

**FY2005 Operational Activities in Support of the  
Marshall Islands Program**

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**Marshall Islands Program  
FY2005 Review Presentation**

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# Background

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**Standard approach to risk management and cleanup of radioactively contaminated sites is to control the Total Effective Dose Equivalent (TEDE)**

**The U.S. regulatory definition of the TEDE from the 10 CFR Part 20.1003 (NRC, 2004) is the sum of the;**

**deep dose equivalent for external exposures**

**+**

**committed dose from intakes of radionuclides**



# Overview of presentation (non-technical)

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## 1. FY2005 Activities

Key support areas;

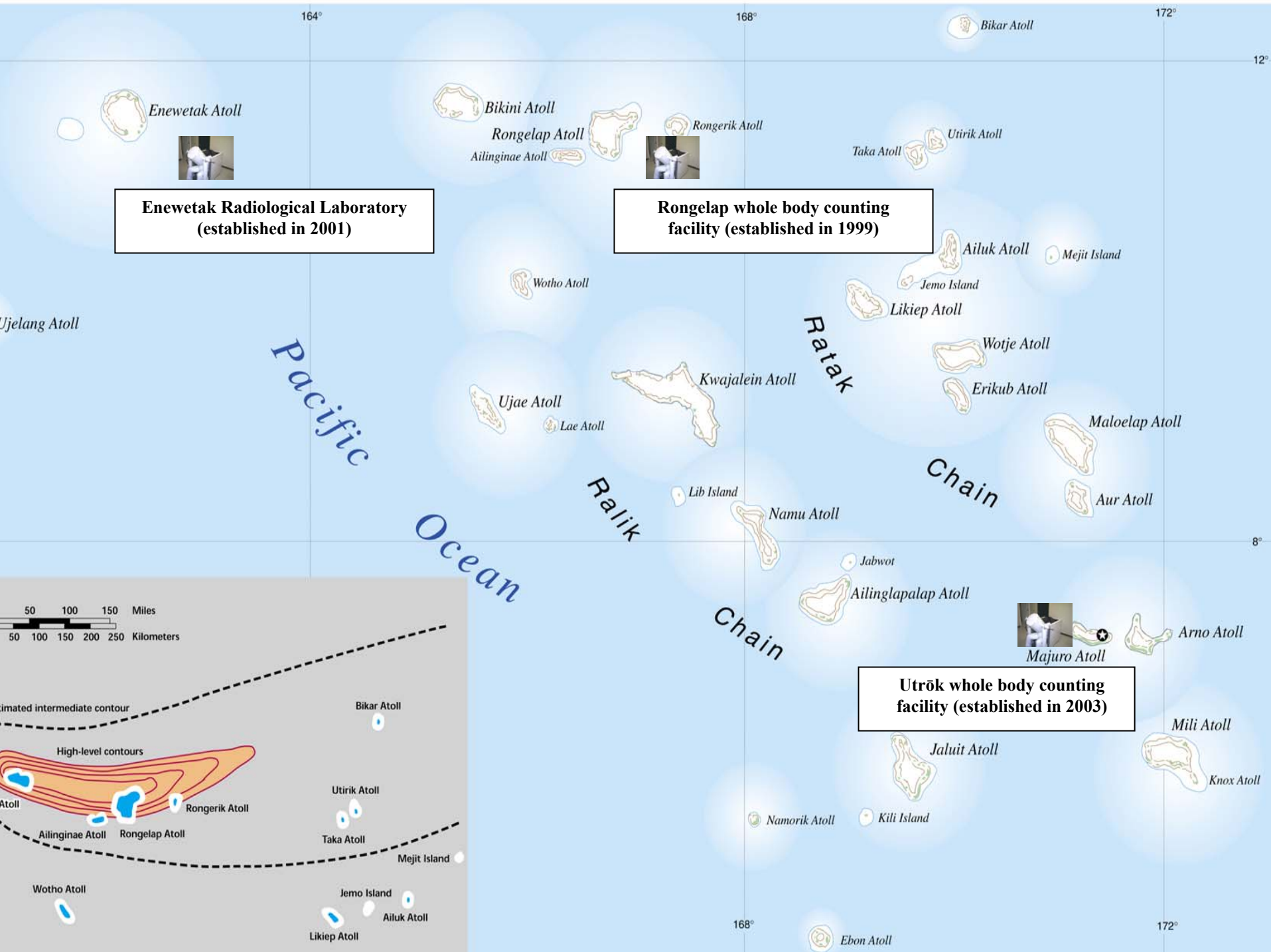
- **Individual Radiation Protection Monitoring Programs (whole body counting and plutonium urinalysis)**
- **Resettlement Support Activities**
- **Environmental Surveillance (key accomplishment: completion of a 2<sup>nd</sup> environmental mission to Enewetak Atoll; additional surveys on Rongelap and Bikini).**

## 2. Where are we going!

### Common Theme

- 1) **Individual radiation protection programs coupled with environmental sampling of food products (cesium-137, strontium-90, TRUs) & monitoring of external gamma dose rates provide a good scientific basis for assessing current (and changing) radiological conditions.**
- 2) **Environmental characterization surveys are land-use or 'changing land-use' oriented.**





# Individual Radiation Protection Monitoring Programs

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**How did we do?**



# Whole Body Counting – Tracking Database(s) FY'05

For FY '05	Steven Kehl	RI Steven Kehl	RI Steven Kehl	RI Steven Kehl	RI Steven Kehl	RI Steven Kehl	RI Steven Kehl	RI Steven Kehl	
	planning	Step 1. baseline-monthly	Step 2. baseline-monthly	Step 3. baseline-monthly	Step 4. baseline-monthly	Step 5. baseline-monthly	Step 6. baseline-monthly	Step 6. baseline-monthly	
<b>Red = Partial Month Totals</b>									
<b>Facility Location</b>	<b>Month</b>	<b>Number of personnel counts</b>	Transfer QC systems files and print	Update personnel database file (import files into database)	Input of .cnf spectra files from wbc software	Copy new pic files (sort by date and copy)	Copy cal detector arrangement files (& other as needed)	Perform data review 'electromagnetic' spectra and wbc database generate transfer file and unresolved listing	
Rongelap	October	0	---	---	---	---	---	---	
	November	16	X	X	X	X	X	X	
	December	0	---	---	---	---	---	---	
	January	17	X	X	X	X	X	X	
	February	0	---	---	---	---	---	---	
	March	27	X	X	X	X	X	X	
	April	12	X	X	X	X	X	X	
	May	0	---	---	---	---	---	---	
	June	7	X	X	X	X	X	X	
	July	10	X	X	X	X	X	X	
	August	18	X	X	X	X	X	X	
	September	24	X	X	X	X	X	X	
	October	17	X	X	X	X	X	X	
		Cumulative Total - 148							



# Whole Body Counting – Tracking Database(s) FY'05, cont'd

For FY '05	Steven Kehl	RI Steven Kehl	RI Steven Kehl	RI Steven Kehl	RI Steven Kehl	RI Steven Kehl	RI Steven Kehl	RI Steven Kehl
planning	Step 1. baseline-monthly	Step 2. baseline-monthly	Step 3. baseline-monthly	Step 4. baseline-monthly	Step 5. baseline-monthly	Step 6. baseline-monthly	Step 6. baseline-monthly	Step 6. baseline-monthly
Facility Location	Month	Number of personnel counts	Transfer QC systems files and print	Update personnel database file (import files into database)	Input of .cnf spectra files from wbc software	Copy new pic files (sort by date and copy)	Copy cal detector arrangement files (& other as needed)	Perform data review 'electronic mark' spectra and wbc databases, generate transfer file and unresolved listing
<b>Enewetak</b>	October	3	X	X	X	X	X	X
	November	0	---	---	---	---	---	---
	December	15	X	X	X	X	X	X
	January	36	X	X	X	X	X	X
	February	15	X	X	X	X	X	X
	March	68	X	X	X	X	X	X
	April	45	X	X	X	X	X	X
	May	18	X	X	X	X	X	X
	June	9	X	X	X	X	X	X
	July	0	---	---	---	---	---	---
	August	30	X	X	X	X	X	X
	September	7	X	X	X	X	X	X
	October	0						
		Cumulative Total - 246						

# Whole Body Counting – Tracking Database(s) FY'05, cont'd

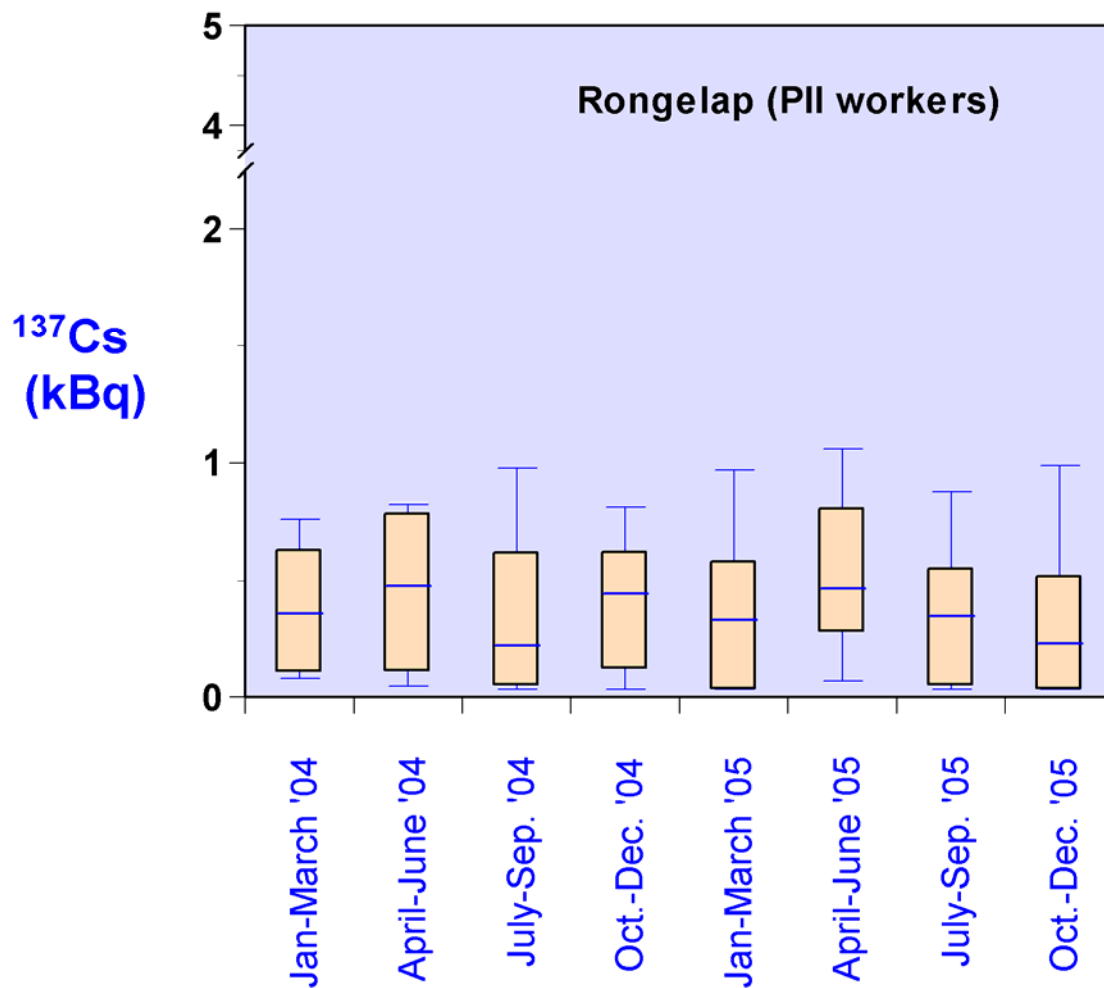


For FY '05	Steven Kehl	RI Steven Kehl	RI Steven Kehl	RI Steven Kehl	RI Steven Kehl	RI Steven Kehl	RI Steven Kehl	RI Steven Kehl
	planning	Step 1. baseline-monthly	Step 2. baseline-monthly	Step 3. baseline-monthly	Step 4. baseline-monthly	Step 5. baseline-monthly	Step 6. baseline-monthly	Step 6. baseline-monthly
Facility Location	Month	Number of personnel counts	Transfer QC systems files and print	Update personnel database file (import files into database)	Input of .cnf spectra files from wbc software	Copy new pic files (sort by date and copy)	Copy cal detector arrangement files (& other as needed)	Perform a review 'electronic mark' spectra wbc database generate trace file and unres listing
<b>Majuro</b>	October	56	X	X	X	X	X	X
	November	11	X	X	X	X	X	X
	December	27	X	X	X	X	X	X
	January	4	X	X	X	X	X	X
	February	30	X	X	X	X	X	X
	March	62	X	X	X	X	X	X
	April	33	X	X	X	X	X	X
	May	18	X	X	X	X	X	X
	June	47	X	X	X	X	X	X
	July	43	X	X	X	X	X	X
	August	<b>50</b>	X	X	X	X	X	X
	September	15	X	X	X	X	X	X
	October	27	X	X	X	X	X	X
		Cumulative Total - 396						

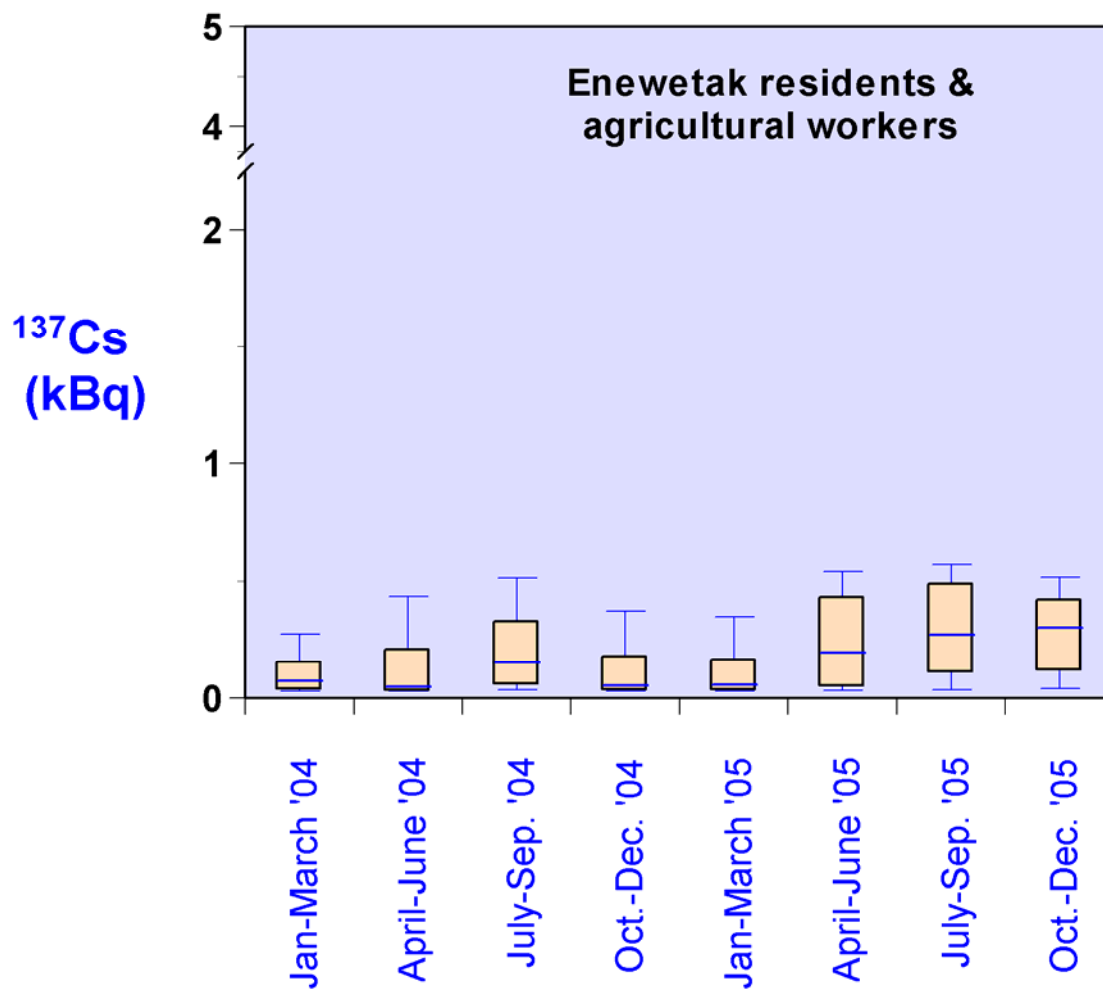




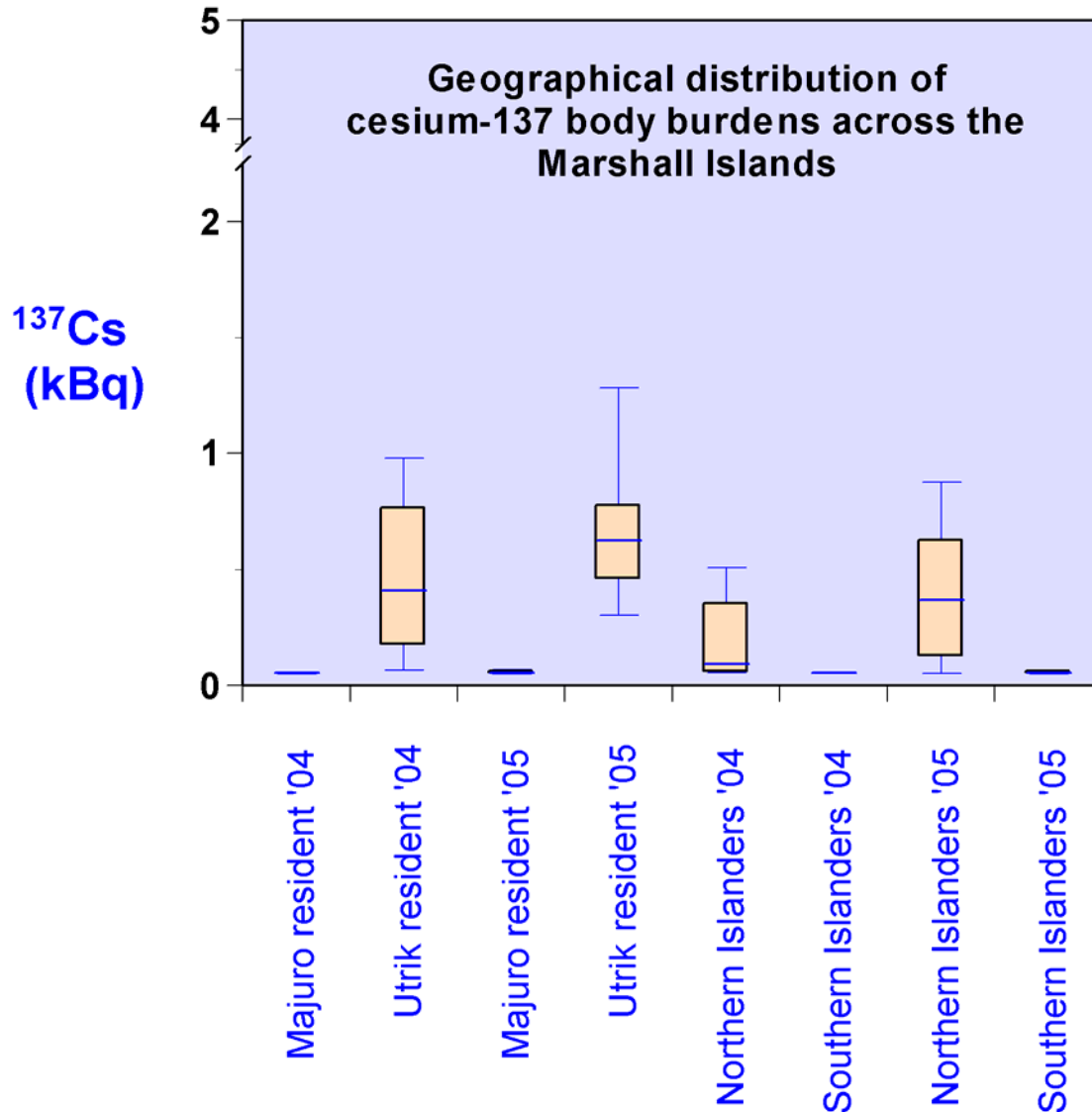
# Whole Body Counting Measurements on Rongelap

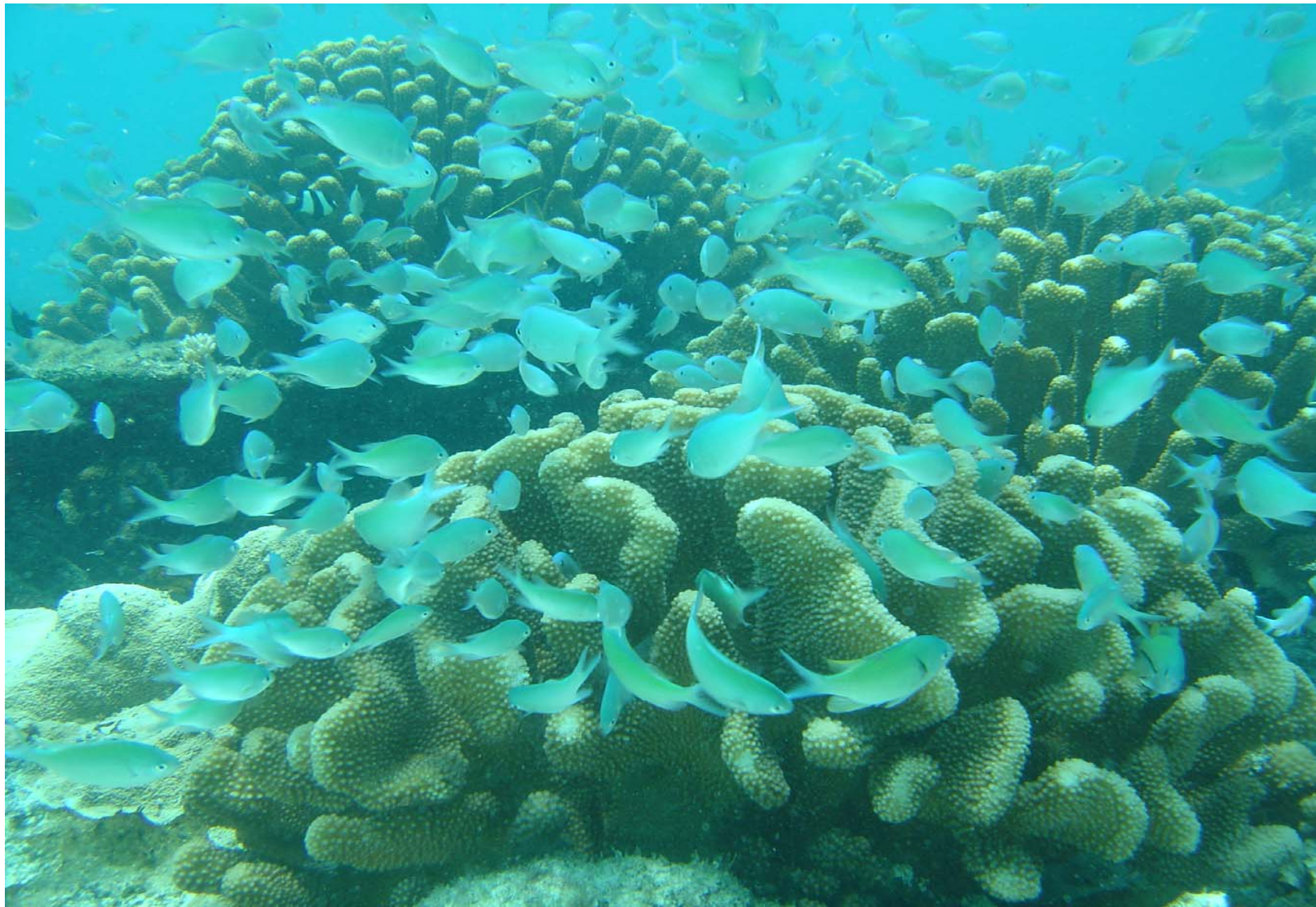


# Whole Body Counting Measurement on Enewetak



# Whole Body Counting Measurements of the Utrōk Population Group as well as other Marshall Islanders







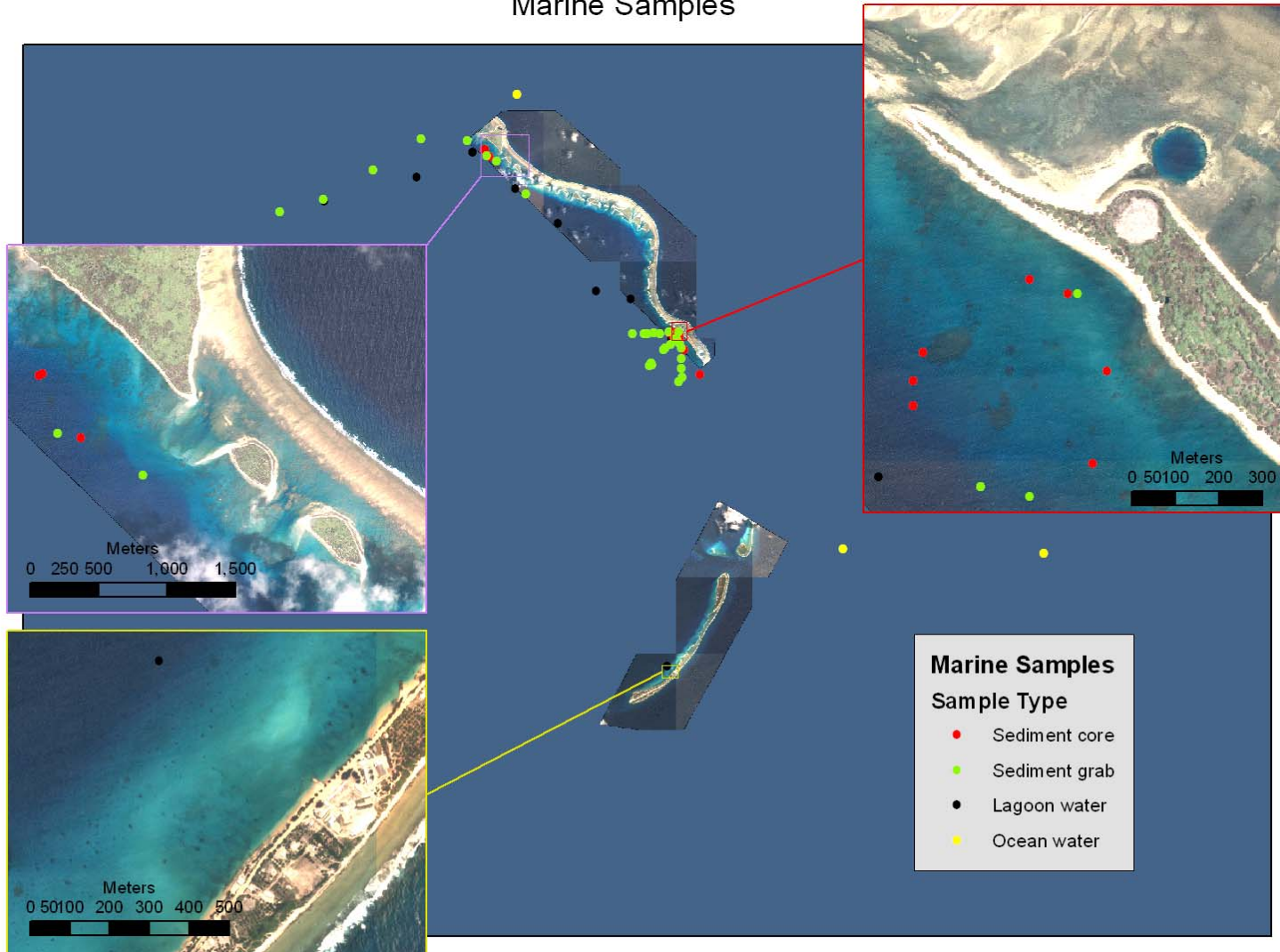






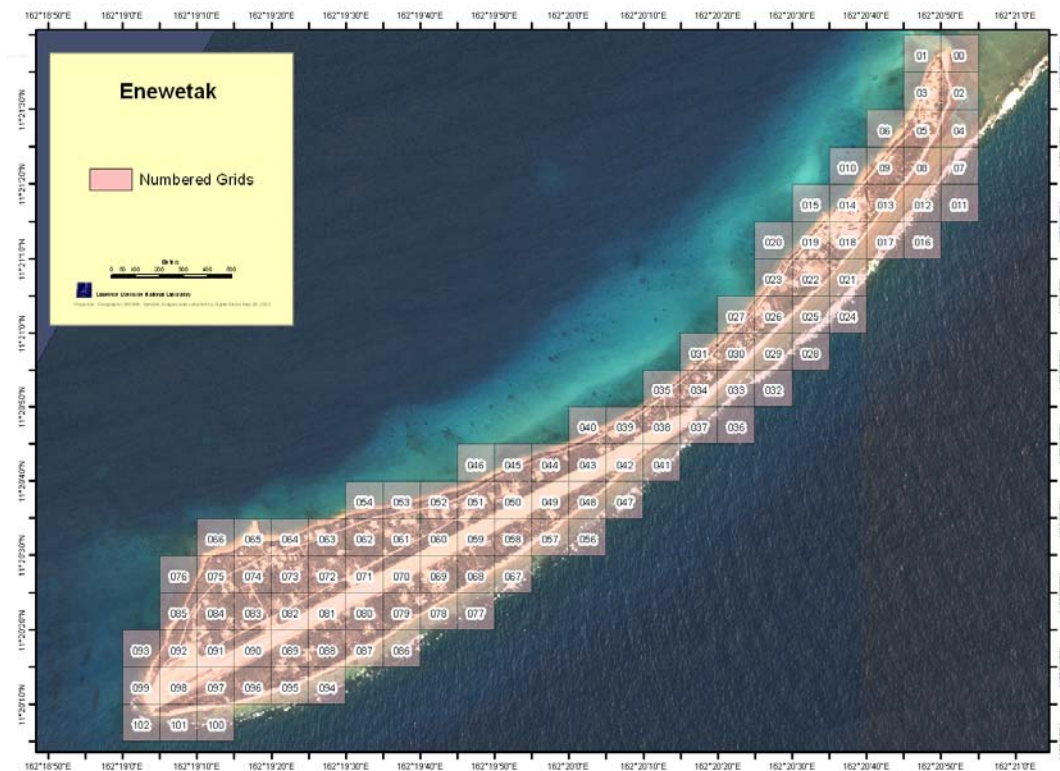
# Marine Sampling on Enewetak Atoll

## Marine Samples





# 2005 Environmental Sampling on Enewetak Island



## Sampling Strategy:

To collect food crop products (predominately coconuts ) from each grid point location covering the entire island

# 2005 Monitoring Survey of External Doses on Enewetak





# 2005 Rongelap Resettlement Support



## Focus Areas

- 1) External dose rates around home sites
- 2) Collection of food crop products around the village area
- 3) Sampling of *Pandanus* fruit and 'arrow root' growing in the potassium treated area north of the village.

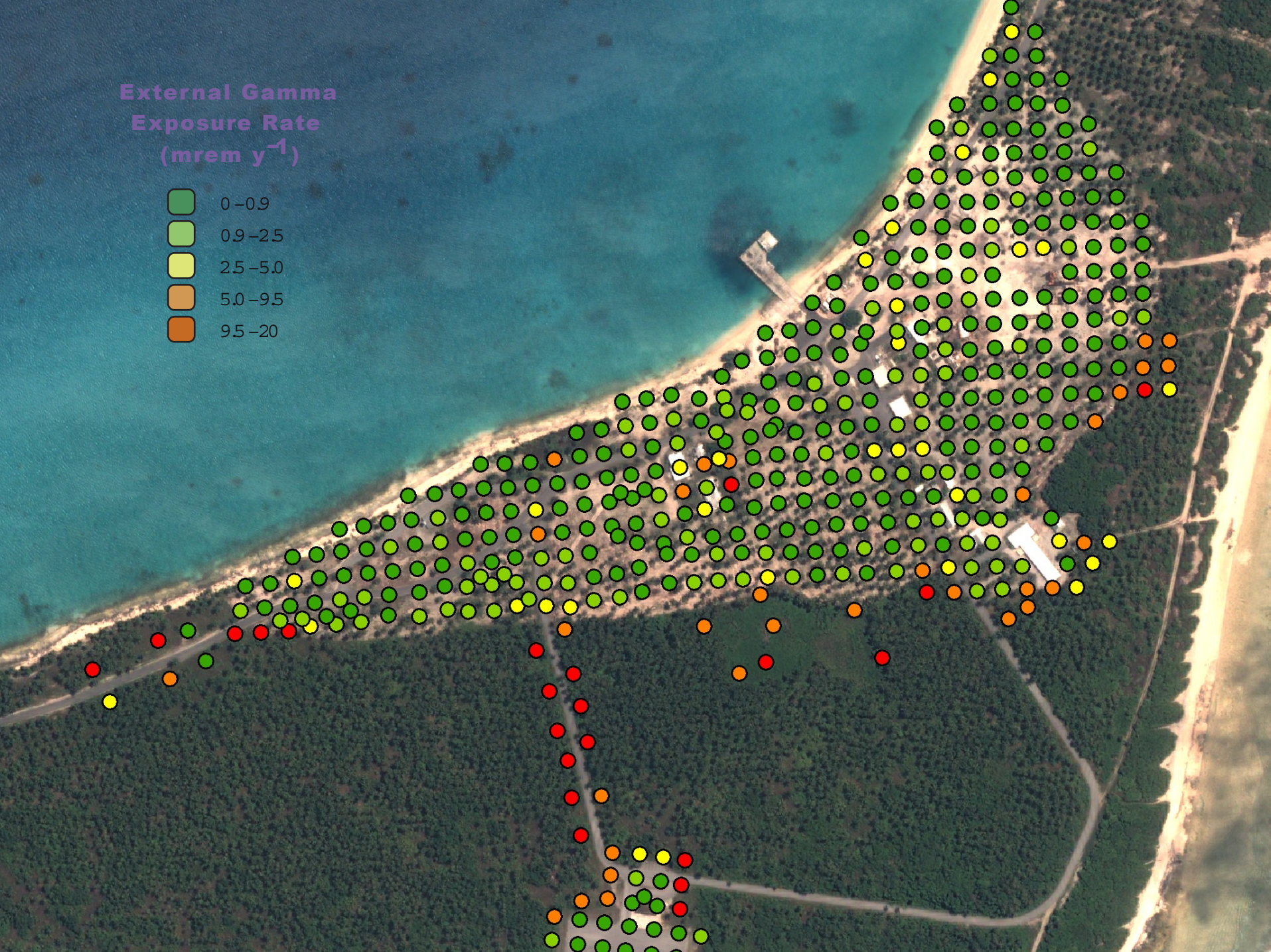
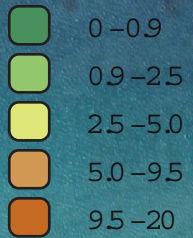








**External Gamma  
Exposure Rate  
(mrem y<sup>-1</sup>)**

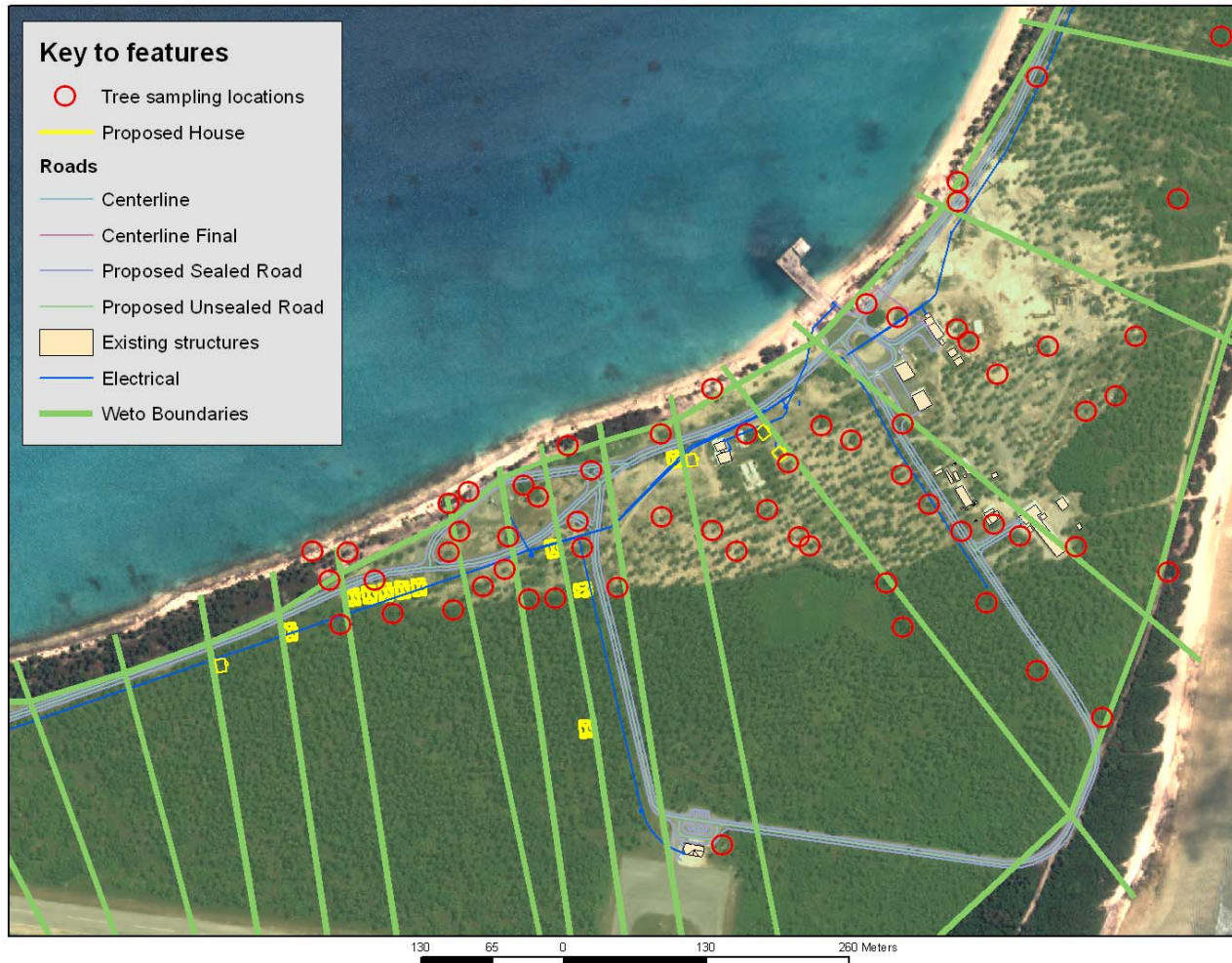




# 2005 Rongelap Resettlement Support, cont'd



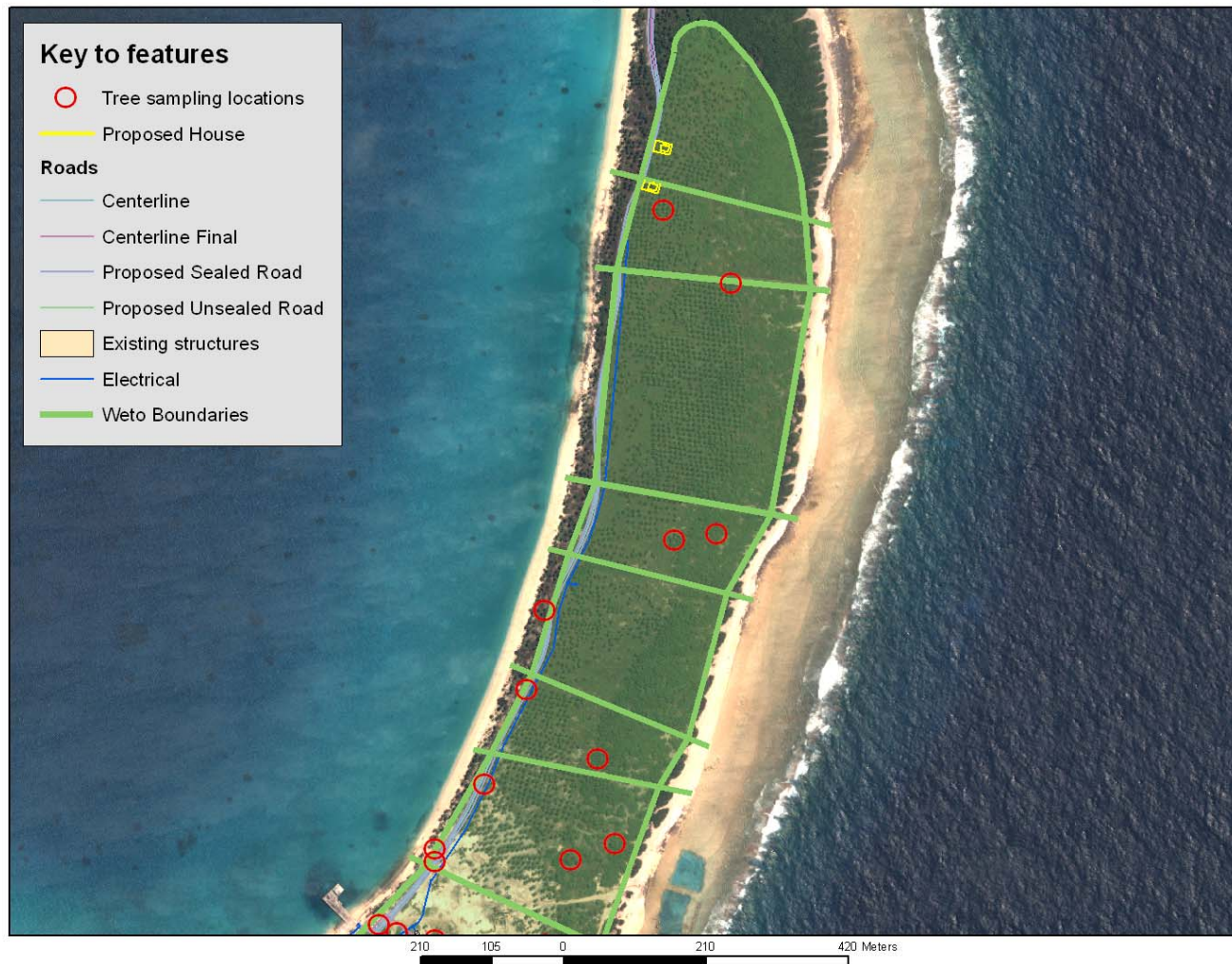
Rongelap Village Area





# 2005 Rongelap Resettlement Support, cont'd

Rongelap

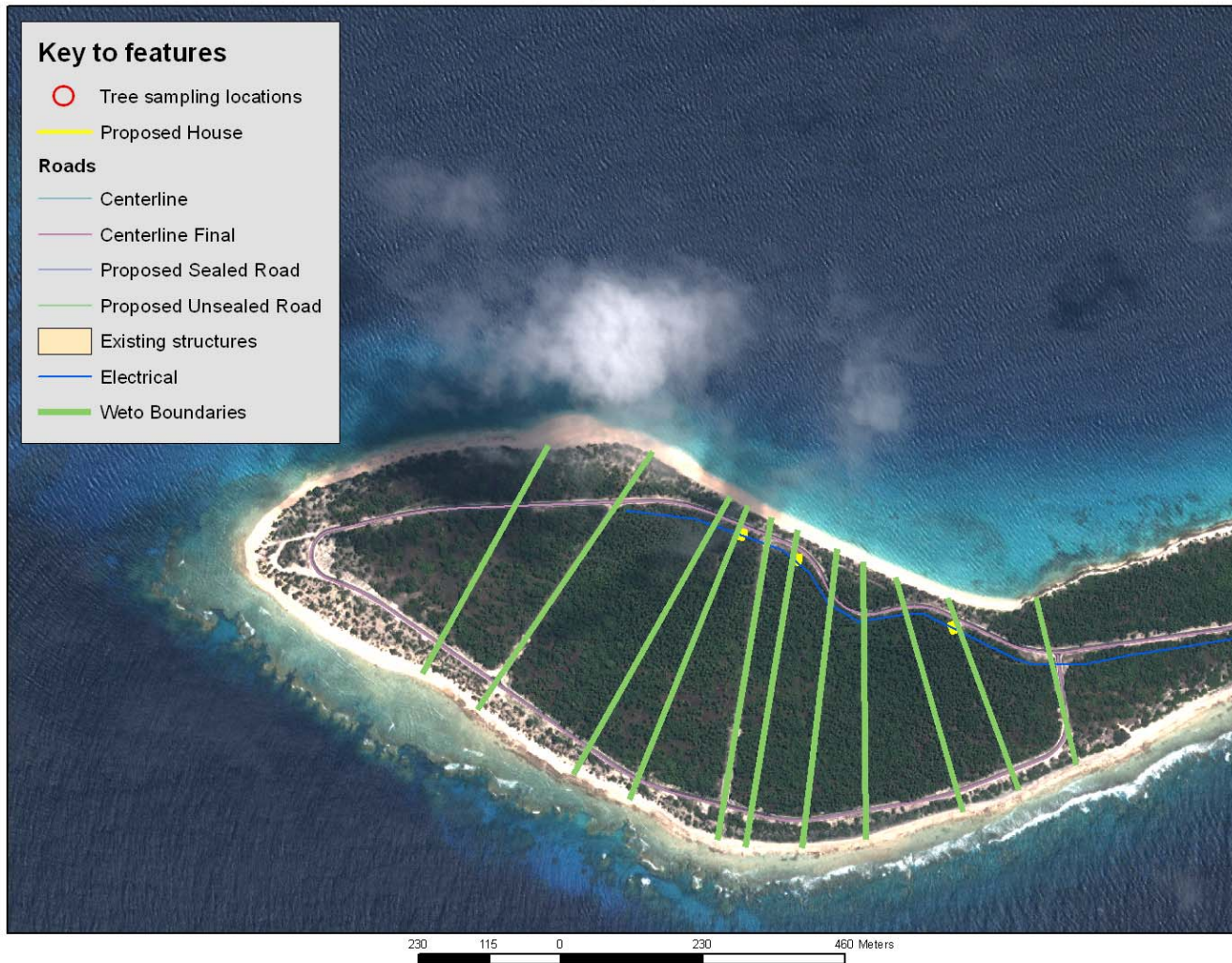






# 2005 Rongelap Resettlement Support, cont'd

Rongelap

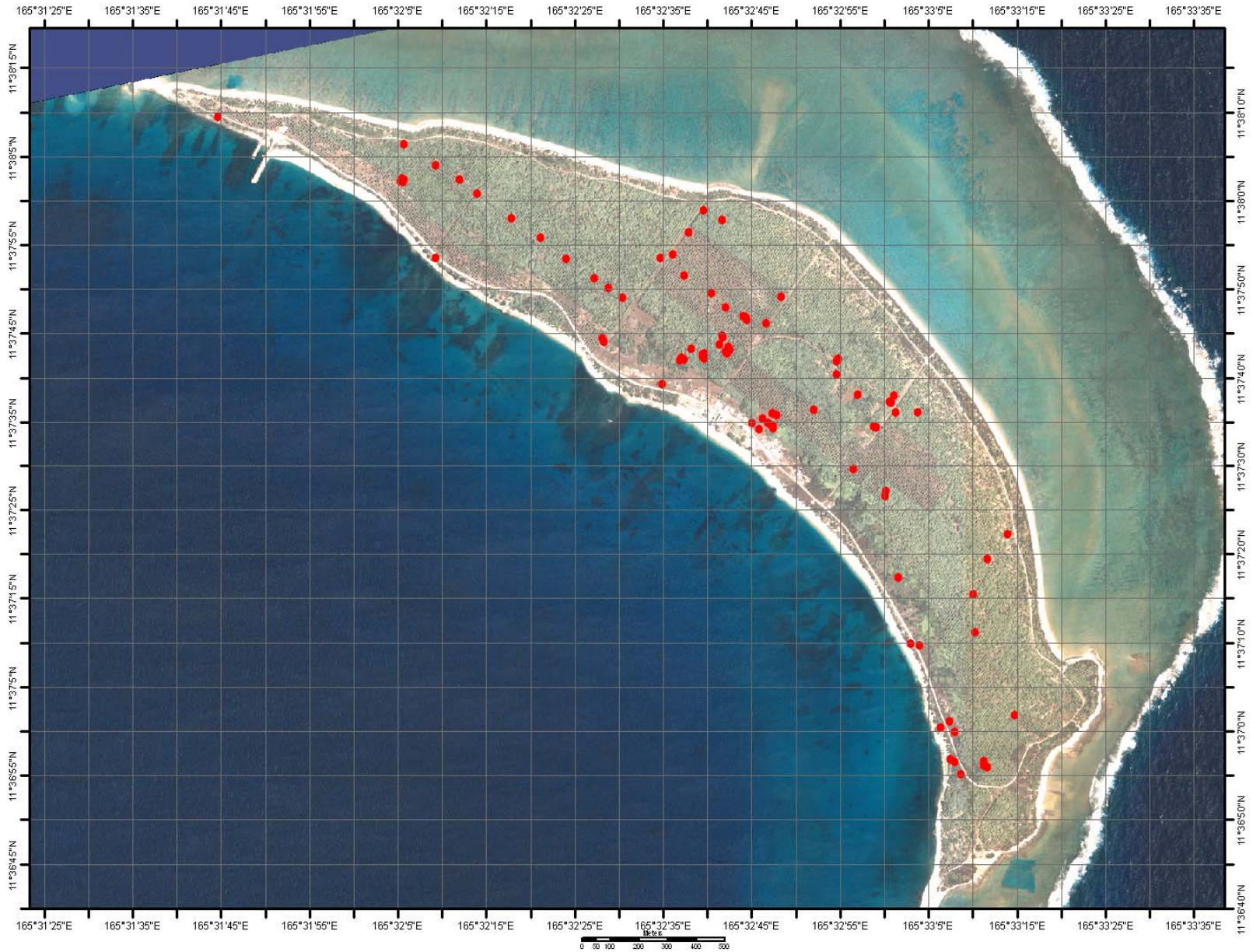








# Bikini Sample Trees





# Summary

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- 1) **Good support from DOE during FY2005 to go back to the field**
- 2) **FY2006 effort will be concentrated on four main areas**
  - **Continuation of our individual radiation protection monitoring programs including the development of baseline urinary excretion data for plutonium on Utrōk and for the resettled population on Rongelap Island**
  - **Analytical work (carried over from FY2005)**
  - **Rongelap Island resettlement support ('external dose rate measurements')**
  - **Outer island sampling on Bikini using a 'pantry' sampling approach**

**End**