



INSTITUTE OF  
MARINE BIOLOGICAL RESOURCES  
AND INLAND WATERS



Call for applications

7<sup>th</sup> Summer School on Samothraki Island, Greece

## Aquatic and Social Ecology

19-28 June 2020



*Organized by the:*

*Vienna Institute of Social Ecology (SEC), University of Natural Resources and Life Sciences (BOKU), and the Institute of Marine Biological Resources and Inland Waters, Hellenic Centre for Marine Research (HCMR)*

### Introduction

The course is designed as a ten-day excursion to the island of Samothraki in Greece, organized by the Vienna Institute of Social Ecology, University of Natural Resources and Life Sciences (BOKU), (<https://boku.ac.at/wiso/sec>) in collaboration with the Institute of Marine Biological Resources

and Inland Waters of the Hellenic Centre for Marine Research in Athens (<https://imbriw.hcmr.gr/>). The aim is to learn and apply social ecology and aquatic ecology approaches in a local setting while supporting current research and building synergy with a UNESCO Biosphere Reserve process. The course gives students the opportunity to engage in a real-life project and utilize their scientific training to support the process further, gather missing information in fieldwork and contribute to a science plan for further research that would also meet local interests. This will provide students with the experience of participating in a transdisciplinary research process, being exposed to a search for solutions for sustainability and development challenges, and learning to interact with stakeholders in a culturally challenging environment. The course will conclude with a reflection on the experiences and written student reports on the results of their specific research. After a general introduction, three modules will be performed in parallel, each consisting of an information block, participating field research, data analysis and reporting.

The course addresses mainly Master Degree students from both the natural and social sciences (environmental sciences, environmental sociology, aquatic ecology, human and social ecology, water resources management, development studies, etc.) with an interest in sustainability and local developmental challenges.

## Lectures and methods

Theoretical input will be provided by several members of the research consortium presenting different aspects of current and future research undertaken on the island. Confirmed speakers so far include: **Prof. Marina Fischer-Kowalski** (Vienna Institute of Social Ecology, University of Natural Resources and Life Sciences), **Dr. Nikolaos Skoulikidis** (Research Director, Institute of Marine Biological Resources and Inland Waters, Hellenic Centre for Marine Research, Greece), **Ass. Prof. Simron Singh** (Faculty of Environment, University of Waterloo, Canada), **Dr. Elias Dimitriou** (Research Director, Institute of Marine Biological Resources and Inland Waters, Hellenic Centre for Marine Research, Greece), **Dr. Stamatis Zogaris** (Associate Researcher, Institute of Marine Biological Resources and Inland Waters, Hellenic Centre for Marine Research).

For the most part, students will be split in small groups and conduct desk and fieldwork in an array of social and natural science methods frequently used in socioecological and aquatic research. All participants are expected to read a number of preparatory texts ahead of the summer school, which will be available electronically in advance. Each method will then be practically demonstrated by a tutor guiding the small student groups throughout the field work. Each student participant will focus on one of the following methods and research questions:

## Modules

### 1) Water budget – Identifying sources of water on Samothraki Island (*Tutors: Nikolaos Skoulikidis, Elias Dimitriou, Anastasios Papadopoulos, Anastasia Lampou*)

Contrary to other Aegean islands, Samothraki has significant water resources considering its area and is characterized by exceptionally high surface runoff with abundant perennial springs and streams (Skoulikidis et al. 2014). Considering the low capacity of fractured groundwater aquifers of the mountainous part of the island, sparse summer rains alone cannot explain the existence of spring flow during the dry period of the year. Besides elevated rainfall and snow cover triggered by the mountainous character of the island, field observations and related data indicate that cloud and fog vapor condensation or local orographic drizzles, that particularly occur during the night, may additionally contribute to surface runoff, especially during the dry period of the year, when rainfalls are scarce (Skoulikidis et al. 2020). In fall 2018, HCMR has installed a meteorological station at an altitude of 800m in the basin of Fonias stream and an automatic level recorder near the stream's outflow. A public meteorological station is also operating at Chora of Samothraki (90 m asl) since 2008. Monthly discharge data for the same stream are available from the period 1986-91.

In the context of this module, participants will have the chance to work on the estimation of (i) the water budget of Fonias basin and (ii) the contribution of vapor condensation and/or local drizzles to Fonias stream runoff. For these purposes, the following exercises will be carried out: a) estimation of evapotranspiration using meteorological data, b) calculation of stream water travel time, c) water level and flow measurements to carry out a level-discharge rating curve near Fonias stream outflow to convert the automatic water level gauge measurements to discharge, d) estimation of statistically significant differences of day - night discharges, e) estimation of extra water sources (vapor condensation and/or drizzles) contributing during the night, by using meteorological data, and f) measurements of vapor condensation processes using a special scientific instrument.

### 2) Biodiversity and landscape field survey methods (*Tutors: Stamatis Zogaris, Vassiliki Vlami*)

Most of Samothraki is included in two Natura 2000 sites (protecting listed birds, flora, fauna and selected habitat types). However, the island's landscapes are changing and there are significant future threats; these include two industrial wind farm proposals (initially involving 39 wind turbines on Mount Saos). Although Natura 2000 sites focus on protecting native biodiversity, even otherwise popular biotic elements such as birds are poorly studied here. And birds, some of which may be impacted by wind farms, are important as environmental indicators and for conservation zonation within relevant Natura 2000 sites. Assessing land use and landscape change impacts is often difficult to

approach due to data-scarcity and poor attention to local context. The landscape protection framework (policy and practice) also has serious management difficulties, even within Natura 2000 sites in Greece. Since the early 2010s we have been surveying birds, riparian vegetation, river biota and landscapes on many field visits on Samothraki. Using rapid assessment protocols we are continuing the field survey network and want to develop and expand this in this module. We also plan to investigate ways that rapid field survey methods may help scientists and citizen scientists contribute to conservation studies and sustainability.

In the context of this module, students will participate in both technique-building and field survey endeavors; it will be a small-team hands-on process. Students can expect to gain an interdisciplinary knowledge of landscape ecology and various field skills (including nature journaling and applying rapid assessment field protocols). Survey techniques used in the module will include: a) the landscape assessment protocol (LAP), b) bird census and scientific birding techniques (transects, search-find, site listing, etc.), and c) riparian vegetation assessment (QBR+). Although there is no pre-requisite of landscape studies, birding or botany skills; students with previous knowledge and experience in biodiversity work could bring added value to the course; of course, any post-graduate student with a deep interest in field studies and conservation may apply.

### **3) Energy metabolism: Can Samothraki become carbon neutral?** (*Tutors: Simron J. Singh, Marina Fischer-Kowalski, Panos Petridis*)

Energy is critical for human development. Yet, on average, more than 90 percent of energy consumption on small islands is met through oil imports, and in some cases, cost up to 20% of their GDP. The sustainability challenges here are two-fold: dependency on outside for their energy supply at a high cost, and the reliance on fossil fuels, a major source of global warming. Several island nations and island jurisdictions are now prioritizing renewable energy to drive their economies, thus addressing the twin goals of energy security and the environment, while benefitting the local economy.

This module will focus on Samothraki's future energy system, and explore the question "Can Samothraki become carbon neutral?" The current period is crucial for the future development path of the island economy. Since the last 2 decades, primary energy provision through fossil fuels is in decline, and a growing number of farmers installed solar panels on their fields for electricity export. Recent plans to install an industrial wind park with 39 wind turbines for the export of electricity in one of the most remote areas on the island, increased the potential for conflicts within the local community. In the context of this module, students will attempt to answer the following questions:

- What historical developments led to the current energy system of Samothraki, and what sustainability challenges have emerged as a consequence?
- What primary energy input and which technologies are required to sustainably

maintain the final energy use at current levels? Is this even possible with the current infrastructure?

- How does the next biophysical transition on Samothraki look like with respect to energy? Can Samothraki become carbon neutral?

**Location and access:** The island of Samothraki is located 25 miles south of the coastal city Alexandroupolis, the only entry point to the island. There are daily ferries connecting Alexandroupolis with Samothraki, the trip lasts approximately 2 hours and 15'. Due to infrequent boat connection (usually once per day – schedule not out yet), keep in mind you might require an overnight stay in Alexandroupolis.

**Participation fee:** **350€**, covering attendance to theoretical and practical lectures, accommodation at the camping site, local transportation, half board (breakfast and lunch), a final dinner and a two-day trekking tour.

**ECTS:** Participants reading the preparatory literature, successfully attending the Summer School and contributing to the final report, will be awarded a certificate of attendance which will provide them with **6 ECTS** credits.

**Application:** Interested students should send a short motivation letter to [petridispanos@gmail.com](mailto:petridispanos@gmail.com) and [alampou@hcmr.gr](mailto:alampou@hcmr.gr), **by April 12**, indicating one (or more) preferences among the modules outlined above.

**More information:** <http://sustainable-samothraki.net/>  
<http://samothraki-observatory.hcmr.gr/>