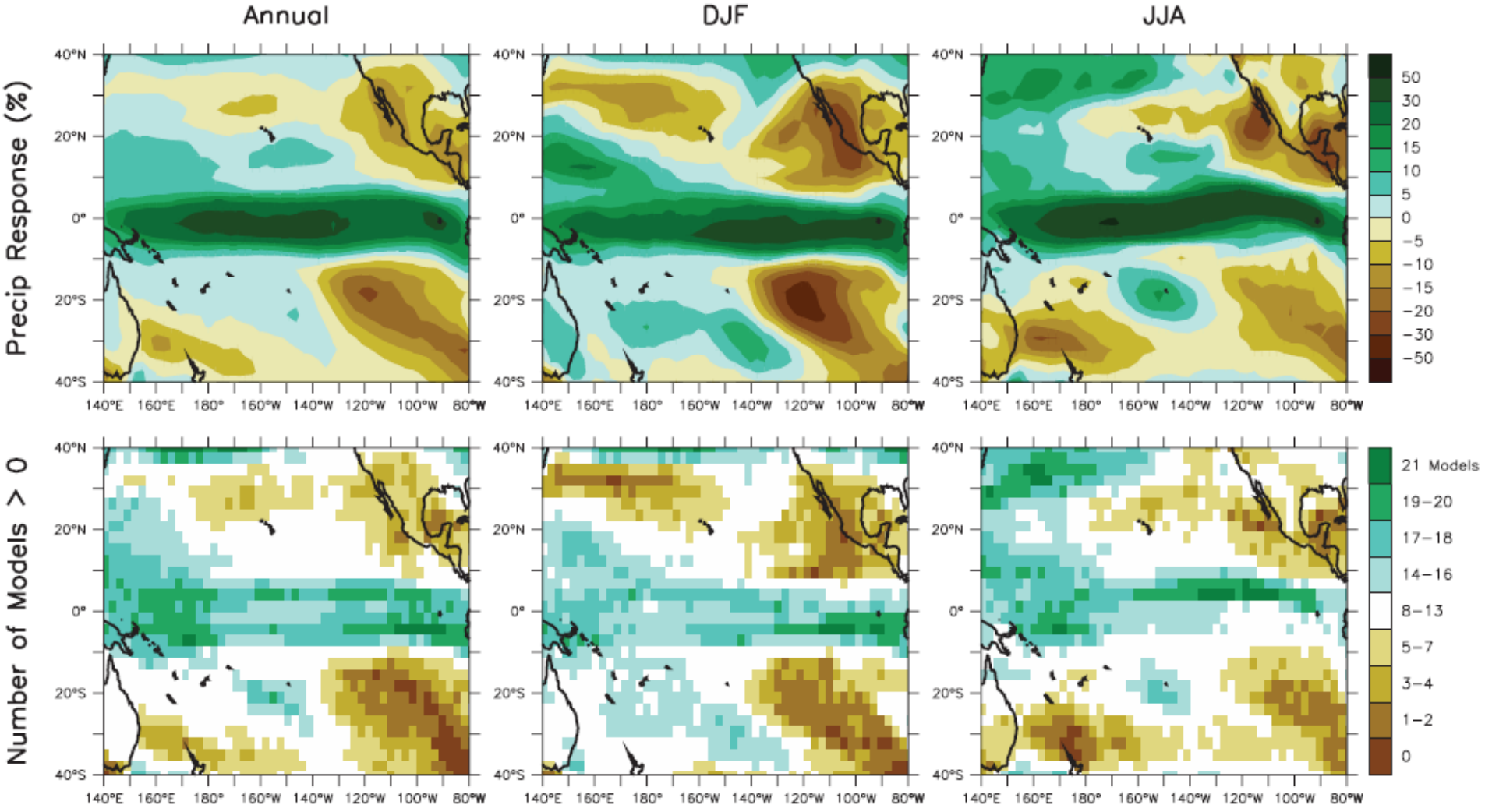
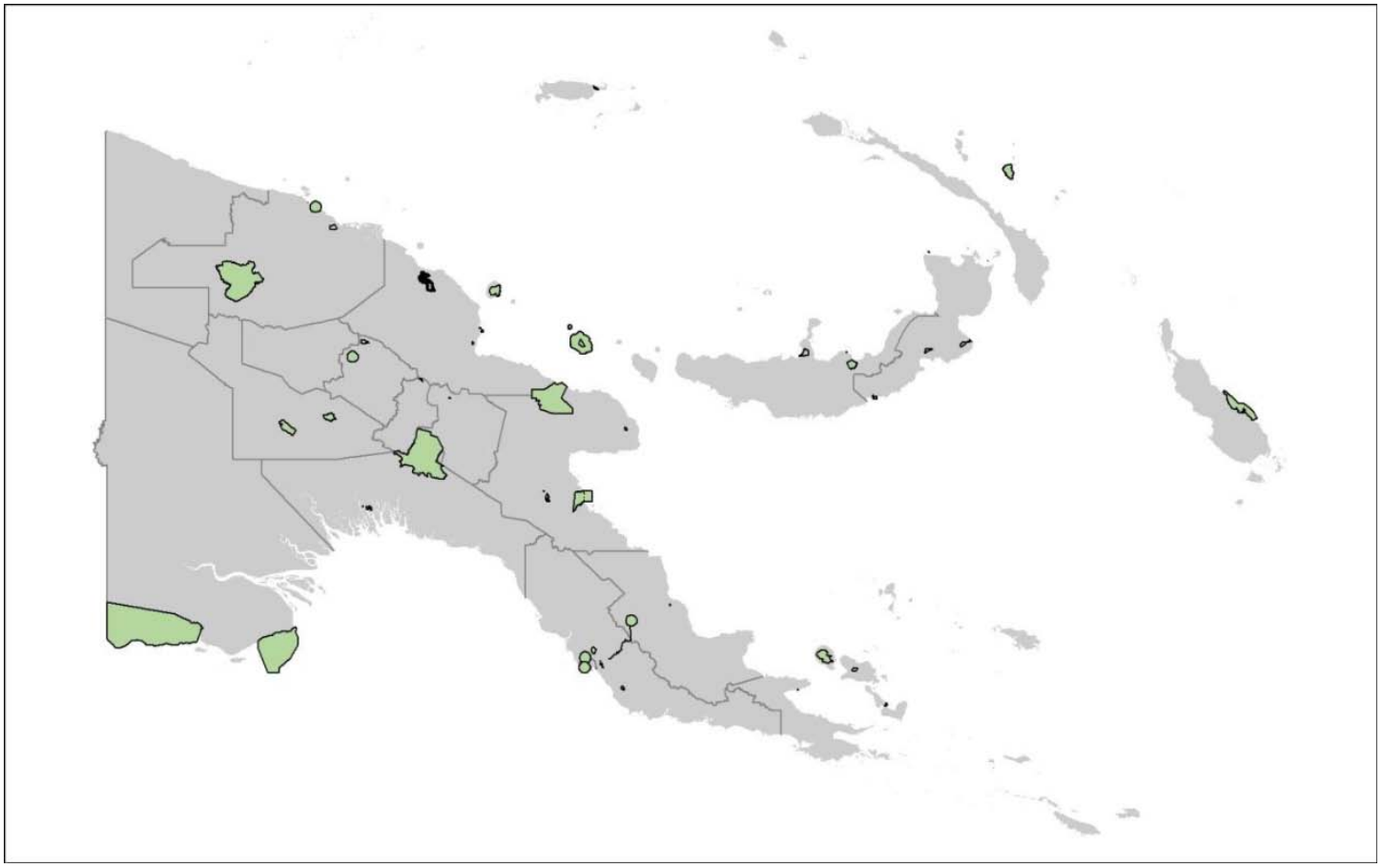


Figure 11.23. *Precipitation changes over the Pacific Ocean. Top row: Annual mean, DJF and JJA fractional precipitation change between 1980 to 1999 and 2080 to 2099, averaged over 21 models. Bottom row: number of models out of 21 that project increases in precipitation.*

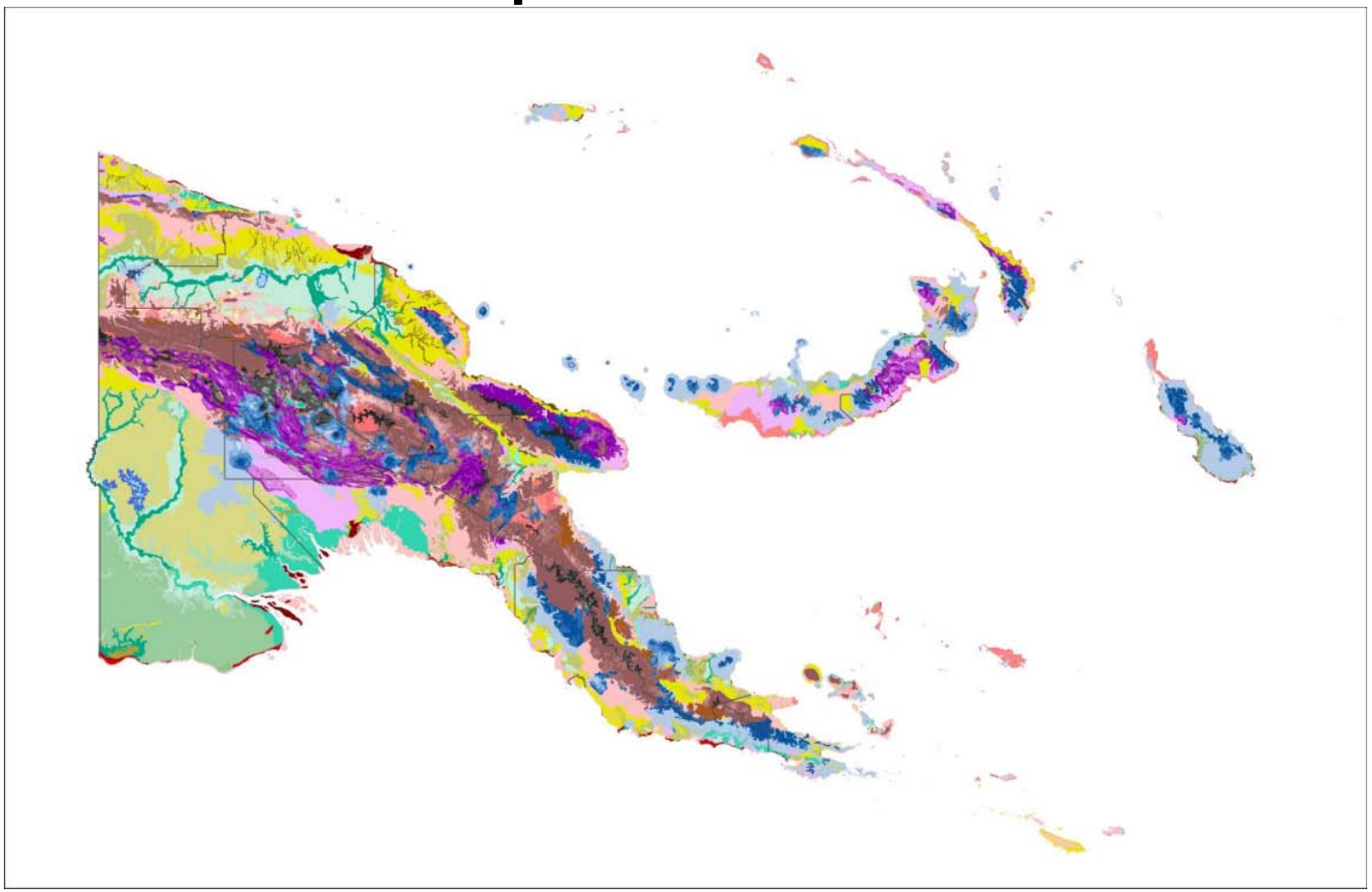
AR4 WGI Ch. 11.

Climate-Ready Ecological Gap Assessment in Papua New Guinea



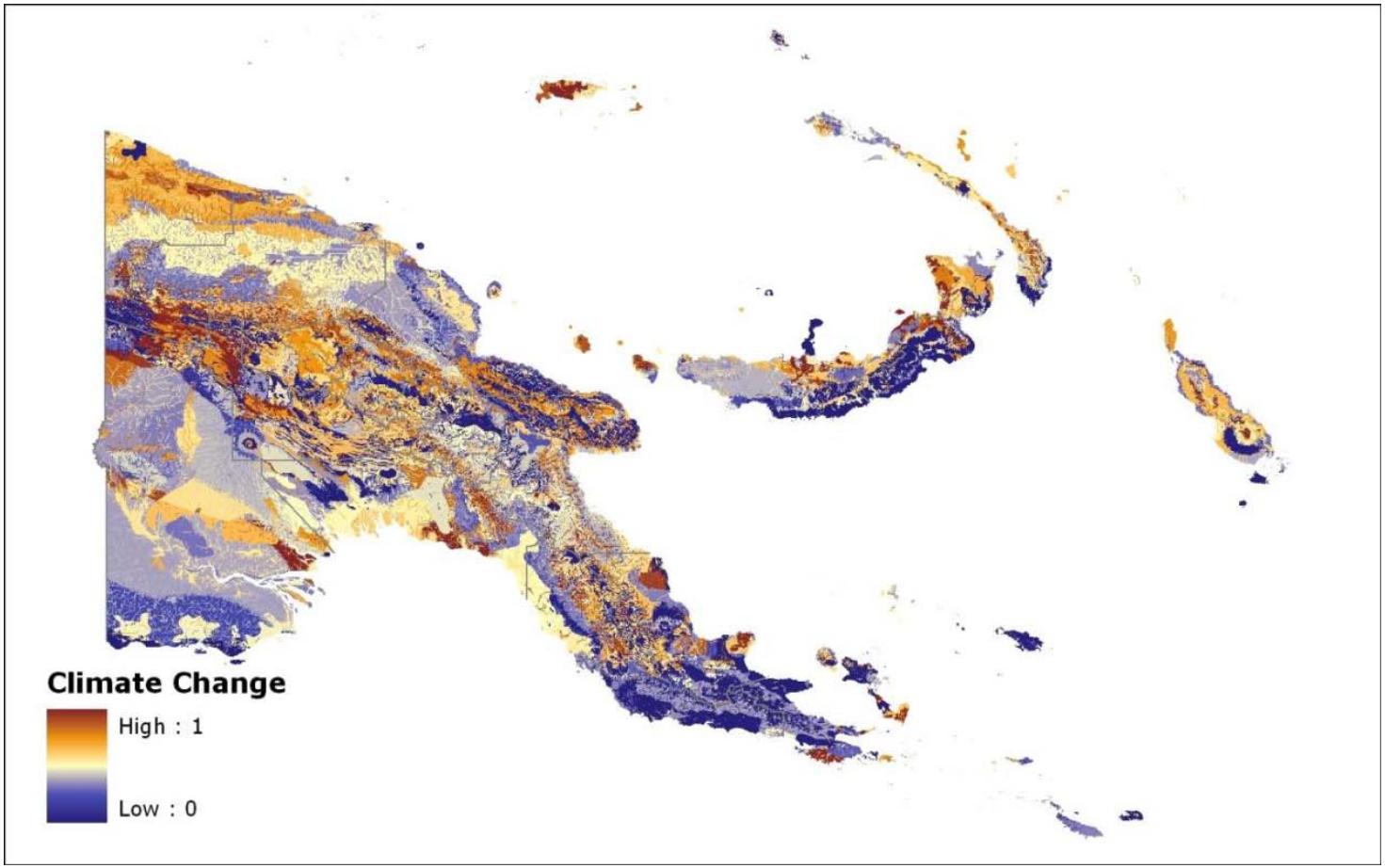
Existing protected areas

Climate-Ready Ecological Gap Assessment in Papua New Guinea



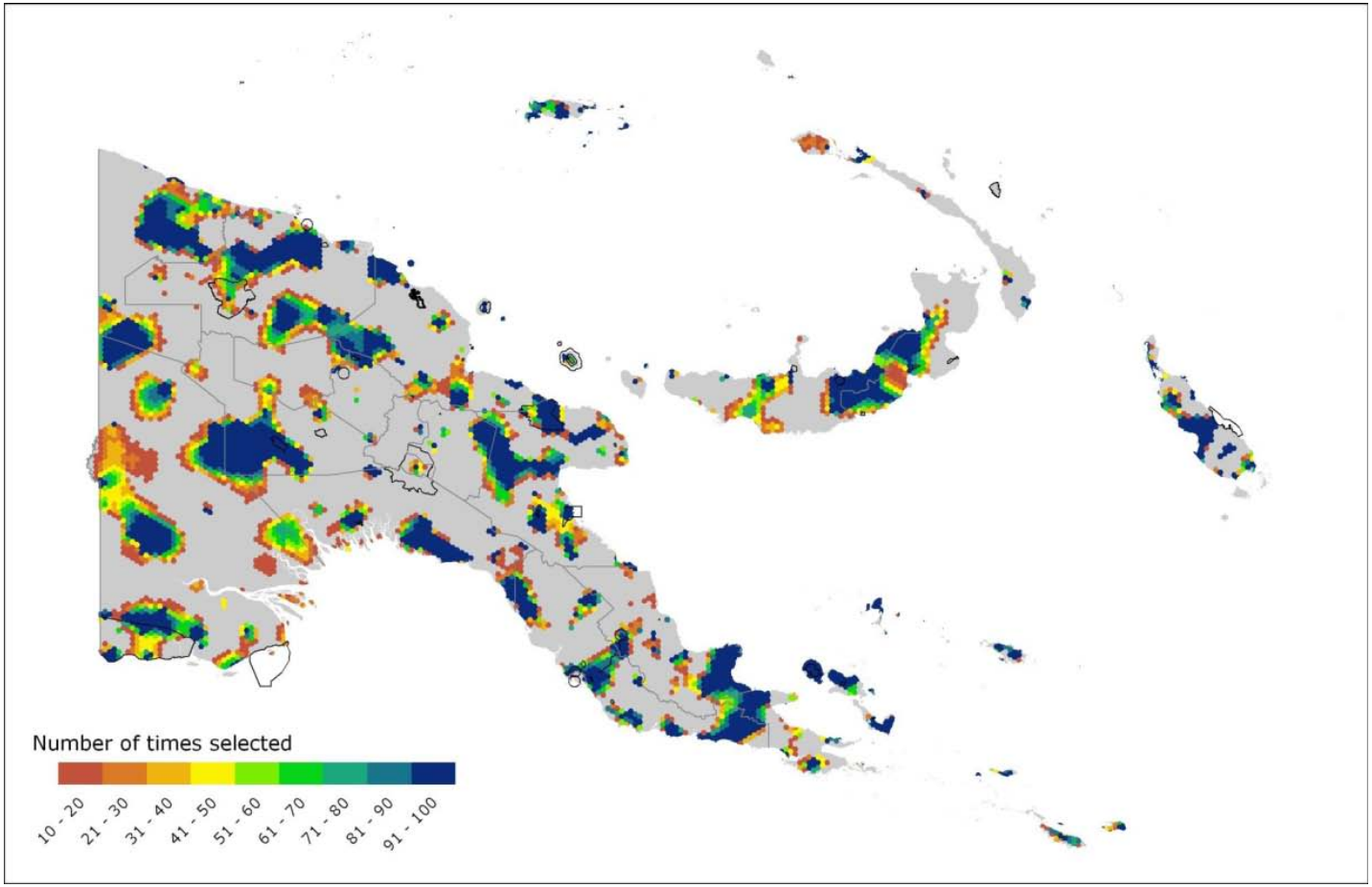
Land systems

Climate-Ready Ecological Gap Assessment in Papua New Guinea



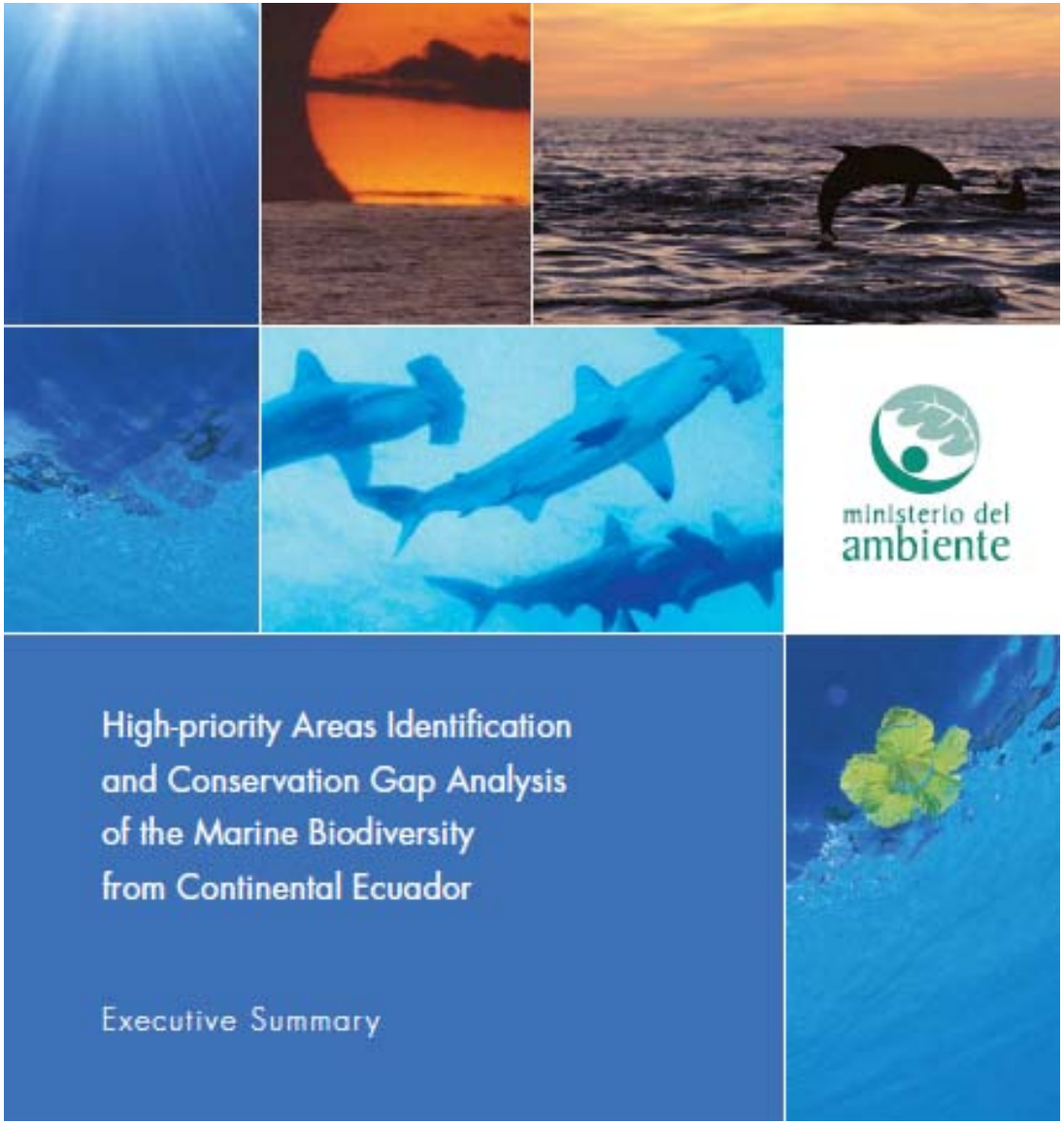
Climate impacts

Climate-Ready Ecological Gap Assessment in Papua New Guinea

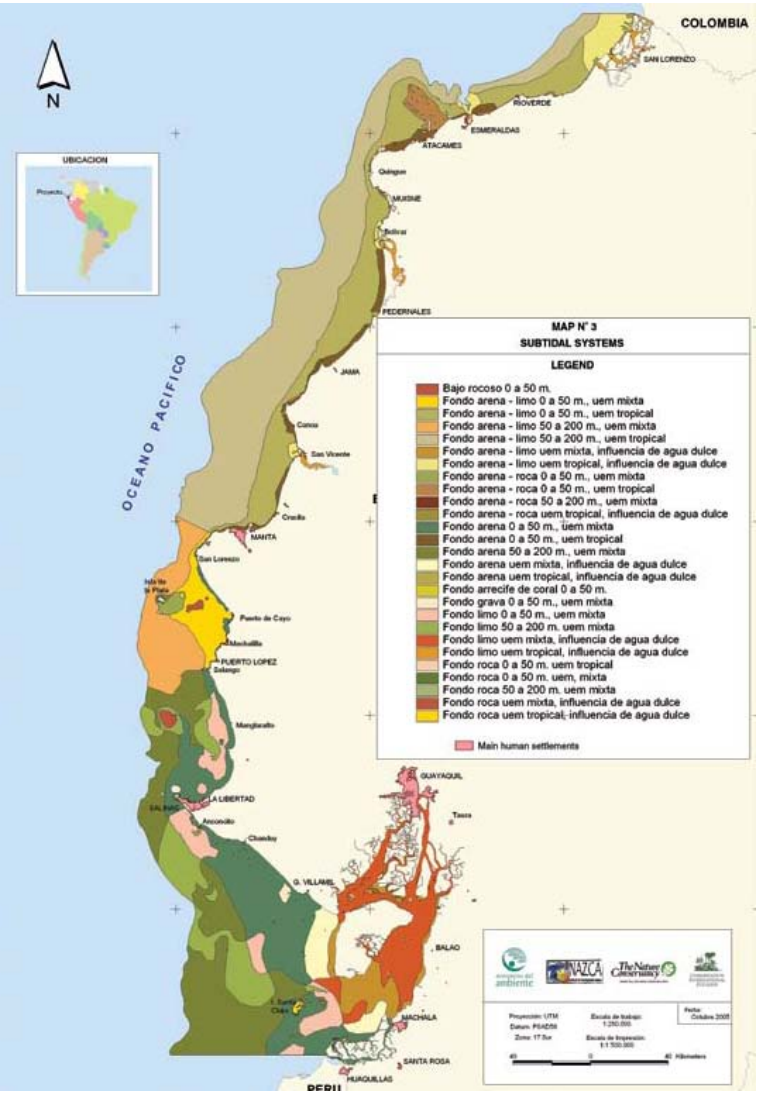


Resulting analysis of climate-ready gap assessment

Marine Gap Assessment for Climate Resilience



Marine Gap Assessment for Climate Resilience



- Distributed ecological units to **spread climate risk**
- Considered impacts from El Niño and included threats **exacerbated by climate change**
- Included systems important for **buffering humans** (mangrove forests, key fisheries,)
- Included species and systems **vulnerable to climate impacts**

Discussion Questions

- How well does your country's gap assessment incorporate issues related to climate resilience and adaptation?

- What practical steps could you take to incorporate climate resilience and adaptation into your terrestrial and marine gap assessments?

WHAT DOES PROTECTED AREA INTEGRATION MEAN?

1. Spatial integration
2. **Sectoral integration**

SECTORAL INTEGRATION

Ensuring that related sectors minimize impacts on biodiversity within protected areas….

…involving many key sectors….

Land use planning	Agriculture	Waste management
Transportation	Grazing	Invasive species policies
Energy	Forestry	Legal environment
Tourism	Agroforestry	Water management
Wildlife policies	Fisheries	National security

Climate Change Adaptation through PA Sectoral Integration and Mainstreaming

Revise sectoral policies

Revise PA valuation studies

Integrate into NAPAs

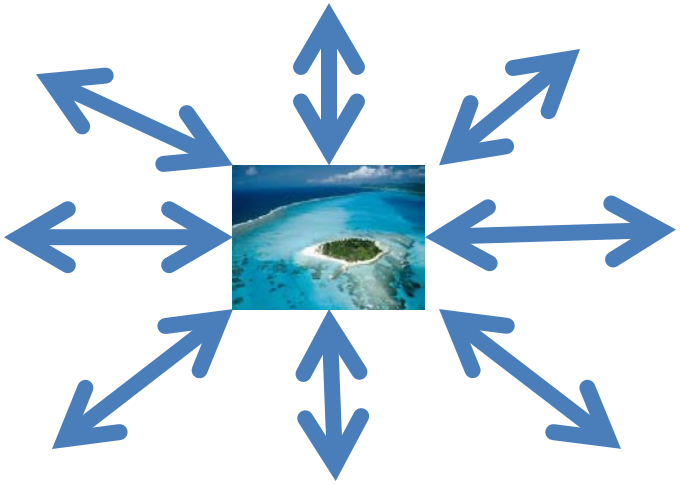
Include in threats assessment

Climate Change Adaptation through PA Sectoral Integration and Mainstreaming

1. Revise sectoral policies

- Develop payment for ecosystem services for water to incorporate PA values into economy
- Develop biodiversity offset policies for the energy sector
- Develop land use policies that protect coastal areas important for fisheries and storm buffers

Multiple Opportunities for Mainstreaming

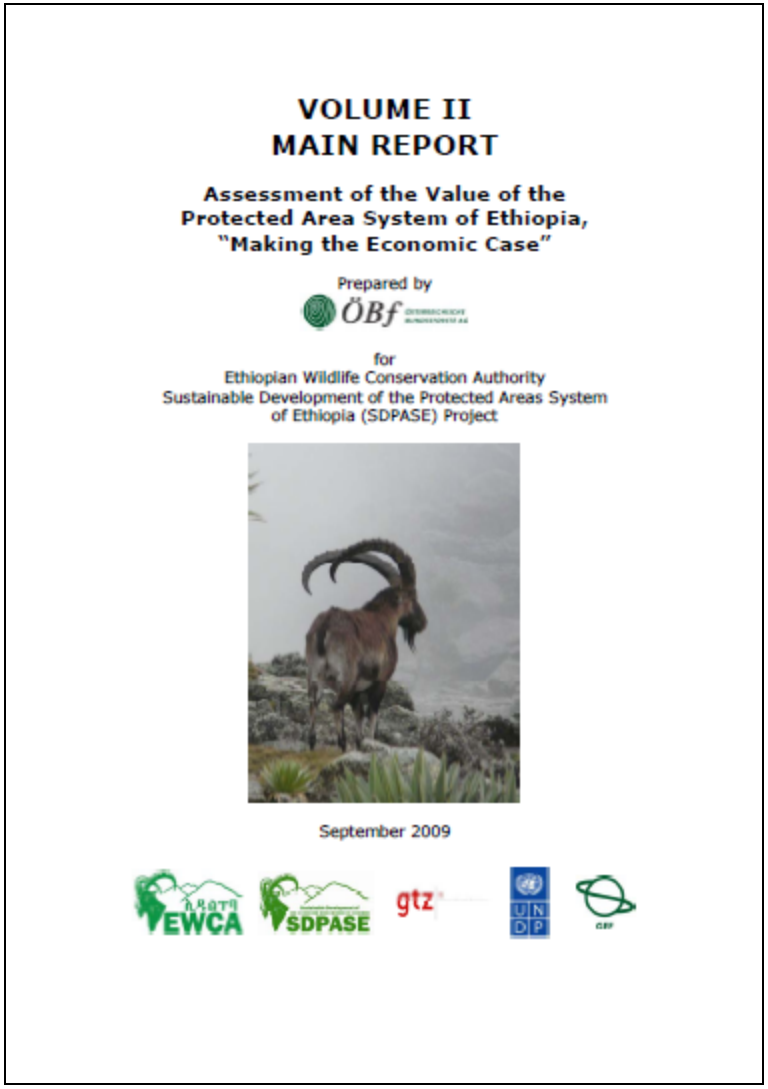


Climate Change Adaptation through PA Sectoral Integration and Mainstreaming

2. Incorporate climate-related issues in PA **VALUATION STUDIES**

- Incorporate food security
- Incorporate water security
- Incorporate carbon storage
- Incorporate human health
- Incorporate national security issues

Integrating climate into PA valuation studies

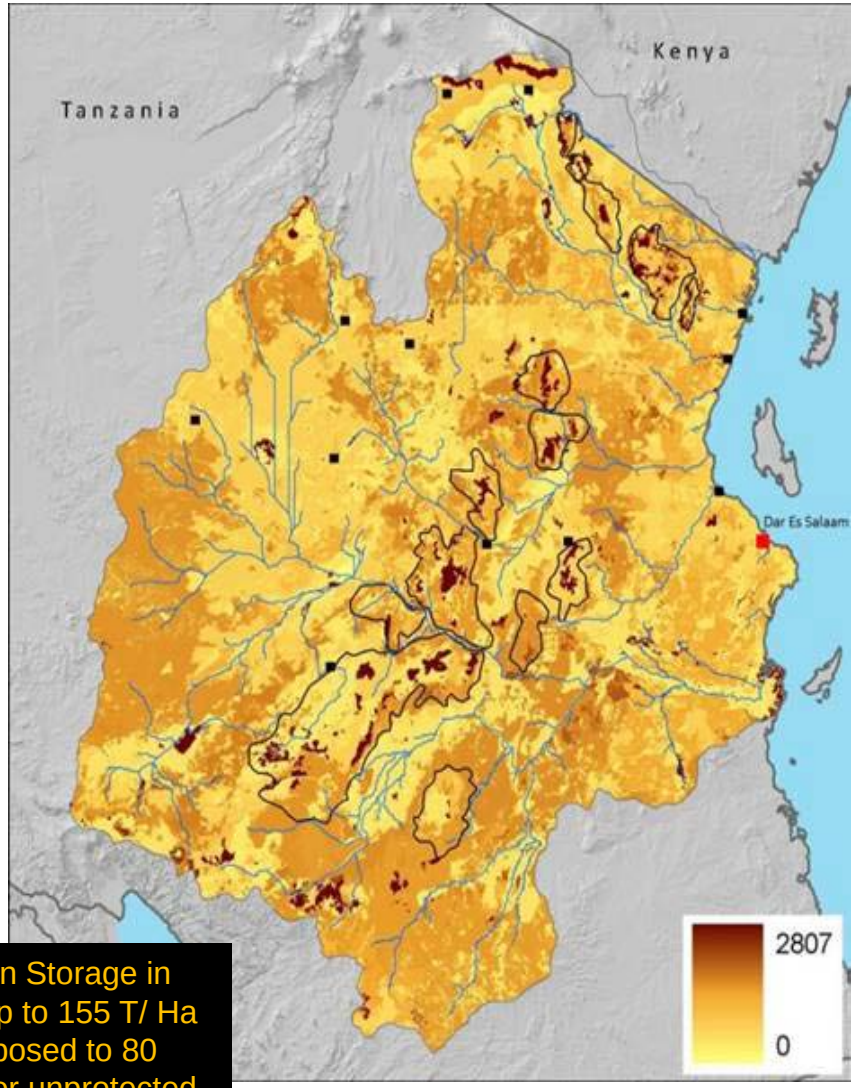


EXAMPLE OF ETHIOPIA

Assessed the value of protected areas for:

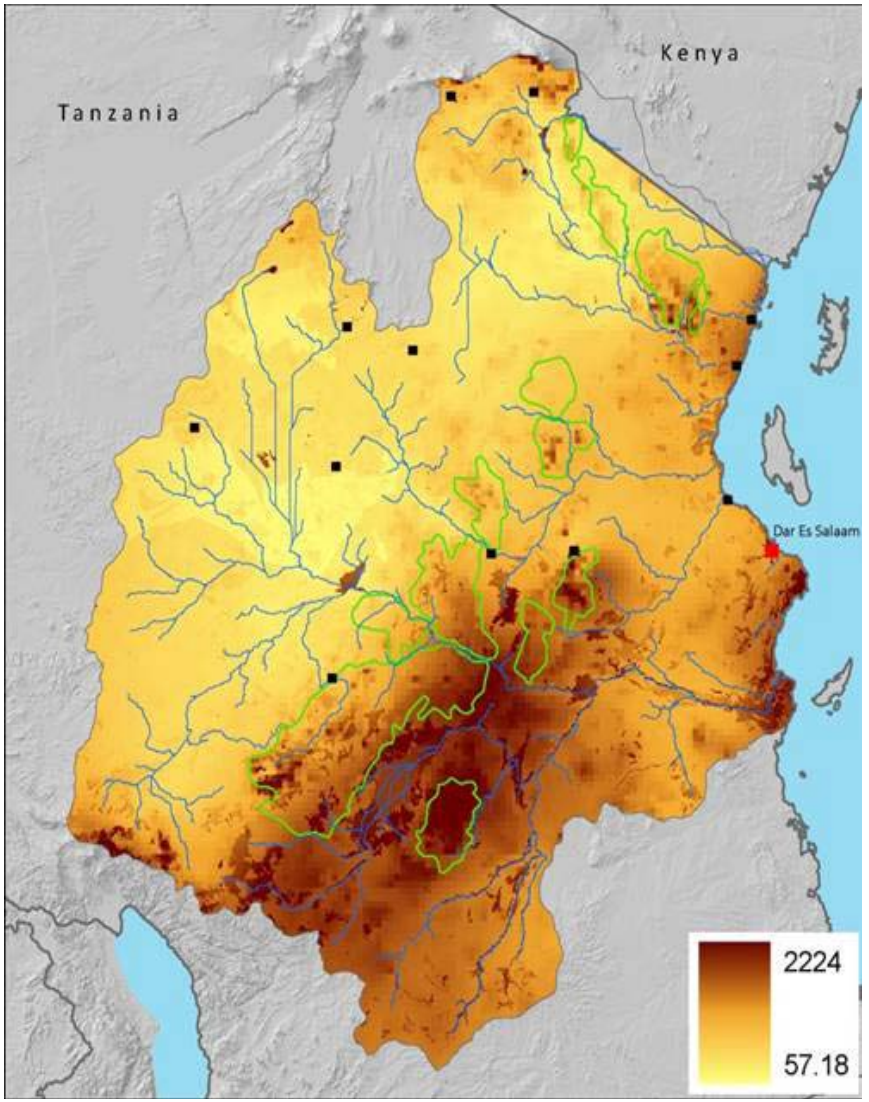
- Carbon sequestration and carbon stocks
- Food security and wild food protection
- Water supplies in drought conditions
- Erosion control

Integrating climate into PA valuation studies



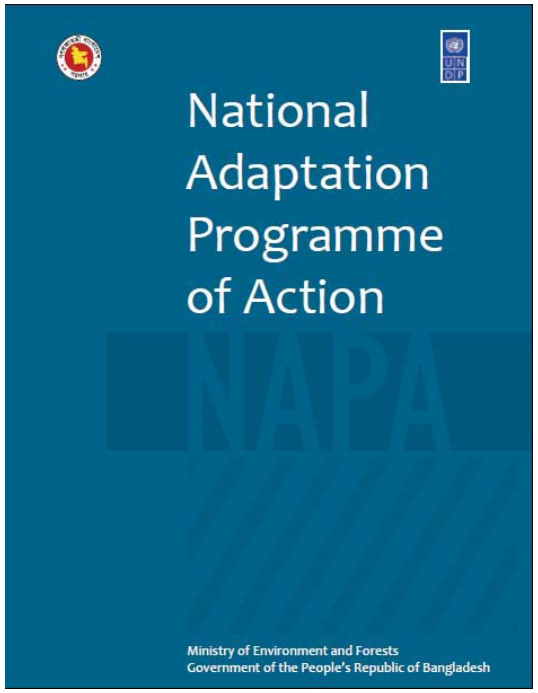
Carbon Storage in PAs up to 155 T/ Ha as opposed to 80 tons for unprotected

- Carbon Storage in Forests



Water Yield

Climate Change Adaptation through PA Sectoral Integration and Mainstreaming



3. Incorporate into PAs into NAPAs

RANGE OF ADAPTATION ACTIONS:

- Health
- Early warnings
- Food security
- Infrastructure
- Insurance
- Tourism
- Energy
- Ecosystem-based management

Integrate protected areas into NAPAs

- Percentage of all 434 actions that are ecosystem-based: <25%
- Percentage of strategies that reference protected areas: <8%
- Percentage of total budget for protected area actions: <4%

Types of ecosystem-based NAPA actions:

- Establish new forest reserves
- Create buffer zones and corridors
- Restore and protect critical fisheries habitat
- Eradicate invasive species likely to exacerbate climate impacts
- Expand existing protected areas

Integrate protected areas into NAPAs

Yemen: Develop coastal watershed management (3.2mm)
Sudan: biodiversity restoration in northern Kordofan State (2.4 mm)

Types of ecosystem-based NAPA actions:

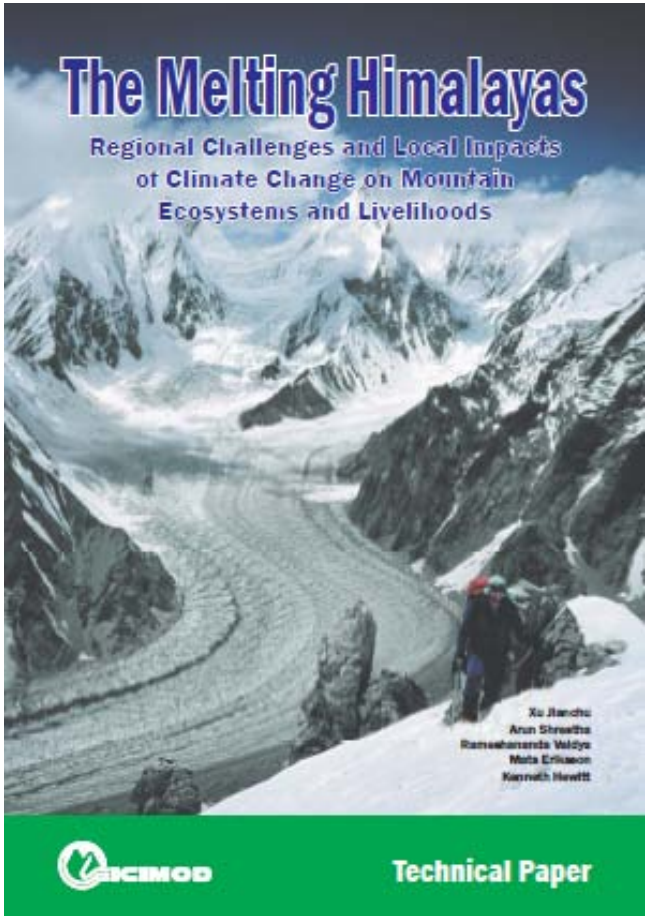
- Establish new forest reserves
- Create buffer zones and corridors
- Restore and protect critical fisheries habitat
- Eradicate invasive species likely to exacerbate climate impacts
- Expand existing protected areas

Climate Change Adaptation through PA Sectoral Integration and Mainstreaming

4. Incorporate climate into PA and biodiversity **threat assessments**

- Include an assessment of threat synergies with climate change (e.g., fire, invasives, logging)
- Include an assessment of ecosystem services vulnerable to climate impacts
- Incorporate climate into environmental impact assessments (EIAs) and strategic environmental assessments (SEAs)

Incorporate climate into regional PA and biodiversity threat assessments



A regional threat assessment in the Himalayas incorporated climate issues:

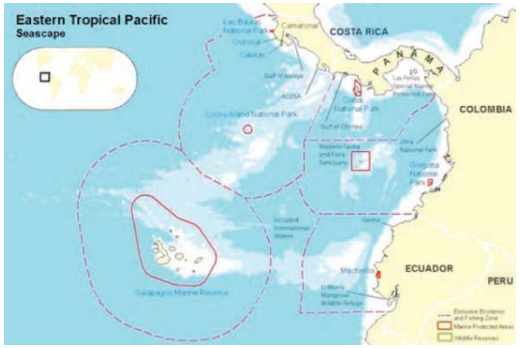
- Water supplies, floods, drought
- Impacts on livelihoods
- Changes in invasive species distribution
- Changes in ecosystem health
- Protected area implications

Questions for Reflection

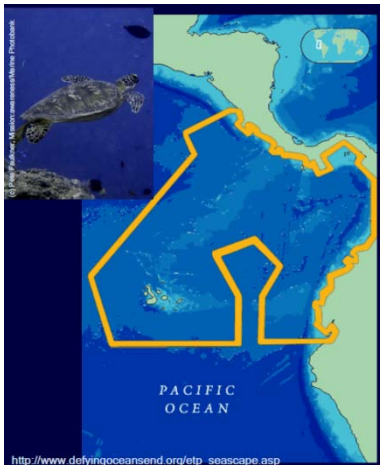
1. What are some opportunities for strengthening climate resilience through sectoral integration in your country?

Climate resilience through PA spatial integration

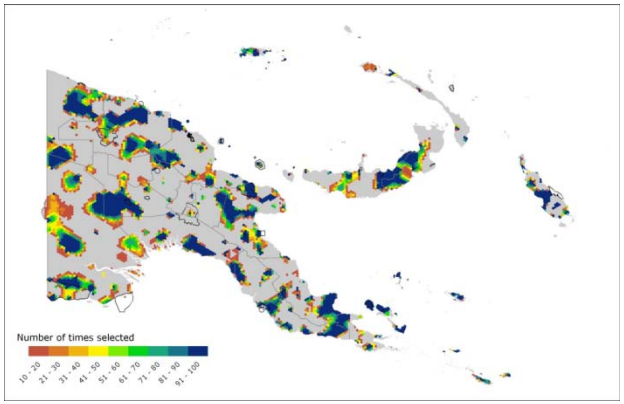
Ridge to Reef



Transboundary areas



Regional networks



Improved gap assessments

Climate resilience through PA sectoral integration

Revise sectoral policies

Include in valuation studies

Integrate into NAPAs

Include in threats assessment

Exercise

What are the 3-4 most important strategies for improving climate resilience through **spatial integration**? Identify specific actions.

STRATEGY:	SPECIFIC ACTIONS AND PLANS:
Increase connectivity between Konashen and Kaieteur parks	Identify options for connectivity corridors; consult with key stakeholders; develop incentives for land conservation
Develop a ridge to reef plan	Assess opportunities
Create new transboundary protected area in northeast	Identify potential boundaries; consult with bordering countries; create legal document

Exercise

What are the 3-4 most important strategies for improving climate resilience through **sectoral integration**? Identify specific actions.

STRATEGY:	SPECIFIC ACTIONS AND PLANS:
Include climate in threats assessment	Develop climate threats assessment instrument; pilot test; roll out with protected area managers
Revise sectoral policies for water management	Develop climate thresholds for water management; develop draft guidelines
Include PAs in NAPA	Consult with NAPA coordinator; develop a range of possible actions; incorporate into NAPA

Protected Area Integration

An overview

Jamison Ervin, UNDP Senior Advisor

We know that integration is important…

…and we know that we should do it…

Aichi Target #2

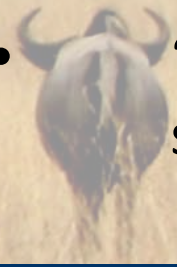
- "By 2020…biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes...

Article 6b:

- "Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programs and policies."

PoWPA Goal 1.2

- "Integrate protected areas into landscapes, seascapes and sectoral plans and strategies."



But what does protected area integration really mean?

Definition of Protected Area Integration

“Integrating protected areas into sectoral plans and policies using a variety of methods and approaches”

Definition of Protected Area Integration

"**Integrating protected areas into sectoral plans and policies using a variety of methods and approaches**"

Definition of Protected Area Integration

"**Integrating protected areas into sectoral plans and policies using a variety of methods and approaches**"

Definition of Protected Area Integration

"**Integrating protected areas into sectoral plans and policies using a variety of methods and approaches**"

Defining biodiversity mainstreaming

Integrating protected areas… →

Integrating the **components of biodiversity** in order to achieve specific **biodiversity goals**….

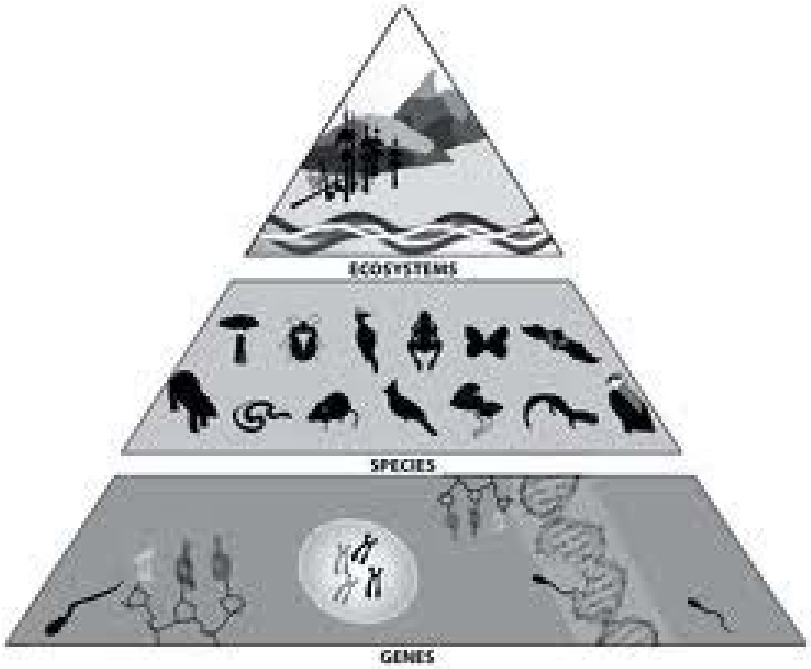
…into sectoral plans and policies… →

…into the plans, policies and practices of **natural resource sectors**, and **economic/social development** sectors at all levels…

…using a variety of methods →

…through approaches that rely on changes in **policies and plans**, on **economic instruments** and on **education**, among other methods.

Identifying specific components of biodiversity….



- Genetic diversity
- Species and their habitats
- Populations
- Ecological processes, functions
- Landscapes, ecosystems
- Ecosystem goods and services

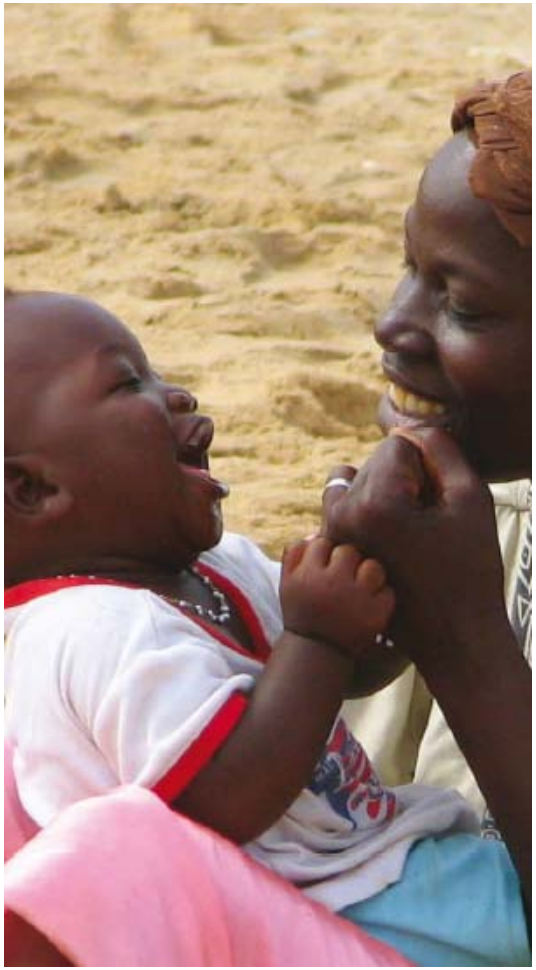
…and identifying specific goals of biodiversity use and conservation…

- Minimize or mitigate threats
- Restore, improve or maintain ecological integrity
- Improve protection status
- Ensure ecological resilience and adaptation
- Maintain ecosystem services

…and integrate these into natural resource sectors

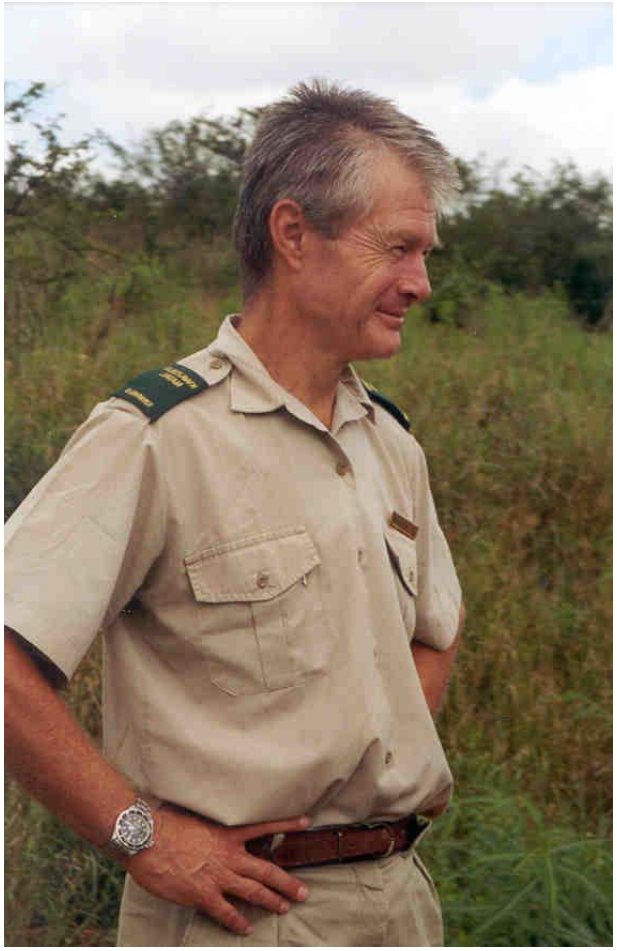
- Agriculture
- Forestry
- Fisheries, marine
- Freshwater, rivers
- Grazing, grassland
- Wildlife management

…and into economic and social development sectors



- Transportation
- Poverty alleviation
- Health
- Tourism, recreation
- Energy
- Climate adaptation
- Private businesses
- Food and water security

…using a variety of approaches, such as by creating or modifying policies and plans…



- Reform or create policies, plans, laws
- Create new protected areas, buffer zones, corridors
- Modify management plans and practices
- Incorporate into strategic environmental assessments (SEAs)
- Incorporate into spatial and land-use planning

…and/or by using economic instruments, education, incentives, partnerships

- Public-private partnerships
- Market-based certification
- Voluntary best practices
- Economic valuation
- Payments for ecosystem services
- Communication, education
- Biodiversity offsets

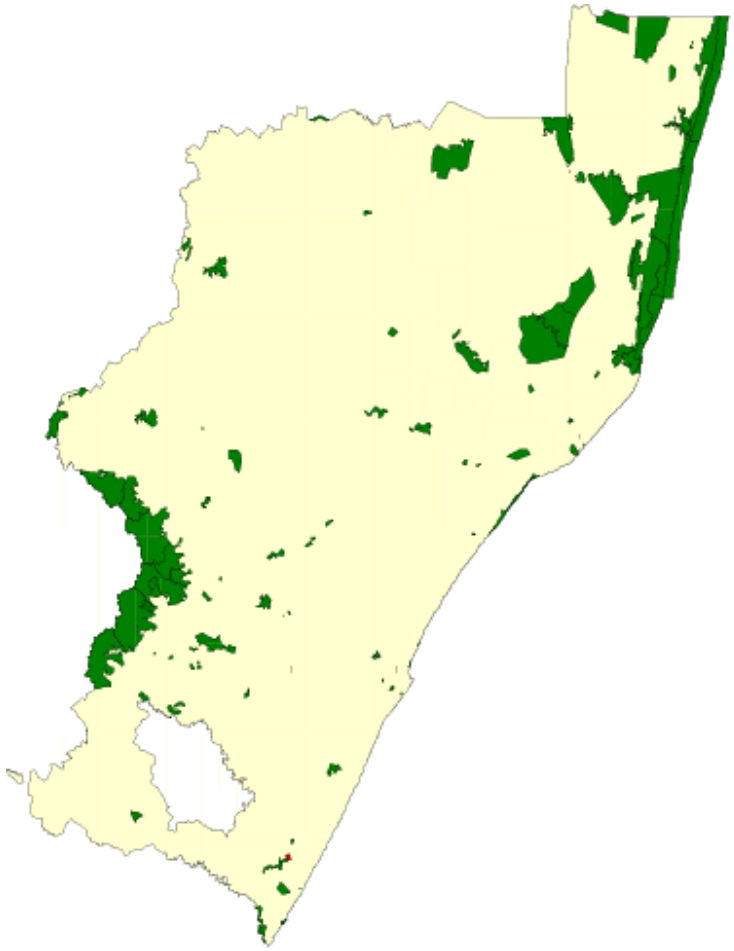

EVERGREEN

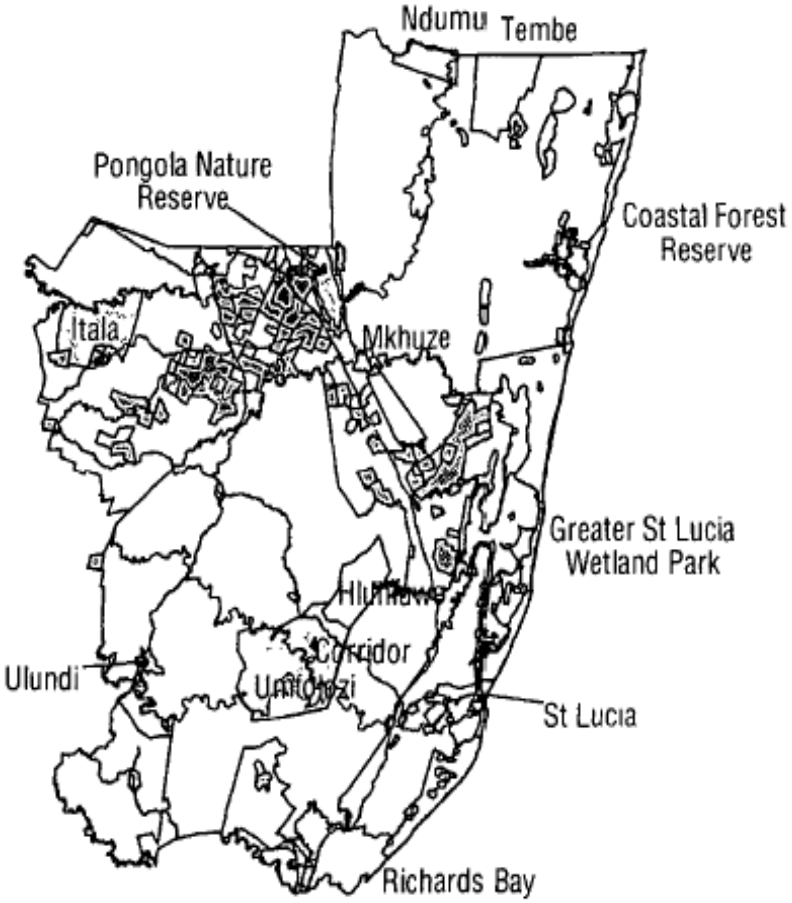
1. Mainstreaming biodiversity into private game reserve management in South Africa

Biodiversity aspect: Improve habitat connectivity for wide-ranging species

MAJOR OPPORTUNITY: Landscape linkages between formal protected areas and private game ranches

Game reserves provide potential landscape connectivity in KZN Province



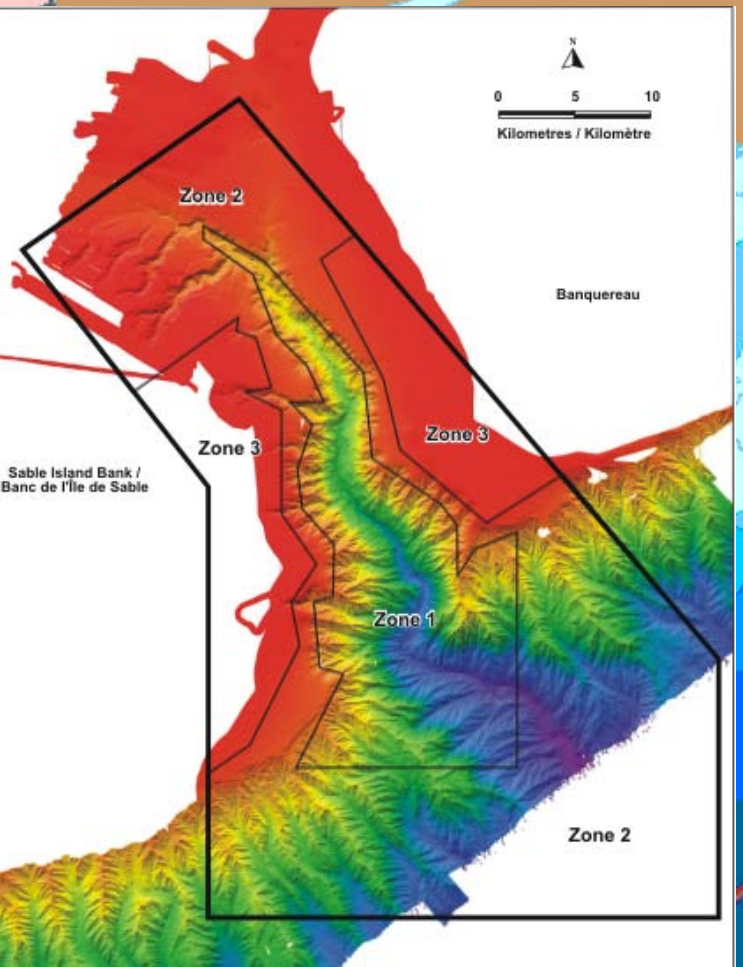


Approach to biodiversity mainstreaming: public-private partnership

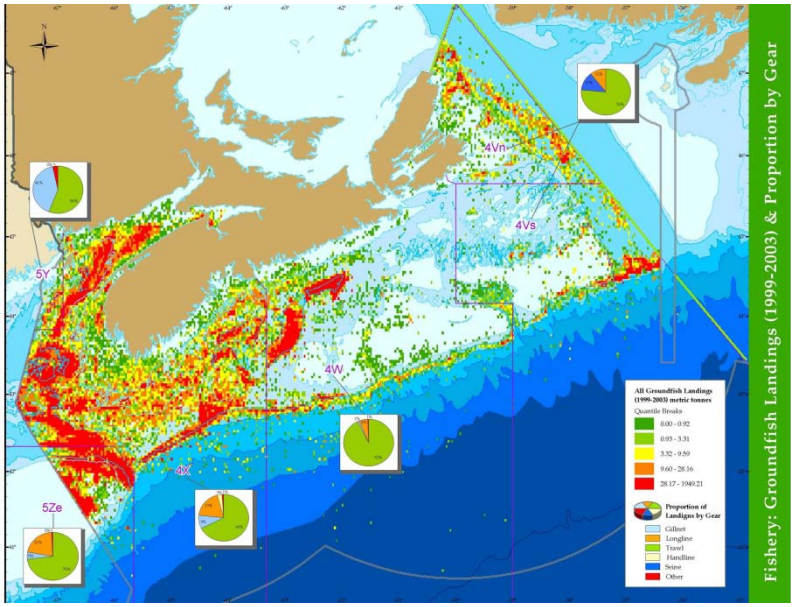
- KZN Wildlife helped develop a game ranchers' association
- KZN Wildlife helped create a legal framework to support private ownership of land and wildlife
- KZN Wildlife provided technical support and financial incentives to private game reserve owners
- KZN helped to remove physical barriers between reserves
- Game reserve owners used income from tourism to help fund protected areas

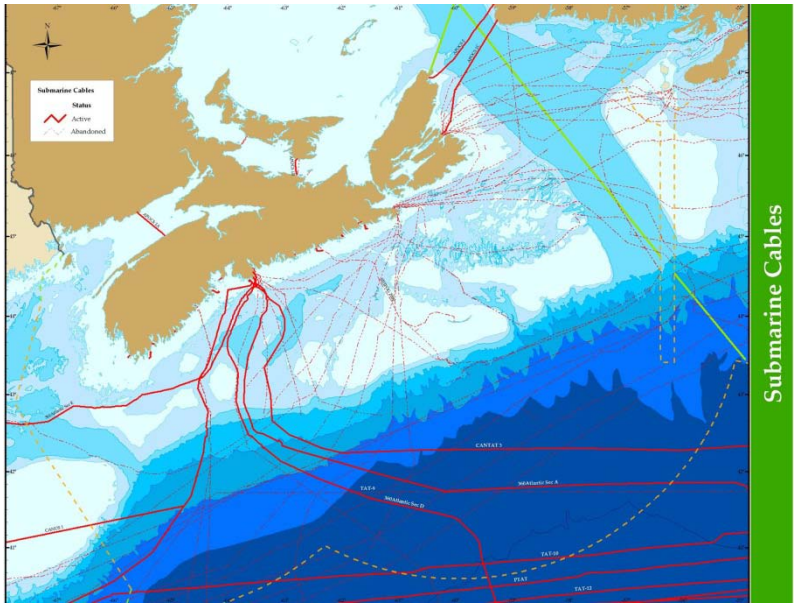
2. Mainstreaming biodiversity into shipping policies and practices

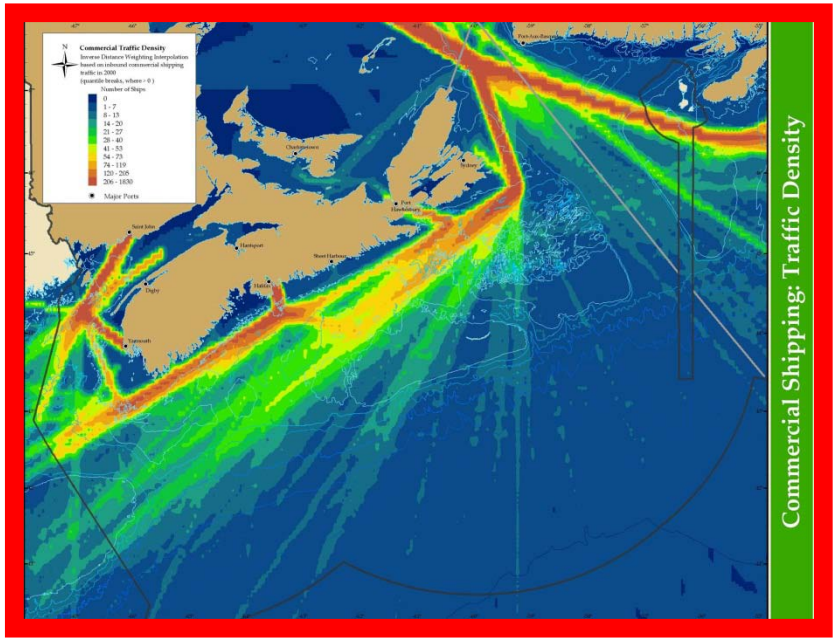
Biodiversity within an MPA is highly threatened by various sectors

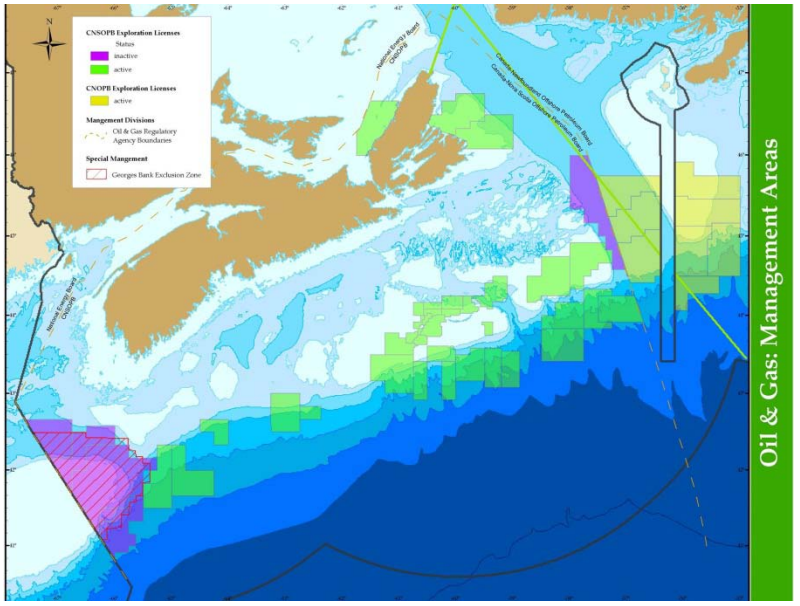


Including by transportation and shipping



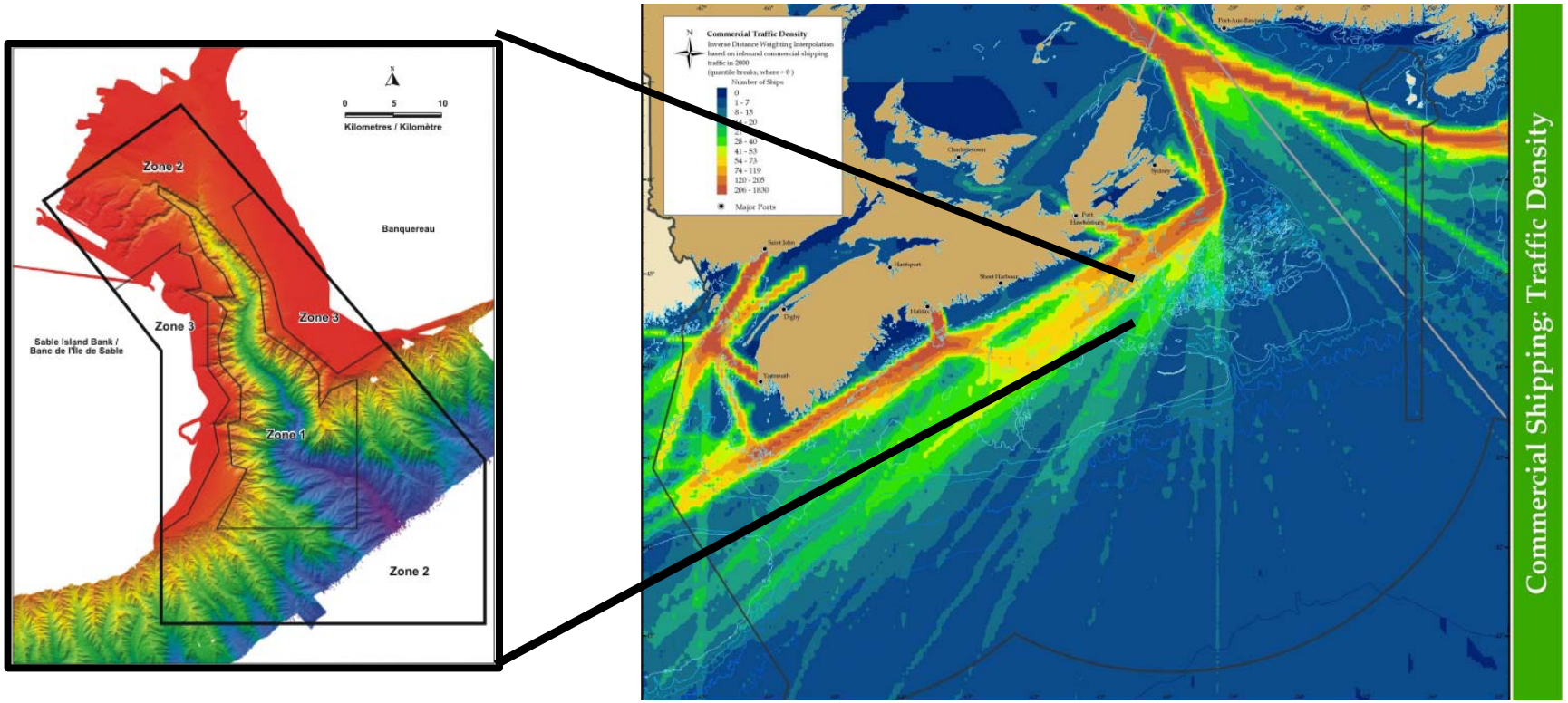






Mainstream by reforming policies

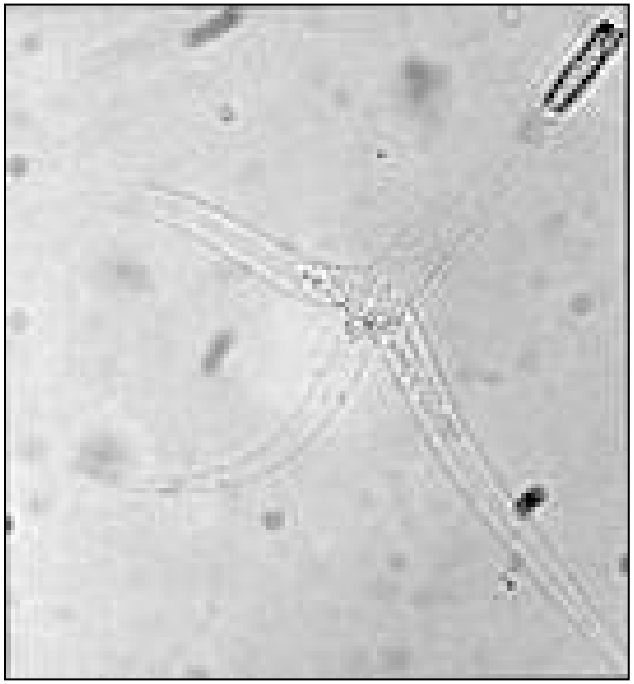
Transportation: a) created new regulations on ballast water exchange; b) developed Coast Guard guidance on MPA avoidance, mammals, discharges; c) developed monitoring protocol



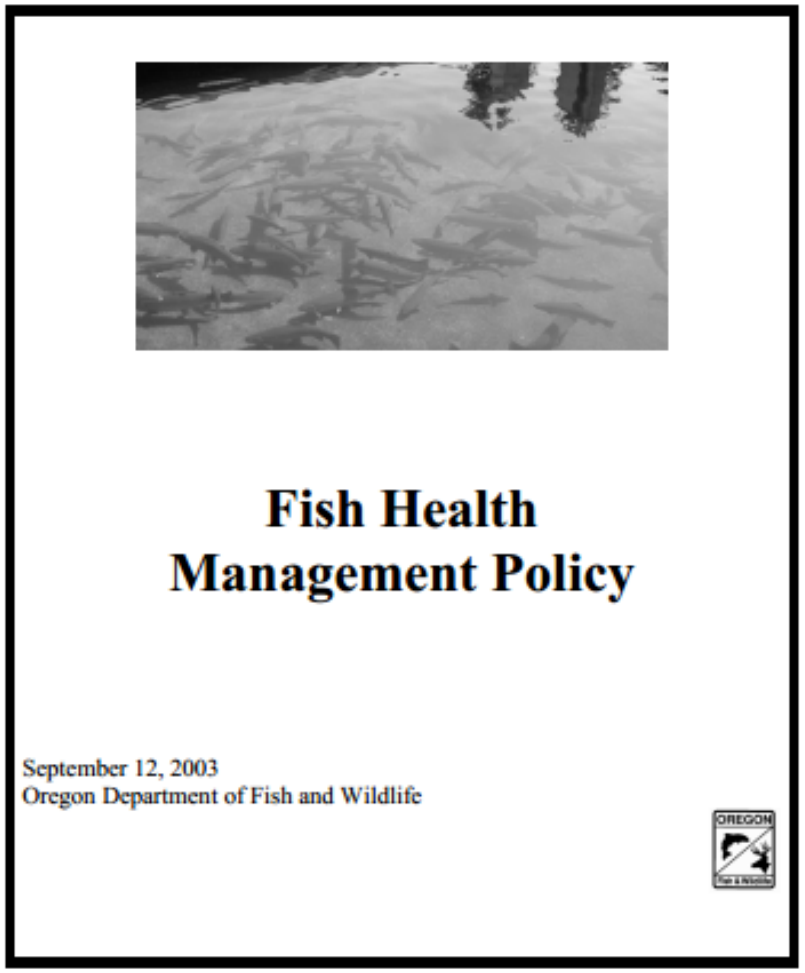
3. Mainstreaming biodiversity into sport fishing and recreation policies

Biodiversity issue: Protect the health and genetic diversity of native fish populations

Sector: Recreational fisheries were stocking streams with invasive alien species, causing disease, displacement and genetic erosion



Approach: Legal and Policy Reform

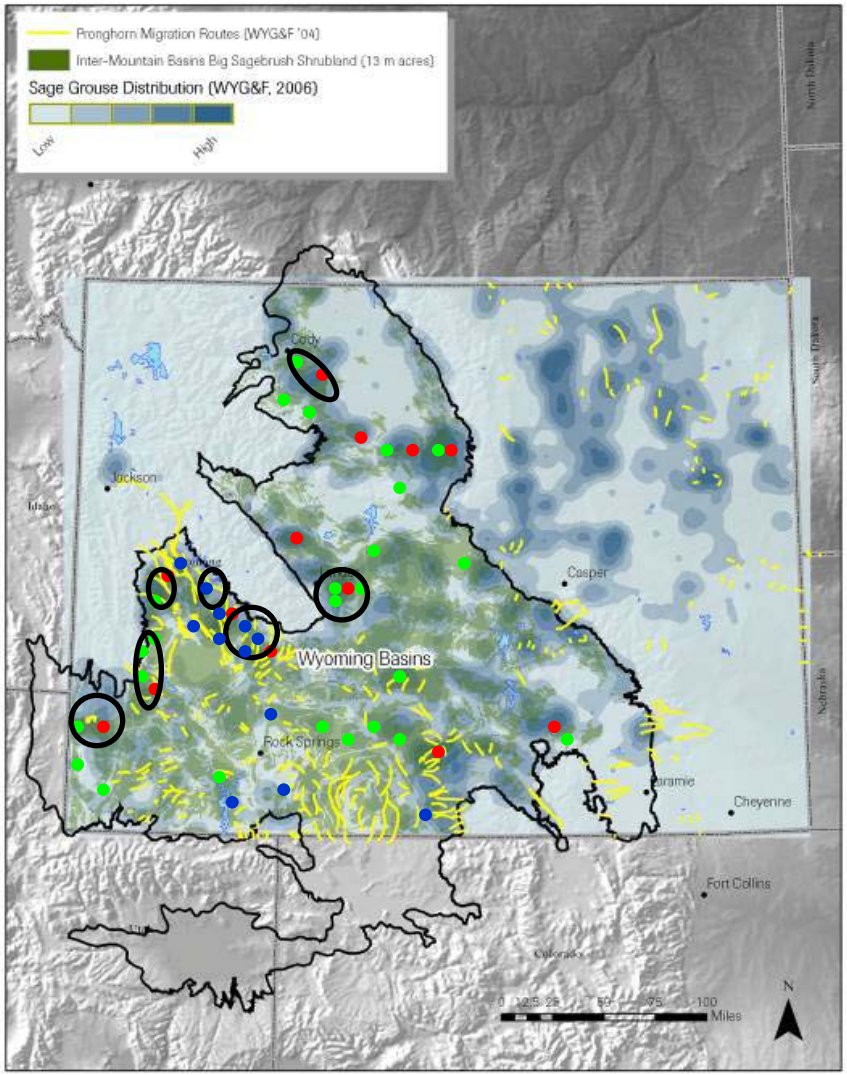


Laws and policies to:

- Monitor all released fish for disease
- Conduct annual health exams of brood stock
- Require licensing of hatcheries
- Restrict timing and placement of fish stock

4. Mainstreaming biodiversity into oil and gas drilling

Biodiversity issue: Protecting habitat for key species, including sage grouse



Sector: Oil and gas (Jonah Field gas exploration, BP)

Approach: Biodiversity Offsets

- An environmental NGO shared information with BP on areas of high biodiversity value
- BP developed a voluntary biodiversity offset program and paired with the NGO to measure and mitigate impacts on biodiversity
- BP incorporated connectivity and biodiversity issues into environmental assessments and standard operating procedures
- BP contributed $25 million in mitigation funding, protecting 80,000 new acres of habitat


EVERGREEN

Improving habitat connectivity by creating public-private partnerships with game reserve owners

Improving habitat connectivity by creating public-private partnerships with game reserve owners

Improving habitat connectivity by creating public-private partnerships with game reserve owners

Improving habitat connectivity by creating public-private partnerships with game reserve owners

Safeguarding key marine habitat by reforming policies for ballast discharge of cargo container ships

Safeguarding key marine habitat by reforming policies for ballast discharge of cargo container ships

Safeguarding key marine habitat by reforming policies for ballast discharge of cargo container ships

Safeguarding key marine habitat by reforming policies for ballast discharge of cargo container ships

Protecting native fish species from invasive alien rainbow trout by reforming policies on fish stocking for recreational fisheries

Protecting native fish species from invasive alien rainbow trout by reforming policies on fish stocking for recreational fisheries

Protecting native fish species from invasive alien rainbow trout by reforming policies on fish stocking for recreational fisheries

Protecting native fish species from invasive alien rainbow trout by reforming policies on fish stocking for recreational fisheries

Mitigating the impacts on sage grouse habitat by working with gas companies to create biodiversity offsets in order to establish new protected areas

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Mitigating the impacts on sage grouse habitat by working with gas companies to create biodiversity offsets in order to establish new protected areas

Protected Area Integration

Developing strategies and actions

Jamison Ervin, UNDP Senior Advisor

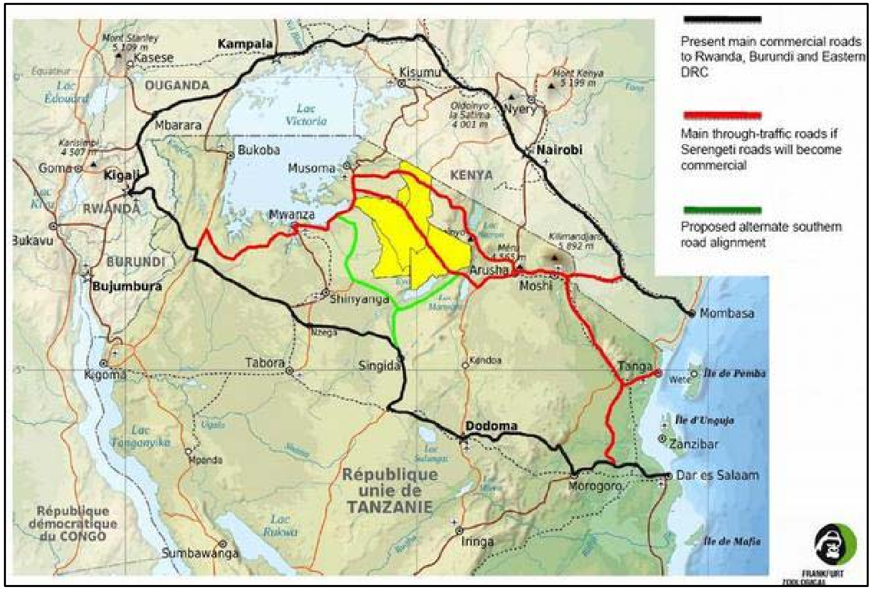
1. Most important aspects of biodiversity to be mainstreamed

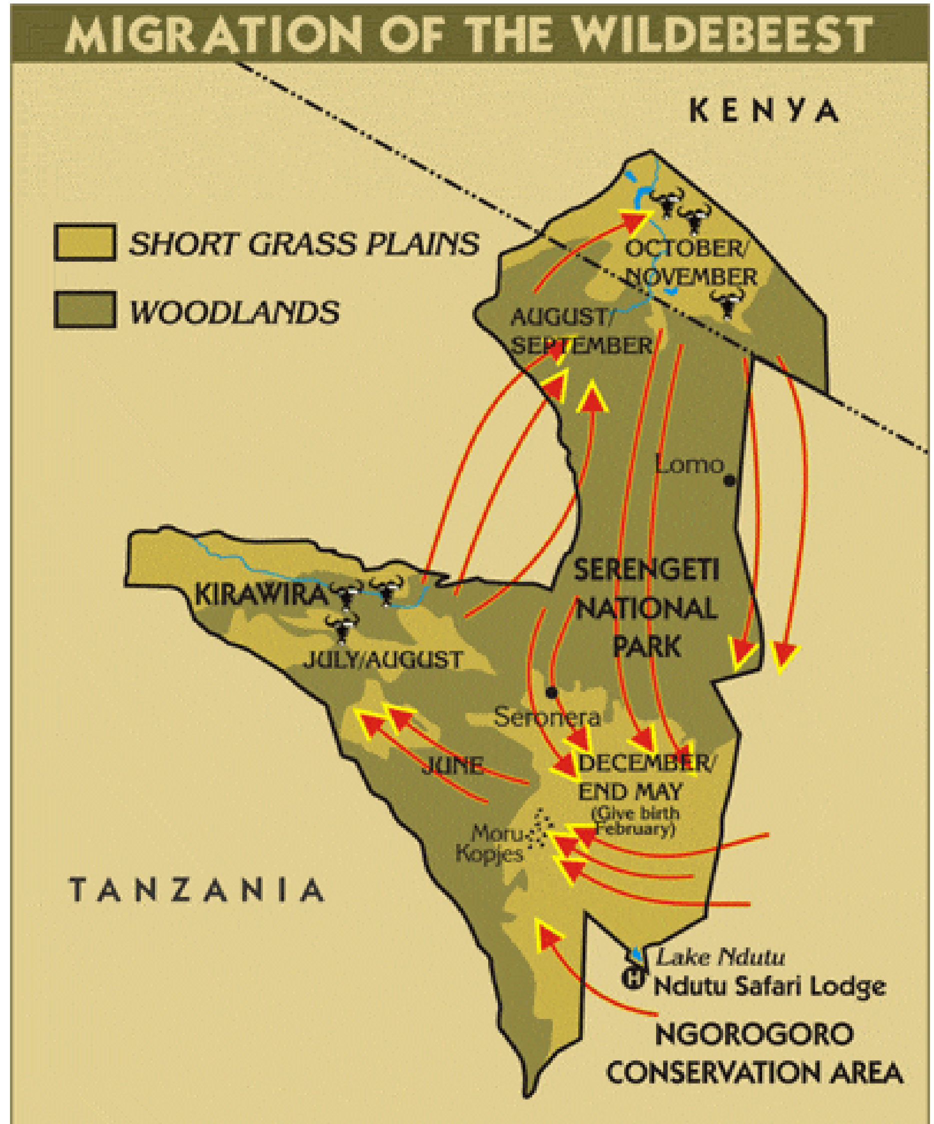
- Cases where biodiversity is particularly threatened
- Cases where ecological restoration is most critical
- Cases where climate resilience and adaptation are most important

2. Most important sectors in which protected areas should be integrated

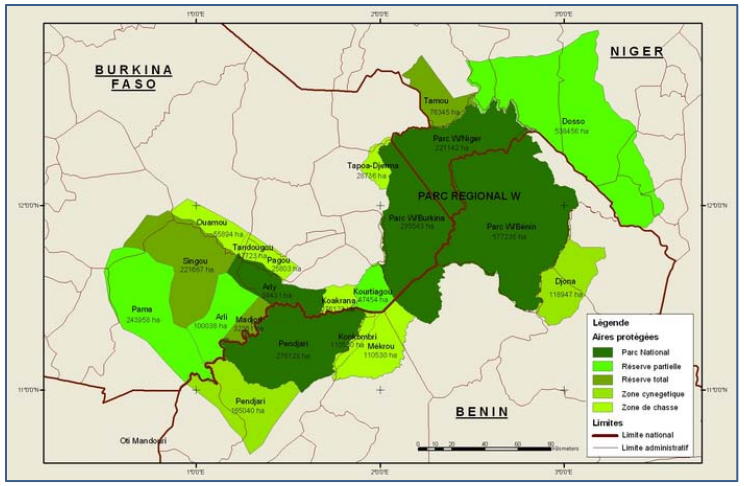
- Sectors causing the most damage to biodiversity
- Sectors with the most potential to conserve biodiversity in the future
- Sectors with the strongest linkages to national agendas

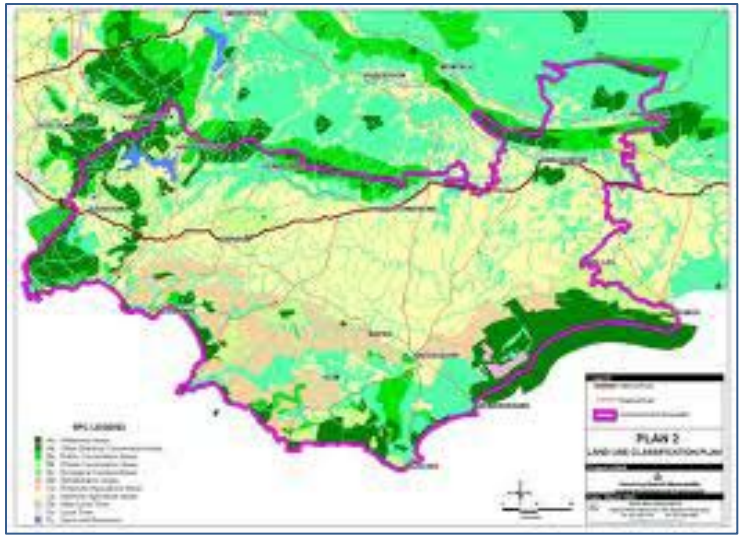
2. Most important sectors in which protected areas should be integrated





3. Most important approaches to integrating protected areas





- Approaches with a track record of success in the country or region
- Approaches that are feasible given the political context
- Approaches that are consistent with the national context

3. Most important approaches to integrating protected areas

Airport departure tax in Belize funds protected area system

- Approaches with a track record of success in the country or region
- Approaches that are feasible given the political context
- Approaches that are consistent with the national context

4. Developing strategies and action plans

BIODIVERSITY: Mangrove forests

SECTOR: Shrimp farming industry

APPROACH: Coastal zone planning, protected areas

STRATEGY: Safeguard the integrity of mangrove forests and critical fish nursery habitats by working with shrimp farmers and land use planners to develop an integrated coastal zone plan and new PAs

4. Developing strategies and action plans

BIODIVERSITY: Marine habitats important for fisheries (because they are threatened by ship ballast)

SECTOR: Marine transportation and shipping because they are causing the most damage to marine habitats

APPROACH: Policy reform (because there is an opportunity to revise transportation policies and good marine governance)

STRATEGY: Minimize threats to marine habitats by working with the transportation agency to develop policies related to ballast discharge

EXERCISE 1

MAINSTREAMING BIODIVERSITY – HANDOUT 2 (WRITING AN NBSAP CHAPTER ON BIODIVERSITY MAINSTREAMING

ELEMENTS OF AN NBSAP CHAPTER ON BIODIVERSITY MAINSTREAMING	EXAMPLES
1. Identification of the most important aspects of biodiversity to mainstream and integrate	
a) Cases where biodiversity is particularly threatened	• Mangrove forests are being destroyed
b) Cases where ecological restoration is most critical	• Degraded forests important for maintaining water security
c) Cases where climate resilience and adaptation are most important	• Altered grasslands impacting large-scale migrations
2. Identification of the most important sectors in which to mainstream biodiversity	
a) Sectors causing the most damage to biodiversity	• Agriculture, transportation, mining
b) Sectors with the most potential to conserve biodiversity	• Tourism
c) Sectors with the strongest linkages to the national agenda	• Food security, rural livelihoods,
3. Identification of the most important mainstreaming approaches	
a) Approaches with a track record of success in the country or region	• Payment for ecosystem services
b) Approaches that are feasible given political context	• Education and communication
c) Approaches that are consistent with national context	• Public-private partnerships where much of land is private
4 Identification of the most important strategies and action plans for mainstreaming biodiversity	

IDENTIFICATION OF STRATEGIES AND ACTION PLANS

STRATEGY	ACTION PLANS
• Minimize threats to key marine habitats by working with the transportation agency to develop policies related to ballast discharge.	• Revise shipping ballast policies to prohibit ballast discharge near or within marine protected areas • Educate key shipping stakeholders about impacts of ballast discharge (invasive species, contamination) • Revise monitoring protocol to include monitoring of ballast discharge
• Incorporate wild crop relatives into food security plans through land use planning, protected areas and buffer zones.	• Identify areas important for wild crop relatives, focusing on areas of high density, intact populations, genetic diversity, and focusing on most important food crops • Ensure areas important for wild crop relatives are included in core protection zones within protected areas, and managed to maintain genetic diversity and minimize threats • Work with local communities to incorporate these areas into buffer zones and corridors • Develop 'wild food' tourism program, in partnership with local restaurants, to help pay for protection

EXERCISE 1

What are the 3 most important elements of biodiversity to mainstream into sectoral plans and policies? Why?

Biodiversity element or aspect	Rationale
1.	
2.	
3.	

What are the 3 most important sectors within which biodiversity should be mainstreamed? Why?

Natural resource or development sector	Rationale
1.	
2.	
3.	

What are the 3 most important/feasible approaches for mainstreaming biodiversity in your country? Why?

Mainstreaming approach	Rationale
1.	
2.	
3.	

- Fill in the template, including rationale

EXERCISE 1

What are the 3 most important elements of biodiversity to mainstream into sectoral plans and policies? Why?

Biodiversity element or aspect	Rationale
1. Protect mangroves	They are among the most threatened ecosystem, and are critical for maintaining fisheries, an important food source. They are threatened by conversion to shrimp farms
2.	
3.	

What are the 3 most important sectors within which biodiversity should be mainstreamed? Why?

Natural resource or development sector	Rationale
1. Shrimp farming	Shrimp farming has already converted most of the coastal mangroves, and threatens to convert remaining mangroves within the next 10 years
2.	
3.	

What are the 3 most important/feasible approaches for mainstreaming biodiversity in your country? Why?

Mainstreaming approach	Rationale
1. Policies – create coastal zone management plan, new coastal reserves	The country has a public commitment to increase marine protected areas, and there is a strong history of integrated terrestrial management
2.	
3.	

EXERCISE 1

Identify at least one strategy for mainstreaming biodiversity, and list at least 2-3 action plans

Mainstreaming strategy	Action plans
1.	• • •
2.	• • •

- Develop at least one strategy for mainstreaming biodiversity, based on the previous exercise
- Identify at least 2-3 specific action plans

Developing specific strategies and action plans for integration

STRATEGY	ACTION PLANS
Minimize threats to marine habitats by working with the transportation agency to develop policies related to ballast discharge	

Developing specific strategies and action plans for integration

STRATEGY	ACTION PLANS
Minimize threats to marine habitats by working with the **transportation agency** to **develop policies** related to ballast discharge	

Developing specific strategies and action plans for integration

STRATEGY	ACTION PLANS
Minimize threats to marine habitats by working with the transportation agency to develop policies related to ballast discharge	• Revise shipping ballast policies to prohibit ballast discharge near or within marine protected areas • Educate key shipping stakeholders about new policy • Revise monitoring protocol to include monitoring of ballast discharge

Developing specific strategies and action plans for integration

STRATEGY	ACTION PLANS
Minimize threats to marine habitats by working with the transportation agency to develop policies related to ballast discharge	• Revise shipping ballast policies to prohibit ballast discharge near or within marine protected areas • Educate key shipping stakeholders about new policy • Revise monitoring protocol to include monitoring of ballast discharge
Protect the genetic diversity of wild crop relatives into food security plans through land use planning, protected areas and buffer zones	

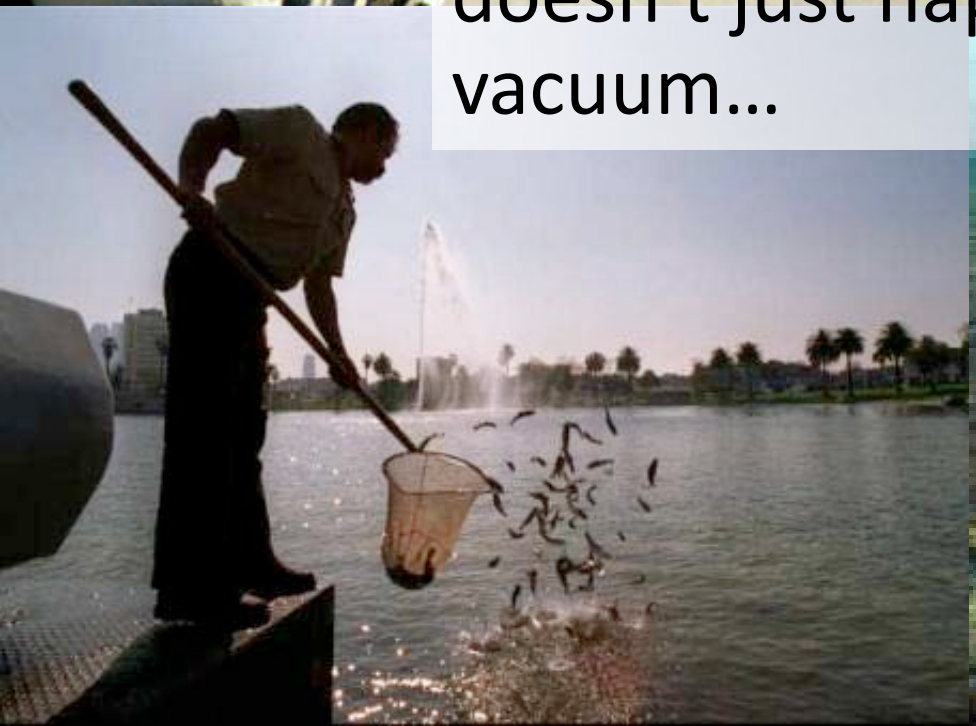
Developing specific strategies and action plans for integration

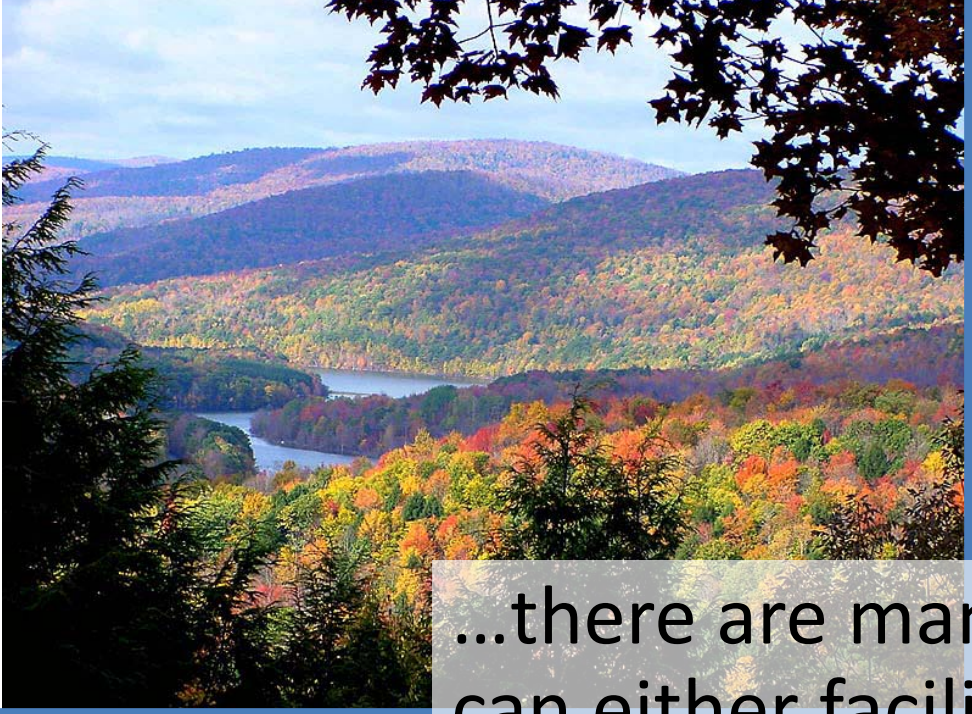
STRATEGY	ACTION PLANS
Minimize threats to marine habitats by working with the transportation agency to develop policies related to ballast discharge	• Revise shipping ballast policies to prohibit ballast discharge near or within marine protected areas • Educate key shipping stakeholders about new policy • Revise monitoring protocol to include monitoring of ballast discharge
Protect the genetic diversity of wild crop relatives into **food security plans** through **land use planning, protected areas and buffer zones**	

Developing specific strategies and action plans for integration

STRATEGY	ACTION PLANS
Minimize threats to marine habitats by working with the transportation agency to develop policies related to ballast discharge	• Revise shipping ballast policies to prohibit ballast discharge near or within marine protected areas • Educate key shipping stakeholders about new policy • Revise monitoring protocol to include monitoring of ballast discharge
Protect the genetic diversity of wild crop relatives into food security plans through land use planning, protected areas and buffer zones	• Identify areas important for wild crop relatives • Include areas within core protection zones • Work with local communities to incorporate these areas into buffer zones and corridors • Develop 'wild tourism' program to help pay for protection

Protected area integration doesn't just happen in a vacuum…





…there are many factors that can either facilitate or inhibit protected area integration

Enabling factors

- **Political will, leadership**
- Lobbying by interest groups
- Public media, perception
- Good governance
- Inter-sectoral coordination
- Public participation
- Information about values
- Utilization of GEF funding

CHALLENGE

- A government lacks political will to mainstream biodiversity; does not place biodiversity high on agenda

OPPORTUNITY

- A new government is elected
- A politician commits to ambitious goals at a high-level meeting

Enabling factors

- Political will, leadership
- **Lobbying by interest groups**
- Public media, perception
- Good governance
- Inter-sectoral coordination
- Public participation
- Information about values
- Utilization of GEF funding

CHALLENGE

- Powerful interests (e.g., mining) do not acknowledge the value of biodiversity, and lobby against it

OPPORTUNITY

- Powerful interests (e.g., tourism) recognize and promote the value of biodiversity to their industry

Enabling factors

- Political will, leadership
- Lobbying by interest groups
- **Public media, perception**
- Good governance
- Inter-sectoral coordination
- Public participation
- Information about values
- Utilization of GEF funding

CHALLENGE

- The public is unaware of biodiversity issues, and biodiversity is not covered by local media

OPPORTUNITY

- The public understands key biodiversity issues, and is supportive of biodiversity conservation

Enabling factors

- Political will, leadership
- Lobbying by interest groups
- Public media, perception
- **Good governance**
- Inter-sectoral coordination
- Public participation
- Information about values
- Utilization of GEF funding

CHALLENGE

- Corruption within government agencies and law enforcement prevents effective decisions about biodiversity

OPPORTUNITY

- The government routinely upholds biodiversity-related laws and policies , and is transparent about the costs and tradeoffs of decisions

Enabling factors

- Political will, leadership
- Lobbying by interest groups
- Public media, perception
- Good governance
- **Inter-sectoral coordination**
- Public participation
- Information about values
- Utilization of GEF funding

CHALLENGE

- There is competition between sectors (e.g., mining vs. forestry vs. biodiversity), and little or no coordination

OPPORTUNITY

- There is an effective multi-sectoral working group in place, and sectors coordinate information well

Enabling factors

- Political will, leadership
- Lobbying by interest groups
- Public media, perception
- Good governance
- Inter-sectoral coordination
- **Public participation**
- Information about values
- Utilization of GEF funding

CHALLENGE

- There are no effective means of engaging the public in key biodiversity decisions

OPPORTUNITY

- Public decision-making procedures and mechanisms are developed and fully used

Enabling factors

- Political will, leadership
- Lobbying by interest groups
- Public media, perception
- Good governance
- Inter-sectoral coordination
- Public participation
- **Information about values**
- Utilization of GEF funding

CHALLENGE

- The government and public are unaware of the true value of biodiversity to their societal goals and agenda

OPPORTUNITY

- There is clear and compelling information about the value of biodiversity, and the government is aware of these values

Enabling factors

- Political will, leadership
- Lobbying by interest groups
- Public media, perception
- Good governance
- Inter-sectoral coordination
- Public participation
- Information about values
- **Utilization of GEF funding**

CHALLENGE

- The government does not strategically and fully take advantage of GEF and other funding

OPPORTUNITY

- All funding proposals to GEF and other sources are fully aligned with national priorities for biodiversity and mainstreaming

EXERCISE 2 – Challenge and opportunities

ENABLING FACTOR	CHALLENGES	OPPORTUNITIES
Political will, political leadership	• A government lacks political will to integrate and mainstream biodiversity, and does not consider biodiversity high on its agenda	• A new government is elected, and they want to implement a biodiversity agenda • A high-level official announces ambitious goals at influential meetings (national, regional, global)
Financial and economic lobbying by powerful interest groups	• Powerful interests (e.g., mining) do not acknowledge the importance of biodiversity, and lobby against it	• Powerful interests (e.g., tourism) recognize and promote the value of biodiversity to their industry
Public media, communication, perception and attitudes	• The public is not aware of biodiversity issues, and biodiversity issues are not routinely covered in national media	• The public mostly understands, and is supportive of, the importance of biodiversity conservation and mainstreaming
Principles of good governance (rule of law, transparency)	• Corruption within government agencies and/or economic sectors prevents effective decisions from being made regarding safeguarding and integrating biodiversity	• Biodiversity-related laws (e.g, environmental impact assessments) are routinely upheld • The government clearly identifies tradeoffs between biodiversity and development
Inter-sectoral coordination, steering group, communication	• There is competition between government agencies, and poor coordination and communication	• There is an effective inter-sectoral advisory group that coordinates the development of the NBSAP
Public participation in decision making	• There are no effective means of engaging the public in decision making	• Public decision making procedures and mechanisms are well established
Information about biodiversity values, threats	• The government and public are unaware of the true value of biodiversity to most or all sectors	• There is clear and compelling information about the value of biodiversity to a wide range of social and economic sectors
Utilization of GEF and other funding	• Governments do not take full advantage of GEF funding, and their proposals are not aligned with national priorities for mainstreaming	• Governments understand the GEF funding process, and align their proposals to take advantage of funding for mainstreaming

EXERCISE 2 – Challenge and opportunities

Name: Country:

ENABLING FACTOR	CHALLENGES	OPPORTUNITIES
Political will, political leadership		
Financial and economic lobbying by powerful interest groups		
Public media, communication, perception and attitudes		
Principles of good governance (rule of law, transparency)		
Inter-sectoral coordination, steering group, communication		
Public participation in decision making		
Information about biodiversity values, threats		
Utilization of GEF and other funding		

- Identify whether each factor is a challenge or opportunity in your country (or both)

EXERCISE 2 – Challenge and opportunities

Most critical challenges to mainstreaming:	Strategies to address these challenges:
1.	
2.	
3.	

Most critical opportunities for mainstreaming:	Strategies to take advantage of these opportunities:
1.	
2.	
3.	

- Then, identify the most **critical challenges** for protected area integration, and some strategies to overcome these challenges
- Identify the most **critical opportunities** for protected area integration, and some strategies to take advantage of these opportunities

Developing strategies to address challenges and take advantage of opportunities

CHALLENGE --

- A government does not appreciate the value of biodiversity, and places biodiversity low on the government agenda

STRATEGY --

- Conduct a biodiversity valuation study, focusing on the issues most important to the government's agenda (e.g. job creation, food security)

Developing strategies to address challenges and take advantage of opportunities

OPPORTUNITY --

- There is effective inter-sectoral coordination, and a multi-sectoral advisory committee

STRATEGY --

- Involve key sectoral leaders in the process of developing protected area integration strategies