

LMMAs and Coastal Fisheries Management in Pohnpei, Micronesia



Michael Guilbeaux
November 2014



FEDERATED STATES OF MICRONESIA

Federated States of Micronesia

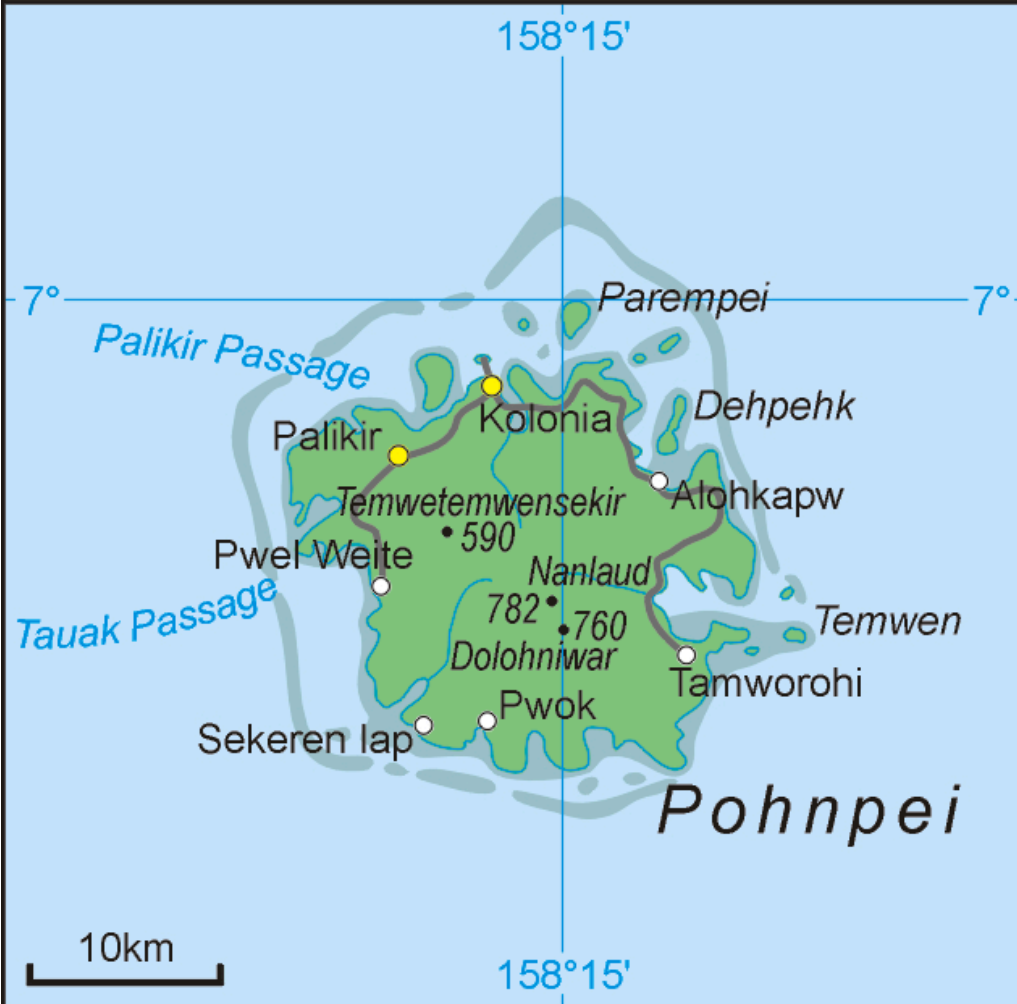
- International Boundary
- ★ National Capital
- Major Cities
- Rivers

0 125 250 Kilometers
0 125 250 Miles

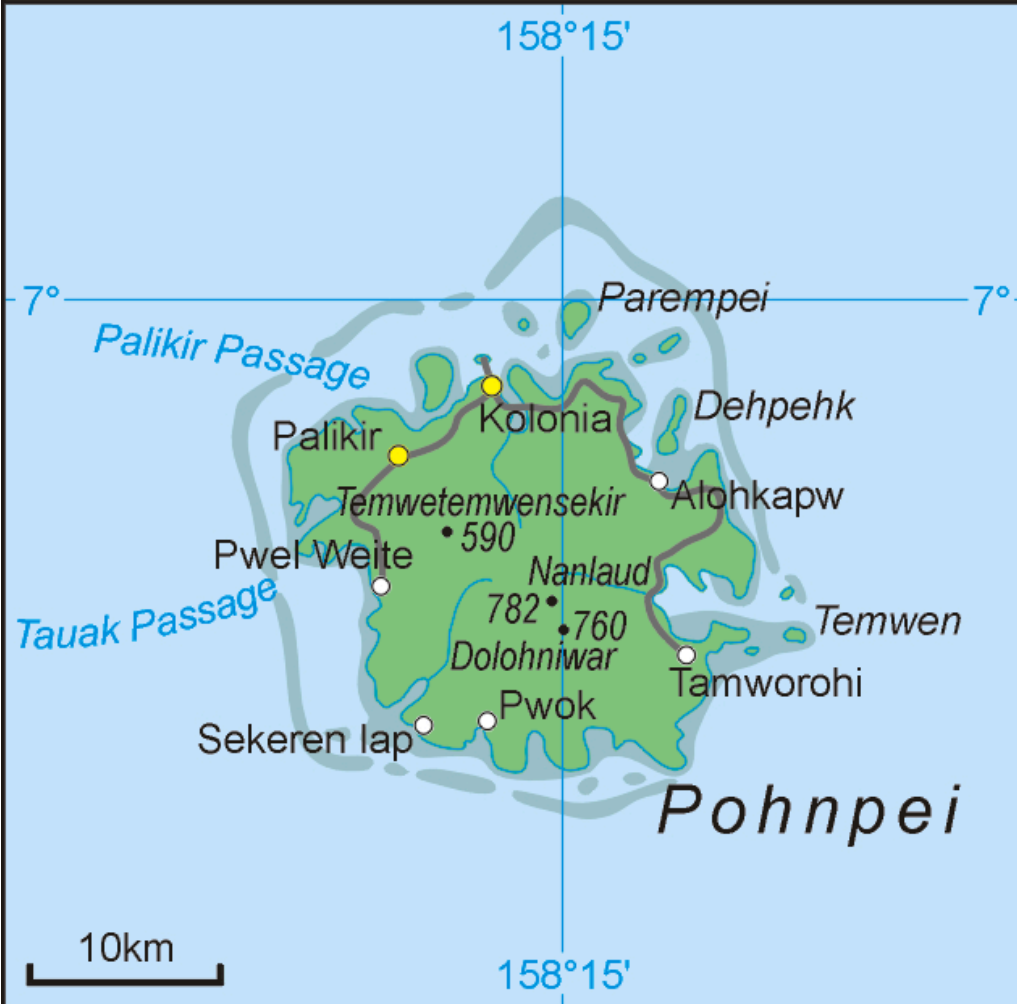
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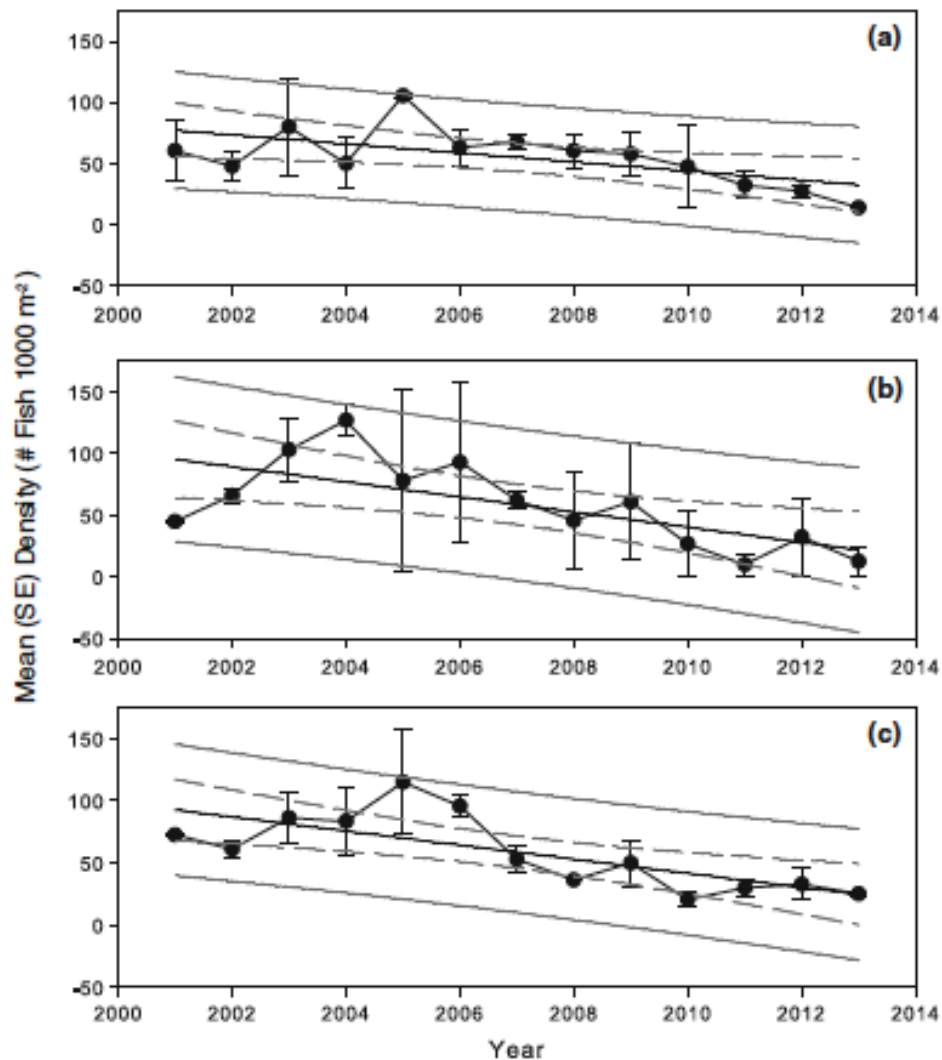




- **Pop: ~36,000; Land: 344 sq km**
- **Island and nearby atolls include 184.2 km² of coral reef habitat**
- **Nearshore coastal waters are almost all open access (some private ownership)**
- **Nearshore small scale fishing mostly for local consumption, some export.**
- **Pohnpei State Fisheries Protection Act of 1995.**

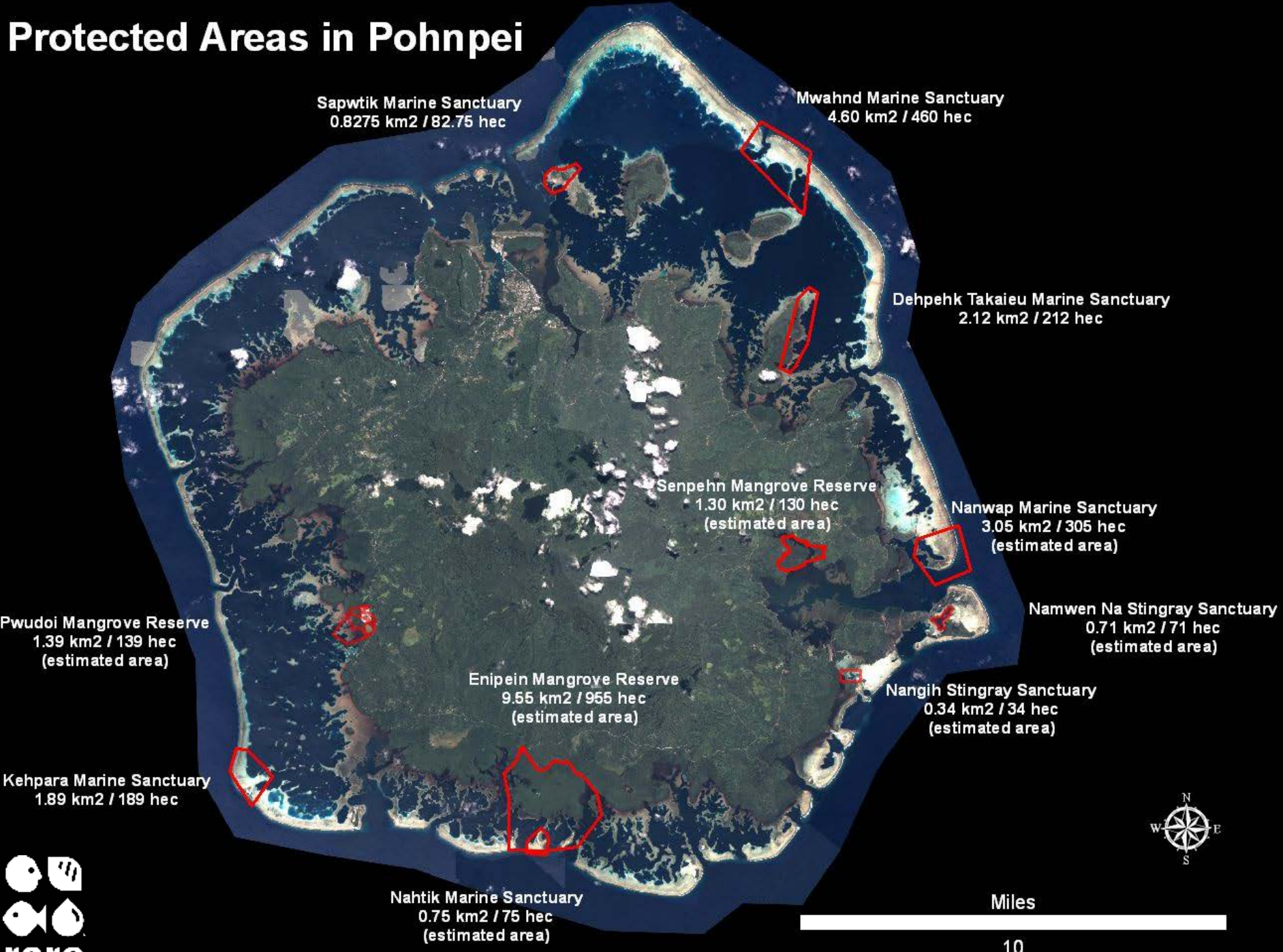


- **Marine Ecological Footprint (MEF) in surveys between 2006-2009 indicated sustainable finfish yield of 573–1118 ton/yr. (Rhodes et al, 2014)**
- **However total harvest was estimated at 4068 ton/yr (exceeding bio-capacity by 360–710%).**
- **Perceptions of fishermen is general decline across most taxa. (Rhodes et al, 2008)**
- **Important spawning aggregations had suffered significant decline over the last decade.**



Mean \pm standard error (SE) density counts for (a) *Epinephelus fuscoguttatus*, (b) *Epinephelus polyphekadion*, and (c) *Plectropomus areolatus* recorded during Conservation Society of Pohnpei monitoring (2001–2013). (Rhodes et al, 2014)

Protected Areas in Pohnpei



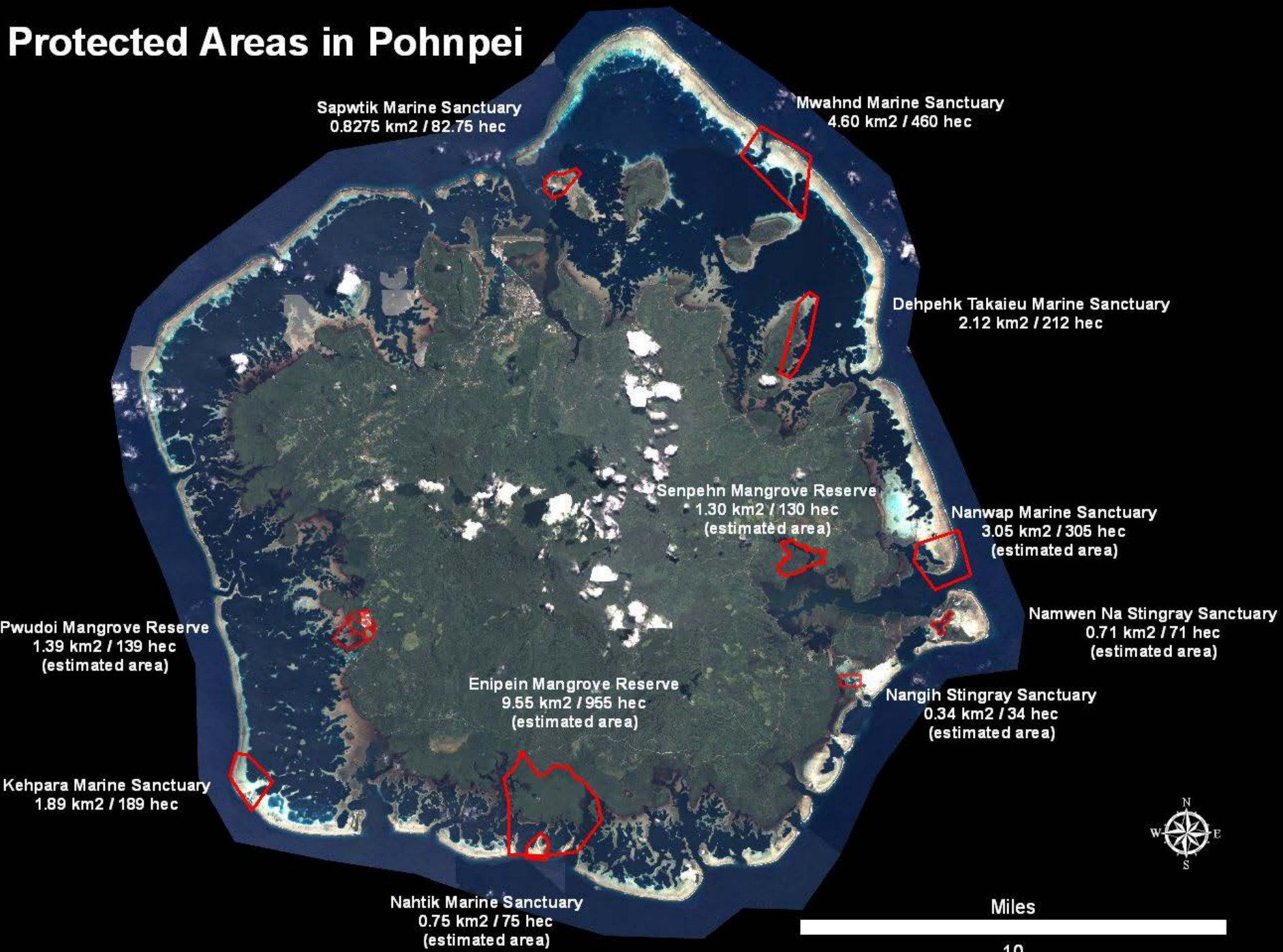
How can Locally Managed Marine Area (LMMA) approaches help to improve coastal fisheries conditions?







Protected Areas in Pohnpei





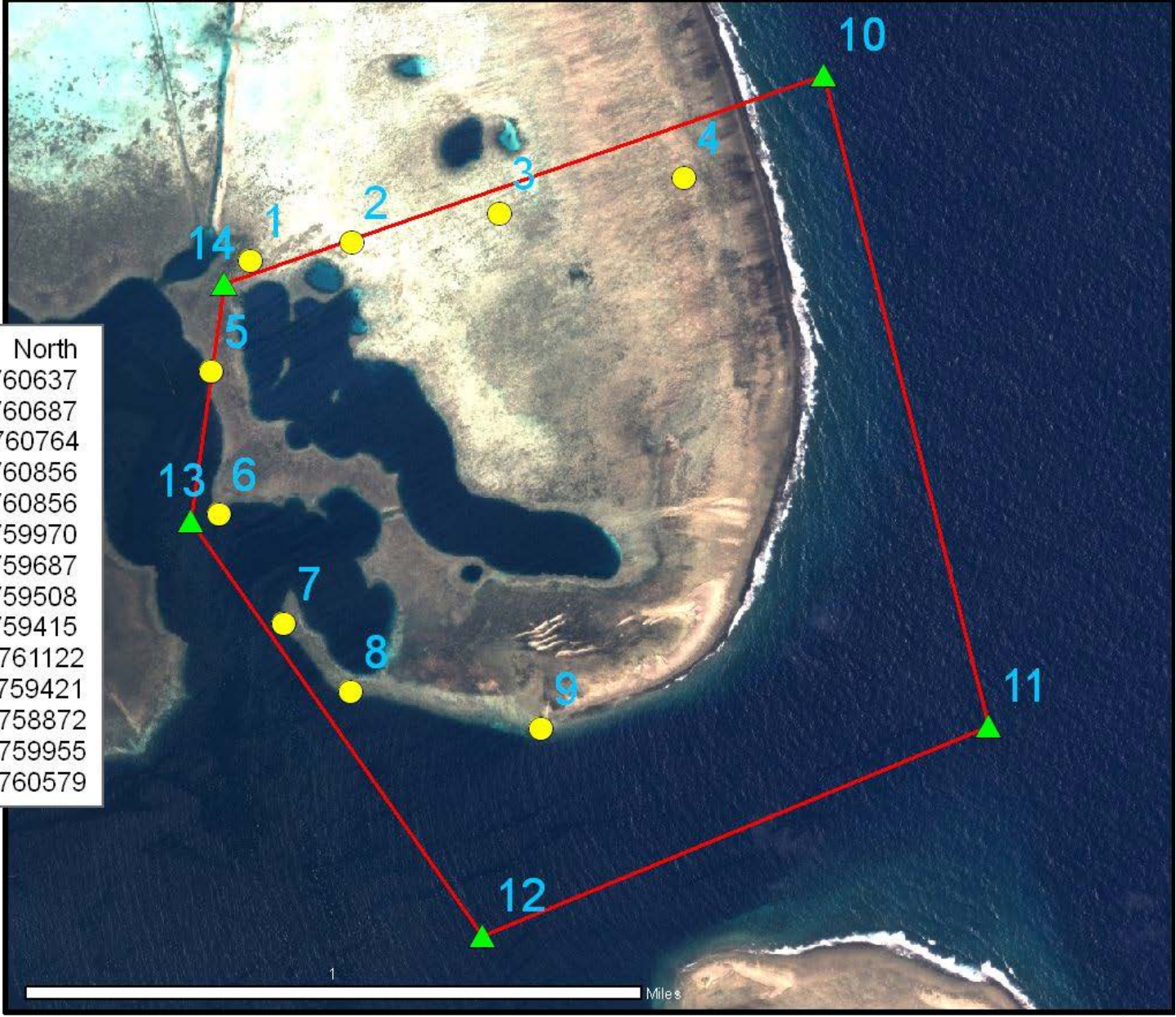
Nanwap MPA

Legend

▲ BOUNDARY

● BUOY

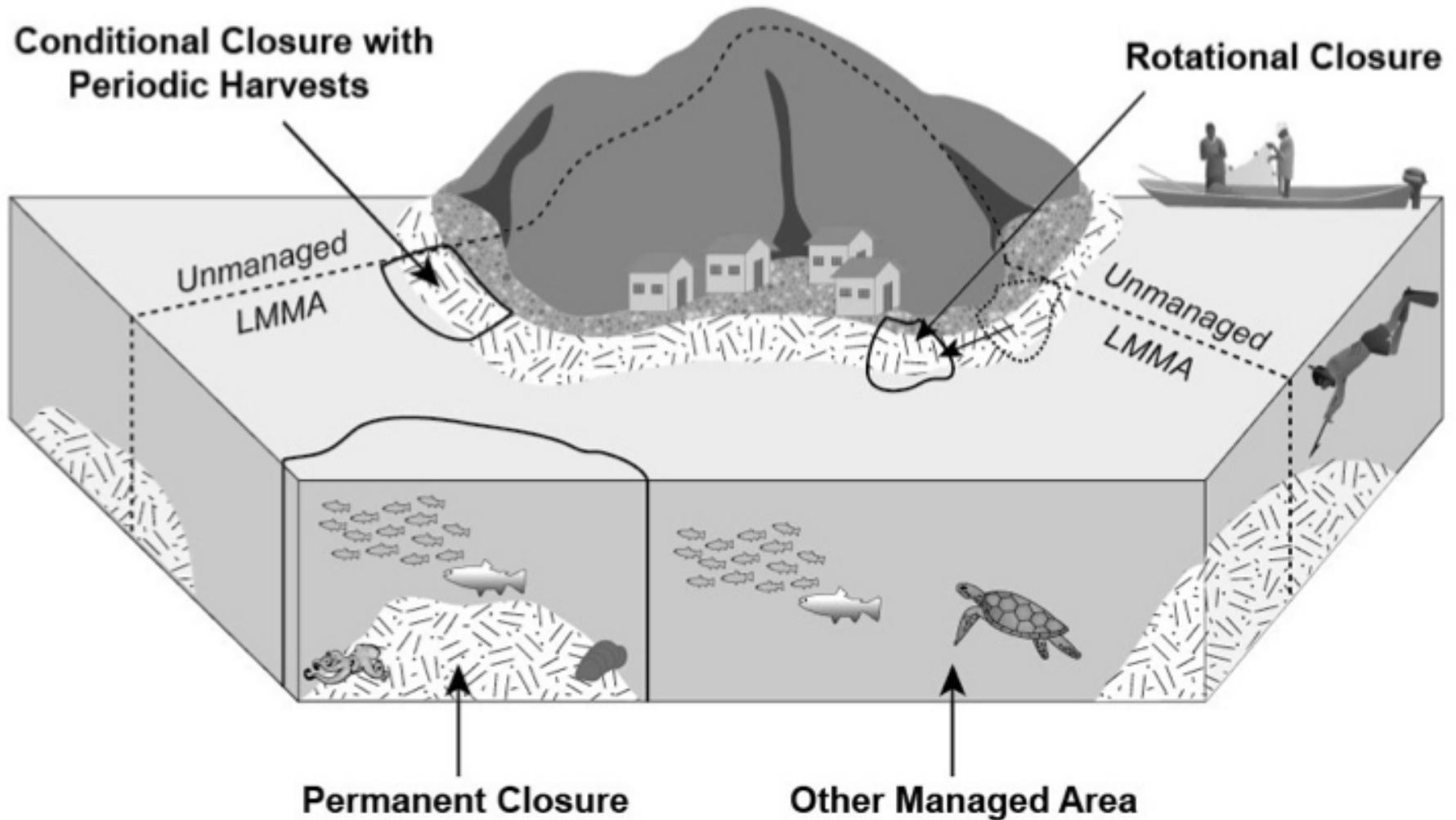
ID	Type	East	North
1	BUOY	427564	760637
2	BUOY	427829	760687
3	BUOY	428212	760764
4	BUOY	428699	760856
5	BUOY	428699	760856
6	BUOY	427477	759970
7	BUOY	427653	759687
8	BUOY	427826	759508
9	BUOY	428320	759415
10	BOUNDARY	429061	761122
11	BOUNDARY	429493	759421
12	BOUNDARY	428172	758872
13	BOUNDARY	427412	759955
14	BOUNDARY	427493	760579



Locally Managed Marine Area Definition:

An LMMA is an “area of nearshore waters being actively managed by local communities or resource-owning groups, or being collaboratively managed by resident communities with local government and/or partner organizations”

Conceptual LMMA



(adapted from Jupiter and Govan, 2013)

Various LMMA Objectives:

- **Increase long-term sustainability of fisheries and resource use**
- **Increase efficiency of harvests for short-term yield**
- **Maintain/restore biodiversity and ecosystem Functions**
- **Maintain/restore biomass and breeding population**
- **Enhance economy and livelihoods**
- **Maintain or reinforce customs**
- **Assert access rights**
- **Increase community organization, cohesiveness and empowerment**

(from Jupiter et al, 2014)

LMMA related management actions or 'tools' implemented for particular objectives can include:

- **permanent closures**
- **periodically-harvested closures**
- **restrictions on gear, access or species**
- **livelihood diversification strategies**
- **participatory and engagement processes**

(from Jupiter et al, 2014)

An LMMA approach is:

Flexible, wide diversity of implementation

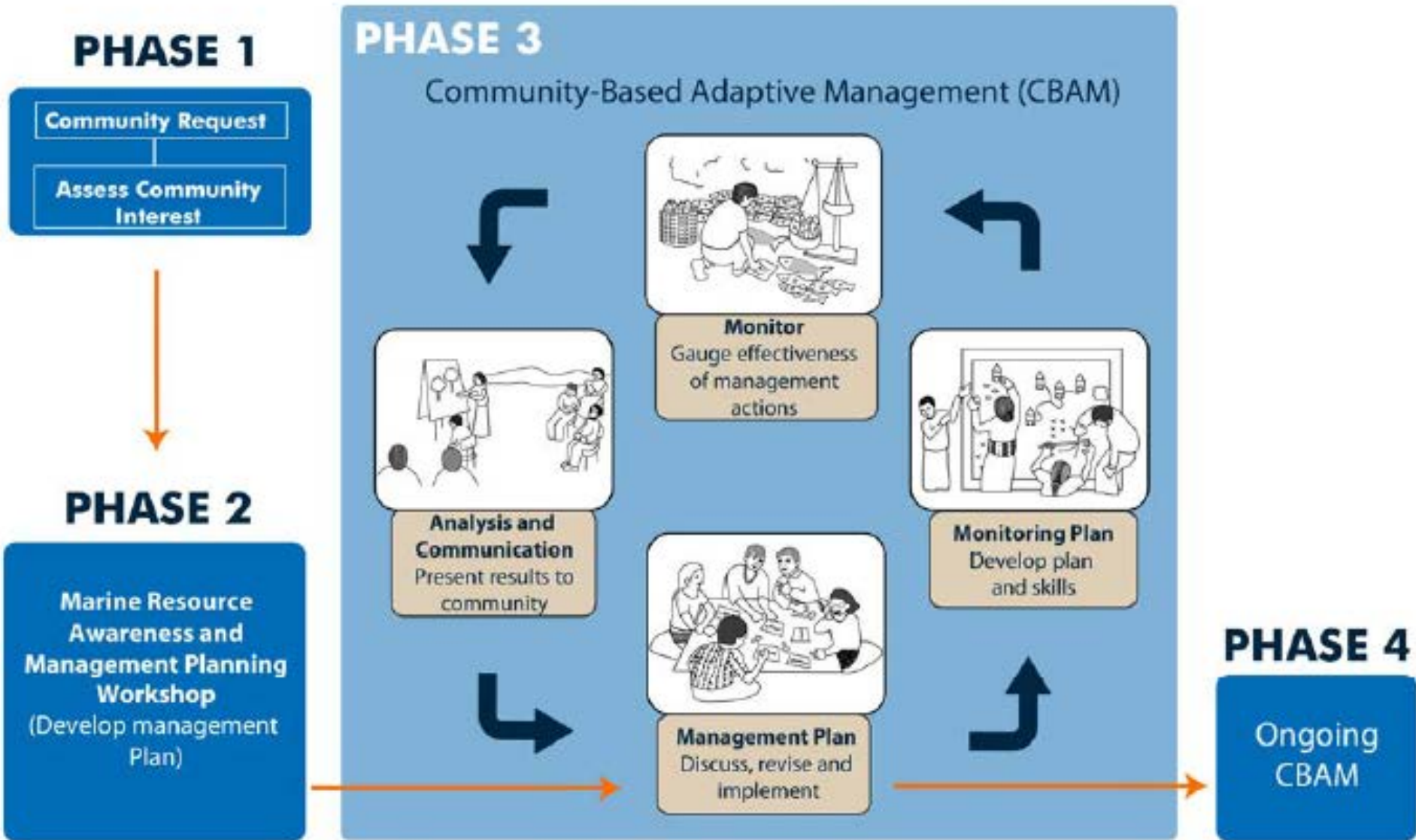
Participatory

Encourage ownership of process

Reflective and adaptive in nature

Involves capacity and skills development

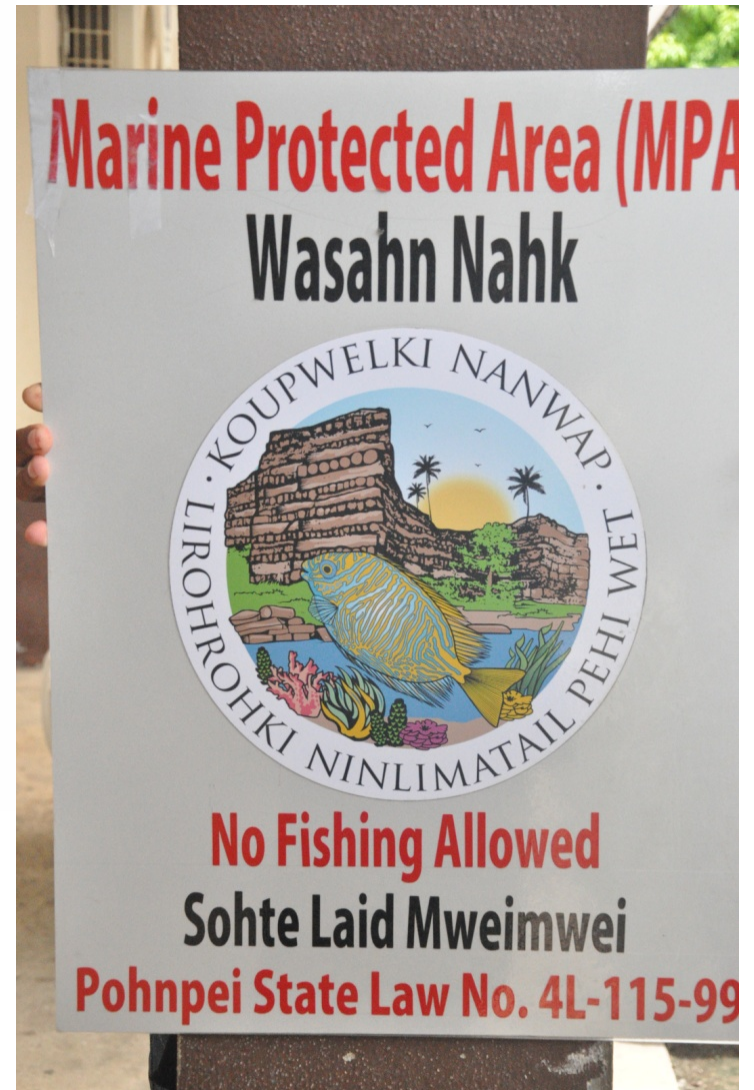
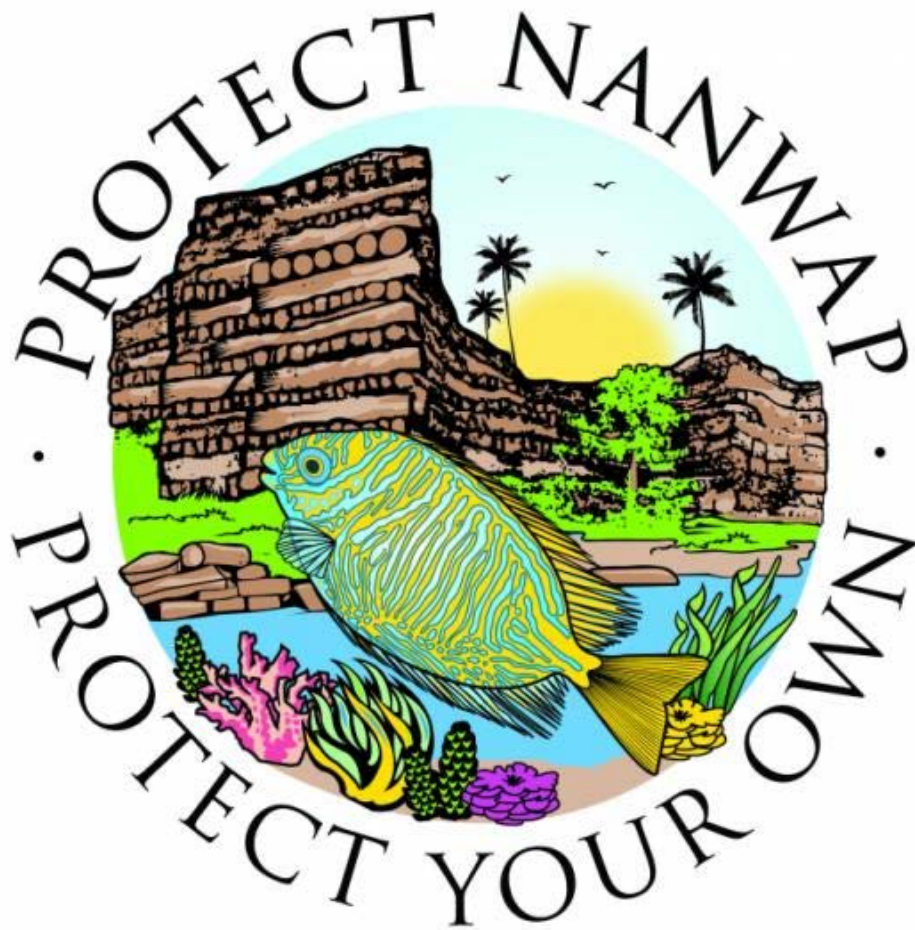
The Four Phases to LMMA Establishment



(Drawings based on Anna Balla's illustrations in *Measures of Success*, Margoluis and Salafsky, 1998.)









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SPECIFICATION:

Head made of sculptured
foam, covered with fur.
Face made of fiberglass.
Foam padded body, arms and
legs with over sized shoes.



CLIENT/PROJECT
RARE CONSERVATION
JO NO
DATE
CONTENTS:
MASCOT DESIGN

DRAWN: *SHIRLEY F. TALAN*
DATE FINISHED: AUG 2, 2013
CHECKED:
APPROVED YES ☐ NO ☐

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KOUPWELKI NANWAP
LIROHROHKI NINLIMATAIL PEI WET

“KITAIL EHUPENE PEREH
MWOMWALAHN KEPIKIPIK KAN”









Kitail ehupene
perih mwomwalahn
kepipikik kan

**NANWAP MPA,
OUR PRIDE**



Sawas oh apwalih kepipikik kan ni
omw wia sohn papah mehlel men

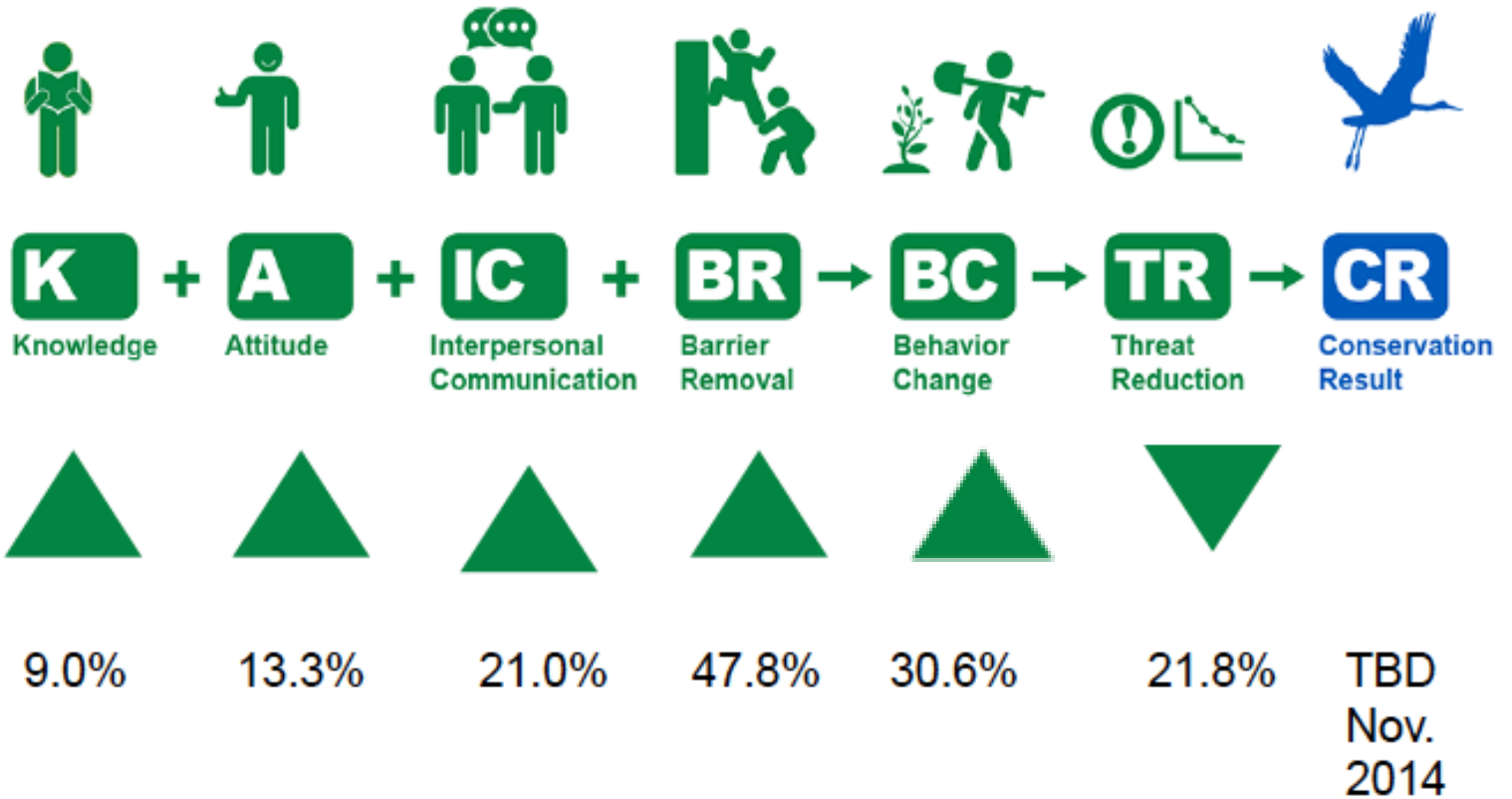




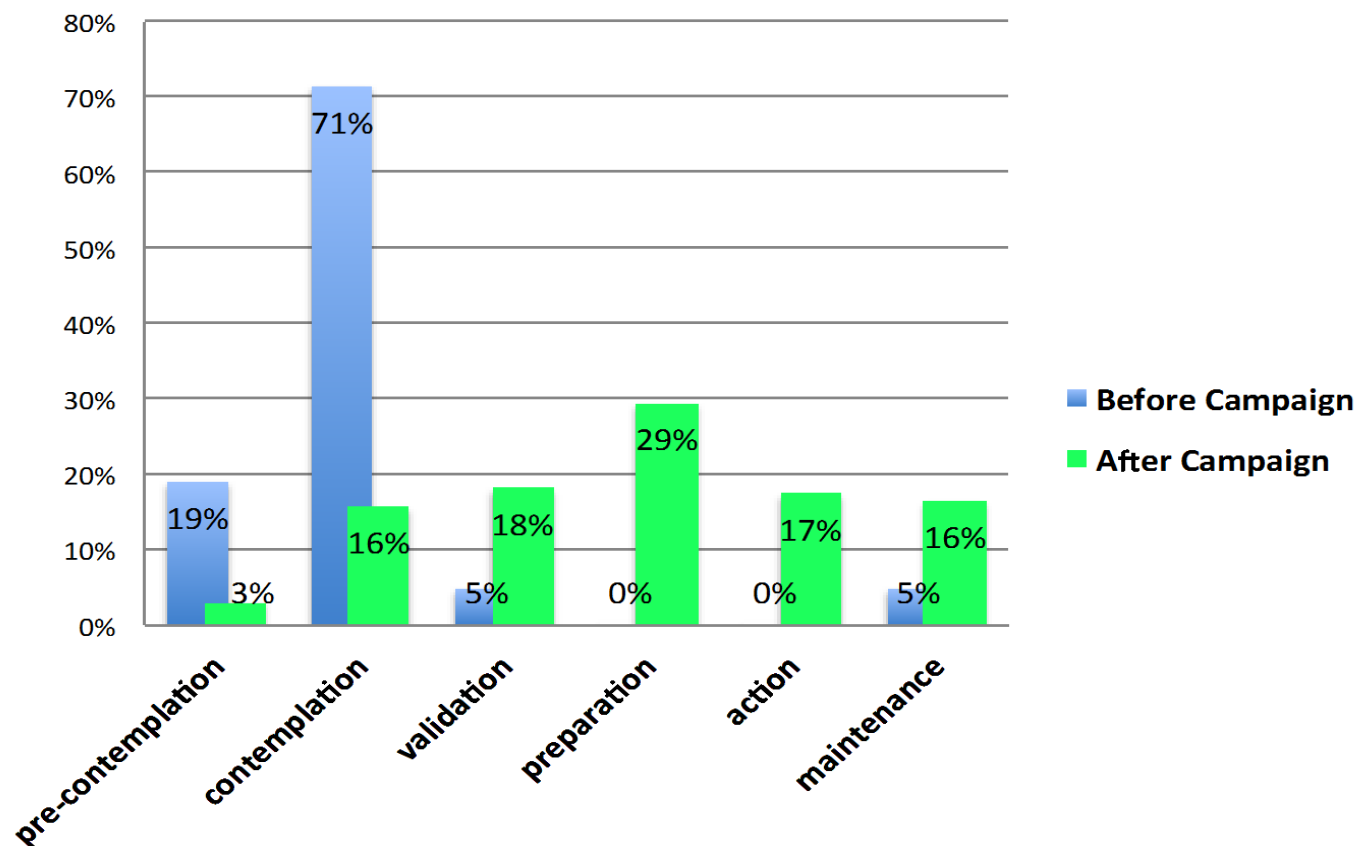


Date	COS Name	Time	Incide
3/11/14	V-S	9Am-8Am	N/A
3/12/14	N/A		
3/13/14	N/A		
3/14/14	Team Green -	5Pm 8Am	N/A
3/15/14	Team Red	5Pm 8Am	
3/16/14	VS - - -	5Pm 8Am	
3/17/14	VS - - -	5Pm 8Am	
3/18/14	I-M-A-L-P-L	5Pm 8Am	N/A
3/19/14	Team green -	5Pm 8Am	
3/20/14	Team Red	5Pm 8Am	
3/21/14	Team yellow	6Pm 8Am	N/A
3/24/14	Team green	5Pm 8Am	N/A
3/26/14	Team yellow	5Pm 8Am	N/A
3/27/14	Team yellow	5Pm 8Am	N/A
3/28/14	Team Blue	5Pm 8Am	N/A
3/29/14	Team green	5Pm 8Am	N/A
3/30/14	Red	5Pm 8Am	N/A
3/31/14	Team yellow	6Pm 8Am	N/A
4/1/14	Team Blue	6Pm 8Am	N/A
4/2/14	Team Blue	6Pm 8Am	N/A
4/6/14	Team yellow	5Pm 8Am	N/A
4/14/14	FA	7Pm 6Am	N/A
4/15/14	VS	8Pm 8Am	N/A
4/21/14	VS	8Pm 8Am	N/A
4/29/14	VS	8Pm 8Am	N/A
5/25/14	FA	8Pm 7Am	N/A
5/29/14	D.W	7Pm 10:09Am	N/A
5/14/14	VS-KL	7Pm 8Am	N/A
5/16/14	I-A-YS	7Pm 8Am	N/A
5/20/14	O-W	7Pm 8Am	N/A
5/21/14	V-S	8Pm 8Am	N/A
5/22/14	FA	5Pm	N/A

Date	CCO Name	Time	Incide
5/24/14	Arnold-L	8Pm 8Am	N/A
5/24/14	Casag-C	9Pm 8Am	N/A
5/25/14	Yurke-S	5Pm 8Am	N/A
5/25/14	Inos-A	5Pm 8Am	N/A
5/29/14	JA	5Pm 8Am	N/A
5/29/14	B-L	5Pm 8Am	N/A
6/1/14	V-S	9Pm 8Am	N/A
6/6/14	VS-I-A	5Pm 8Am	N/A
6/7/14	VS	8Pm 8Am	N/A
6/8/14	VS	8Pm 8Am	N/A
6/13/14	A-L	8Pm 8Am	N/A
6/14/14	-V-S	5Pm 8Am	N/A
6/5/14	V-S	7Pm 8Am	N/A
6/15/14	V-S	9Pm 8Am	N/A
7/1/14	V-S	8Pm 8Am	N/A
7/5/14	JA	5Pm 8Am	N/A
7/6/14	V-I-P	6Pm 8Am	N/A
7/8/14	over w	6Pm 8Am	N/A
7/9/14	Siwel-L	6Pm 8Am	N/A
7/9/14	Wanord Walter	6Pm 8Am	N/A
7/9/14	-Aderhni Walter	6Pm 8Am	N/A
7/11/14	Yuper-Sorani	6Pm 8Am	N/A
7/12/14	Inosius-ADA	6Pm 8Am	N/A
7/12/14	Pedrus-Etger	6Pm 8Am	N/A
7/13/14	-Aderhni Walter	6Pm 7Am	N/A
7/13/14	Siwel-Lubik	6Pm 7Am	N/A
7/20/14	Arno-Ludrick	9Am 8Am	N/A
7/21/14	Yuper-Sorani	5Pm 8Am	N/A
7/25/14	Yuper-Sorani	5Pm 8Am	N/A
7-26-14	Honow Siwel-L	7Pm 5Am	N/A
7-27-14	Yuper-S	5Pm 7Am	N/A
7-28-14	Arno-Ludrick-Marchand	6Pm 8Am	N/A
7-29-14	Inosius-ADA-Yuper-Sorani	5Pm 8Am	N/A

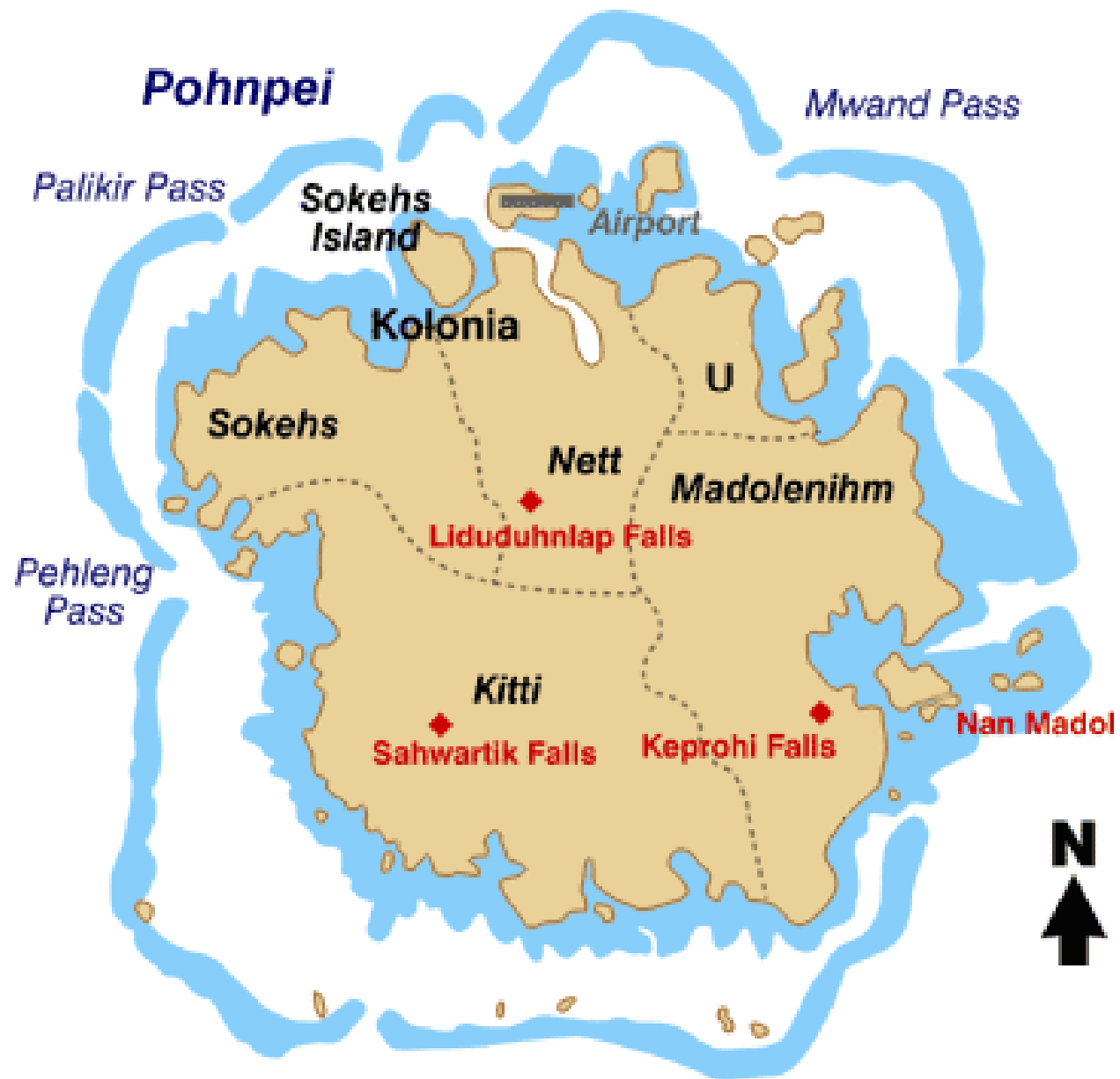


Classification of respondent stage of behavior change based on level of involvement in Nanwap MPA management



(Pride Campaign Impact Report by Angel Jonathan, Conservation Society of Pohnpei, October 2014)





Thank You



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Adaptive Learning at site Level



Initiation

Request



Assess interest & awareness raising

Issue Identification

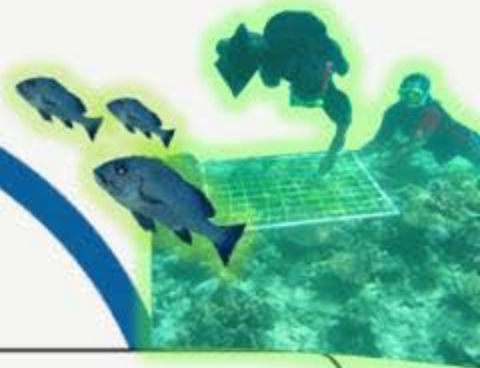


Collect and analyze data (communicate)



Implement plan & monitor

Monitoring Plan (and skills)

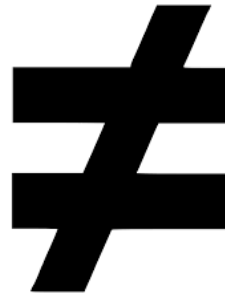


Action Planning

Ongoing Management



LMMA



MPA