Solving the mystery of Marine Protected Area performance:

linking governance, conservation, ecosystem services, and human well being

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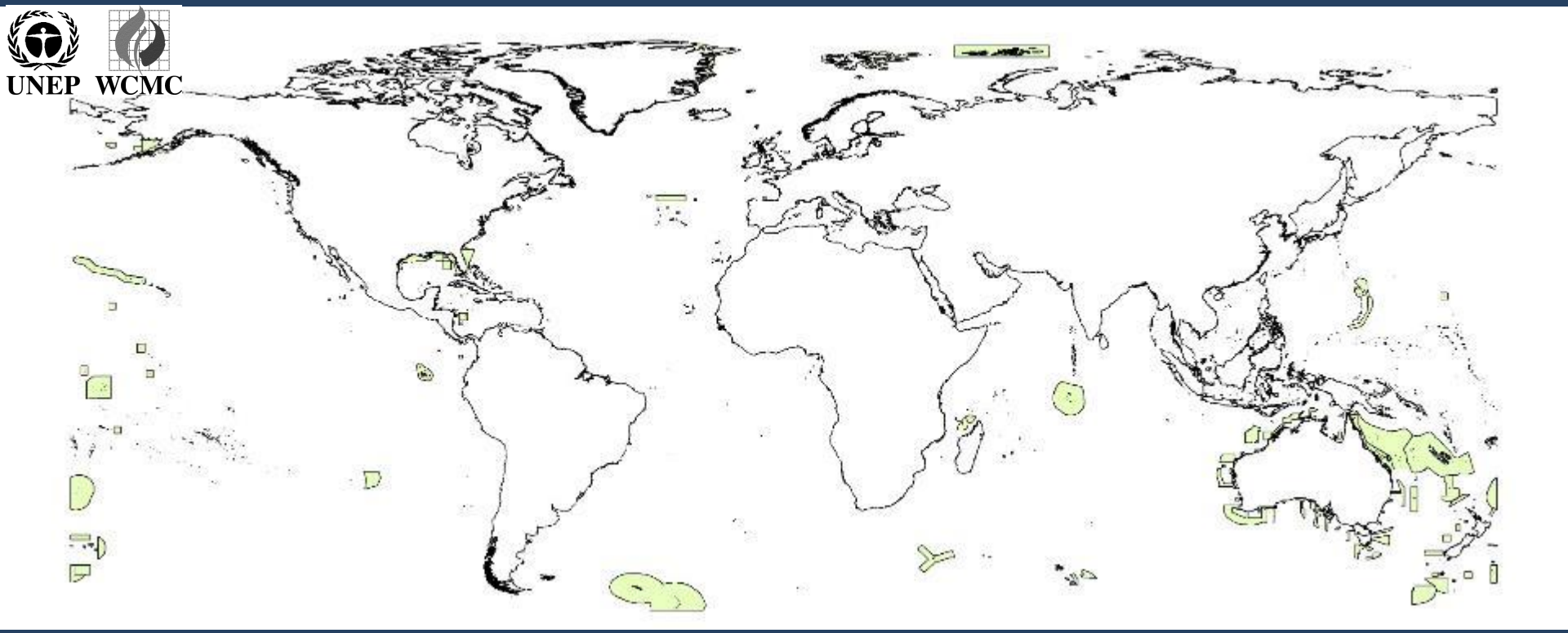
SESYNC WWF Luc Hoffmann Institute IUCN WCPA World Commission on Protected Areas SSC Species Survival Commission ZSL Living Conservation Zoological Society of London

“Solving the mystery of MPA performance”
The challenge

Current global MPA coverage



Currently 3.4% (Thomas et al. *in press*)

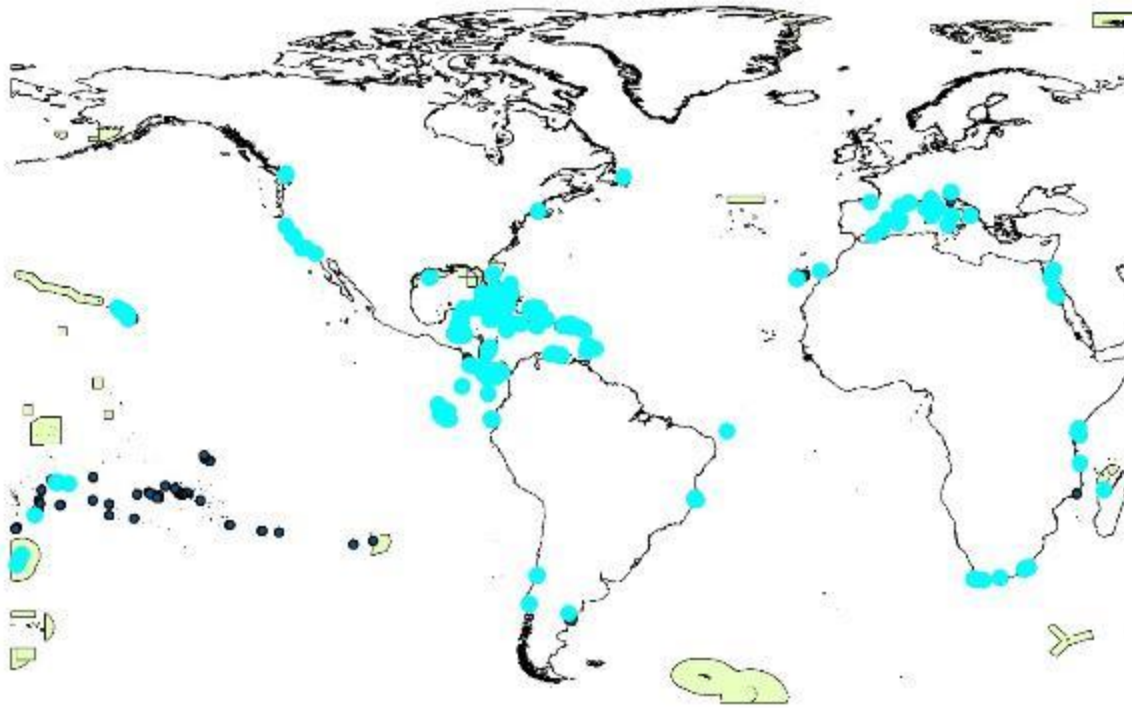
The Response:
Solving the mystery of MPA performance

Interdisciplinary team of experts

MPA governance -> outcomes

Compilation of MPA monitoring data worldwide

Ecological outcomes



WWF for a living planet®

The World Bank

Management Effectiveness Tracking Tool

Reporting Progress at Protected Area Sites: *Second Edition*

July 2007

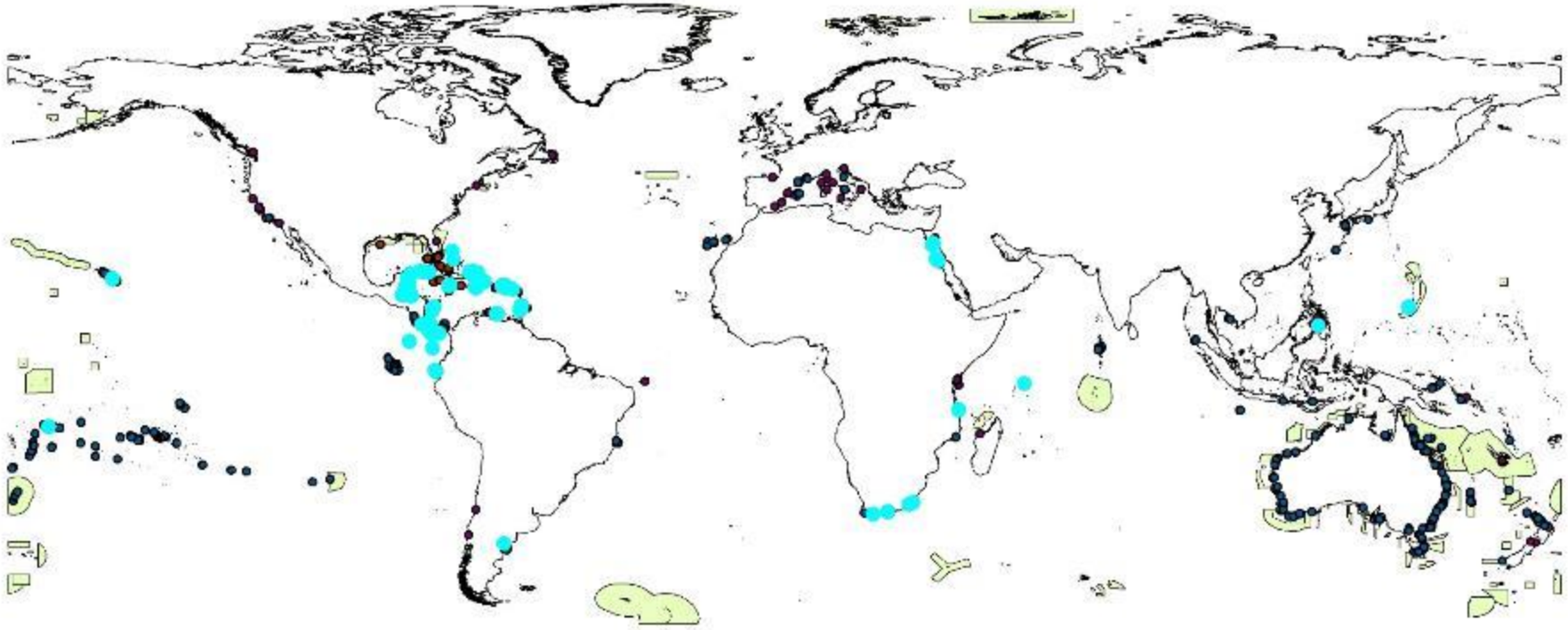
>14,500 ecological surveys (5 datasets)

>250 MPAs in ~45 countries

Governance data on hundreds of MPAs:

- Management Effectiveness Tracking Tool (METT)
- NOAA / CAMPAM Capacity Building Checklist

Ecological outcomes & governance



Limited overlap with governance data (56 MPAs)

Social outcomes data rare

MPA governance -> ecological outcomes

Data analysis steps

Compile ecological metrics (e.g. biomass)

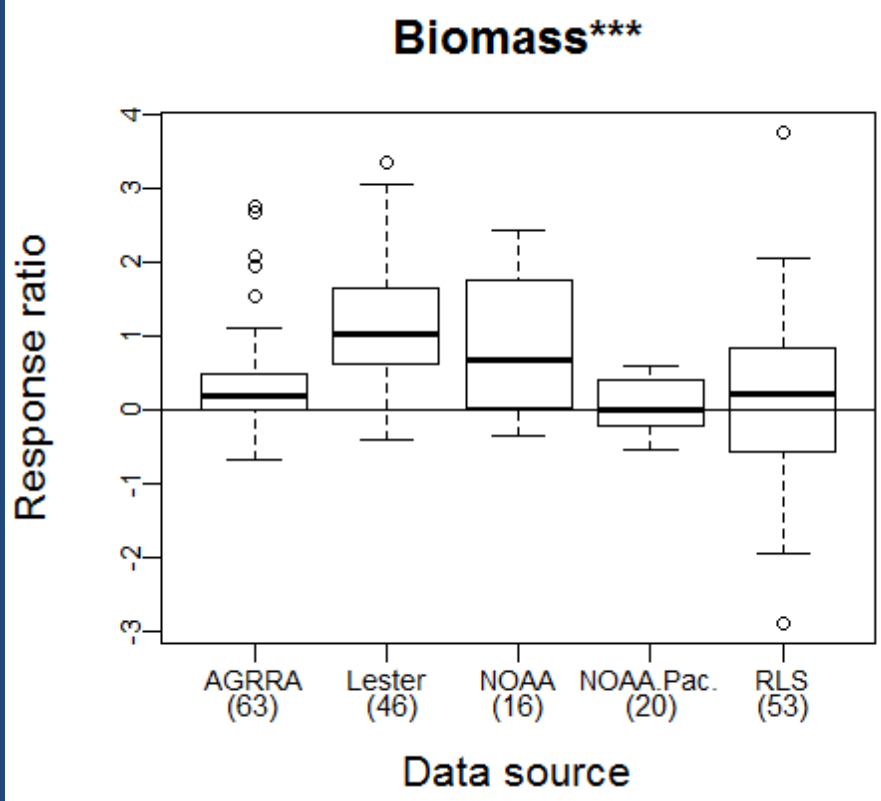
Develop “response ratios”

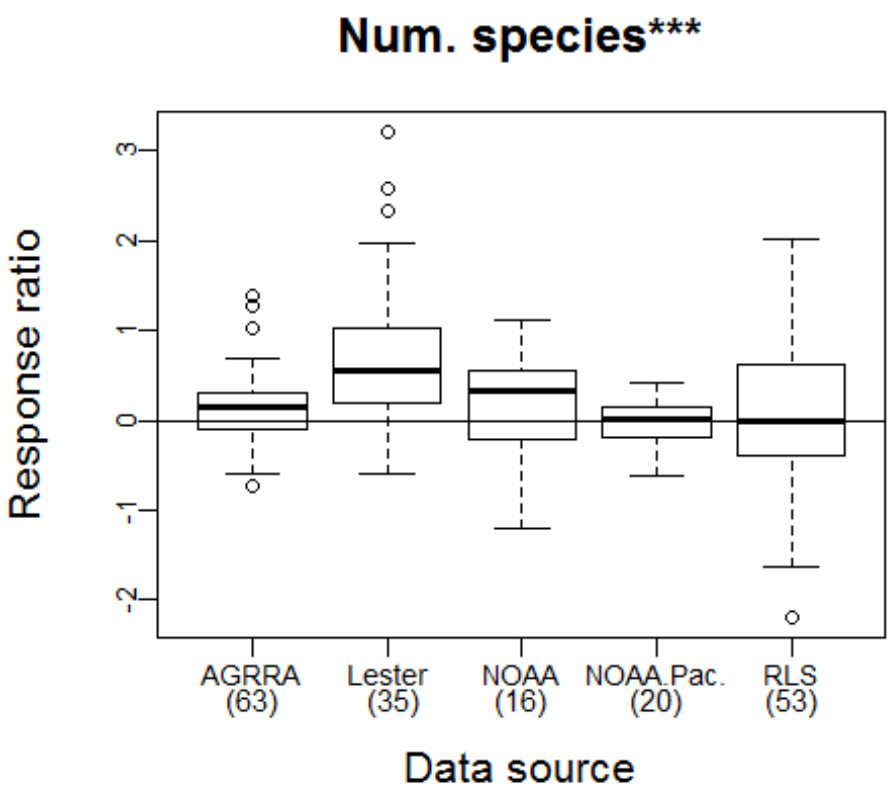
Examine relationships to contextual factors (e.g. MPA size, GDP) and governance:

- Decision making
- Resource use rights
- Monitoring and enforcement
- Conflict resolution mechanisms

(Ostrom 2009)

Preliminary results: *Outcomes among datasets*

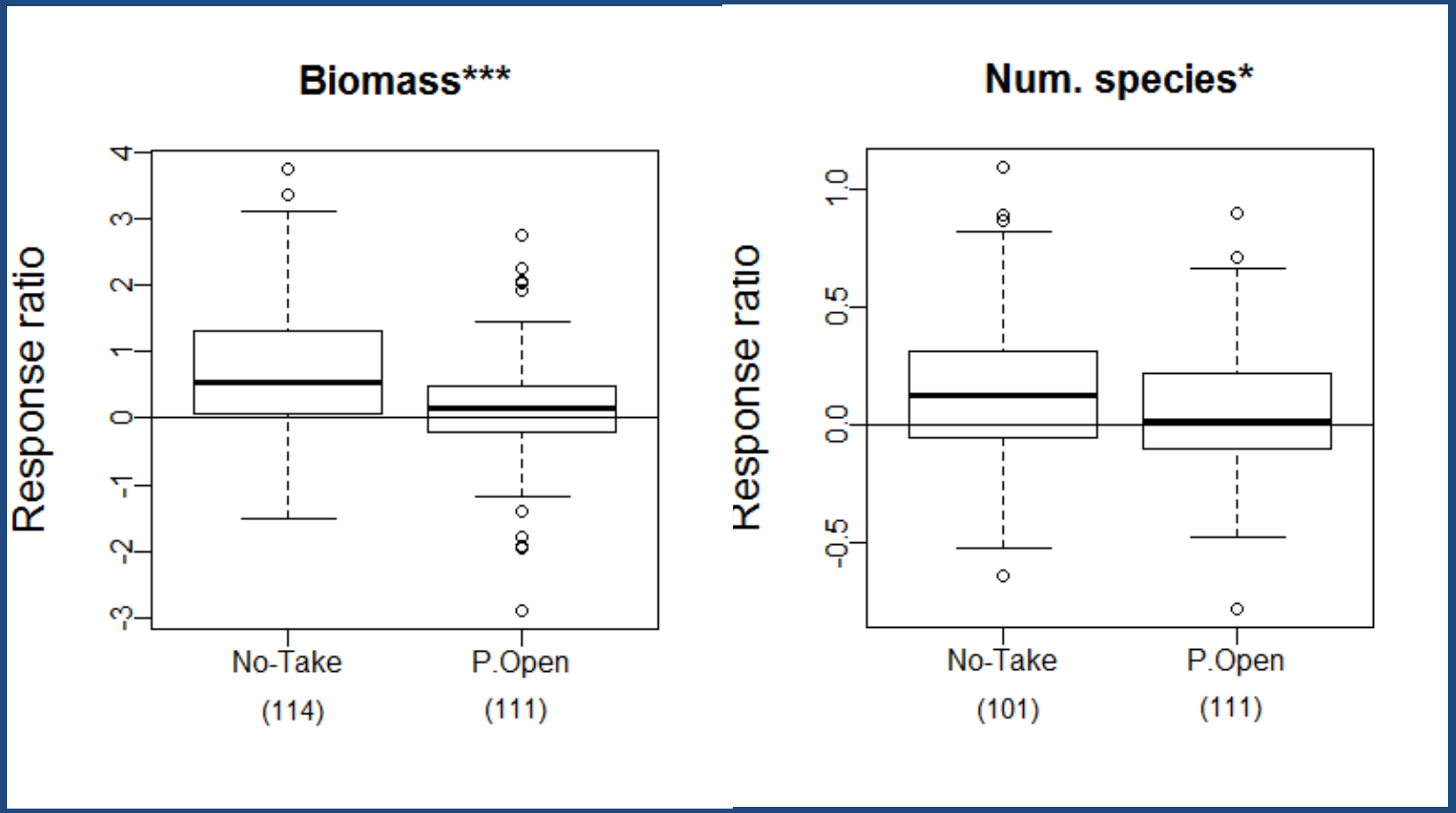




Similar results across most datasets

Greater fish biomass and richness inside MPAs vs. outside

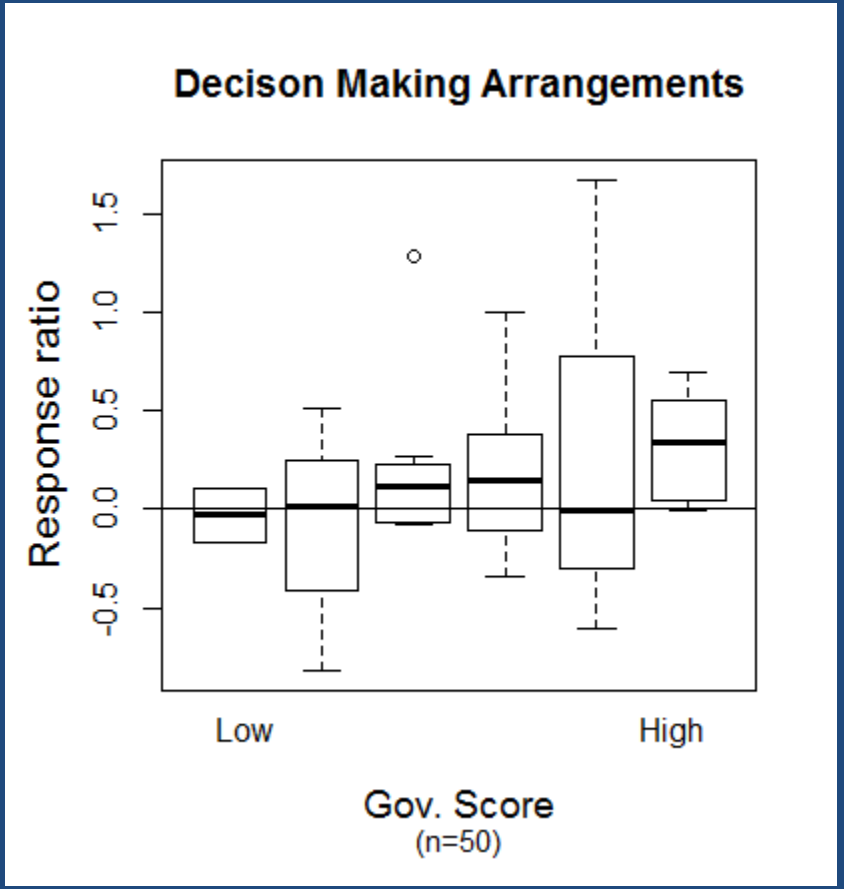
Preliminary results: *Fishing use rights*



Greater differences in no-take vs partially open MPAs

Governance → abundance

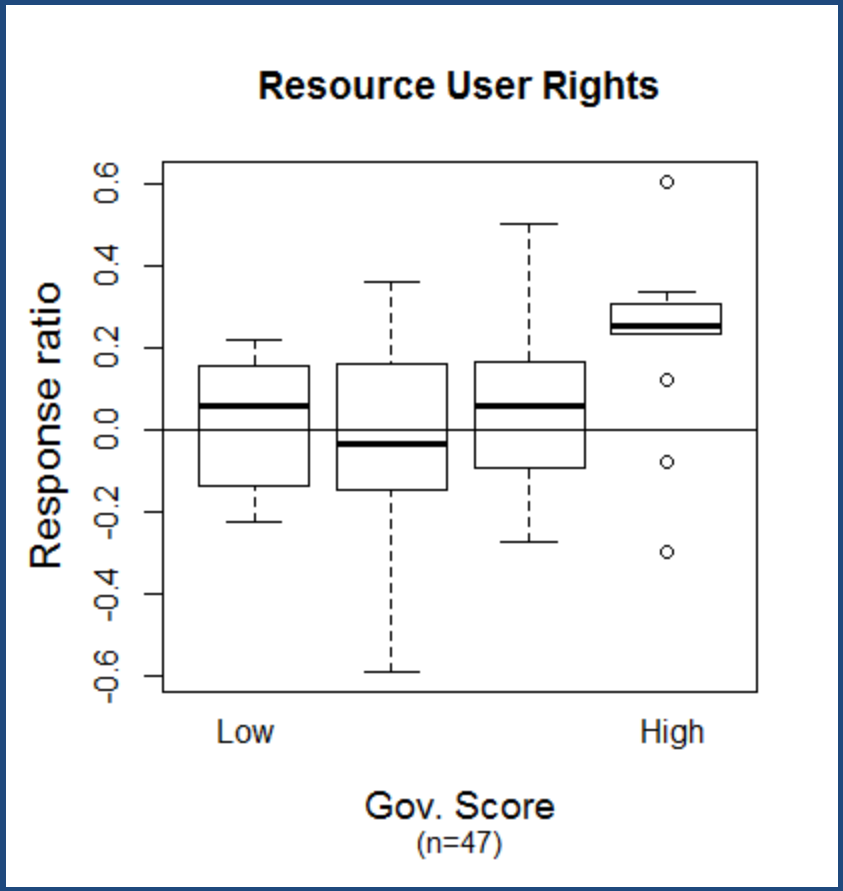
- Decision making
- Resource use rights
- Monitoring and enforcement
- Conflict resolution mechanisms



- Management plan implemented
- Local communities participation

Governance → species richness

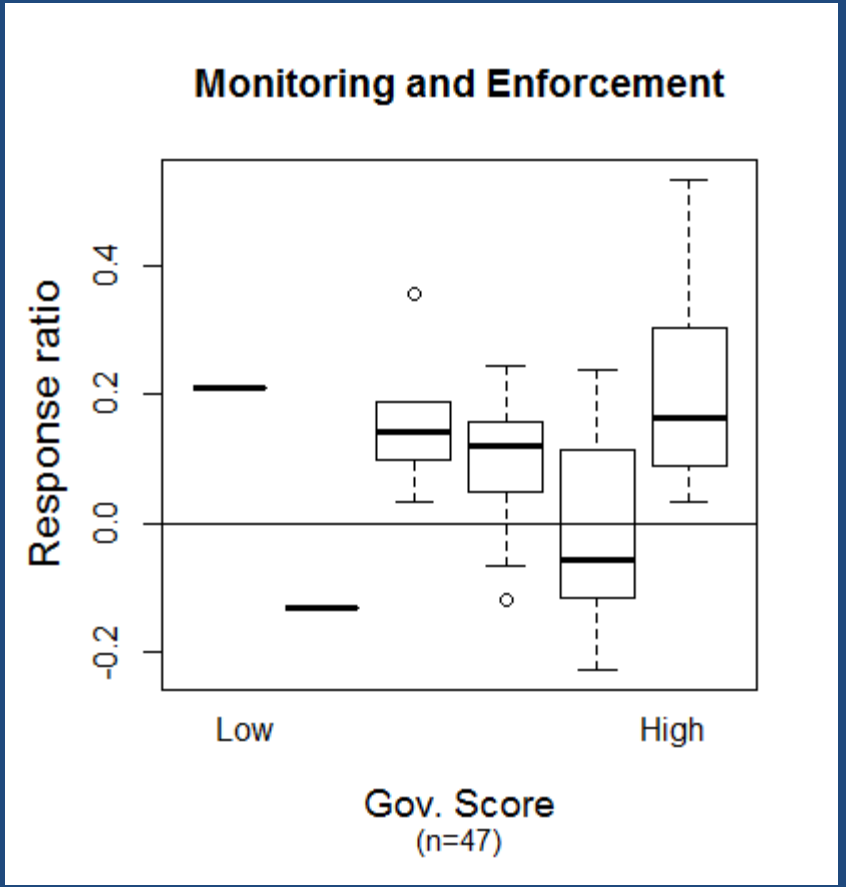
- Decision making
- Resource use rights
- Monitoring and enforcement
- Conflict resolution mechanisms



- Clearly defined boundaries
- Regulations outlining use

Governance → mean size

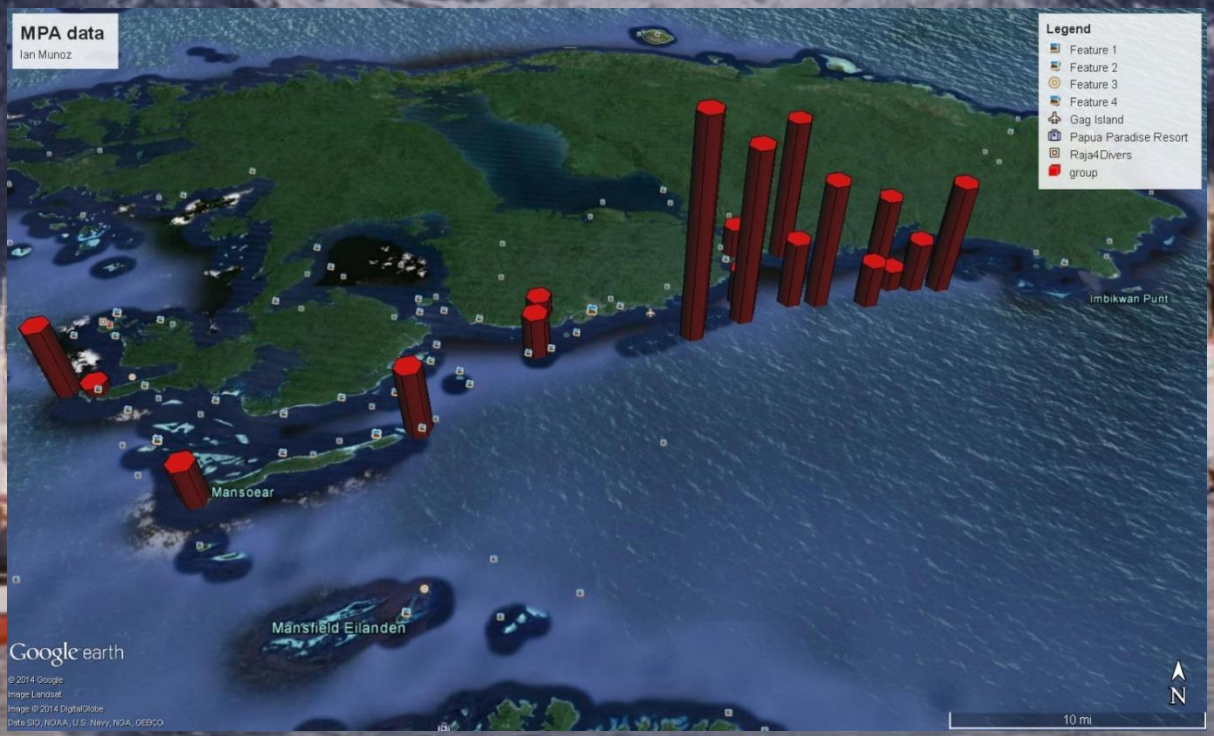
- Decision making
- Resource use rights
- Monitoring and enforcement
- Conflict resolution mechanisms



- Adequate enforcement
- Biophysical monitoring

Ongoing work

- Compile additional data; regional analysis
- Field-based, prospective studies
- MPA database development
- Explore important attributes for specific MPAs



NEOLI MPAs

N No take

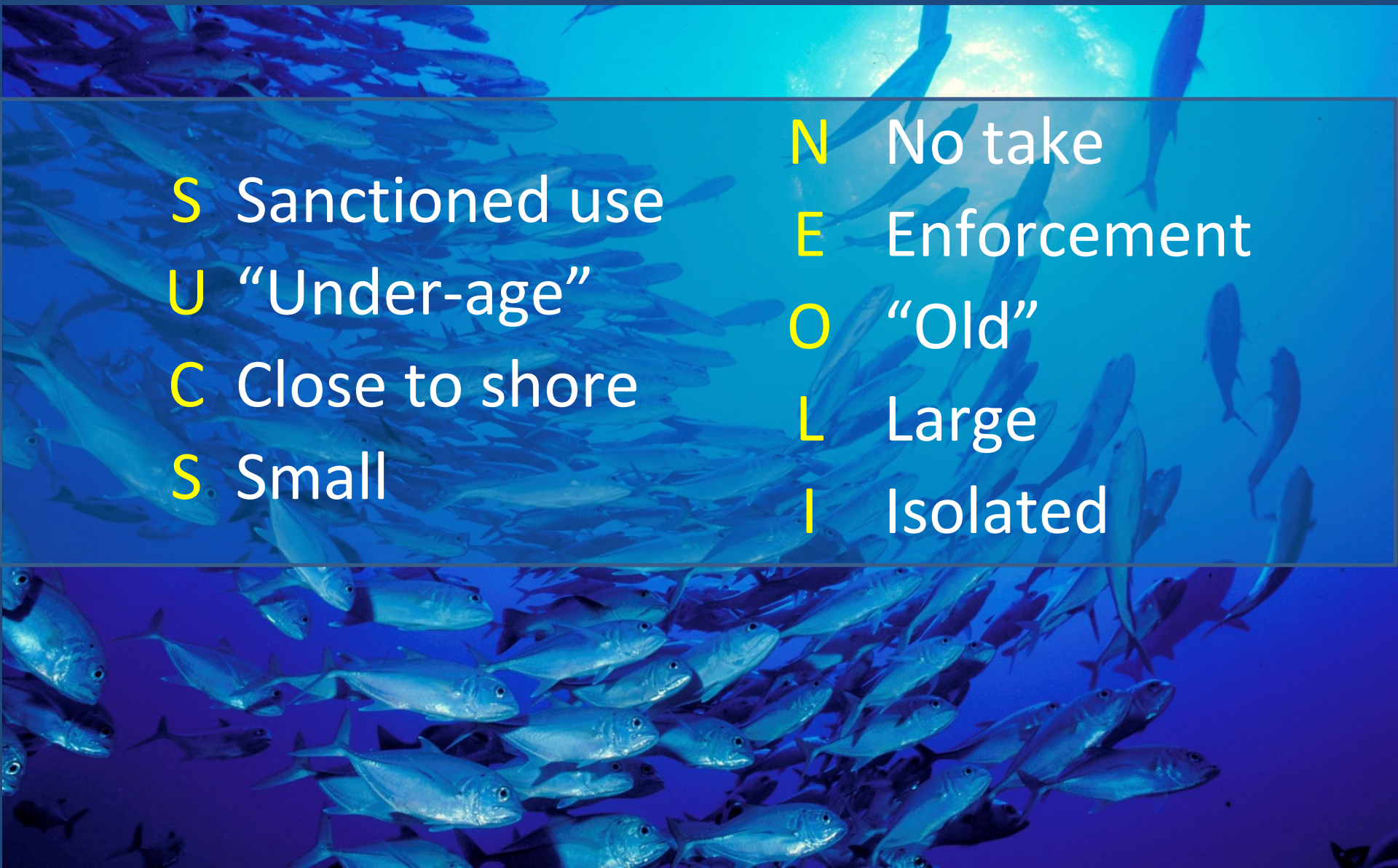
E Enforcement

O “Old”

L Large

I Isolated

Community scale MPAs



S Sanctioned use
U "Under-age"
C Close to shore
S Small

N No take
E Enforcement
O "Old"
L Large
I Isolated

Recently established MPAs

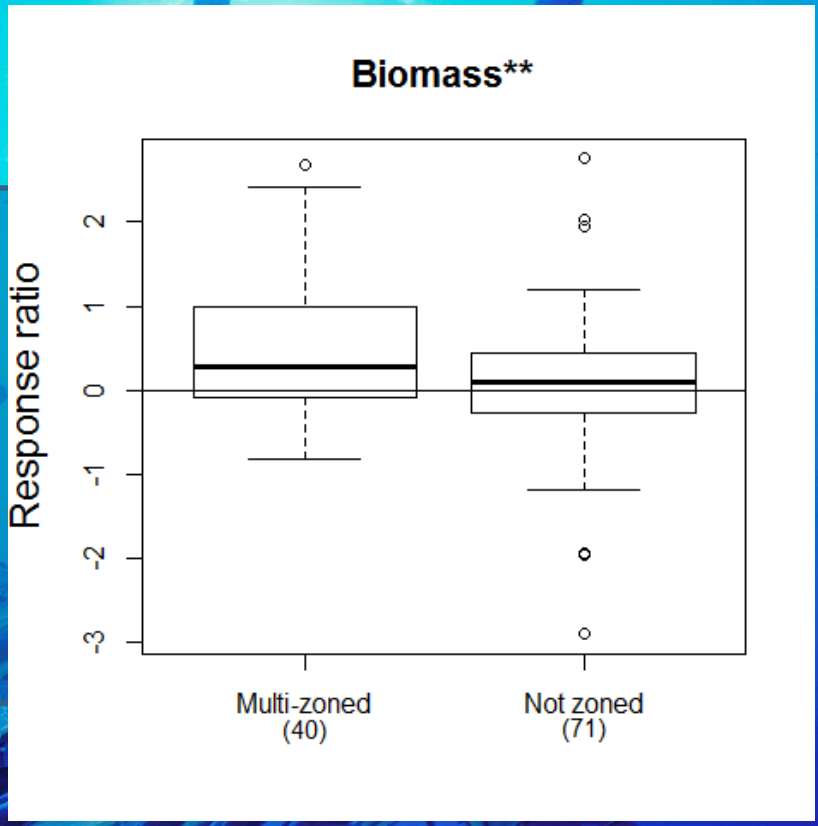
S Sanctioned use
U "Under-age"
C Close to shore
S Small

N No take
E Enforcement
O "Old"
L Large
I Isolated

Positive relationship with age

No-take zones in MPAs

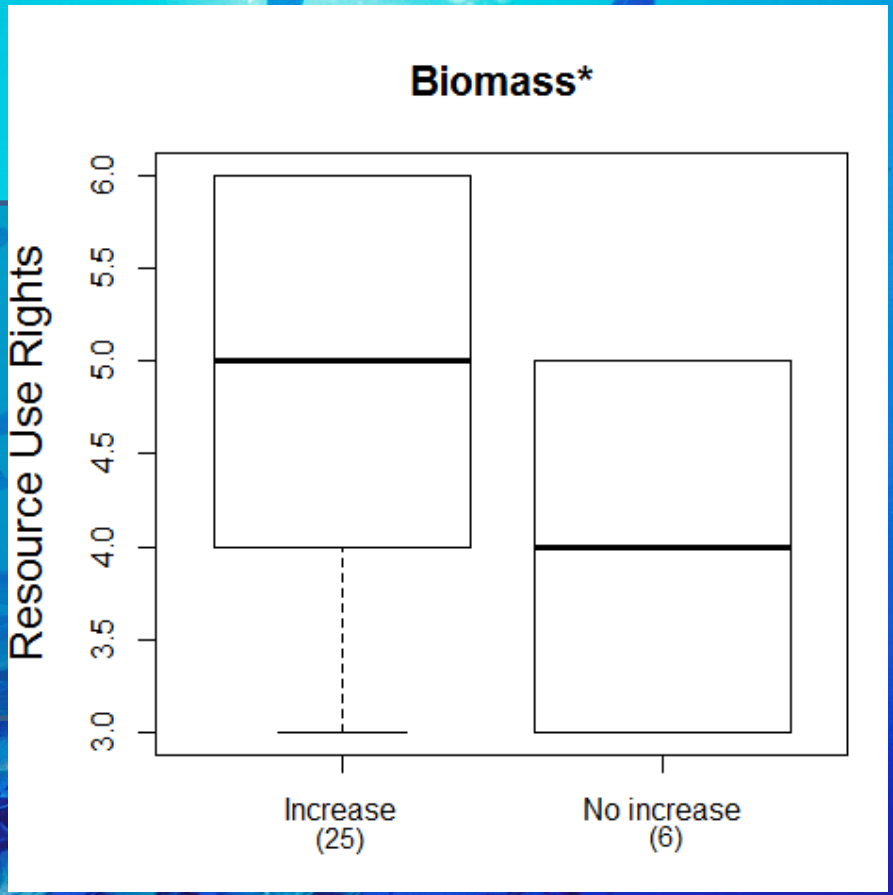
S Sanctioned use
U "Under-age"
C Close to shore
S Small



Greater differences in multi-zoned MPAs

Small, nearshore MPAs

S Sanctioned use
U "Under-age"
C Close to shore
S Small



Clearly defined use rights important in small, nearshore MPAs

Take home messages

- MPAs have significant ecological impacts
- Lack of social MPA data hinders impact assessment
- No-take areas outperforming partially open areas
- Linkages between governance attributes and ecological outcomes

Project impacts and next steps

- Improved understanding of conservation impacts
- Narrow the gap between monitoring and information for action
- Support future research

“Solving the mystery of MPA performance” Acknowledgements

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- Pursuit team members & more

“Solving the mystery of MPA performance” Questions

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