Note: included in this attachment are two syllabi (one for Spring, one for Summer)

Two-Week Summer Trip (3 units):

Coastal Resource Management in the Cook Islands

Summer 2015

Co-Instructors: Anderson, Wormald & Anderson



Cook Islands Trip Overview

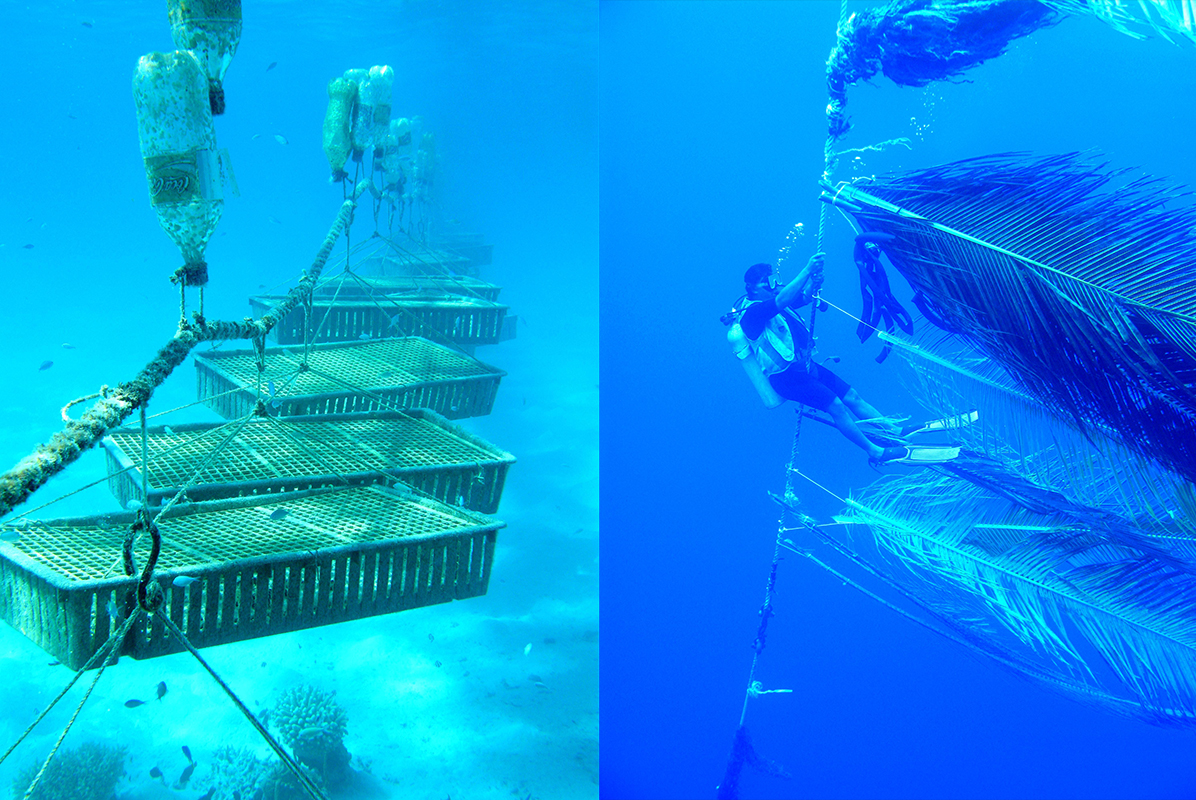
We will travel to the South Pacific island nation of the Cook Islands for an intensive, two-week long exploration of these incredible people and unique ecosystem. We will travel from Los Angeles to Rarotonga (the Capitol of the Cook Islands) on a commercial passenger jet and on to the Aitutaki via a smaller, short-haul plane. Once on Aitutaki, we will be based out of a large “dorm style” guest house where we will sleep, eat, *etc*. Recognizing that our time in the Cooks is limited we will generally be up early and to bed late. Our days will emphasize practical exploration of coastal resources and culture, often on/in the water or “off trail.” Some of our activities will be designed to support to our local partners and colleagues and their management goals (*i.e*. Service Learning) while others will be designed to simply help you better understand the extant conditions on Aitutaki.

Enrollment in this course is conditional upon passing our Spring Seminar. All attendees should be in good health and able to undertake strenuous activities on land and underwater. Research SCUBA certification is strongly encouraged, although not mandatory if the participant has strong snorkeling/free diving skills by the start of our trip.

General Learning Outcomes

By completion of this course, students should by able to clearly describe:

1. a basic understanding of the cultural, biographical, and historical underpinnings of modern South Pacific Small Island Nations.
2. current issues most relevant to Cook Islanders.
3. the effects of the recent diaspora on both Cook Islands society and coastal resources.
4. the benefits and downsides of a tourism-based economy in Aitutaki.
5. the current state of reef-based resources in Aitutaki Lagoon.
6. the specific challenges climate change is posing to Aitutaki.
7. the interrelatedness of our global culture, economy, and society.
8. specific management options for improving or maintaining Cook Island resources.





Course Topics

Please note that this is an evolving/dynamic list that will be modified throughout the fall as we rework our specific ideas/logistics. As of this writing, our topics will include many of those from our Spring Seminar. Selected topics which will be a major focus of our 14-day exploration include:

1. **Biogeography of Aitutaki**:

Marine:

Offhsore, Epipelagic Realm

Fore Reef

Reef Crest

Back Reef

Lagoon/Patch Reef

Littoral:

Sandy Beach

Swamp

Motu

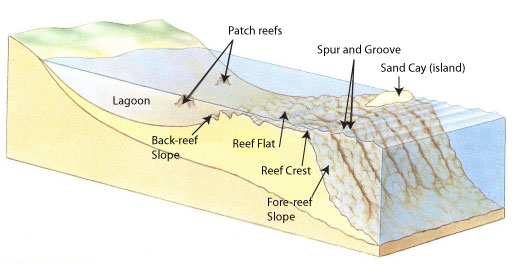
Terrestrial:

Lowland Tropical Palm Forests

Artificial/Turf Systems

Wetland:

Taro Fields



Managing Island Resources:

Human Impacts in the Coastal Zone

Climate Change and Sea Level Rise in Small Island Nations

Origins Of Customary Tenure and Island Resource Management

Human Population Trends in Polynesia and Near-Term Forecasts

Aitutaki’s history of fisheries species exploitation

Tradition Ra-Ui Integrated Ecosystem Management

Marine Protected Area Approaches

Lagoon Aquaculture

2**. Managing Island Resources:**

Supporting Human Occupation in the Coastal Zone

Water Sources and Consumption

Electrical Generation and Consumption

Waste Streams

Sewage

Burnable Waste

Recyclables

Climate Change and Sea Level Rise on Motus

Fisheries Management

Customary Tenure and Island Resource Management

Aitutaki’s History of Fisheries Species Exploitation

Tradition Ra-Ui Integrated Ecosystem Management vs. Modern Marine Protected Area Approaches

Lagoon Mariculture



3. **Site-Specific Inventories:**

Surveying Lagoon/Reef Organisms (exploited and unexploited)

Reef Fish

Invertebrates

Algae

Lagoon Water Quality Monitoring

4. **Bioassays for Water Quality:**

Bioassay Training for High School Students

Sea Urchin Fertilization Bioassay: Theory

Sea Urchin Fertilization Bioassay: Lab Practical

5. **Beach Profiles:**

Motu Beach Profiles and Sediment Characterization

Island Beach Profiles and Sediment Characterization

6. **Quantifying Visitor Use:**

Documenting Visitor Distribution Across Lagoon

Parasailing Use of Popular Motus

Visitor Behavior During Snorkeling Tours



Draft Trip Schedule

Draft Daily Schedule (subject to change due to weather):

Day 1-Arrival/Orientation

Day 2-Intro Day-Tour of Island with TeKing, Equipment Prep, Boat Check

Day 3-Lagoon Tour, Visit Marine Research Station

Day 4-Intial run-throughs of Field Surveys and Initial Site Selection

Day 5-Begin Formal Field Surveys, Meet with Island Council

Day 6-Field Surveys, Tour Aitutaki Lagoon Resort Facility

Day 7-Field Surveys, Meet with Koru Café Owners

Day 8-Data Entry Morning, Resume Field Surveys when complete

Day 9-Field Surveys, Collect Urchins, Visit Fish Market, Island Night

Day 10-Field Surveys, Urchin Fert. Trials, Afternoon Tea Tauono’s Garden

Day 11-Meet with High School Students, Urchin Bioassay Training

Day 12-Water Sampling/Testing with High Schoolers, Afternoon Off

Day 13-Data Entry Workshop/Graphing with High Schoolers, pack up

Day 14-Departure

(Day 21 post-trip **in California**): Day Long Post-Trip Meeting at CSUCI to Finalize Project Reports and Final Debrief

(Day 28 post-trip **from California**): Faculty will submit final report comprised of trip overview and component project reports to Cook Island Partners.

(Day 29 post-trip **from California**): Faculty (and any interested students) will engage in a conference call to the Cook Islands to debrief and discuss both the deliverables and the overall course outcomes.

Deliverables

All students will participate in all aspects of our service work while on Aitutaki. However, pairs of students will be assigned to particular monitoring endeavors and in charge of compiling, entering, analyzing and reporting on the results. Brief, draft reports (most likely PowerPoint-based oral presentations) will be generated prior to our departure and presented to Village Councils, Government Partners, and our other collaborators. Within two weeks of returning to California, the faculty will submit a master report to our Cook Island partners electronically.

For example, all students will assist with reef surveys, but students A and B will be responsible for compiling and reporting on our *Tridacna* (Giant Clam) surveys, students C and D will be responsible for compiling and reporting on our snorkeling tourists behavioral data, students E and F will be responsible for compiling and reporting our coastal erosion/sandy beach profile data, *etc*. In addition to written reports, each team of students will be required to submit a 5-10 minute video or animated slideshow about their service/experience in Aitutaki. These written reports and videos will be made available to the campus community as part of the IRA requirement to have a campus-based component to IRA-funded trips. (Note: given the likelihood that many of our students will be graduating seniors, a Fall Semester-based poster session or presentation is not realistic for this summer-based experience).

Logistics

1. Airfare will be provided by arrangement with University Travel Agent. We will arrange our LAX-Rarotonga and Rarotonga to Aitutaki flights ourselves.
2. All other logistical arrangements will be organized by our colleague Stephen Lyons at the Pacific Islands Conservation Initiative (which is based in Rarotonga, Cook Islands). We had extensive meetings with Steve this past summer and discussed how to conduct our course. Housing will be in one large communal house with multiple guest rooms designed to accommodate large families and groups of our size. The house includes a kitchen allowing us to make our own breakfasts and sack lunches. Dinners will be provided for us by the owners. While we visited several such houses on Aitutaki while there this past summer, the exact one he books for us will depend on the timing of our confirmation of funding for the trip. He has tentatively booked one house for us as of the last week in September.
3. We will arrange most meals, although undoubtedly students will be on their own for two or three meals. There are multiple “take-away” and more formal eating establishments within walking distance of our work and house sites.
4. Transportation.

Land transportation will be by one of two methods: 11-passenger vans will be the typical means to move us around. We will supplement this with scooters, likely renting four for our weeks there. Faculty will drive the vans, but students will be permitted to drive the scooters once they 1) complete a university driving training course (prior to leaving) and 2) obtain a Cook Islands Drivers License ($5 at the Police Station). Scooters are the primary means of transport in the Cook Islands. Aitutaki has a total of approximately 8.4 miles of paved roads. Scooters will primarily be used for smaller group trips to the market, opposite site of the island, Marine Research Station, *etc.*

Water transportation will be via one or more small boats reserved for our use as part of our accommodations. Faculty will helm the boats, although all students will have gone through small boat training and be capable of handling the vessels.

1. Security

The U.S. State Department recognizes the Cook Islands as a self-governing parliamentary democracy in free association with New Zealand and a member of the British Commonwealth. As such there are no political challenges of relevance to our course. Owing to the Cook’s small size, the State Department does not routinely post county profiles. Most State Department information centers on the 2012 visit by then-Secretary of State Hilary Clinton and various warnings about Cook Islands’ offshore sector making it potentially vulnerable to money laundering. However, due to recent legislative and regulatory changes, the Cook Islands comply with current international standards.

No significant safety or security warnings are in effect, particularly for any of the outlying islands (including Aitutaki).

The U.S. Centers for Disease Control suggests all travellers have routine vaccinations and that travellers of our student’s age obtain Hepatitis A and Typhoid vaccines. While we will require these, our own inquiries this past summer show that these latter vaccines are motivated by the CDC considering the Cooks a “developing” country in Southeast Asia that uses septic systems as the primary means of treating wastewaters. In practice, there is no more particular concern over these diseases in the Cooks than anywhere else in the hemisphere.

Locals drink tap water, but boiled or bottled water is advised for visitors.

The nearest police station is in Arutanga (approx.. 15 minutes by vehicle).

Aitutaki has what we in the States could consider a rural hospital. The 26-bed Aitutaki Hospital is also in Arutanga (approx. 15 minutes by vehicle). It also houses a dental clinic, pharmacy, laboratory, X-ray facility, outpatient care, and Public Health offices. Outpatient hours are from 9am-noon and 1-4pm M-F. Emergencies are treated 24 hours a day, 7 days a week.

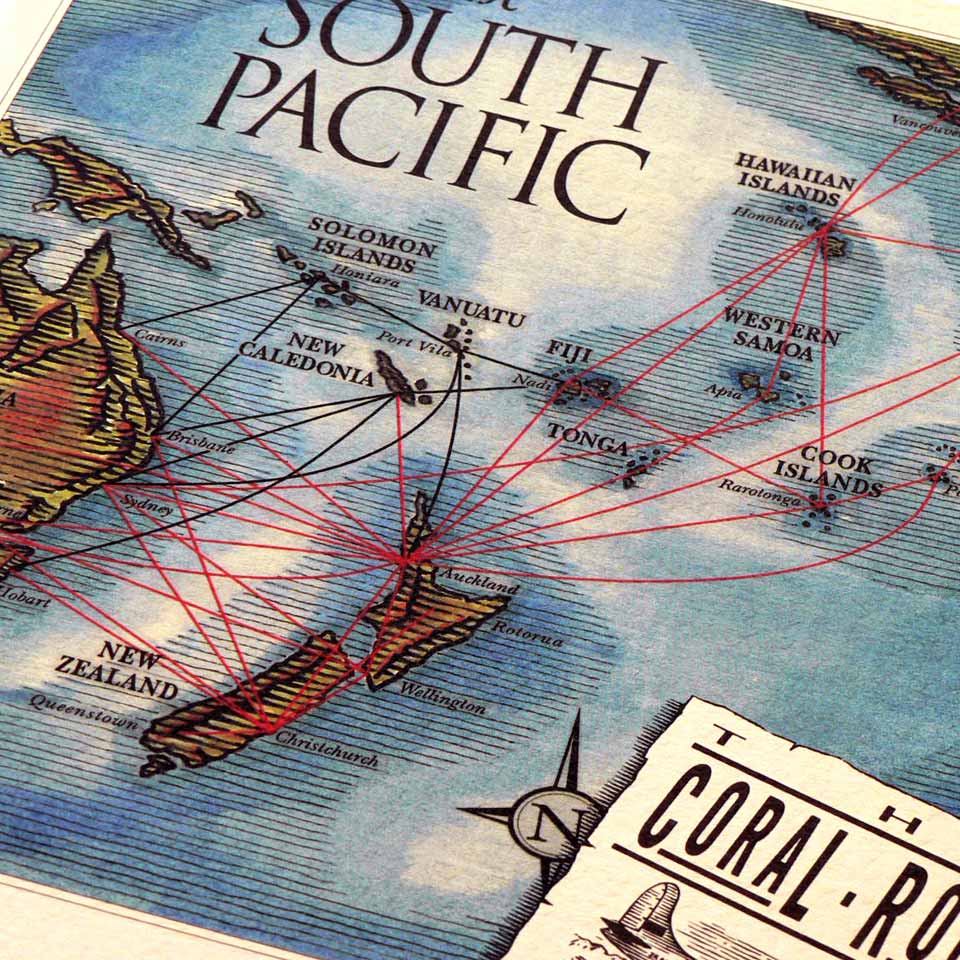


Pre-Trip Orientation Seminar (1 unit seminar):

Hōpara: Exploring & Interpreting the South Pacific

Spring Semester 2015

Co-Instructors: Anderson, Wormald & Anderson



Orientation Sessions/Pre-Trip Seminar Overview

We envision a weekly seminar in the Spring Semester preceding our summer trip. This orientation leading up to the trip will feature an extensive reader, species identification/training literature and video pack, Polynesian cultural profiles, South Pacific literature, colonial history, and history of coastal resource (esp. fisheries) management. We will also have a full-day logistics meeting 14 days prior to our embarkation. In addition to classroom sessions, we will have at least two field sessions (a swim/snorkel test) and a day at our boating facility in the preceding Spring Semester.

Enrollment in this course is by permission of instructions via a fall application. Passing this course (C/NC) is mandatory for participation in the subsequent summer trip. This pre-trip seminar is an essential component of the summer trip/course. This Spring Seminar will focus on **contextual and background issues** related to management of coastal resources in the Cook Islands and should properly be considered the first part of our learning experience. The subsequent early summer trip will focus on in-country and *in situ* exploration of extant resources and their management on Aitutaki atoll.

General Learning Outcomes

By completion of this seminar, students should by able to clearly articulate:

1. a basic understanding of the cultural, biographical, and historical underpinnings of modern South Pacific Small Island Nations.
2. the major cultural and ecological forces structuring modern South Pacific Islands.
3. the global resource management context within which the Cook Islands exist (with particular emphasis on climate change and fisheries).
4. existing gaps/needs in our understanding of resource management in the Cook Islands.
5. the general ecology and history of the Cook Islands.



Course Topics

Please note that this is an evolving/dynamic list that will be modified throughout the fall as we rework our specific ideas/logistics. As of this writing, our topics will include:

1. **Academics**:

Biogeographic Context:

Coral Reef Formation and Biogeography of South Pacific Islands

Colonization and Culture of the Polynesian Triangle

Brief History of the Cook Islands

Geography of the Cook Islands

Unique Island Features and Risks of Resource Overexploitation

Human colonization of Polynesia/Polynesian diaspora:

Polynesian Diaspora

Dance and Song Evolution

Food Items and Cultural Importance

Fishing

Farming (esp. taro)

Seabird harvesting

Tribal Governance

European Colonization:

Age of Exploration to 1800s

Cook’s Initial Visit

British establishment

World War II

Post-WWII Independence

Political Context:

Independence Movement

1990s Economic Crisis

Free Association Status

United Nations and Oceania Governance Cooperation

Non-Governmental Organizations

South Pacific Texts and Visual Rhetoric:

Tasmanian Airline’s “Coral Sea Route”:

Advertisements as Mythos

Polynesia as Eden

Seeds of “Tiki” Culture

Representative Literary Texts:

*Two Years Before the Mast* by Henry

*Once Were Warriors* by Duff

*The Happy Isles of Oceania* by Theroux

*Blue Latitudes* by Horwitz

*South Sea Tales* by London

*Tales of the Tikongs* by Hau’ofa

*Leaves of the Banyan Tree* by Wendt

Managing Island Resources:

Human Impacts in the Coastal Zone

Climate Change and Sea Level Rise in Small Island Nations

Origins Of Customary Tenure and Island Resource Management

Human Population Trends in Polynesia and Near-Term Forecasts

Brief Overview of Global Trends in Fisheries

Aitutaki’s history of fisheries species exploitation

Intro to Ecotourism/Tourism-based Economies

Tradition Ra-Ui Integrated Ecosystem Management vs. Modern Marine Protected Area Approaches

Lagoon Aquaculture

2**. Practical Field Skills:**

Site-Specific Ecological Introduction:

Natural History of Aitutaki Lagoon

Traditional, Place-based Rotational Fisheries Mgmt in Polynesia

Tropical Island Ecosystems

Identifying Local Organisms (exploited and unexploited)

Reef Fish

Invertebrates

Sessile

Corals

Bivalves

Motile

Echinoderms

Crustaceans

Cephalopods

Gastropods

Algae

Water Quality Monitoring

Introduction to Bioassays for Water Quality

Sea Urchin Fertilization Bioassay: Theory

Sea Urchin Fertilization Bioassay: Lab Practical

Low Technology Monitoring Techniques for Turbidity, DO

3. **Logistics:**

Review CSUCI School Trip Policies on Drinking and Professional Expectations

Overview of Customs and Traditions of the Cook Islands

Clothing

Comportment

What to Expect

Cuisine

Hydration

Insects

Weather (esp. sun, wind, rain)

Accommodations

Meals

Emergency Procedures

First Aid & CPR training

Contact/Internet

Overall Safety

State Department Resources/Security and Stability

