

# Co-management of Reef Fisheries:

Cook Islands

*Ben Ponia*

*Koroa(Kori) Raumea*

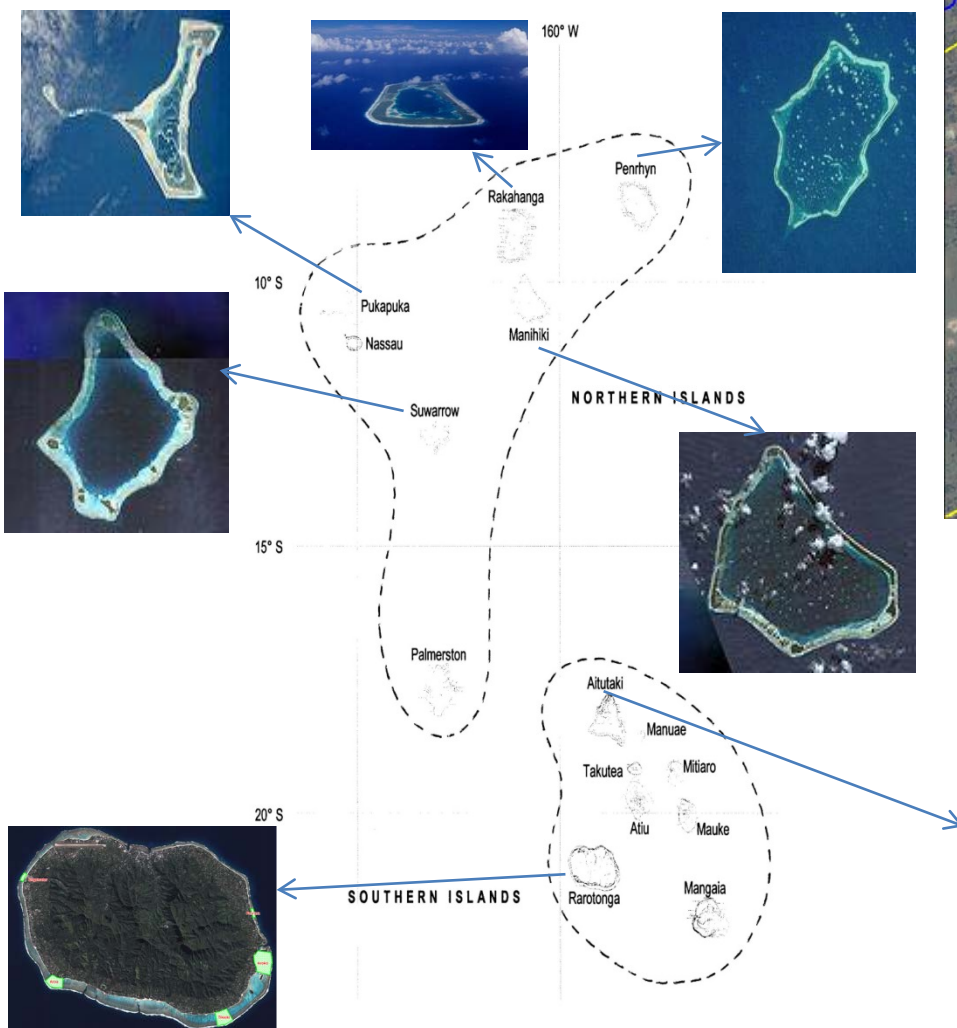


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# 1. Raii & Co-managed Areas in the Cook Islands



## AITUTAKI RAI



**RAII**  
**ARONGA MANA MARINE PROTECTED AREAS**  
TAKING OF ANY MARINE LIFE IS PROHIBITED

- UNLESS YOU HAVE A**
- VALID BONEFISHING PERMIT, THIS PERMIT ALLOWS YOU TO FISH ONLY IN OOTU RAI AND ONEFOOT/MOTIKITIU RAI
  - CATCH AND RELEASE ONLY

**KAORE E AKATIKA-IA TE TAUTAI I ROTO I TEIAAU RAI, MARI RAME-E PEAPA AKATIKA NGATAAU**

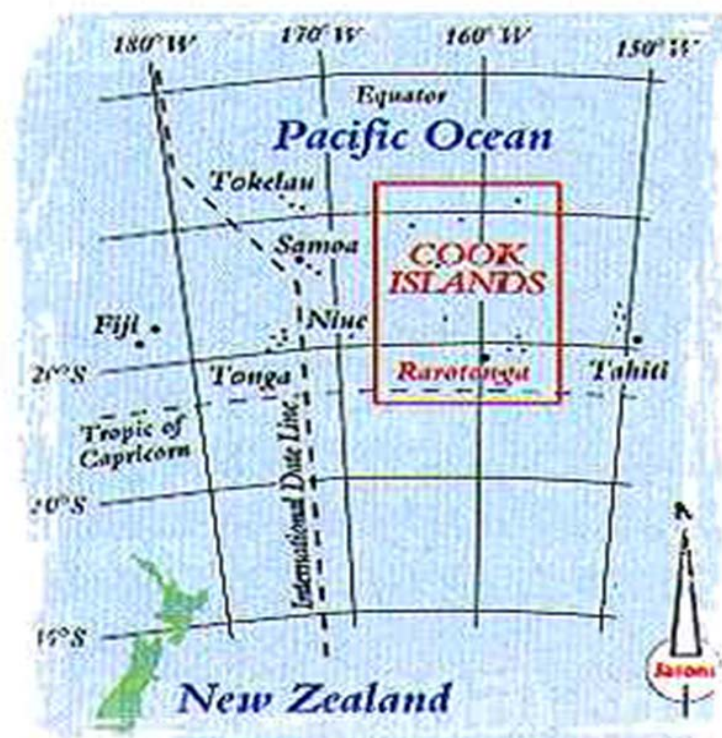
- Bone Fish nursery and spawning area**
- NO NET FISHING AT ALL TIMES
  - NO FISHING AT ALL, THREE NIGHTS BEFORE AND THREE NIGHTS AFTER NEW MOON
  - YOU NEED TO HAVE A LICENSED BONEFISH GUIDE IN THESE TWO BONE FISH AREAS AT ALL TIMES
  - YOU MUST BE WITH A BONEFISH LICENSED GUIDE ON YOUR FISHING TOURS IN THE LAGOON AT ALL TIMES
  - ALL NON-COOK ISLANDERS WHO WISH TO FISH IN AITUTAKI AND MANUAE LAGOON IS REQUIRED TO HAVE A FISHING PERMIT
  - ANY PERSON WHO CONTRAVENES THESE LAWS COMMITS AN OFFENCE AND SHALL BE LIABLE UPON CONVICTION



## 1. cont' Managed Marine Sites



1. Takutea – Marine Sanctuary
2. Penrhyn & Manihiki – Paua export moratorium
3. Manihiki – Pearl shell reserve, Paua export
4. Pukapuka – Traditional rau'i for land and sea (annual)
5. Mauke – Raui
6. Mangaia – Traditional rau'i for land and sea (annual)
7. Mitiaro – Itiki Raui – freshwater eels
8. Atiu - Raui
9. Aitutaki – Bonefish spawning sites, Paua export, Trochus





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## 2.0 Timeline

	Date	Sites	Period
<b>Initiated</b>	February 1998	Aroko Raiu	Two Years
		Tikioki Raiu	
		Matavera/Pouara Raiu	
		Nikao Raiu	
	Feb 2002	Tikioki Raiu	Raiu Motukore
		Ruaau Raiu	Ban on trochus harvest
		Aroa Raiu	Hotel Site
<b>Total of 15 sites</b>	Feb 2005	Tikioki Raiu	Raiu Motukore
		Ruaau Raiu	Ban on trochus harvest
<b>Five Sites</b>	Feb 2016	Aroko Raiu	
		Tikioki Raiu	Raiu Motukore
		Aroa Raiu	
		Vaimaanga Raiu	
		Edgewater Raiu	Hotel site



## 2.1. Ra'ui

### What is Ra'ui?

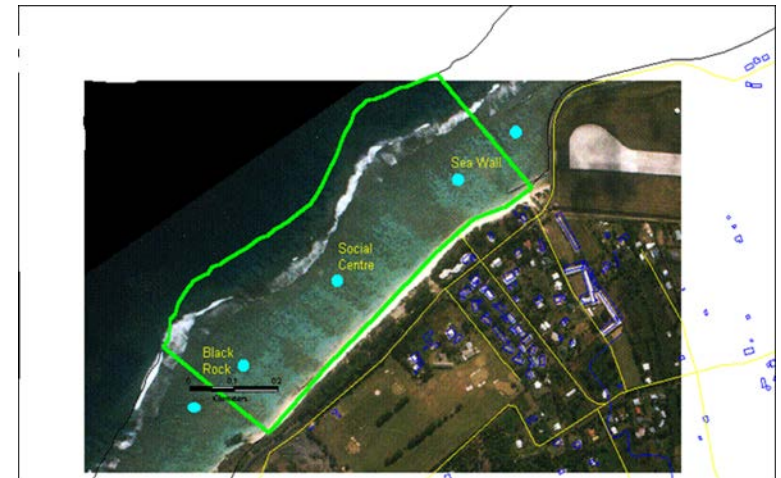
- Traditional system - access to particular resource or area forbidden
- Adopted as measure to allow harvested resources to rejuvenate
- Restricts taking of marine resources (fish and reef species)
- No legal enforcement, just community pressure

### Who decide to place a Ra'ui?

- Traditional leaders, Ui Mataiapo, Ui Rangatira

### Role of Ministry of Marine Resources (MMR)

- Monitoring of the Raui
- Raising awareness
- Support the Ra'ui system.





**Name:** Nikao  
**Total Area:** 25 hectares  
**Dates:** Implemented: end of 200 – 6-8 months  
**Lift Period(s):** Feb 2000, May 2000 (Trochus only) , April 2002 to present  
**Survey/Reports:** Baseline 1998, Nov 1998, May 2000, April 2002, Oct 2004, Oct 2005  
**Current Status:** Open

**Name:** Parliament  
**Total Area:** 13 hectares  
**Dates:** Implemented: end of 200 – 6-8 months  
**Lift Period(s):** end of 2000 or 2001  
**Survey/Reports:**  
**Current Status:** Open

**1. Pou'ara**  
**Location:** Matavera  
**Total Area:** 5 hectares  
**Implemented:** Feb. 1998  
**Lift Periods:** one day Feb. 2000, (1/3 of ra'ui opened closed next day 3<sup>rd</sup> Feb), October 2002  
**Survey/Reports:** Baseline Feb. 1998 Nov 1998, May 2000, April 2002, Oct 2004, Oct 2005  
**Current Status:** Closed

**Name:** Aroa  
**Total Area:** 15.7 hectares  
**Dates:** Implemented: May 2000  
**Lift Period(s):** Matu Rori & Trochus harvest 2001 for 2wks.  
 Trochus for 3mths in 2003 (Jun, Jul, Aug) from Rutaki to Black Rock  
**Survey/Reports:** Baseline May 2000; October 2001; April 2002; October 2004; October 2005  
**Current Status:** Closed

**2.. Aroko**  
**Location:** Ngatangila  
**Total Area:** 47 hectares  
**Implemented:** Feb. 1998  
**Lift Periods:** one day Feb. 2000 February and replaced on 2<sup>nd</sup> March  
**Survey/Reports:** Baseline Feb. 1998 Nov 1998, May 2000, April 2002, Oct 2004, Oct 2005  
**Current Status:** Closed

## Ra'ui Rarotonga 1998 to 2005

Trochus Ra'ui  
 Closed  
 Still Open  
 Closure Considered

**Name:** Betela  
**Total Area:**  
**Dates:** Implemented: 1998-1999  
**Lift Period(s):** 6-12mths one off  
**Survey/Reports:**  
**Current Status:** Open

**3. Tikioki**  
**Total Area:** 15 hectares  
**Implemented:** Feb. 1998  
**Lift Periods:** one day Feb. 2000  
**Survey/Reports:** Baseline Feb. 1998 Nov 1998, May 2000, April 2002, Oct 2004, Oct 2005  
**Current Status:** Closed

**Name:** Kavera  
**Total Area:**  
**Dates:** Implemented: 1998-1999  
**Lift Period(s):** 6-8mths one off  
**Survey/Reports:**  
**Current Status:** Open

**4. Akapuao**  
**Total Area:**  
**Implemented:** March 2000  
**Lift Periods:** none  
**Survey/Reports:** none  
**Current Status:** Closed, opens soon

**8. Rutaki School**  
**Total Area:**  
**Implemented:** end of 2000, 6-8 months  
**Lift Period(s):** end of 2000 or 2001  
**Survey/Reports:**  
**Current Status:** Open

**Name:** Ruaau Trochus  
**Total Area:** approx 75 hectares  
**Dates:** Implemented: Mar 2000  
**Lift Period(s):** Trochus harvest sometimes in 2000  
**Survey/Reports:**  
**Current Status:** Open

**Name:** Rutaki Passage  
**Total Area:**  
**Dates:** Implemented: June-Dec. 1998  
**Lift Period(s):** end of 2000  
**Survey/Reports:** none  
**Current Status:** Open

**Name:** Avaavarao  
**Total Area:**  
**Dates:** Implemented:  
**Lift Period(s):**  
**Survey/Reports:**  
**Current Status:**

**Name:** Vaimaanga  
**Total Area:**  
**Dates:** Implemented: 2001 for 8 months  
**Lift Period(s):** end of 2001  
**Survey/Reports:** none  
**Current Status:** Open



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## 3. Partners & Collaborators

- **Aronga Mana**
  - *House of Ariki & Koutu Nui.*
- **Government Agencies**
  - *Ministry of Marine Resources & Tourism*
- **Fishers**
  - *Fishing Associations*
- **Regional Agencies,**
  - *SPC, SPREP*
- **Island Government**
- **Lagoon Operators**
- **Fishing Community**
- **Hotel Operators**





## 4. Issues & Threats

1. Each ra'ui area -managed separately, depending on the traditional leaders and the community in each ra'ui area.
  2. Poaching does occur now the momentum of the ra'ui has waned. Policing is done by the traditional leaders or for some ra'uis they have selected wardens.
  3. Some want the ra'ui legislated but the Koutu Nui don't, they want it to remain under their traditional jurisdiction.
  4. A lot of MPA issues not covered under the Marine Resources Act
  5. There is some overlap of the Marine and Environment Act which are under review
  6. Each island come up with their own management plan (by-laws)
1. Specific to each island situation and culture/customs
  2. Mostly happening on Rarotonga and Aitutaki
  3. Lost of respect for the Rauui, means lost of Mana
    1. Climate Change – increase water temperatures etc
    2. Land base activities – high level of nutrients loadings
    3. Ciguatera







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## 5. Outcomes & Results

### Positive:

- ❖ Increase in population of various resources within the ra'ui
- ❖ Spillage to outside the ra'ui
- ❖ Community co-operation
- ❖ Revival of traditional management systems
- ❖ Revival of Traditional authority with regards to community
- ❖ No legal policies needed since most of the community comply (outer islands).
- ❖ Outer Islands-can have by-laws or resolutions to support their ra'ui
- ❖ R2R and NBSAP are working towards a cooperative approach to RA'UI and other managed fisheries.

### Negative:

- ❖ Poaching by a select few.
- ❖ Limited areas for fishing and swimming
- ❖ Can't access seasonal species in some ra'ui areas
- ❖ No legal backup for the Koutu Nui /House of Ariki to fall back on especially for repeat offenders.
- ❖ If and when ra'ui do open community have a tendency to overharvest
- ❖ No harvest, open or close strategy for each ra'ui
- ❖ Awareness program need to be continuous to promote the ra'ui





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## 6. How could it be done better?

- For compliance and enforcement, a binding mechanism should be adopted and approved.
- Shared responsibilities must be agreed, with the adoption of a Management Plan.
- Science compliment the Monitoring and progression of any co-management of reef fisheries.
- Funding availability is also key to successful implementation of any co-management of any marine resources project.
- Political will at all levels of the community structure, ie House of Ariki, Aronga Mana, Fishing Community
- Regional partnerships and networking can enhance success of Raui system.
- Local knowledge is also key component of Raui
- Current project such as R2R to assist



## *Special Topic 1:* **7. Challenges in re-engaging traditional management and governance in a modern context**

### **Definition of Raui**

- Raui is regarded as a traditional resource management tool.
- Its is put in place for an agreed period by the community leaders
- Identifications of areas covers both land (terrestrial) and marine.

### **Modern Context**

- It's a binding process.
- Existing MMR Act allows for the establishment of any co-management of any marine resources, *ie.* Aitutaki Bonefish Fishery.
- Its allows for full compliance and enforcement and can allow to empower wardens other than fisheries officers and Policemen.





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## 7.1 Challenges in re-engaging traditional management and governance in a modern context (Cont')

### *Challenges – Raui Context*

- Loss of Mana/respect for traditional leaders may mean lacking buy-in or opposition!
- Several communities often have individual preferences, have their own ways of doing things.

### *Challenges – Modern Context*

- Initial communications – consultation purposes.
- The process requirement is lengthy
- Must take into consideration that one system do not fit all!
- Ownership issue
- Training Needs required





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## *Special Topic 2.* **8.0 Aitutaki Trochus Fishery**

- Introduced species to the Cook Islands from Fiji.
- Stocked in Aitutaki in 1957.
- Then transferred to all islands in the Cook Island in the 1980's.
- WHY? Economically viable opportunity
- Trochus graze on coral and rocks for small plants.
- Separate sexes and reach reproductive maturity after two years.
- Trochus is harvested locally for its flesh and for its shell.





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## 8.1 Aitutaki

Island	Year	Yield (mt)	Estimated Value \$NZ per
Aitutaki	1981	≈200	850
Aitutaki	1983	35.7	1,250
Aitutaki	1984	45.7	1,450
Aitutaki	1985	27	1,800
Aitutaki	1987	45.1	2,000
Aitutaki	1988	18	3,000
Palmerston	1988	1.5	
Aitutaki	1990	26.2	7,000
Aitutaki	1992	28	6,350
Aitutaki	1995	34	6,000
Aitutaki	1997	18.4	6,250
Aitutaki	1998	34	6,500
Aitutaki	1999	18	8,250
Takitumu	2001	8.3	4,537
Nikao	2001	8.8	5,440
Puaikura	2001	7.4	5,400
Aitutaki	2001	37	8,500
Takitumu	2002	16	
Takitumu	2003	9.5	Assessment
Nikao	2005	6.4	Assessment
Manihiki	2005	3.8	Assessment
Aitutaki	2007	25	Assessment
Aitutaki	2008	31	Assessment
Penrhyn	2008	0.1	Assessment
Rarotonga	2008	14	Assessment
Aitutaki	2010	21	Assessment
Rarotonga	2011	8	Assessment
Aitutaki	2011	18	440



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Figure 1: Aitutaki map showing the 12 permanent survey sites.

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## 8.2 Management Regime

- Trochus Fishery is managed by the Island Council
  - Conduct of the fishery and the distribution of financial benefits
- Harvesting Regime:
  - TAC is calculated by MMR
  - Harvest level set to maintain the stock at a sustainable level of long-term production (30% of the harvestable sizes 80-110 mm)
  - Harvest period for 1-2 weeks for every 2 years
  - TAC divided by the no. of households on the island – now, its slightly change to individual quota.
  - This quota can either be caught by that family/individual during the harvest period, or in the case of those who are unable to do their own fishing, transferred to another family/individual.
  - Island Council supervises the collection, shipping and sale of shells and distributes the resulting cash according to the allocated quota.
  - This “community transferable quota” system is currently unique in the world.
  - Size limits is 80-110 mm shell diameter
  - In addition no harvesting allowed at any time from the trochus reserve area.





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## Trochus – Market products

### Appendix 2 Trochus Grading's



**A grade:** A very few blemishes at the very top



**B grade:** A few blemishes down to the third row on the 'yoko'



**C grade:** A few blemishes right down the 'yoko' but 'ten' or underneath is clean



*\*One local family with cleaned trochus ready for grading, Aitutaki, Dec 2011*



## 9.0 Paua harvest in Manihiki and Penrhyn

- Export of Paua is controlled by the island Council
  - Penrhyn have bylaw which restrict the export of Paua.
  - Manihiki requires Island Council resolution for formal approval.
  - It requires permit from the Island Councils
- Harvesting Regime:
  - Requires MMR to do a Paua assessments
  - Adopts the 30% harvest quota of harvestable size
  - Harvest period for 1-2 day only
  - TAC divided by the no. of households on the island
  - Island Council & MMR supervises harvest quota(usually 20litre buckets),
  - Size limits –large animals (110-150 mm)
  - In addition harvesting only at site specified by the Council. Rotational harvest.
  - Two checks, on the island and also when it reach Rarotonga, either boat or plane.
  - Harvesting is usually between every two years or else subject to decision by island Council.





## 9.1 Paua harvest in Manihiki and Penrh

NAMES	QUANTITY	Actual WEIGHT	Shipped Weight
Manihiki Paua Harvest with Approval by the Island Council October 2014			
Mr A	1 bag	21 kg	21
Mr B	1 bag	20 kg	21
Mr C	1 bag	20 kg	21
Mr D	1 bag	20 kg	21
Mr E	1 bag	19 kg	21
Mr F	1 bag	18.5 kg	21
Mr G	1 bag	19 kg	21
Mr H	1 bag	20.5 kg	21
Mr I	1 bag	20 kg	21
Mr J	1 bag	20 kg	21
Mr K	1 bag	21 kg	21
Mr L	1 bag	19.5 kg	21
Mr M	1 bag	20.5 kg	21
Mr N	1 bag	22.5 kg	23
Total weight		281.5 kg	
Total ziplock bags	296	0.951g/ziploc k bag	





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# MEITAKI MAATA KIA ORANA



# E KIA MANUIA



INTEGRE