



## A new framework for monitoring changes in socio-ecological vulnerability of tropical coastal communities

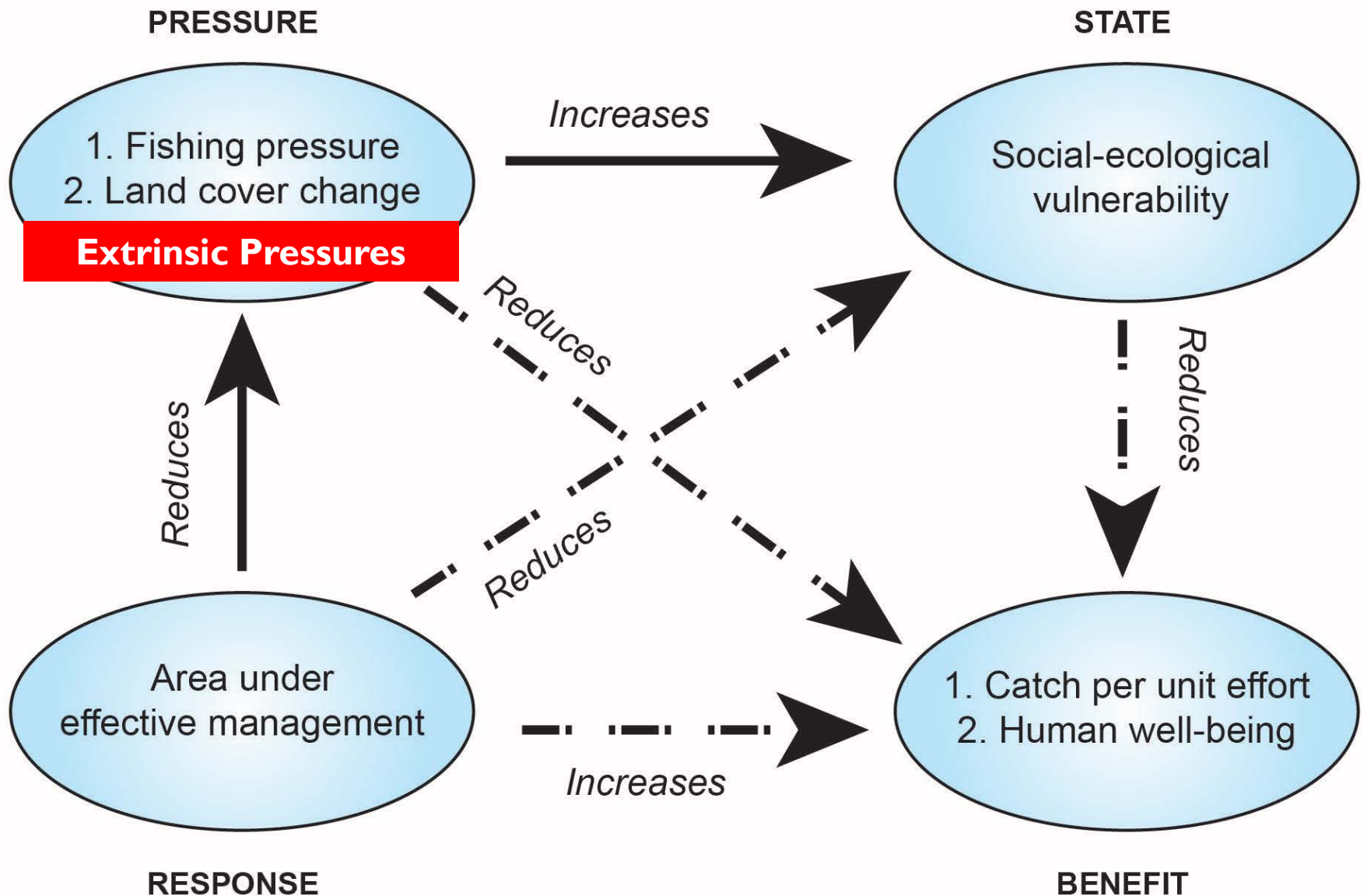
STACY JUPITER ▪ WORLD PARKS CONGRESS 2014

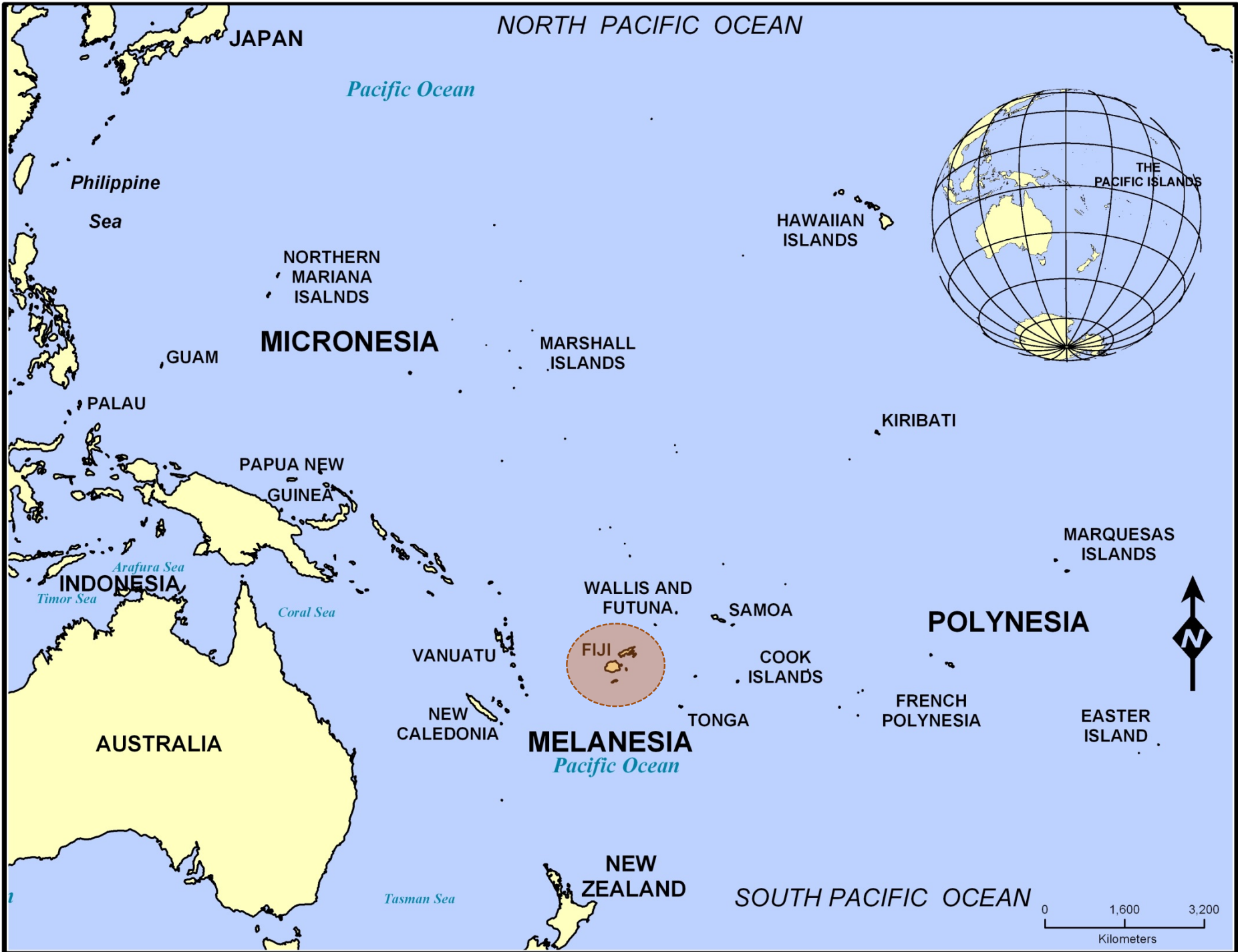
# Long-term Goals

- Slow decline of ecosystem services from coastal fisheries
- Reduce pressure on biodiversity
- Reduce socio-ecological vulnerability



# Dashboard Framework

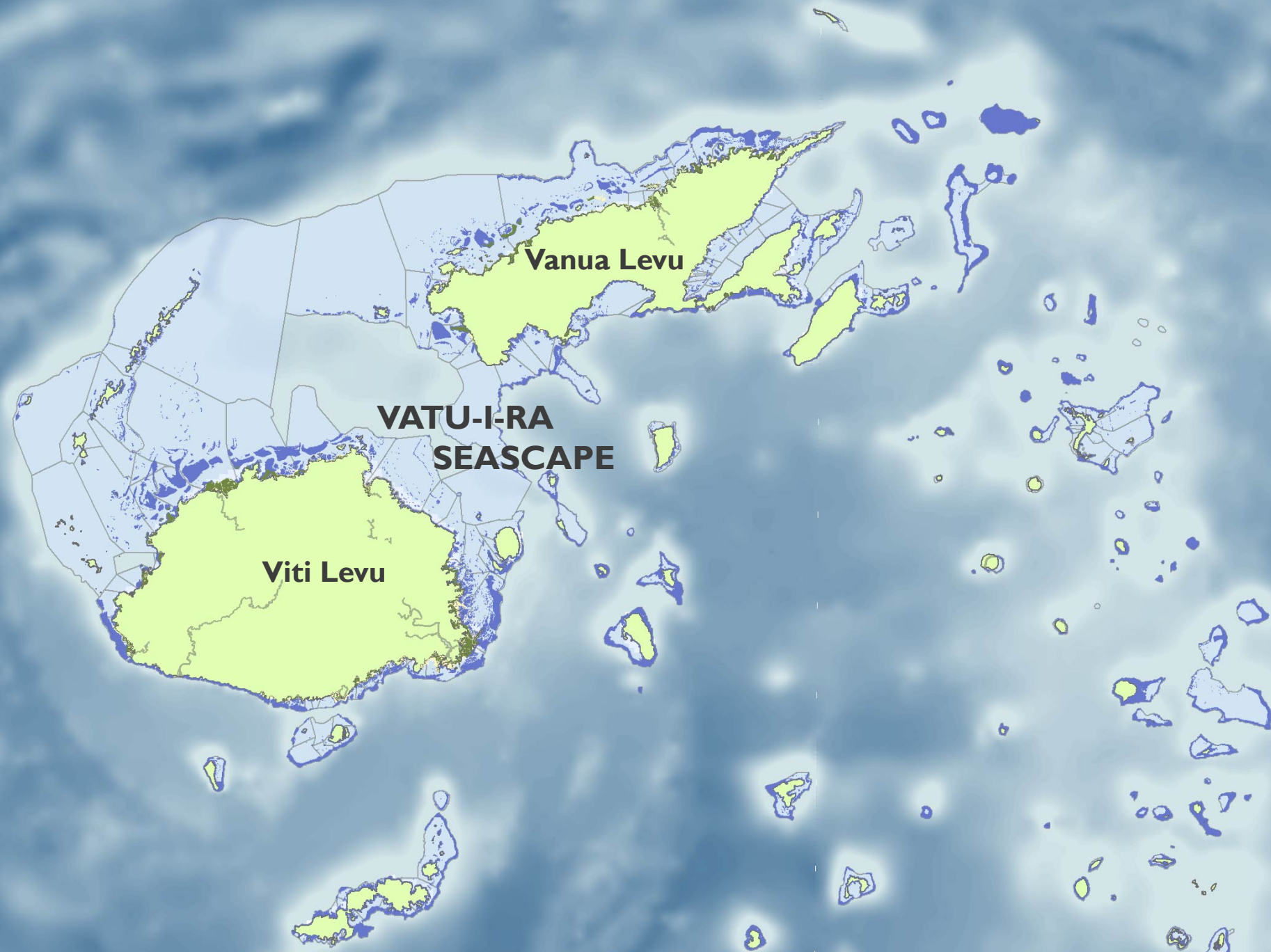












**Vanua Levu**

**VATU-I-RA  
SEASCAPE**

**Viti Levu**



Bua District, Bua Province  
Pop: 1354

Kubulau District, Bua  
Province  
Pop: 911

Nakorotubu District, Ra  
Province  
Pop: 449

Levuka District, Lomaiviti  
Province  
Pop: 1789

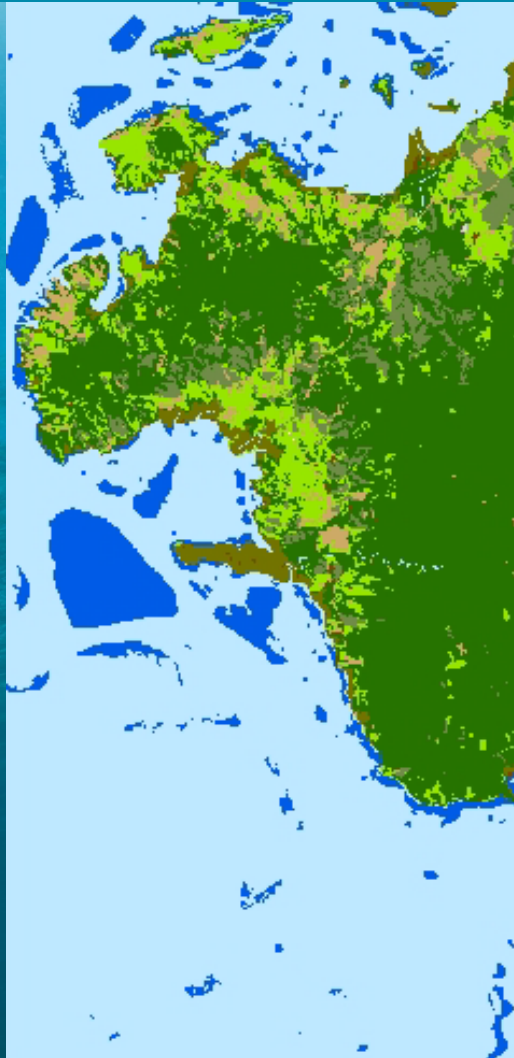


# Pressure

Spatially-explicit catch  
and income per unit  
effort surveys  
(CPUE/IPUE)

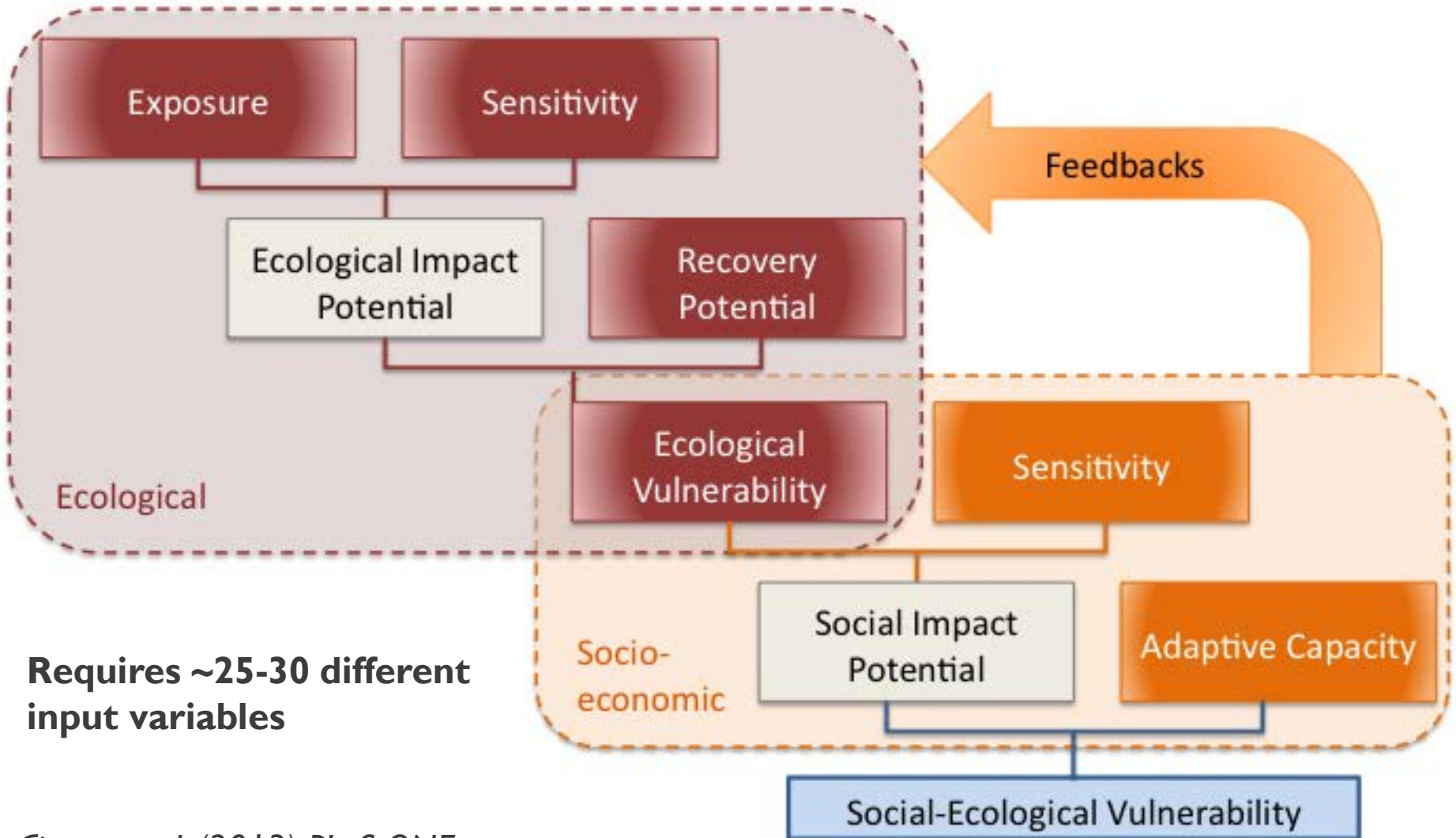
Landcover mapped  
from satellite data

Population trends;  
Access to markets,  
middlemen & ice;  
technology



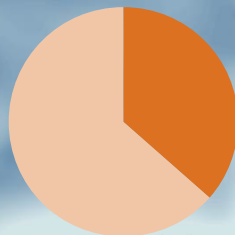


# State: Socio-Ecological Vulnerability

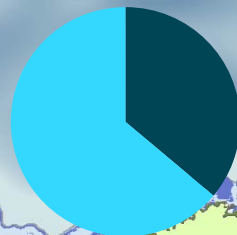


**BUA**

2000  
1000  
0



**NS**

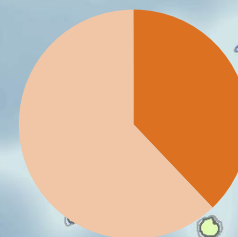


**KUBULAU**

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0



**NS**



**NS**

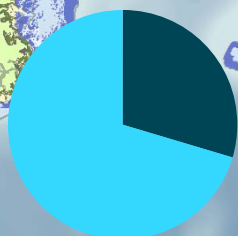
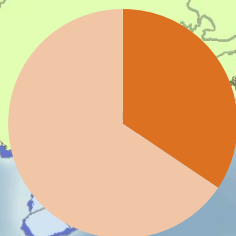


**NAKOROTUBU**

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**NS**

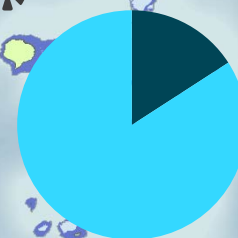
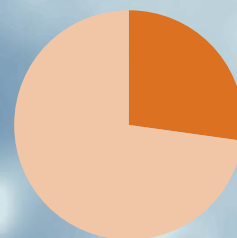


**LEVUKA**

2000  
1000  
0



**NS**





## **Social Sensitivity:**

- Dependence on marine resources
- Susceptibility of catch from different gear to climate impacts

## **Social Adaptive Capacity:**

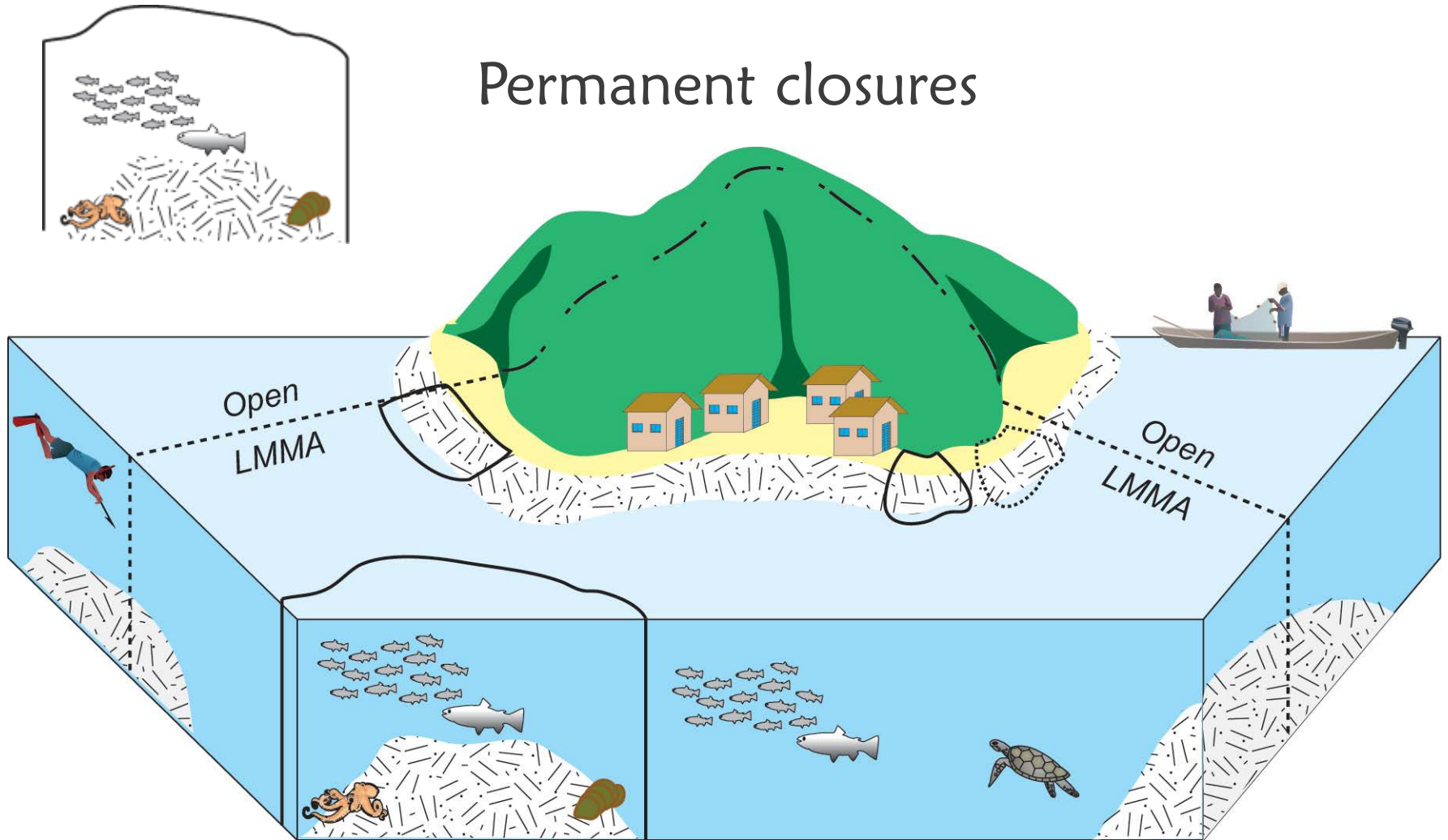
- Flexibility: occupational mobility & diversity
- Capacity to change
- Recognition of human agency
- Infrastructure and assets
- Trust & social capital





# Response: LMMA Management

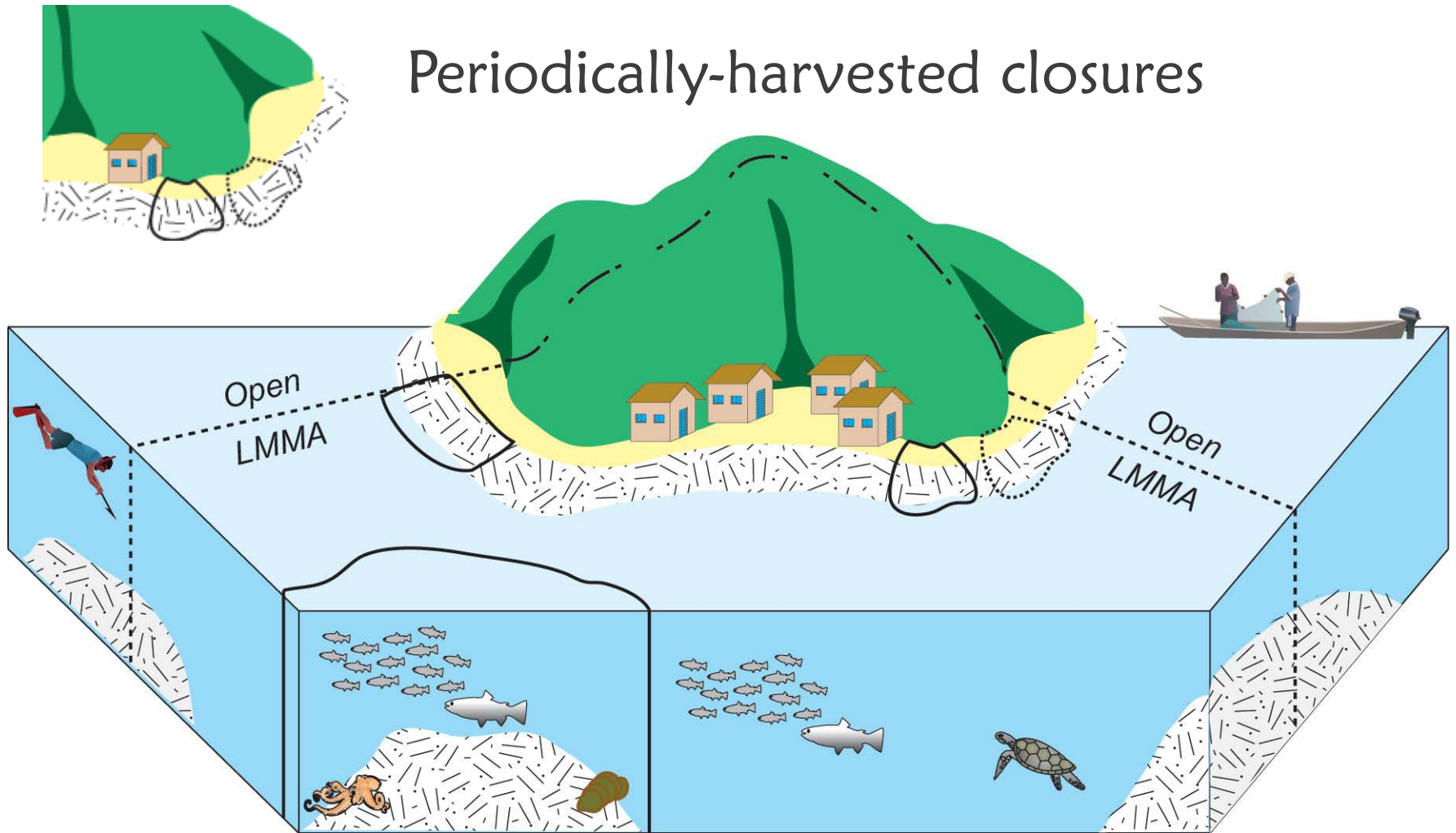
Permanent closures



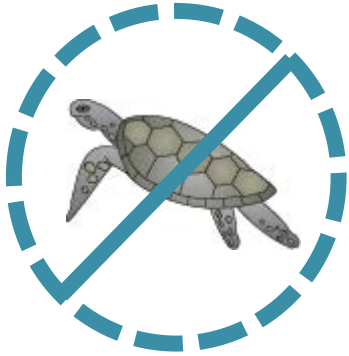


# Response: LMMA Management

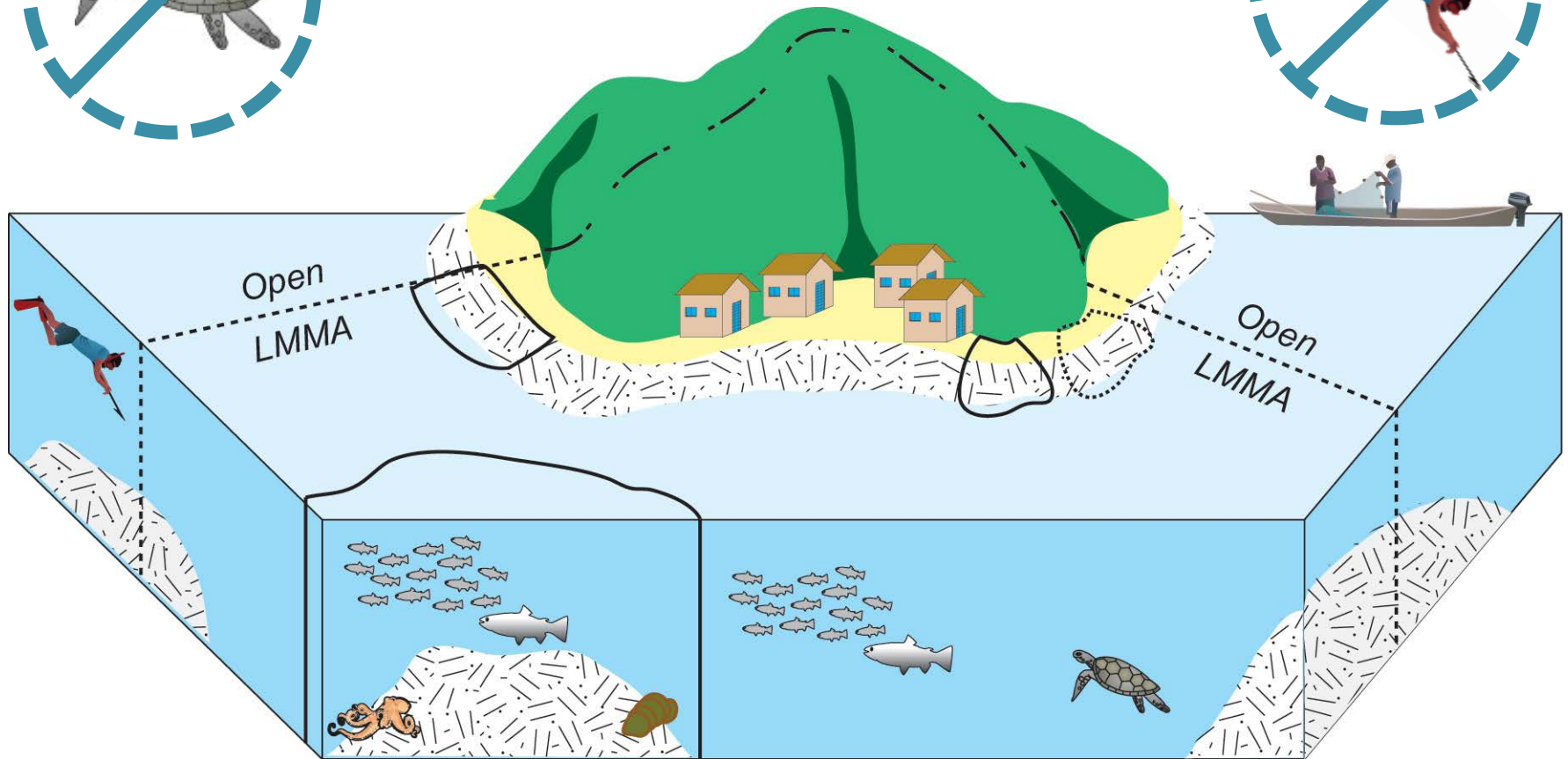
Periodically-harvested closures



# Response: LMMA Management



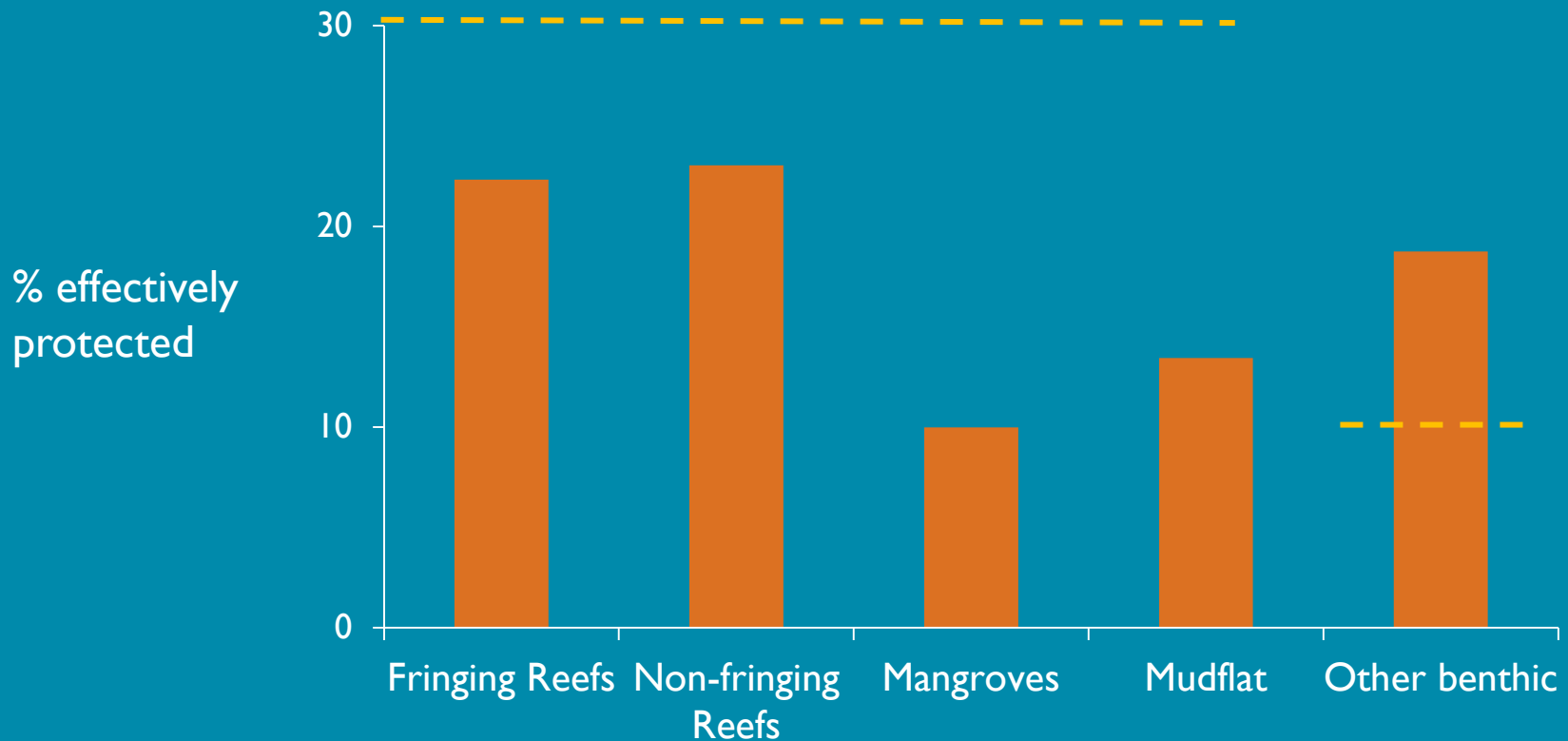
Species & Gear restrictions





# Not all management equally effective

*Mills et al. 2011 Conservation Biology*



**Improve effectiveness of management covering reefs,  
mangroves & mudflats**

# Benefits

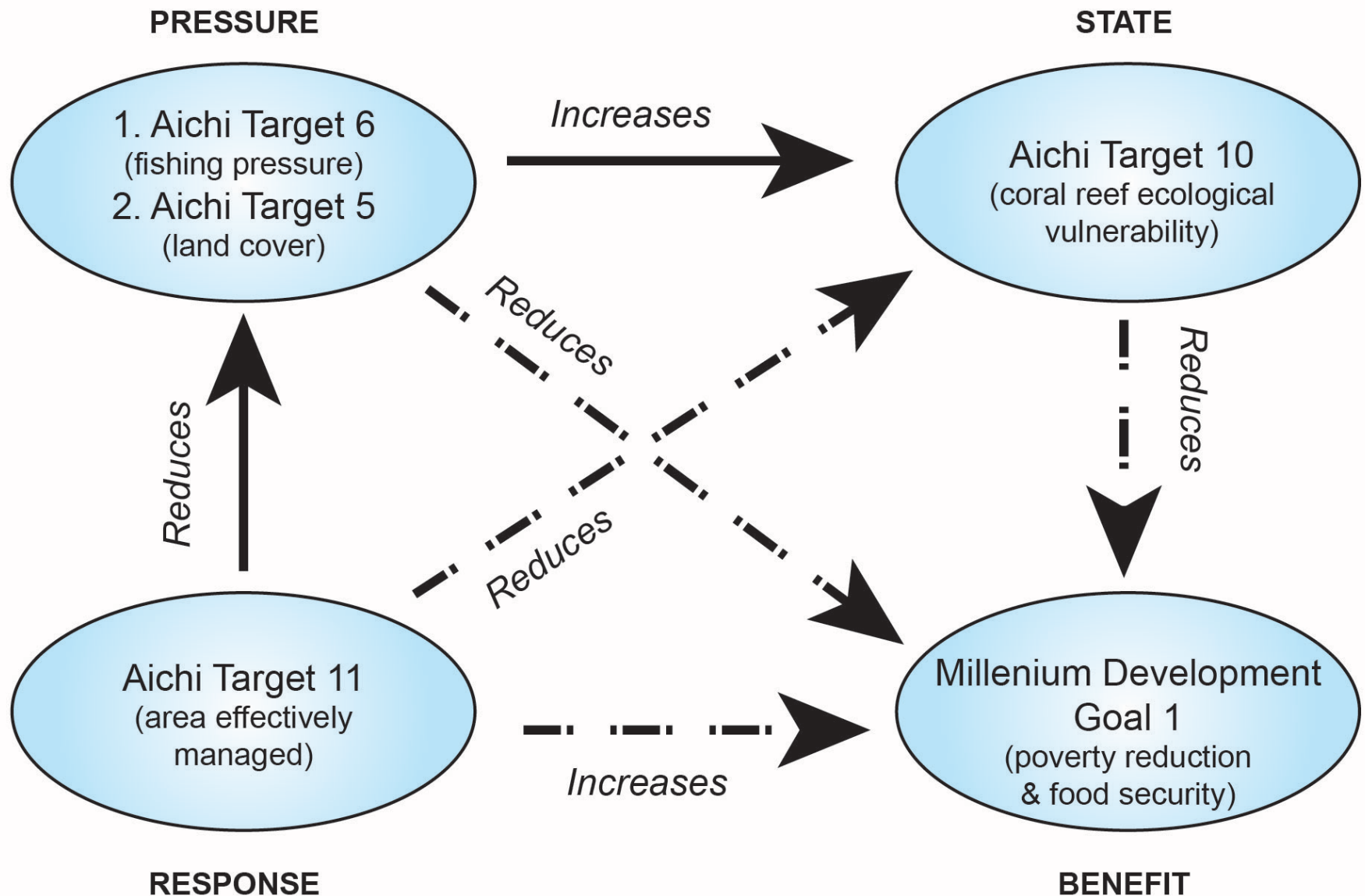
CPUE/IPUE

Human Well-being:  
basic needs assessment,  
perceptions surveys





# Policy Links





Thank You

Learn more about WCS and  
the World Parks Congress.  
[wpc.wcs.org](http://wpc.wcs.org)  
[sjupiter@wcs.org](mailto:sjupiter@wcs.org)