

Sea and Coast

SPECIAL EDITOR

Björn Sjöberg

THEME MANAGER

Swedish Meteorological and
Hydrological Institute

The National Atlas of Sweden

SNA Publishing will publish between 1990 and 1996 a government-financed National Atlas of Sweden. The first national atlas, *Atlas över Sverige* was published in 1953–71 by Svenska Sällskapet för Antropologi och Geografi, SSAG (the Swedish Society for Anthropology and Geography). The new national atlas describes Sweden in seventeen volumes, each of which deals with a separate theme. The organizations responsible for this new national atlas are Lantmäteriverket, LMV (the National Land Survey of Sweden), SSAG and Statistiska centralbyrån, SCB (Statistics Sweden). The whole project is under the supervision of a board consisting of the chairman, Jim Widmark and Sture Norberg (LMV), Staffan Helmfrid and Åke Sundborg (SSAG), Frithiof Billström and Gösta Guteland (SCB) and Leif Wastenson (SNA). To assist the board and the editors there is a scientific advisory group of three permanent members: Professor Staffan Helmfrid (Chairman), Professor Erik Bylund and Professor Anders Rapp. A theme manager is responsible for compiling the manuscript for each individual volume. The National Atlas of Sweden is to be published in book form both in Swedish and in English, and in a computer-based version for use in personal computers.

The English edition of the National Atlas of Sweden is published under the auspices of the Royal Swedish Academy of Sciences by the National Committee of Geography with financial support from Knut och Alice Wallenbergs Stiftelse and Marcus och Amalia Wallenbergs Stiftelse.

The whole work comprises the following volumes (in order of publication):

MAPS AND MAPPING
THE FORESTS
THE POPULATION
THE ENVIRONMENT
AGRICULTURE
THE INFRASTRUCTURE
SEA AND COAST
CULTURAL LIFE, RECREATION AND TOURISM
SWEDEN IN THE WORLD
WORK AND LEISURE
CULTURAL HERITAGE AND PRESERVATION
GEOLOGY
LANDSCAPE AND SETTLEMENTS
CLIMATE, LAKES AND RIVERS
MANUFACTURING, SERVICE AND TRADE
GEOGRAPHY OF PLANTS AND ANIMALS
THE GEOGRAPHY OF SWEDEN

CHIEF EDITOR	Leif Wastenson
EDITORS	Staffan Helmfrid, Scientific Editor Märta Syrén, Editor of <i>Sea and Coast</i> Ulla Arnberg, Editor Margareta Elg, Editor
PRODUCTION	LM Maps, Kiruna
SPECIAL EDITOR	Björn Sjöberg
TRANSLATOR	Nigel Rollison
GRAPHIC DESIGN	Håkan Lindström
LAYOUT	Typoform/Peter Johnsson, Gunnel Eriksson
REPRODUCTION	LM Repro, Luleå
COMPOSITION	Bokstaven AB, Göteborg
DISTRIBUTION	Almqvist & Wiksell International, Stockholm
COVER ILLUSTRATION	Lennart Broborn/N

First edition
© SNA
Printed in Italy 1992

ISBN 91-87760-04-5 (All volumes)
ISBN 91-87760-16-9 (Sea and Coast)

849 803 9 75
CATE
13.4.1993

Contents

“The Lone-Flier Screams. . .”	6	Water in the West and Water in the East	56
ARNE GADD		LARS ANDERSSON, BERTIL HÅKANSSON, JAN-ERIK LUNDQVIST, ANDERS OMSTEDT, LARS-ARNE RAHM, BJÖRN SJÖBERG AND JONNY SVENSSON	
The Oceans	8	Water Turnover, Fresh Water Supply and Salinity	56
JOHAN RODHE		Temperature and Ice	58
Sea to the West and to the East	10	Wind Waves	62
STIG FONSELIUS		Water Level	64
Development of the Seas	14	Currents	66
INGEMAR CATO AND BERNT KJELLIN		Oxygen and Hydrogen Sulphide	68
Pre-Quaternary	14	Nutrients	70
Quaternary	14	Life in the Sea	73
Bottoms and Sediments	16	HANS CEDERWALL, LARS EDLER, LARS HERNROTH, ALF JOSEFSON, BENGT SJÖSTRAND, JARL-OVE STRÖMBERG, BJÖRN TUNBERG AND INGER WALLENTINUS	
INGEMAR CATO, BERNT KJELLIN AND KJELL NORDBERG		Phytoplankton	78
Erosion and Deposition	22	Zooplankton	81
What the Shelf Sediment Reveals	22	Vegetation	84
Microfossils	24	Bottom Fauna	88
Coast and Shore	26	Fish	94
JOHN O. NORRMAN		Marine Resources	96
Coastal Regions	28	KJELL GRIP	
The Archipelago Coast of the Skagerrak	29	Boundaries of the Sea	98
The Lowland Coast of the Kattegat	30	STIG CARLBERG AND BJÖRN SJÖBERG	
The Open Coasts of Skåne	31	Fisheries and Aquaculture	100
The Blekinge Archipelago	32	BENGT SJÖSTRAND	
Kalmarsund, Öland and Gotland	32	Fisheries—an Industry with Ancient Traditions	100
The Archipelago Coast of Östergötland	34	Swedish Fisheries During the 20th Century	101
The Archipelago Coast of Stockholm and Södermanland	35	Fish Processing	108
The Coastal Plain of the Bothnian Sea	36	Leisure-time Fishing	110
The High Coast—Höga Kusten	37	Aquaculture	112
The Coast of the Northern Quark	38	Shipping and Navigation	114
The Archipelago Coast of the Bothnian Bay	39	KJELL GRIP	
Weather and Climate of the Sea	40	Environmental Effects	115
WEINE JOSEFSSON AND HALDO VEDIN		Energy	116
The Sea and Sea-water	46	KJELL GRIP	
JOHAN RODHE		Emissions	118
Distribution of Different Water Masses	46	KJELL GRIP	
Ice in the Sea	48	Mineral Resources	120
Currents and Circulation	48	INGEMAR CATO AND BERNT KJELLIN	
Variations in Water Level	51	The Changing Sea	122
Elements in the Water—Mixing and Dispersion	52	ANDERS STIGEBRANDT	
ELISABET FOGELQVIST, STIG FONSELIUS AND LARS-ARNE RAHM			