

*Naima Lunda  
oat elokuvia  
1967  
-P. Kangas  
E. Kolehmainen*

**Interreg  
Nord**

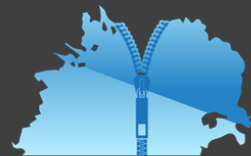
European Regional Development Fund



EUROPEAN UNION

# History of marine research in the northern Bothnian Bay

Essi Keskinen



**SEAmBOTH**

*Seamless Bothnian Bay*



Oulu University started 1959 with good resources

- First aquatic fauna course in 1963

Vesieläinkurssi oli ensimmäinen  
5 - 14.8.63



Johtaja FK Ilpo Haahtela



Planktonnäytteitä  
nostetaan



Photos: Ilpo Haahtela



M/S ARANDA Kruunnien vesillä  
kesäkuussa 1964



Vedennoutaja

- tohtori Erkki Palosuo -



ja  
pohjanoutaja

Photos: Ilpo Haahtela

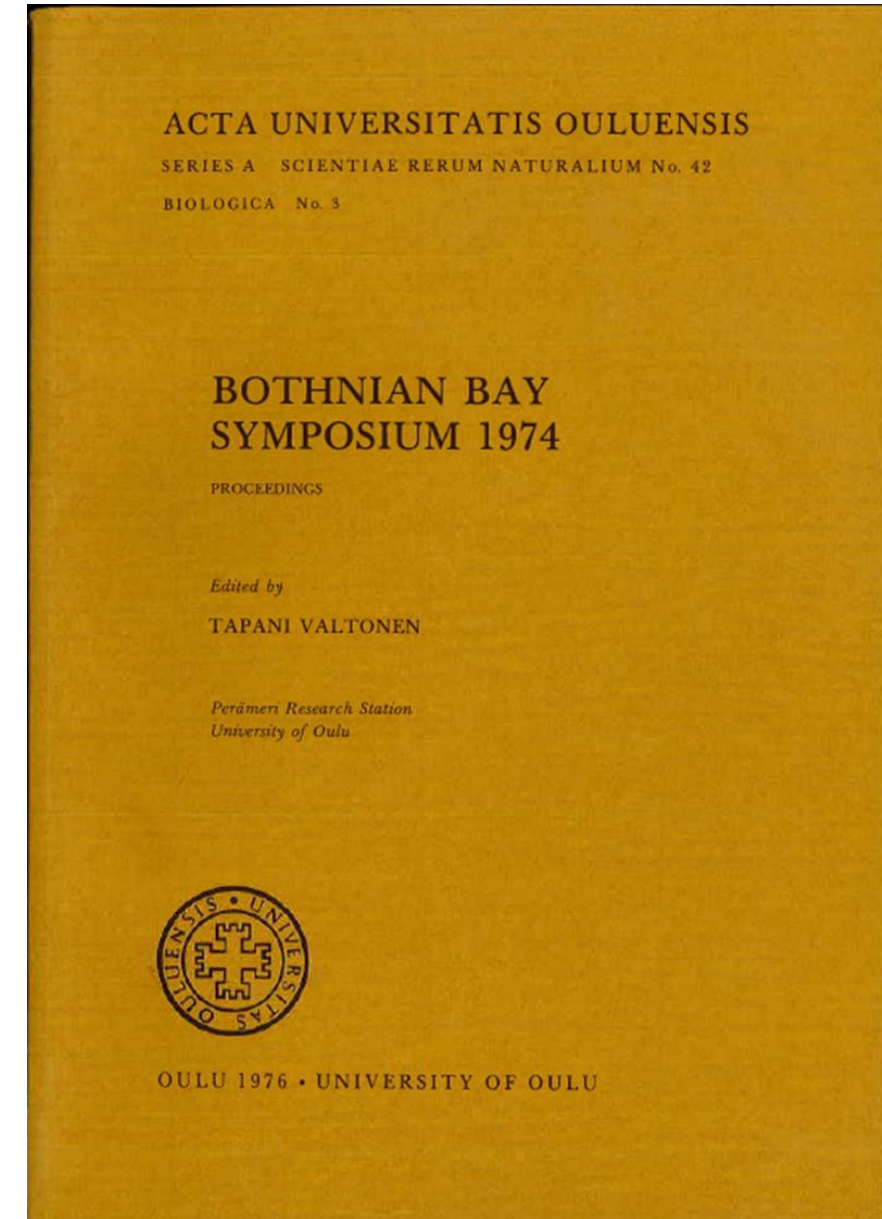
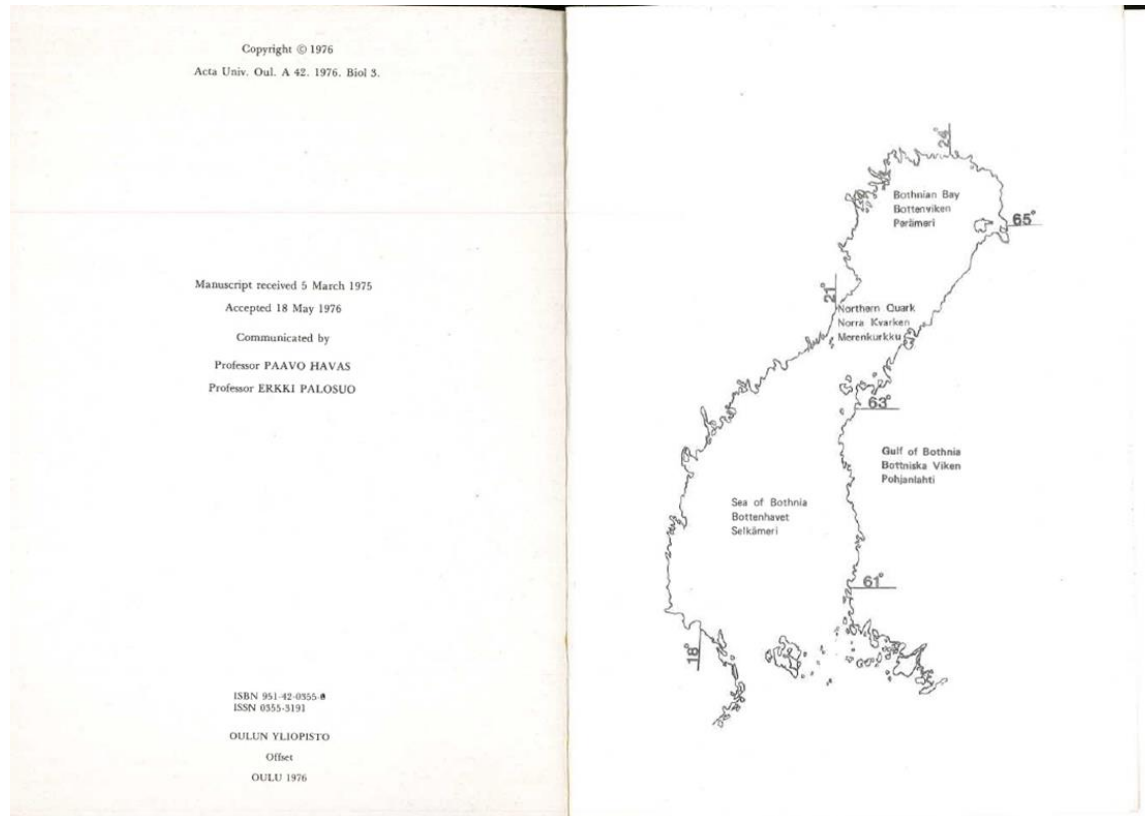
M/S Aranda (SYKE) came to  
study northern Bothnian Bay in  
1964



Photo: Kymi

# International Biological Program IBP 1964-1974

”...biological studies focusing on the productivity of biological resources, human adaptability to environmental change, and environmental change itself.”







Aivan rantamatalassakin on "sukeltavilla" biologeilla tutkittavaa. I Kurssin jälkeen ensimmäinen avovesisukellus Oulunsalon Papinjärvellä 5.8.1966.  
Kumiveneessä Pentti Kangas.

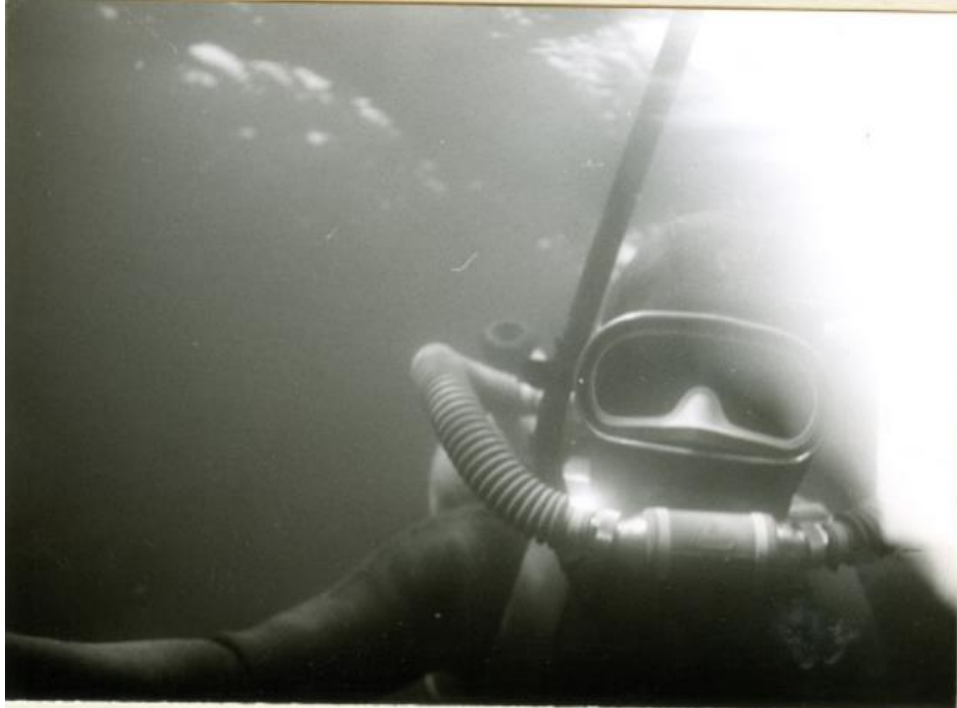
Sukeittajailton kautta. Hän oli ilton koulutusvaliokunnan jäsen, helsinkiläinen Per Olov Jansson.

Oulun yliopiston sukellustekniikan peruskursin Raatin uimahallissa tammikuussa 1966. Kerssin kouluttaja Per Olov Jansson (siniset uimahousut) Suomen Urheilusukeltajain Liitosta (nyk. Sukeltajaliitto) katsomossa keskellä. Hänen takanaan Ilpo Haahela, Kalevi Heikura auttaa paininallamaitteita Pentti Kankaan selkään.

Tutkimustyöhön tarvittiin sukeltajia

# Eld in Oulu 1966

Opettaja Suomen Urheilusukeltajain Liitosta



Naima lundat  
00at elokuvasta  
1967

-P. Kangas  
E. Kokkonen



Photos: P. Kangas, E.  
Kokonniemi, I. Haahtela



Pro gradu-tutkielma:  
TUTKIMUS KRUNNIEN ALUEEN KARIKKOPOHJIEN  
ELÄIMISTÖSTÄ SUKELLUSMENETELMÄLLÄ

Pentti Kangas  
OULUN YLIOPISTON ELÄINTIETEEN LAITOS  
1971

Masters thesis from 1971 (Pentti Kangas, University of Oulu):

A study of benthic fauna around Krunnit archipelago reef bottoms by scuba diving methods

# THE PLANT COVER OF SOME LITTORAL BIOTOPES AT KRUNNIT (NE BOTHNIAN BAY)

Guy Hällfors

Department of Botany and Tvärminne Zoological Station,  
University of Helsinki, Helsinki

## Abstract

The macroscopic plant cover of the littoral biotopes studied by the Finnish IBP-PM Group is described. The flora of the hard-bottom biotopes is very poor in species, *Cladophora glomerata* dominating in the hydrolittoral and *C. aegagropila* in the sublittoral. The soft-bottom biotopes are characterized by a more diverse plant cover consisting largely of vascular plants and charophytes. The variation in biomass (dry wt·m<sup>-2</sup>) of the principal species and of the total vegetation is presented.

## Introduction

The main goal of the IBP-PM littoral investigation, begun in 1968, was to obtain reference data for a monitoring of the biota of the northern Baltic Sea. Study of the annual and seasonal fluctuations of typical littoral communities, including species composition and biomass, was undertaken. This investigation was conducted at Tvärminne Zoological Station, at the entrance to the Gulf of Finland, and at the Krunnit Biological Station. These are respectively typical of the Baltic proper and of the northeastern Bothnian Bay. Both areas are relatively undisturbed by man. A presentation of the research programme is given by LUTHER *et al.* (1975). The present paper provides a brief description of the biotopes studied in the Krunnit area, and an outline of their vegetation. The fauna is treated by KANGAS (1976).

Previously, aquatic macrophytes and littoral algae of the Bothnian Bay have received little attention. Apart from stray observations, the available information is contained in the papers of KROK (1869) and JULIN & PEKKARI (1956).

# The plant cover of some littoral biotopes at Krunnit (NE Bothnian Bay), Guy Hällfors, 1976

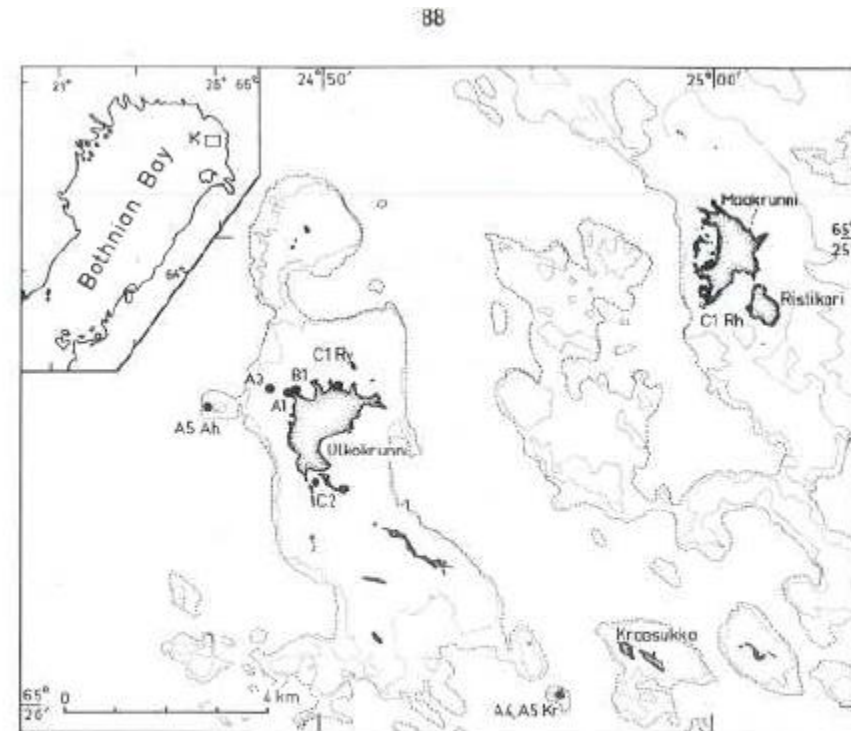
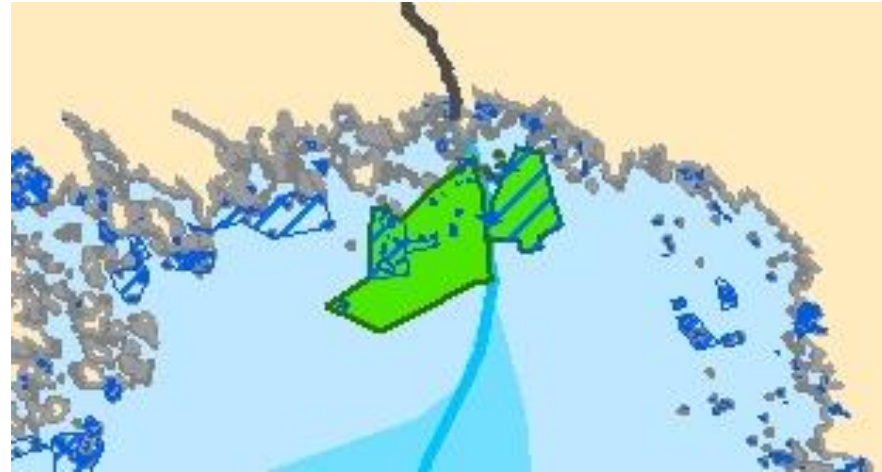
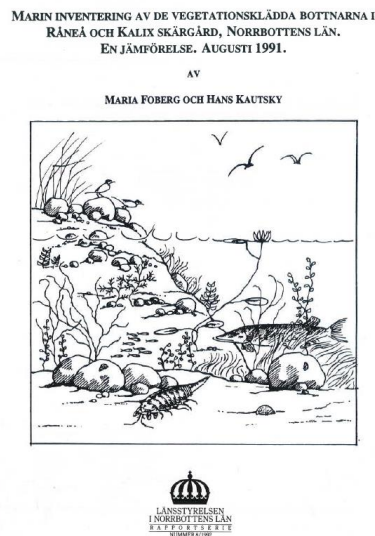
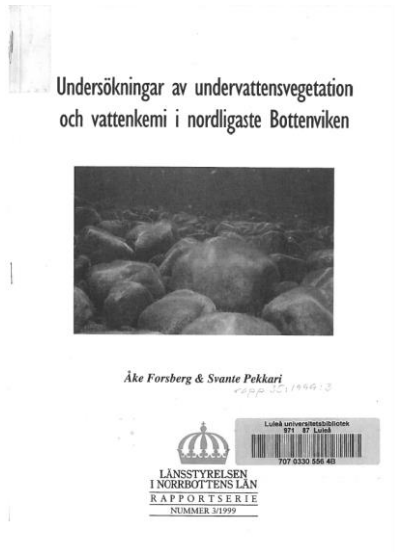


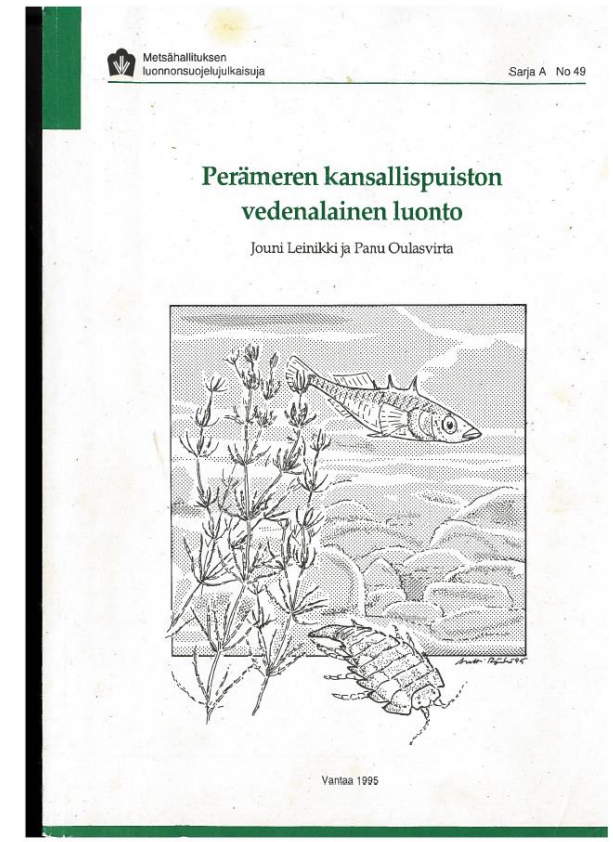
Figure 1. The study area. The biotope codes correspond to those given in Tables 1-3. Isobaths: . . . . . 5 m, - - - - - 10 m, slightly generalized. Insert: the Bothnian Bay, K = the Krunnit area.



# Two national parks established in 1991 (Perämeren kansallispuisto) and 1995 (Haparanda Skärgårds National Park)

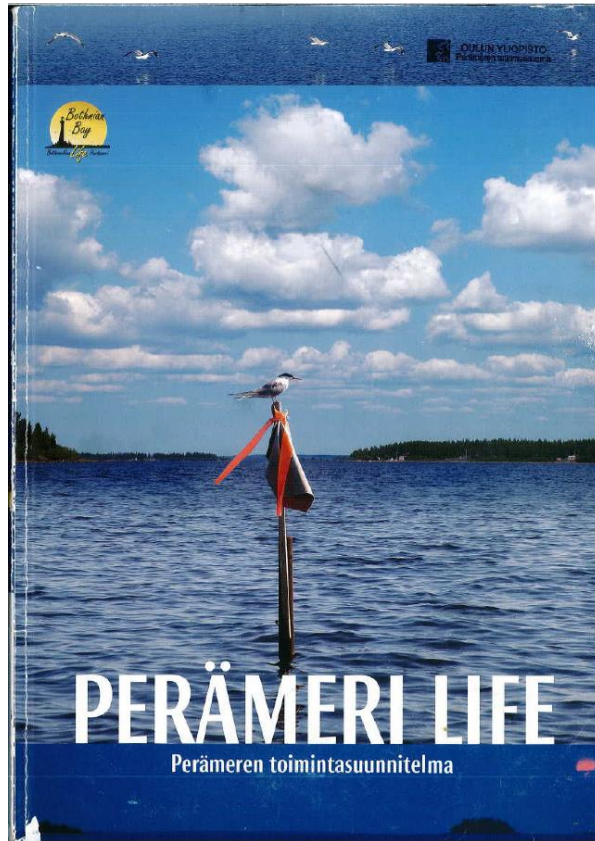


Underwater biological mapping done  
in both national parks, and Råneå  
and Kalix 1991 - 1999



# Perämeri Life in cooperation with Bothnian Bay environmental authorities in 2001-2005

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## English summary

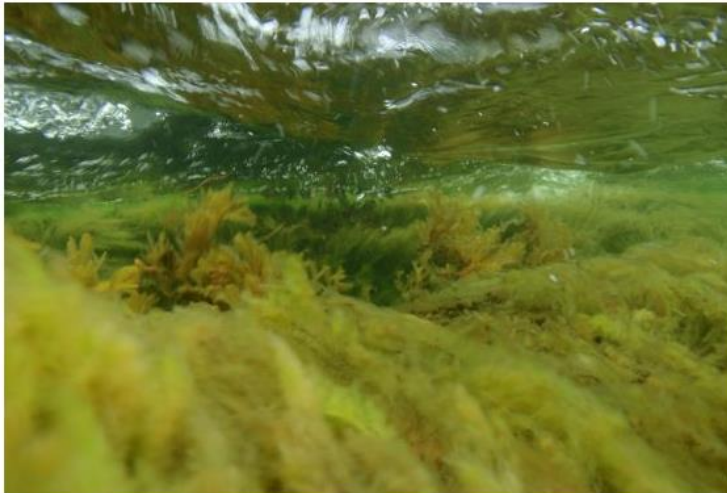
The environmental authorities around the Bothnian Bay started the cooperation project Bothnian Bay Life in late 2001. The project got funding from EU Life Environment and several industries, municipalities and other actors of the area, both in Finland and Sweden. The main objectives were to improve information exchange between countries, regions, industries and municipalities; to develop guidelines for integrated management and monitoring; and to define targets and priorities towards sustainable development in the area. The project's main product is the Integrated Management System for the Bothnian Bay, formed of 1) Environmental Information Database, 2) BAT Information Exchange System, 3) Water Quality and Ecosystem Model, and 4) Bothnian Bay Action Plan. The main part of the system is available in the web site <http://www.ymparisto.fi/perameri>.



# VELMU national underwater programme in Finland 2004-2016

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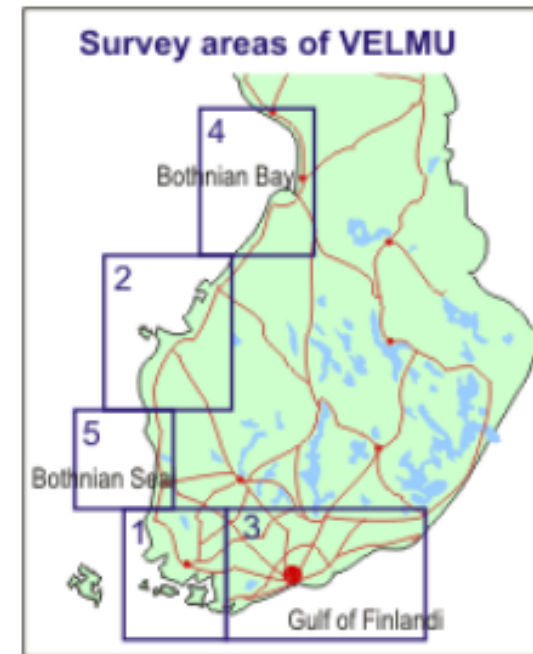
## The Finnish Inventory Programme for the Underwater Marine Environment, VELMU



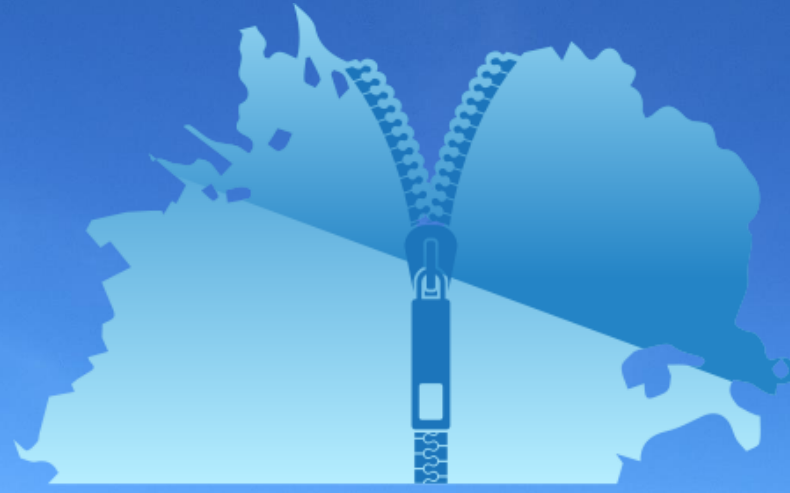
© Jussi-Tapio Roininen, Metsähallitus

**VELMU collects data on the occurrence of underwater marine biotopes, species and communities in Finland's marine waters. The programme contributes to the Baltic marine protection and to the sustainable use of the sea and its natural resources.**

VELMU MAP SERVICE



1. The Archipelago Sea
2. The Quark area
3. The Gulf of Finland
4. The Bothnian Bay
5. The Bothnian Sea



# SEAmBOTH

*Seamless Bothnian Bay*

2017-2020













Thank you!