Designing Effective Locally Managed Areas in Tropical Marine Environments

Helping to Sustain Community Benefits Through Management for Fisheries, Ecosystems, and Climate Change

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FROM THE AMERICAN PEOPLE

NOAA

CTSP
Coral Triangle Support Partnership
The Nature Conservancy
CONSERVATION INTERNATIONAL

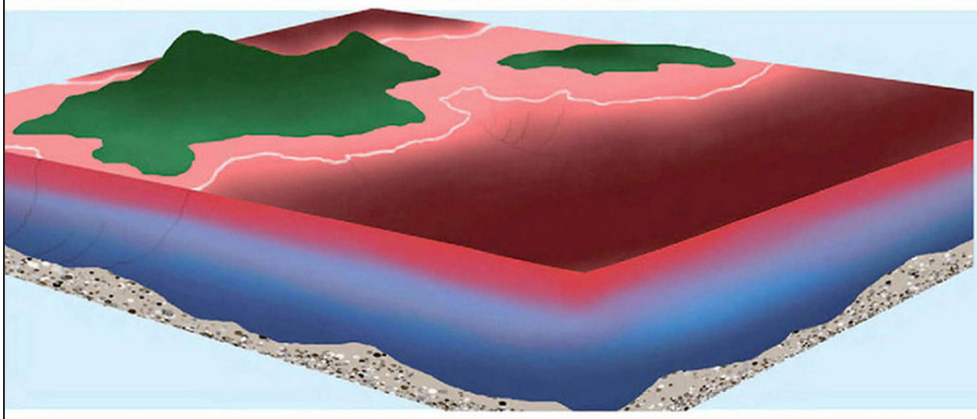
CORAL TRIANGLE INITIATIVE
ON CORAL REEFS, FISHERIES AND FOOD SECURITY

Features That Contribute to a Coastal Community Being Healthy
and Benefitting from the Marine Environment
1

Features That Contribute to a Coastal Community Being Unhealthy
2

How Will Climate Change Impact our Community and Its Resources?

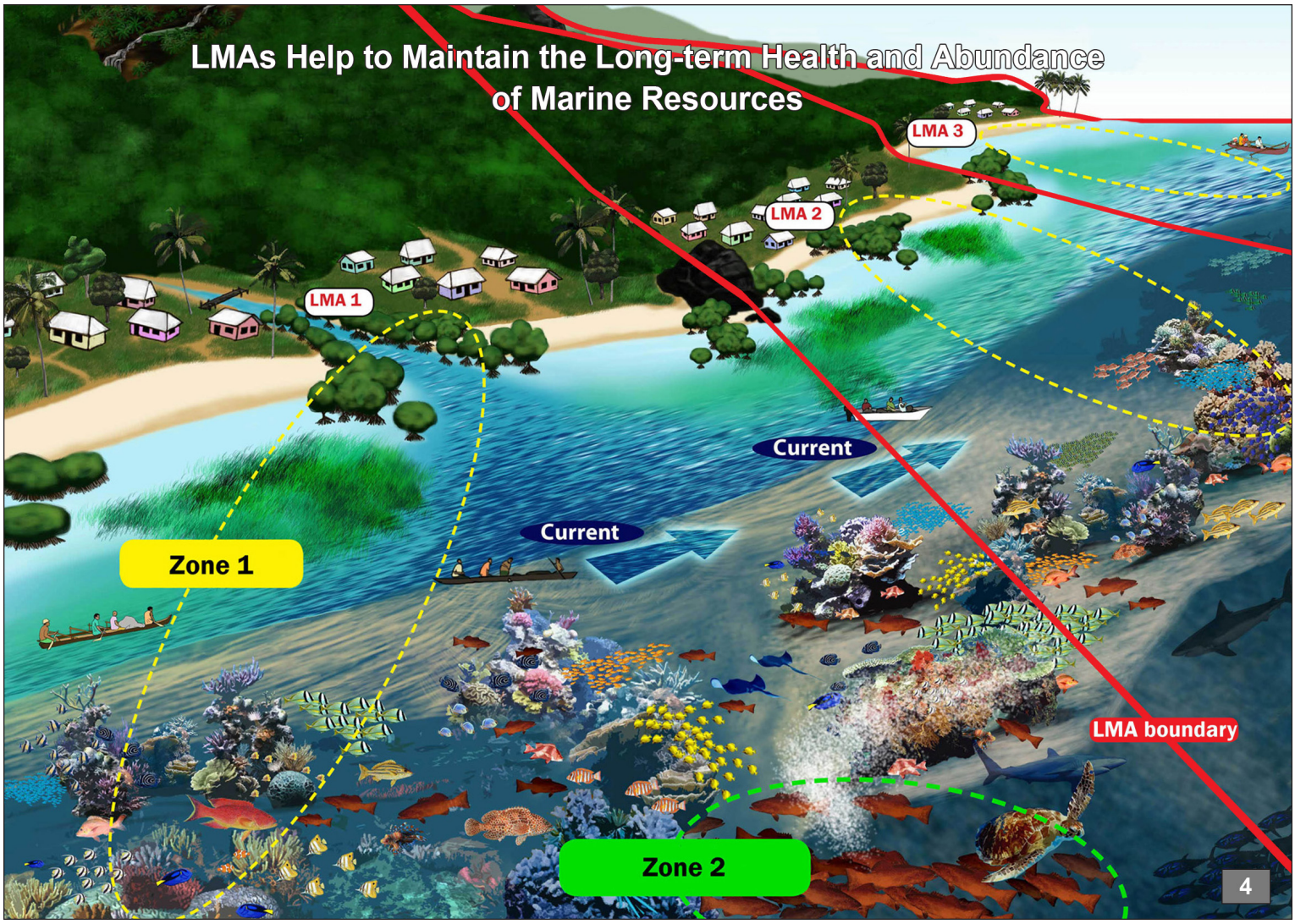
Sea Level Rise



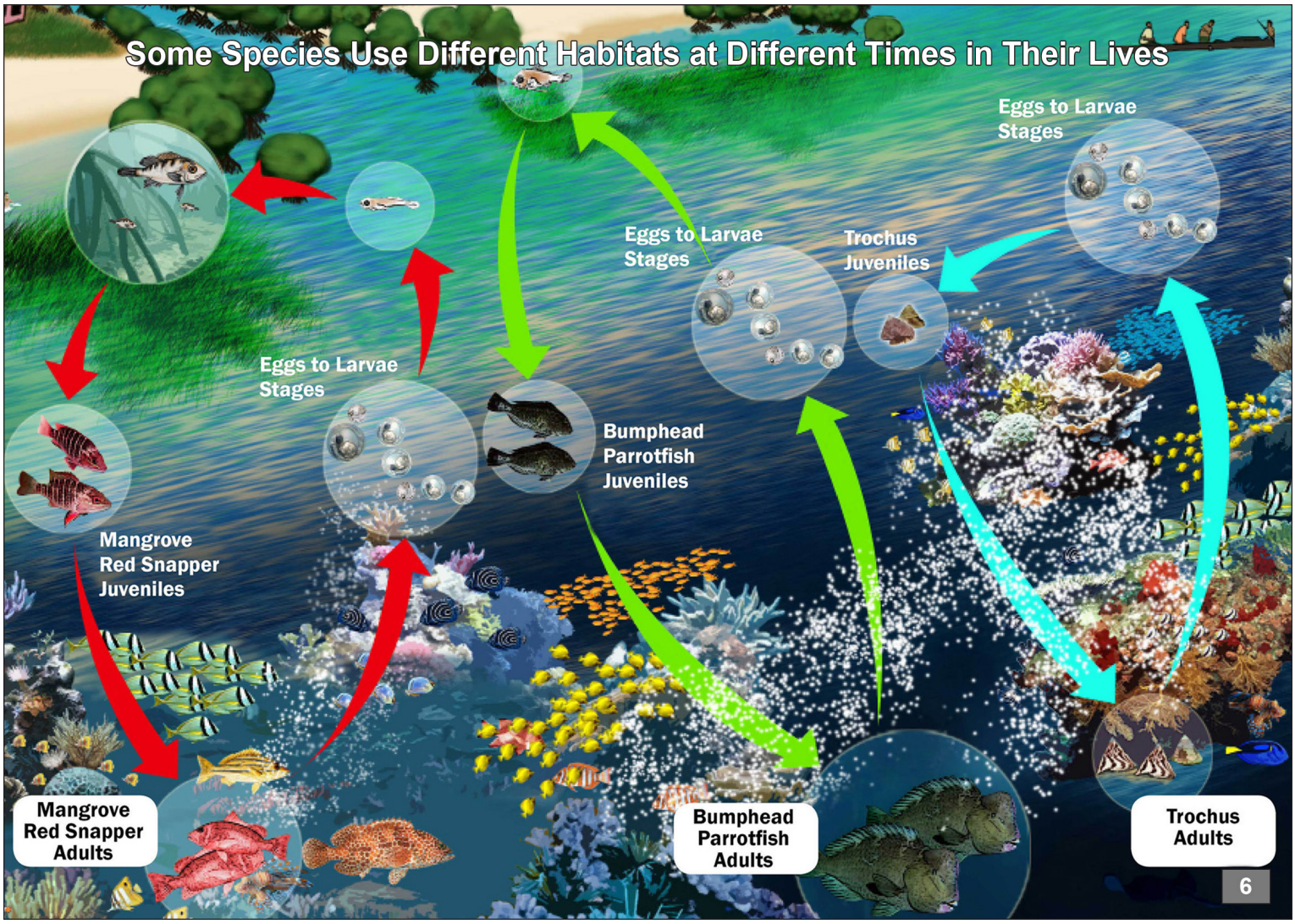
Sea Surface Temperature

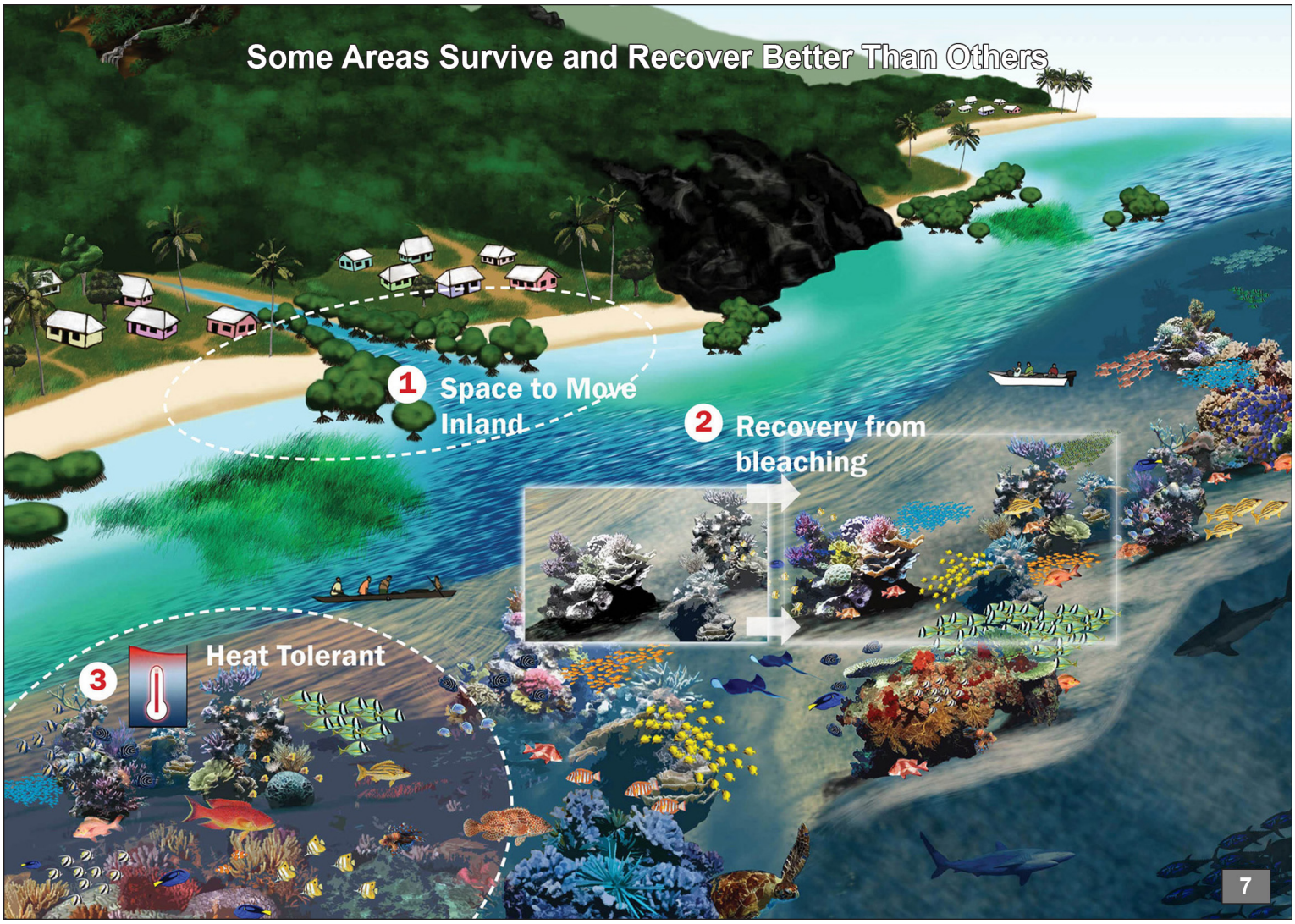
Air Temperature

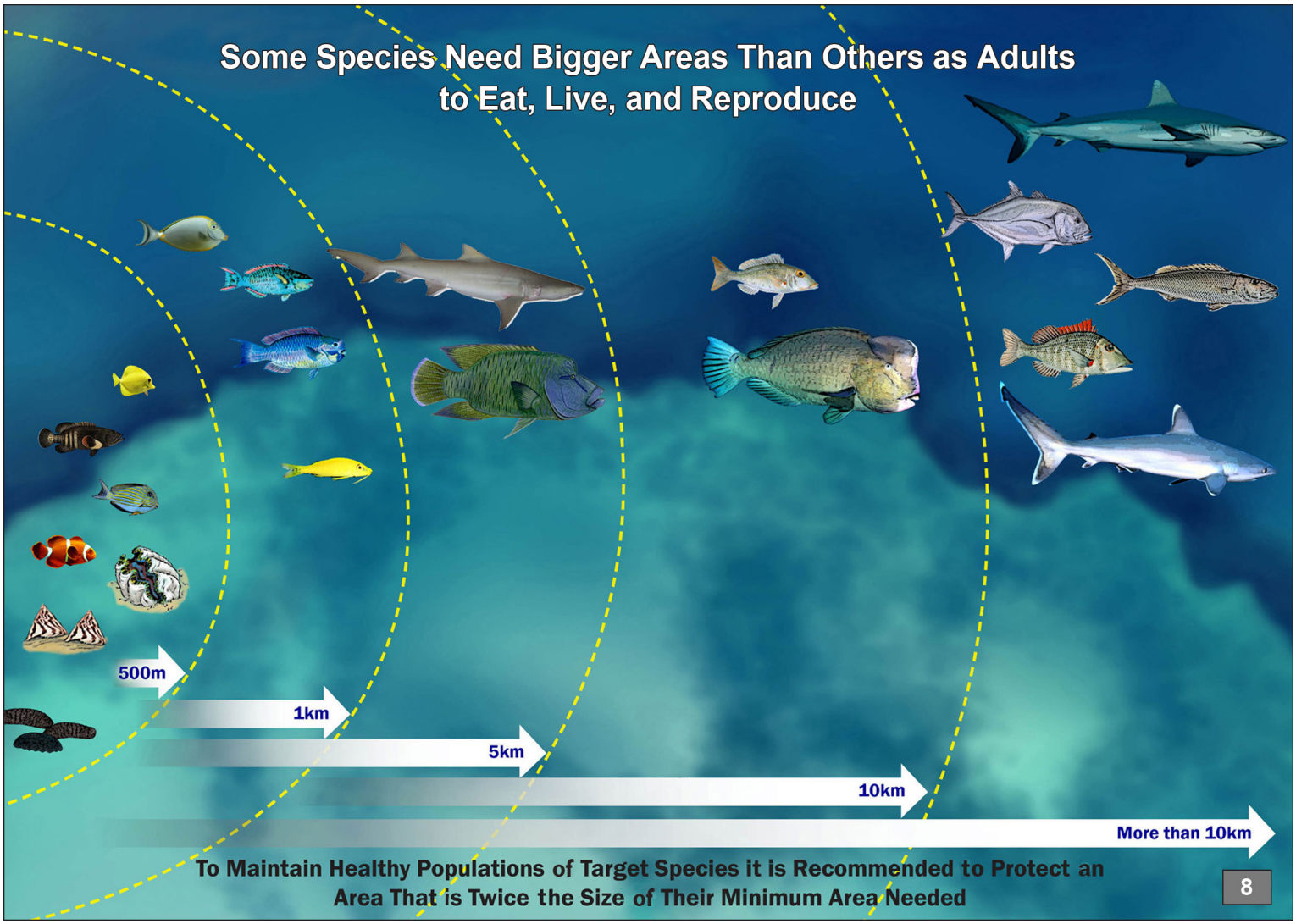
Change in Weather Patterns

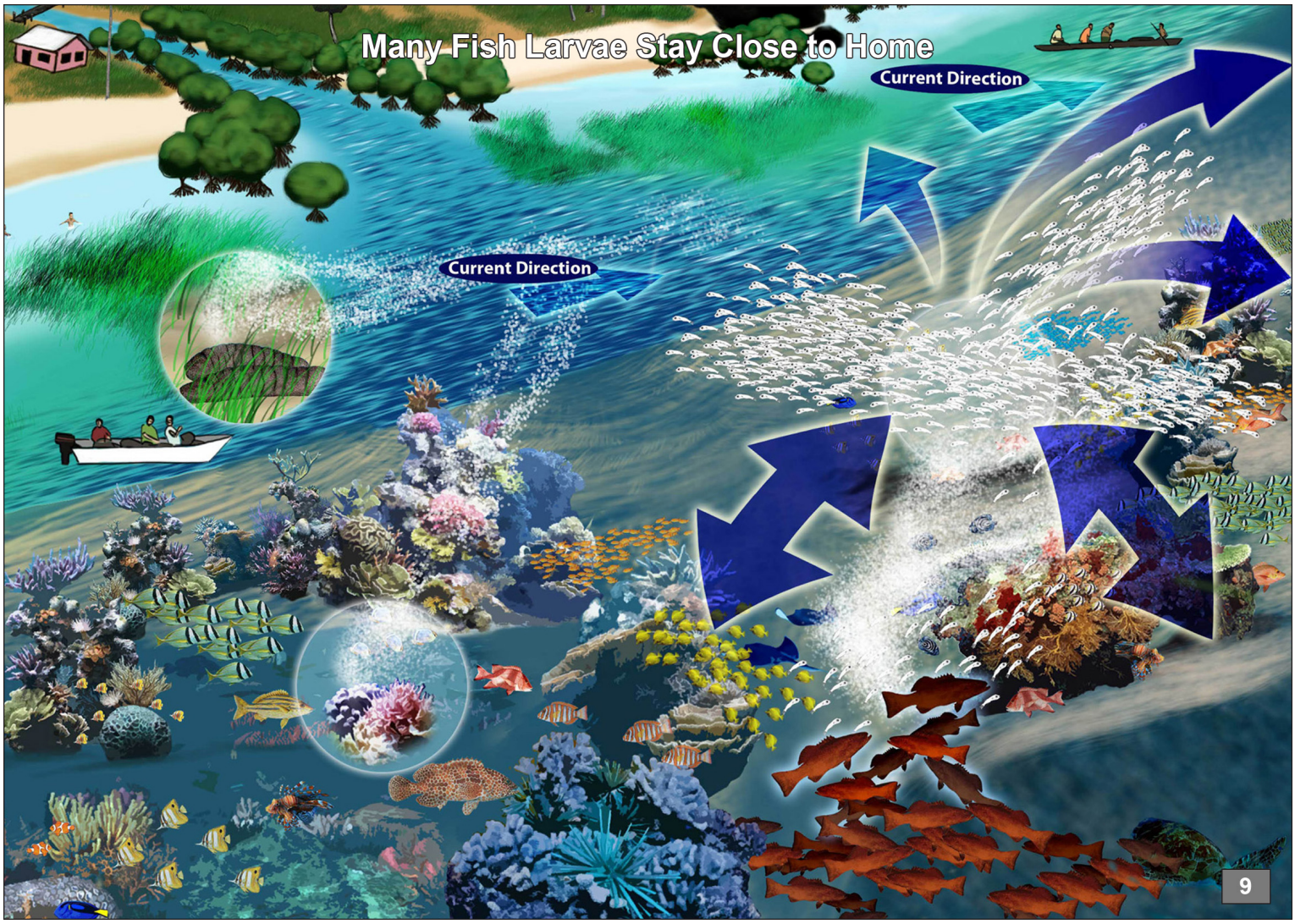

LMAs Help to Maintain the Long-term Health and Abundance of Marine Resources
LMA 1
LMA 2
LMA 3
Current
Current
Zone 1
Zone 2
LMA boundary
4

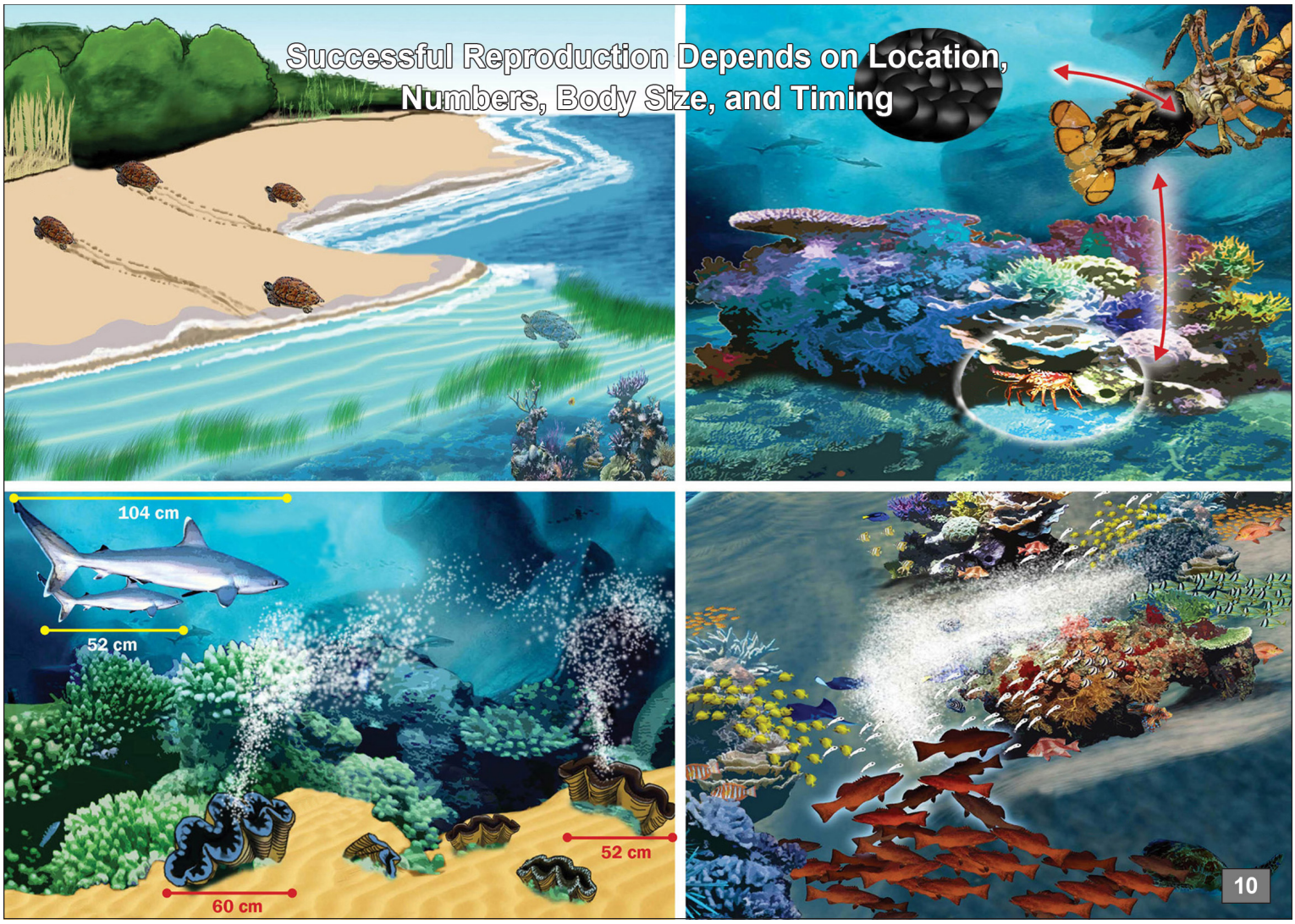
Each Species Needs Different Healthy Habitats Where They Can Eat, Live, Grow, and Reproduce
1
2
3
4
5
6
7
8


Some Species Use Different Habitats at Different Times in Their Lives
Eggs to Larvae Stages
Eggs to Larvae Stages
Trochus Juveniles
Eggs to Larvae Stages
Bumphead Parrotfish Juveniles
Mangrove Red Snapper Juveniles
Mangrove Red Snapper Adults
Bumphead Parrotfish Adults
Trochus Adults
6

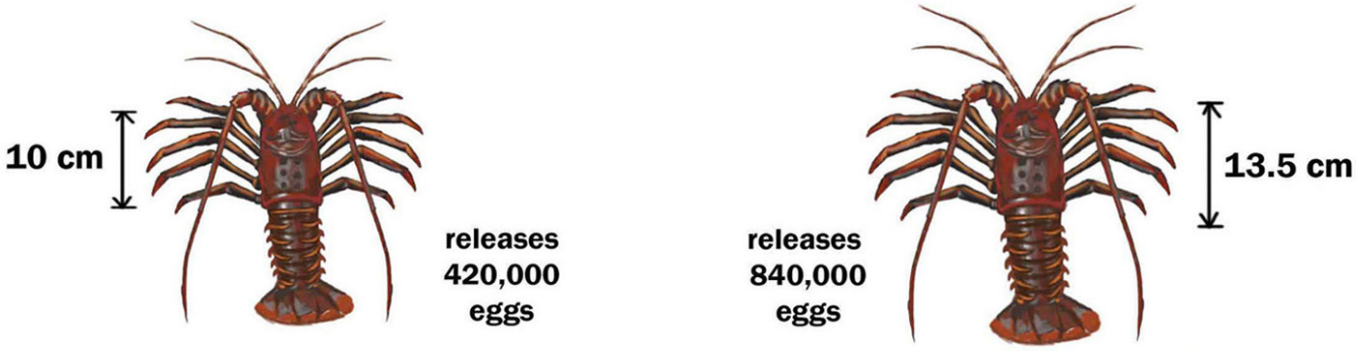

Some Areas Survive and Recover Better Than Others
1
Space to Move Inland
2
Recovery from bleaching
3
Heat Tolerant

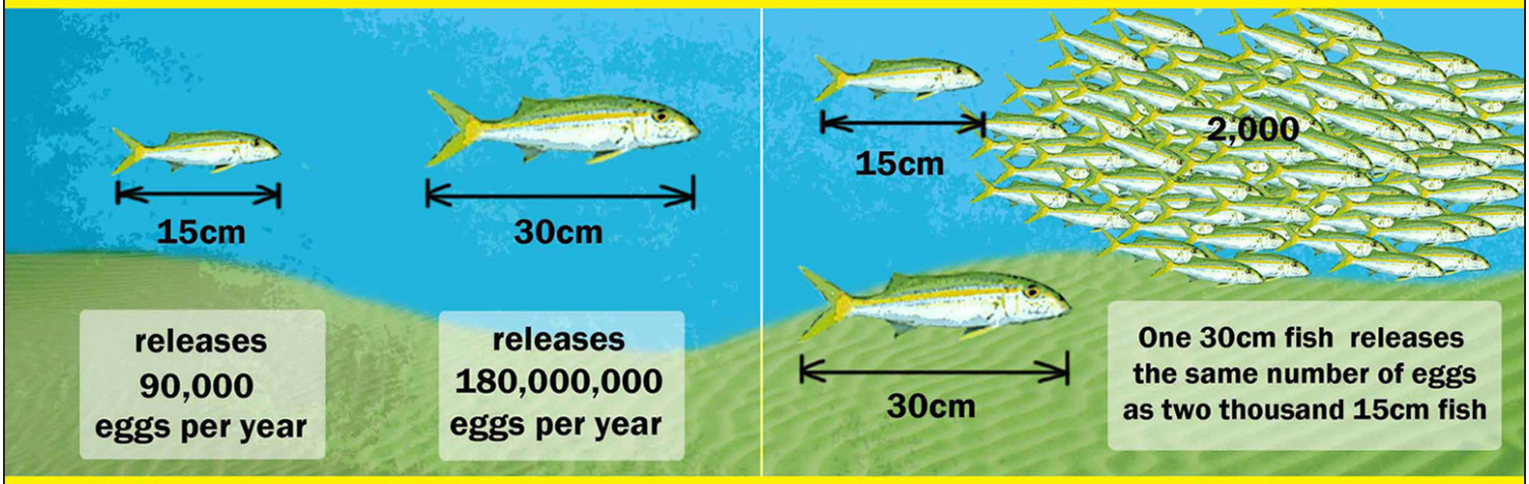

Some Species Need Bigger Areas Than Others as Adults
to Eat, Live, and Reproduce
500m
1km
5km
10km
More than 10km
To Maintain Healthy Populations of Target Species it is Recommended to Protect an
Area That is Twice the Size of Their Minimum Area Needed
8

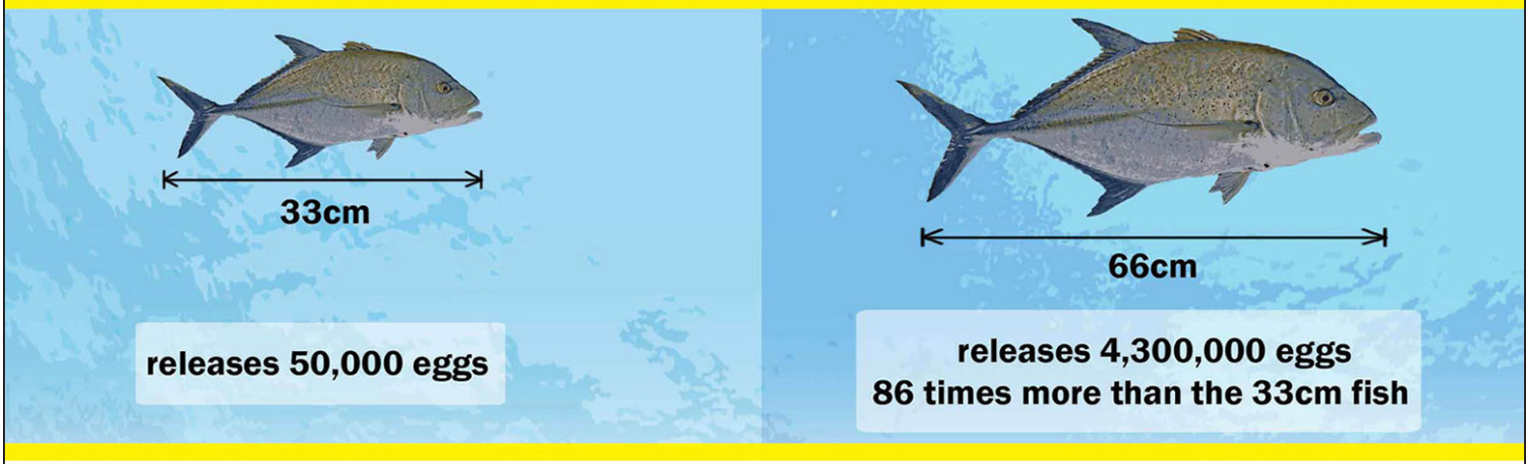

Many Fish Larvae Stay Close to Home
Current Direction
Current Direction
9

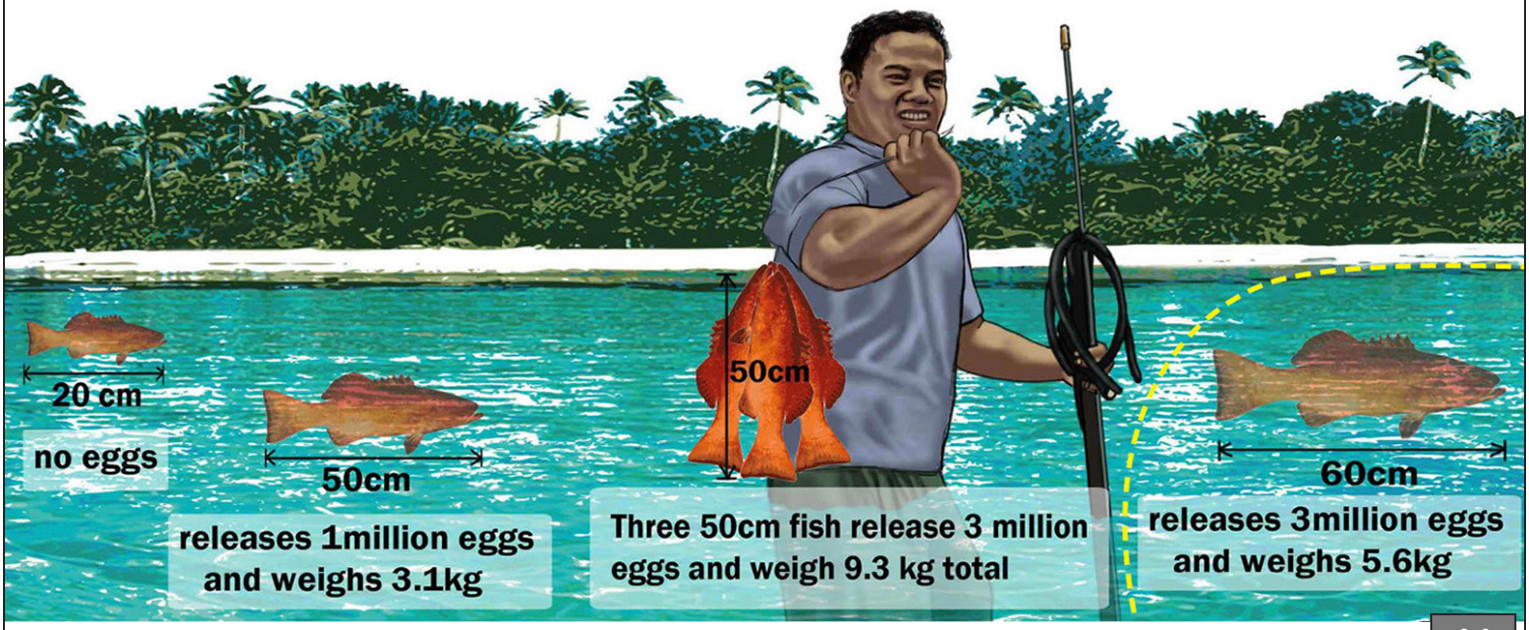

Successful Reproduction Depends on Location, Numbers, Body Size, and Timing
104 cm
52 cm
52 cm
60 cm
10

Big Females Make More Eggs



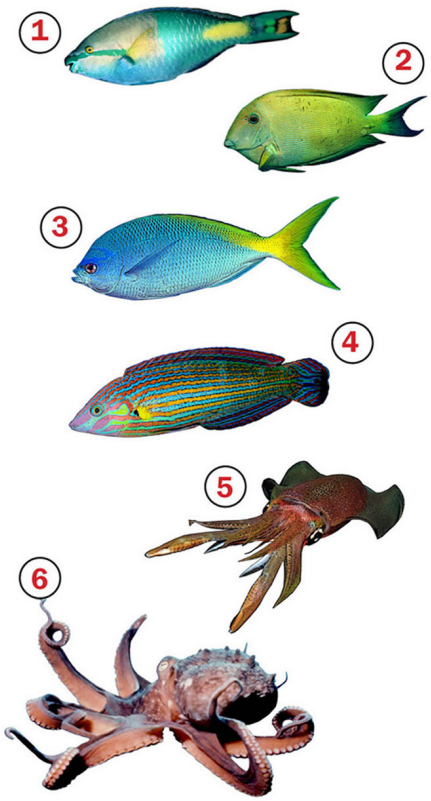




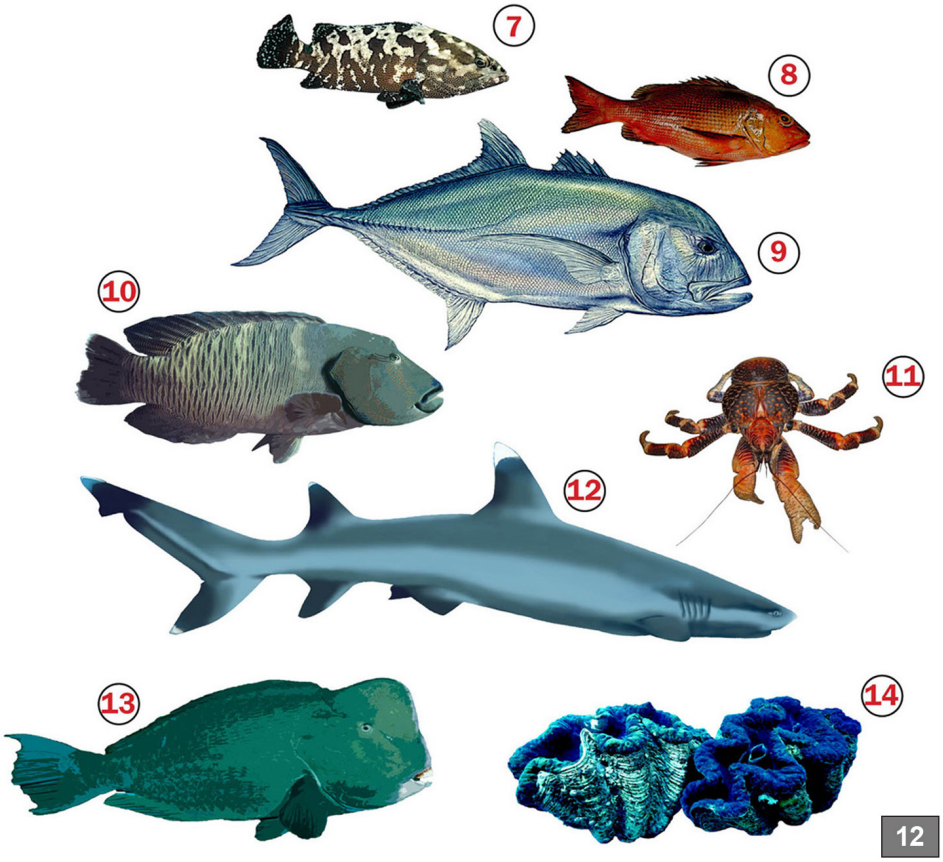


Some Species are More Vulnerable and Recover More Slowly Than Others

Less Vulnerable
Grow, Reproduce, and Recover Faster

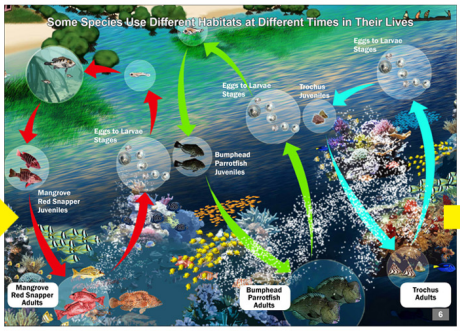


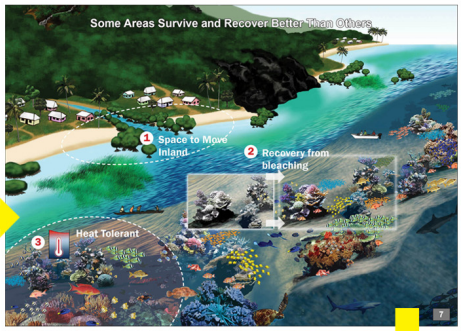
More Vulnerable
Grow, Reproduce, and Recover Slower

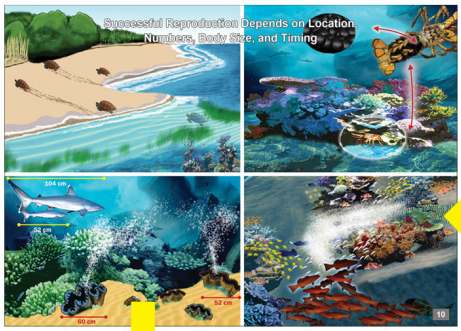


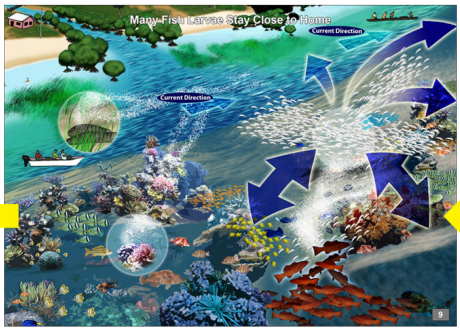
Effective Management That Provides Community Benefits is Critical
1
2
3
ENFORCEMENT
4
5
TIN TRADERS
SUPERMARKET
13

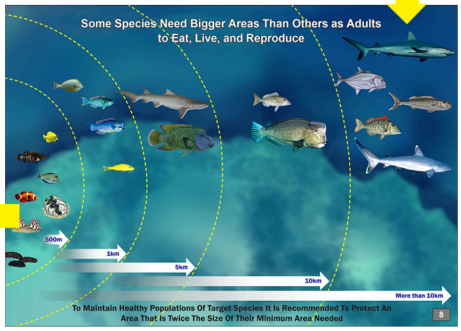
What are the Nine Essential Factors That Must Be Considered to Keep Resources Abundant and Resilient?

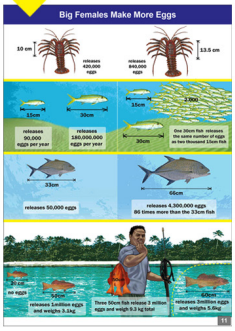


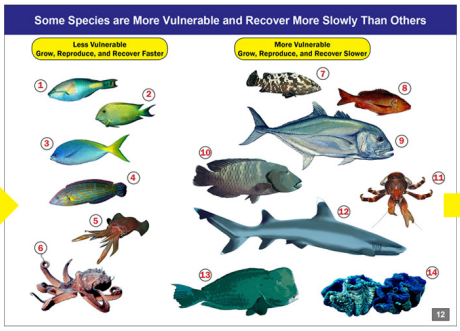




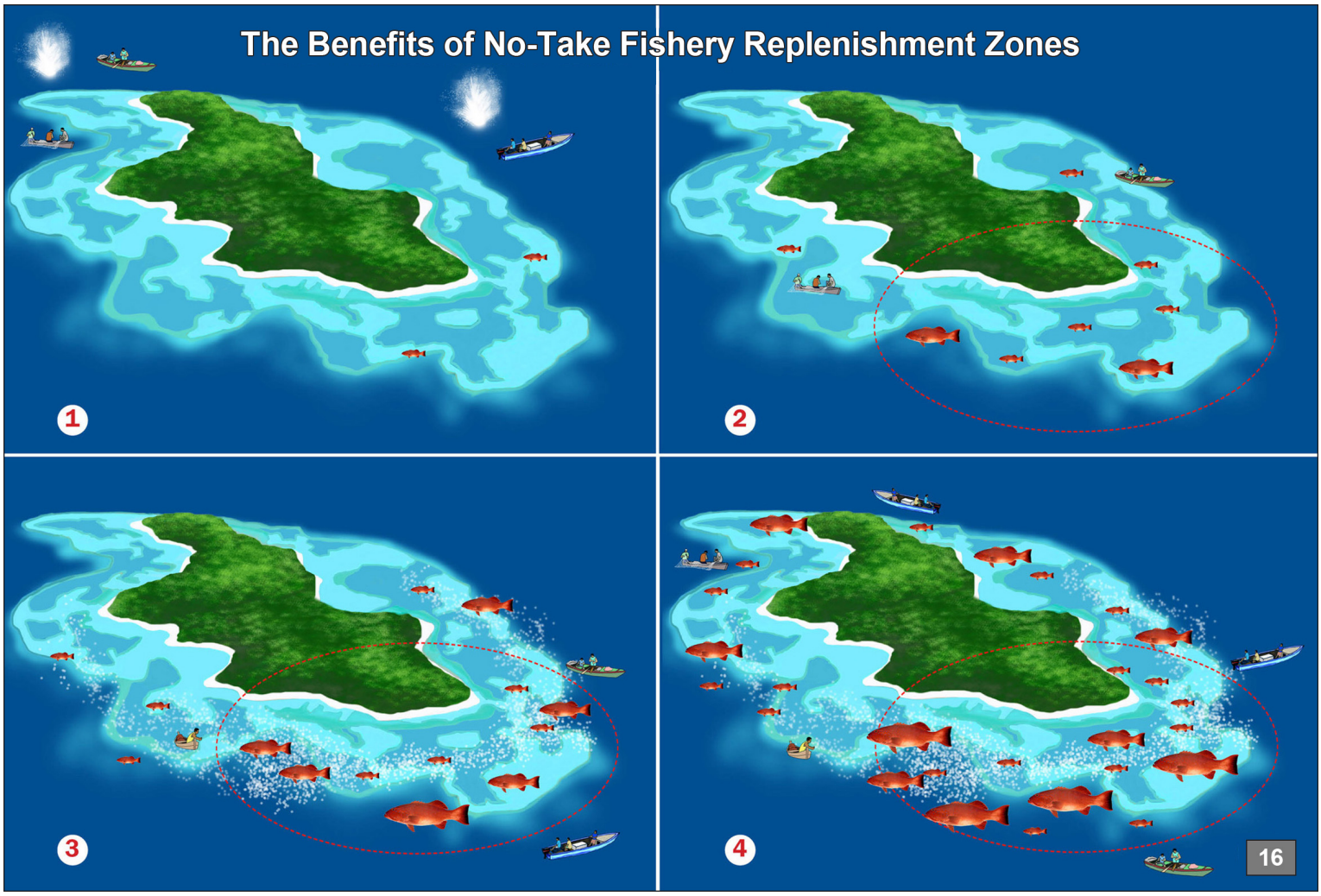


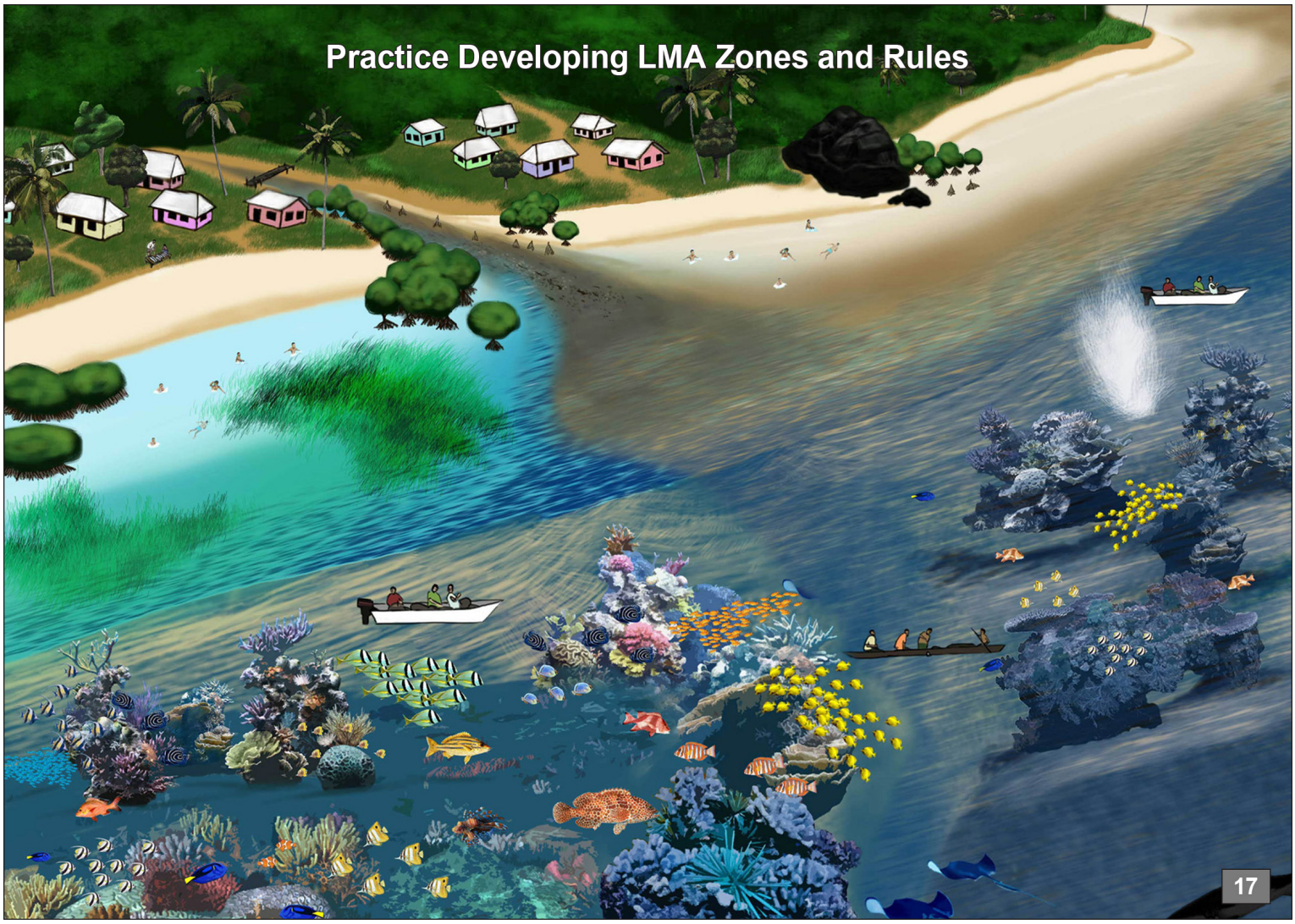






Effective LMA Zoning and Rules Maintain Health and Abundance of Marine Resources
LMA RULES
SEA CUCMBER REPLENISHMENT ZONE
Current Direction
Current Direction
NO-TAKE FISHERY REPLENISHMENT ZONE
SEASONAL CLOSURE
15


The Benefits of No-Take Fishery Replenishment Zones
1
2
3
4
16


Practice Developing LMA Zones and Rules