

# IDEA Workshop - Moorea Social-Ecological System

[University of California, Berkeley](#), California, USA

8-10 December, 2014

The [Moorea Social-Ecological System \(MoSES\) workshop](#) is part of the [Moorea IDEA meeting series](#) designed to launch the [IDEA Consortium](#), establishing its scope and organisation. The goal is to develop a detailed roadmap by the end of 2014 for building the first 'avatar' (computational model/digital simulation) of a complete Social-Ecological System: the [Moorea IDEA](#). This MoSES workshop brings together groups already working on Social Ecological Systems in the model islands of French Polynesia as well as other members of the IDEA Consortium.

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## Sponsors/Hosts

- [France-Berkeley Fund](#): Modeling the Moorea Social-Ecological System (MoSES): Linking Socio-economy to Ecological Processes
- NSF CNH: [Socio-Ecosystem Dynamics of Human-Natural Networks on Model Islands](#) #1313830
- NSF Coastal SEES (Track 1), [Collaborative: Adaptive Capacity, Resilience, and Coral Reef State Shifts in Social-ecological Systems](#) #1325652
- [Island Digital Ecosystem Avatars](#) (IDEA) Consortium
  - UC Berkeley [Vice Chancellor for Research](#)
  - Department of Environmental Science, Policy, and Management ([ESPM](#))
  - Berkeley Institute for Data Science ([BIDS](#))
  - Berkeley [D-Lab](#) (Data Intensive Social Science)

## Organizers

Joachim Claudet (CNRS)

Neil Davies (Berkeley)

## Theme

The workshop brings together groups already working on Social Ecological Systems in the model islands of French Polynesia as well as other members of the IDEA Consortium.

## Abstract

Under the open and collaborative “Island Digital Ecosystems Avatar (IDEA) Consortium”, the goal is to develop a ‘convergent’ methodological framework for knowledge acquisition, transfer, and elaboration as part of a joint research program that will aim to (1) characterize the multidisciplinary functional attributes of the social-ecological system of Moorea; (2) quantify the relationships between those functional attributes under current states of local to global stressors; and (3) model the trajectories of indicators of goods and services of the social-ecological system of Moorea under alternative projections of climate change and other stressors given a range of potential policy and management scenarios. Existing data from the CRIOBE and GUMP field stations will be used. The model will also serve to identify relevant social and economic metrics and indicators of the state of the Moorea social-ecological system that should be added to the substantial ongoing ecological and environmental monitoring programs at CRIOBE (e.g., CNRS INSU) and GUMP (e.g., NSF LTER).

## Participants

- See [list of participants](#) (note - some listed are still to be confirmed and others may be added)

- The meeting is by invitation only but is open to all those at Berkeley who are interested in participating (subject to space limitations in the rooms). Please contact [Neil Davies](#) for details.

## Location

The workshop is generously hosted by Berkeley's [D-Lab Room 356B Barrow's Hall](#)

## Housing

Most visitors will be housed at the [Downtown Berkeley Inn](#)

## Travel Information

[Berkeley campus](#) is easily accessible from San Francisco international airport (SFO) as well as from Oakland airport. See [Visiting Berkeley](#) page for information.

## Internet Access

Participants should access [Cal Visitor wifi](#) or Eduroam. See [Airbears](#) for more information.

Format (Flexible)

- IDEA Plenary sessions
- Project Breakouts (CNH, SEES, MoSES)
- Social interactions Monday and Tuesday evening (receptions/dinners).

## Program

The plenaries develop convergent research among all participants as part of the collaborative IDEA Consortium. Project breakouts are for each program to advance their specific projects but are also opportunities to exchange among the groups as appropriate. The final afternoon (Wednesday) is left open for each project to meet further as needed.

(The meeting is flexible, informal and friendly; the balance of plenaries and breakouts as well as the need for each project to meet separately can be adjusted as desired by the participants)

### Monday 8 December

8:30am Breakfast - Coffee / Pastries

#### 09:00 - 10:30 Session 1 - Moorea IDEA & Introductions

Chair: Neil Davies (Berkeley)

D-Lab: [Room 356B Barrow's Hall](#)

09:00 Welcome and Introductions - Chair

09:30 Moorea IDEA: 4D Model - Matthias Troyer and Armin Grün (ETH Zurich)

10:00 Moorea social-ecological system (MoSES) - Joachim Claudet (CNRS CRIOBE), Pierre Leenhardt (CRIOBE)

**10:30 - 11:00 Coffee**

**11:00 - 13:00 Session 2: Project Presentations**

Chair: Joachim Claudet (CNRS)

D-Lab: [Room 356B Barrow's Hall](#)

11:00 Adaptive Capacity, Resilience, and Coral Reef State Shifts in Social-ecological Systems - Sally Holbrook (UCSB), Matt Lauer (San Diego State University), Andrew Rassweiler (UCSB)

11:30 Coupled Natural Human Systems (CNH) Model Islands - Jennifer Dunne (SFI), Jennifer Kahn (William & Mary), Neo Martinez (Arizona), Patrick Kirch (Berkeley)

12:00 Traditional Knowledge, Education, and Participatory Planning in French Polynesia - Hinano Teavai-Murphy (Atitia Center-Gump)

12:30 Vector-borne infectious disease: Socio-Ecology and Public Health in French Polynesia - Hervé Bossin (Institut Louis Malardé)

**13:00 - 14:30 Lunch**

**14:30 - 16:00 Session 3: Coupled Natural Human Systems**

Chair: Jennifer Dunne (SFI)

D-Lab: [Room 356B Barrow's Hall](#)

14:30 Human ecodynamics in Mangareva: recent and continuing archaeological investigations - Patrick Kirch (Berkeley)

14:50 Human ecodynamics in Mo'orea and Maupiti: recent and continuing archaeological investigations - Jenny Kahn (William & Mary)

15:10 Stable isotope analyses of Polynesian commensal animals - Jillian Swift (Berkeley)

15:25 The GOPS project on Polynesian rats - Guillaume Molle (Univ. French Polynesia)

15:35 Species data/interactions database - Spencer Wood (Stanford)

15:50 Humans in food webs - Jennifer Dunne (Santa Fe Institute)

16:05 Discussion

**16:15 - 16:30 Coffee**

**16:30 - 18:00 Session 4: Coastal Sustainability**

Chair: Sally Holbrook (UCSB)

D-Lab: [Room 356B Barrow's Hall](#)

14:30 Discussion - short talks that focus on some of the themes/approaches/early results within the projects. These might be preludes to the breakouts. (2 or 3 five minute presentations to kick off discussion).

**18:30 Reception/Dinner**

[Berkeley Faculty Club](#): O'Neill Room

18:30 Hors d'oeuvres

19:30 Dinner

**Tuesday 9 December**

8:30am Breakfast - Coffee / Pastries

**09:00 - 10:30 Session 5: Breakouts/Project Meetings**

D-Lab: [Room 356B Barrow's Hall](#)

- Coupled Natural Human Systems
  - species databases and the next steps for the trophic modeling
  - organizing May meeting in Moorea
- Coastal Sustainability
- IDEA

**10:30 - 11:00 Coffee**

**11:00 - 12:30 Session 6: Breakouts/Project Meetings**

D-Lab: [Room 356B Barrow's Hall](#)

- Coupled Natural Human Systems
- Coastal Sustainability
- IDEA

**12:30 - 14:00 Lunch**

**14:00 - 16:00 Session 6: Moorea IDEA Pilot Project Proposal**

Chair: Neo Martinez (Arizona)

D-Lab: [Room 356B Barrow's Hall](#)

14:00 Draft work package for social science component of [IDEA pilot project proposal](#)

**16:00 - 16:30 Coffee**

**16:30 - 18:00 Session 7: Breakouts/Project Meetings**

D-Lab: [Room 356B Barrow's Hall](#)

- Coupled Natural Human Systems
- Coastal Sustainability
- IDEA

19:00 Reception/Dinner - The Faculty Club

## Wednesday 10 December

8:30am Breakfast - Coffee / Pastries

09:00 - 10:30 Session 8: Synthesis

D-Lab: [Room 356B Barrow's Hall](#)

Chair: TBD

9:00 Discussion

**10:30 - 11:00 Coffee**

11:00 - 13:00 Session 9: Action Plan

D-Lab: [Room 356B Barrow's Hall](#)

Chair: TBD

11:00 Wrap up - Action Plan

**13:00 - 14:30 Lunch**

14:30 - 17:30 Session 10: Optional Project Meetings

D-Lab: [Room 356B Barrow's Hall](#)

14:30 Individual Project Meetings as desired

## Deliverable

[3 Page Proposal for the Moorea IDEA](#)

## Notes

### Website

#### Data

Generate a registry of funded projects that are generating data (e.g., CNH grant title, short description - esp data management plan - and contact/PI). Aggregate these as appropriate (e.g., projects under CRIOBE). Neil and Joachim to initiative. Add list to website for "Data Sources"

### Models

Registry of models - people send in their list of model titles and we can organize them accordingly, for example from MCR-LTER

- **Circulation Models**

- Hench, Washburn, Leichter & Rosman: [Lagoon & Island Circulation Patterns](#)
- Miller & Freeman: [Regional Oceanic Modeling System \(ROMS\) Circulation](#)

- **Population and Community Models**

- Nisbet, Muller & Edmunds: [Dynamic Energy Budget of Coral Growth & Performance](#)
- Yau & Lenihan: [Giant Clam Population Projection](#)
- Briggs, Schmitt, Holbrook, Adam & Brooks: [Reef Resiliency](#)

## **Participants**

Nodes -

Participants -