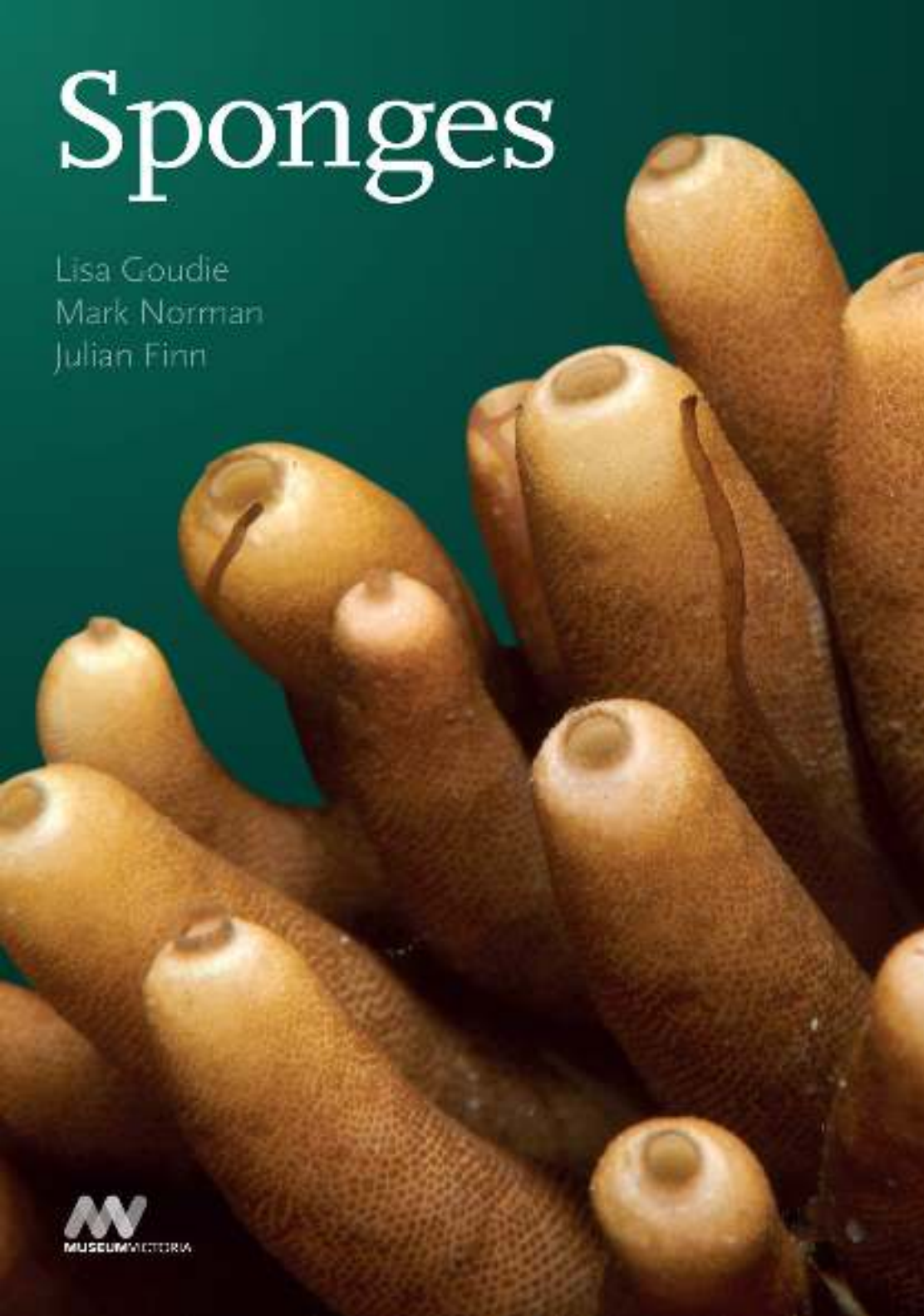


Sponges

Lisa Goudie
Mark Norman
Julian Finn





Tedanya (*Tedanya*) *anhelans*, from Portsea Pier, Port Phillip Bay.



A Museum Victoria

Field Guide to Marine Life

Sponges

Lisa Goudie

Mark Norman

Julian Finn



Published by
Museum Victoria 2013

© Text copyright
Museum Victoria

© Images copyright Museum
Victoria unless otherwise noted.
Museum Victoria has made every
effort to obtain copyright and
moral permission for use of all
images. Please advise us of any
errors or omissions.

Museum Victoria

Publishing

GPO Box 666

Melbourne Vic 3001 Australia

Tel + 61 3 8341 7370 or 8341 7536
publications@museum.vic.gov.au

Museum Victoria
www.museumvictoria.com.au

Dr J. Patrick Greene
CHIEF EXECUTIVE OFFICER

Dr Robin Hirst

DIRECTOR, COLLECTIONS,
RESEARCH AND EXHIBITIONS

Dr Mark Norman
HEAD, SCIENCES

Series editors

Mark D. Norman
Melanie Mackenzie

Other titles in the series

An introduction to marine life
Barnacles

Crabs, hermit crabs and allies
Shrimps, prawns and lobsters

PRINTED BY

BPA Print Group
ORIGINAL DESIGN BY
Propellant

TYPESET BY

the printer's drawers

National Library of Australia
Cataloguing-in-Publication entry
Goudie, Lisa.

Sponges / Lisa Goudie, Mark D.
Norman and Julian Finn.

Includes bibliographical
references and index.

Sponges--Australia,
Southeastern.

Other Authors/Contributors:

Norman, Mark Douglas.

Finn, Julian.

Museum Victoria.

ISBN: 9780980381399 (pbk.)

9781921833151 (e-pub)

9781921833182 (e-pdf)

593.40994

The content of this publication
is provided for information
purposes only and is not intended
as a substitute for professional
advice. Museum Victoria does not
accept liability for any damage,
loss, injury or death to any person
in relation to the information
or advice (or the use of such
information or advice) which is
provided in this publication.

FRONT COVER IMAGE

Sycon sp.

Photographer: Mark Norman

IMAGES ON BACK COVER

Dactylia sp. LG1

Speciospongia purpurea

Echinoclathria sp. LG1

Photographer: Mark Norman

Funding for the Museum Victoria

Field Guides to Marine Life is

gratefully acknowledged from the

Australian Government through

a grant from its Natural Heritage

Trust. The grant was facilitated by

the Port Phillip and Westernport

Catchment Management

Authority. Publication of the

series is funded in part by the

Victorian Coastal Council and

Parks Victoria.

MUSEUM VICTORIA
FIELD GUIDES
TO MARINE LIFE

These field guides to marine life enable the amateur naturalist, beachcomber or environmental scientist to identify the marine animals most commonly found on the shore or in shallow waters along the coast of the state of Victoria, Australia. South-eastern Australia is characterised by a rich marine fauna, with many species found nowhere else. Commonly, species found along the Victorian coast also occur in Tasmania, southern New South Wales, and along the southern coast of the continent, through South Australia, into southern Western Australia.

This series aims to cover the common marine animals, and each book deals with a different group. More species live on the Victorian shore and in its shallow waters than are included in each book, and many more inhabit the deeper waters of Bass Strait and beyond. See Further Information at the end of this guide, and Museum Victoria's website: museumvictoria.com.au.

Museum Victoria encourages individuals to explore the diversity of coastal habitats, but discourages unnecessary removal of specimens from their natural environment. Museum scientists are interested in new discoveries, and unusual findings can be reported to the Discovery Centre at Museum Victoria, or to Reef Watch Victoria: info@reefwatchvic.asn.au.

Reef Watch Victoria is a community-based marine monitoring program for Victoria's temperate marine

environment. Divers and snorkellers conduct regular surveys at their favourite Victorian reef sites using the Reef Watch monitoring kit. For more information, go to: www.reefwatchvic.asn.au.

The Marine Research Group (MRG) is a branch of the Field Naturalists Club of Victoria which has had a long and productive working relationship with Museum Victoria, actively undertaking research into Victoria's rich marine life, and providing curatorial and survey assistance with Museum Victoria's extensive marine invertebrate collection. The MRG meets regularly, welcomes new members, and can be contacted at: www.fncv.org.au.

A large proportion of the images and information presented in this guide has resulted from the 'Under the Lens' partnership between Museum Victoria and Parks Victoria. Along with ports and harbours, Parks Victoria manages marine national parks and sanctuaries throughout Victoria. For more information, go to: parkweb.vic.gov.au.

CONTENTS

15

1	What are sponges?
2	Distribution and habitats
4	How many species?
4	Evolution and history
7	Body form
10	Sponge internal structure
10	Body layers
11	Cell types
11	Skeleton
12	Spicules
13	Reproduction
14	Age and growth rates
16	Feeding in sponges
16	Filter-feeding
16	Carnivorous sponges
17	Sponge defences
19	Predators of sponges

20	Biotic associations
23	Sponge use and commercial interest
25	Conservation and sponges
26	Classification of sponges
26	Families, genera, species
26	Characters used for identification
27	Collection and preservation
28	Slide preparation
28	Keys to sponges
29	About this guide
30	The common sponges

APPENDIX

125	FURTHER INFORMATION
129	GLOSSARY
134	INDEX OF SCIENTIFIC NAMES



Chondropsis cf. kirki.



What are sponges?

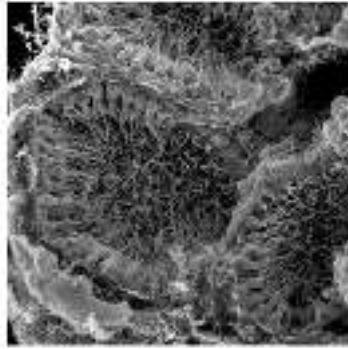
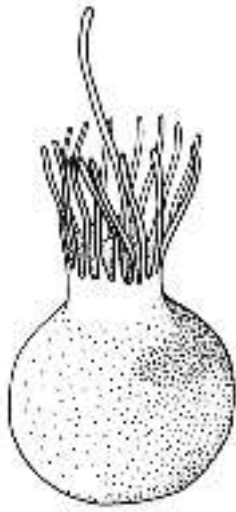
Most people think of sponges as something they use in the kitchen or bathroom. Although now more commonly made of synthetic foam, these household objects were historically made up of the skeletal remains of once-living true sponges. The term sponge means ‘to squeeze’ but not all sponges are spongy. In fact they can be soft and slimy, fibrous, prickly, sandy and crumbly, or ‘as tough as old boots’.

Bathroom sponge.

Lisa Goudie

Sponges are one of the oldest and simplest life forms on earth. Until the 18th century they were classified as zoophytes (‘plant-animals’). However, sponges are animals belonging to a group known as the Phylum Porifera, or literally, ‘pore-bearers’. Sponges are simple, multicellular organisms made up of different cell types, each with a different function. Unlike all other animals, however, the cells of sponges are not arranged or grouped to form tissues or organs. Sponges are not colonies of individual animals but rather collections of individual cells, one type of which forms a continuous outer, skin-like layer. The vast majority of sponges are filter feeders attached to the sea floor, drawing seawater through their bodies and with it the food and oxygen they need to survive. In doing so, they provide an important link between the water mass and the seafloor. Sponges are united as a group of animals by the possession of a unique cell type – the [choanocyte](#) or collar cell (see Sponge internal structure). Choanocytes each have a central flagellum, or filament, that beats

1



SPONGES

like a tadpole's tail, drawing the water in. This current draws food particles in with it, which are trapped by the surrounding collar of small hair-like structures called cilia.

Distribution and habitats

Of the thousands of sponge species in the world, the vast majority are found in marine waters. Only a fraction of these, approximately 150 species, live in freshwater systems. Sponges live at all depths of the ocean from intertidal habitats to depths of up to seven kilometres. Sponges are found from the warm waters of the tropics, where they are important reef-building organisms, to the cold oceans at the poles where glass sponges are a dominant component of the [benthic](#) (bottom-dwelling) fauna.

Choanocyte cells produce the current flow through sponges.

SEM showing sponge choanocytes.

© CC BY-SA Mark Dayel 2011

2



- [read Artistic Appeal \(Art Series\) pdf, azw \(kindle\), epub, doc, mobi](#)
- [Encyclopedia of Food Microbiology \(2nd Edition\) pdf](#)
- [click American Royalty: The Bush and Clinton Families and the Danger to the American Presidency \(The Evolving American Presidency\)](#)
- **[Competition Policy and Price Fixing book](#)**

- <http://www.gateaerospaceforum.com/?library/Artistic-Appeal--Art-Series-.pdf>
- <http://www.gateaerospaceforum.com/?library/BMF--The-Rise-and-Fall-of-Big-Meech-and-the-Black-Mafia-Family.pdf>
- <http://diy-chirol.com/lib/American-Royalty--The-Bush-and-Clinton-Families-and-the-Danger-to-the-American-Presidency--The-Evolving-American-Pr>
- <http://yachtwebsitedemo.com/books/Competition-Policy-and-Price-Fixing.pdf>