

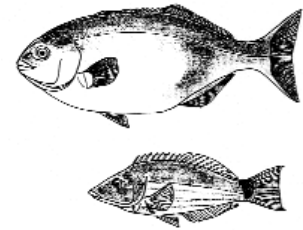
Marine reserve resources

Marine Reserves for New Zealand

by Bill Ballantine

University of Auckland, Leigh Laboratory Bulletin No. 25. 1991 pp 196

All you need to know about the establishment of marine reserves in New Zealand. Has sections: on the history of the Act and the first reserves; the need for marine conservation; comparisons with the conservation measures of other countries; selecting suitable sites for marine reserves; Applications and objections. How reserves work; overseas fisheries problems to fear.



A copy was sent to every school in New Zealand and should be in the school library.

Good background for all teachers and good resource material for senior secondary students.

18 educational 'box' sections on relevant marine reserve issues each serve as good starters for single complete lessons or senior (year 12 and 13) assignments.

Video – Marine Reserves for New Zealand

Available from Leigh Marine Laboratory
of the University of Auckland, 21 min.

Ideal for classroom use: covers all the facts and issues in a direct, clear and interesting manner and poses questions that students can consider as the next generation of carers for the marine environment. Contents: What are marine reserves? When did they get started? How do they work? Who proposes them? Why should we want more? What should happen next?

Marine Reserves – An Education Resource Kit

by Jock Whitley and Bill Ballantine

Published by University of Auckland,
Leigh Marine Laboratory. R.D.5 Warkworth.

In part a support resource for the video 'Marine Reserves for N.Z.', it contains a full transcript of the commentary and 2 worksheets on the video. 19 other worksheets cover the topics of 'Designs for marine reserves' (5) 'Social aspects of marine reserves' (4), 'Attitudes to resource management' (4) and 'Teaching techniques' (6) There are also 11 information sheets giving 'background, facts and principles' for classroom and field instruction on marine reserves. Most are aimed at senior secondary with some specified for year 13.

The guides to field exercises on rocky shores and on sheltered soft shores may be useful in identifying parts of the coastline which merit consideration for reserve application but only summarise principles and problems. They do not set out tested teaching exercises that could be conducted in marine reserves.

New Zealand Geographic magazine Vol. 1 Jan 1989

2 articles and a poster on Goat Island Marine Reserve:

‘Goat Island revisited’ by Kennedy Warne

The effect of protection on marine life and public opinion 12 years after the reserve declared

‘Pools of discovery’ by John Walsby

Tales of what to see and how to observe the secret lives of rock pool inhabitants. Includes an inset that is useful for school visits, entitled ‘Tips for rock pool fossickers’.

This issue is still available for purchase as a back number from NZ Geographic (Rural News) Phone (09) 307 0399.

Poster – The Secret World of the Rock Pool
by Vivian Ward and John Walsby.

(Accompanies the issue.) Illustrates most of the common shore life found in or around rock pools and describes 46 species illustrated in the poster. It is also still available for separate purchase either plain or laminated.

‘Goat Island Marine Reserve – An identification guide to the underwater inhabitants’

by Jenny and Tony Enderby. Published by J and T Enderby,
P.O.Box 139, Leigh 1240. (1998)



Good identification photographs of 35 different fish and over 60 other marine animals including starfish, urchins, sea slugs, octopus, squid, shellfish, crabs, crayfish and shrimps, anemones, sponges, sea squirts and jellyfish with short useful accounts about each one. A good introduction to marine life for primary and secondary students.

Interpretation panels at Goat Island Bay kiosk

A set of panels large enough for whole class instruction. The subtidal panel shows the distribution of the 5 main underwater habitats and the organisms that characterise each one along with most of the common fish species encountered. The intertidal panels show 5 distinct shoreline types that can be studied and the common and typical marine life in each one. Separate panels

also give details on the common shore birds in the reserve and geographical and historical information.

Interpretation pamphlets for Goat Island Marine Reserve

Cape Rodney – Okakari Point Marine Reserve (DOC) 1997

Useful general information about location, history of this being New Zealand's 1st Marine reserve, its flourishing marine life, local Maori history and the regulations and public attitude necessary for the reserve's long term protection.

What to see in the Intertidal World (DOC) 1998

Description and locations of 5 distinct intertidal shores – 3 areas of varied rock types and wave exposure + a coarse sand beach and a beach of rounded boulders. Also explanations of intertidal zonation (related to duration of tidal cover or wave splash) and variety and vulnerability of life under boulders. Very useful basic resource sheet for primary and secondary studies.

What to see in the Underwater World (DOC) 2001

Description and locations of 5 distinct subtidal zones (seaweed gardens, sea egg clearing, kelp forest, sponge gardens and deep reefs), and an identification sheet of the most common fish (19 species) seen in the reserve. Very useful basic resource sheet for primary and secondary studies.

University of Auckland, Marine Laboratory Pamphlets – 1977 – 1984

Series mostly written and illustrated by John Walsby: Marine Habitats series written and designed by John Walsby and illustrated by Vivian Ward.

Each pamphlet in the series covers a single topic in sufficient detail – but simply and with clear illustrations – for it to be the basis of a stand-alone lesson. Some are included in this kit. Others are available from the DOC information centre.

List of topics:

Echinoderm Reef (No. 7)
 Hard shore crabs (8)
 Cats eye snail (9)
 Conservation (10)
 Barnacles (11)
 Whelks (scavengers) (13)
 Whelks (predators) (14)
 Mussels and oysters (30)

Feeding methods series:

Filtering (15)
 Grazing (16)
 Predation (17)
 Scavenging (18)
 Deposit feeders (19)
 Local Landmarks (20)

Marine Habitats series:
 Marine Habitats (21)
 Bladder kelp fringe (22)
 Sea egg flats (23)
 Ecklonia forest (24)
 Sponge garden (25)
 Deep reefs (26)

Interpretation pamphlets for Long Bay Marine Reserve

Long Bay – Okura Marine Reserve (DOC)

Useful general information about location, purpose of a marine reserve, acceptable and forbidden activities. Introduces the range of habitats: sandy shores, stepped rocky reefs, and estuary

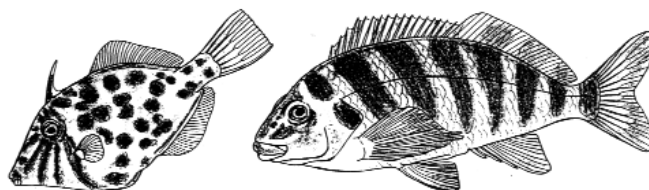
Useful general information about location, purpose of a marine reserve, acceptable and forbidden activities. Introduces the range of habitats: sandy shores, stepped rocky reefs, estuary mudflats, mangrove forests and salt marsh and lists a few of the common organisms found in each one.

Long Bay Regional Park: Visitors Guide (ARC)

Contains useful basic visitor information for school visits, eg, location of parking, toilets, walkways etc, and summary details of coastal bush remnants, farming, geology, historical occupation birds and shell fish of the estuary and a few inhabitants of rock pools

Interpretation pamphlet for Motu Manawa (Pollen Island) Marine Reserve

Pollen Island, in the upper Waitemata Harbour, has sand flats, shell banks, mud flats, mangrove forest and salt marsh but most of the reserve is too fragile, too muddy or too difficult to access to be used as an educational resource for school class trips. The interpretation pamphlet for this reserve contains accurate illustrations of the typical plants of the tidal fringe and the common animals of the shore along with background information about such fragile ecosystems. This is a useful resource for school studies of salt marsh, rush meadow, mangroves and mud flats along other parts of the coast including the Okura river estuary and the flats of Karepiro Bay in the Long Bay – Okura Marine Reserve.



Useful books

Ecological and biological marine books

The New Zealand Seashore

by John Morton and Michael Miller. Pub. Collins 1973.

Still the best book about the shore life and the ecology of every different type of coastal marine habitat found throughout all the geographic regions of New Zealand. Unfortunately, since its publication over 30 years ago, many of the scientific names used in the book have changed and it is not easy for new students to relate the old names to those used today. However, all the ecological patterns and processes are still scientifically accurate and no other book has the depth of knowledge about the biology and life styles of so many marine animals. Still to be found in most secondary school libraries.

Seashore Ecology of New Zealand and the Pacific

By John Morton. Pub. Bateman 2004

A broad overview of the variety of shores found in New Zealand and comparative examples from across and around the Pacific Ocean. It establishes relationships between different climate zones and the changes in biodiversity from tropical through to cool temperate regions.

The New Zealand section is a welcome updated version of *The New Zealand Seashore* (above) but is not so comprehensive. The scope of this large tome may be considered greater than required for most school studies but for year 12 and 13 projects it offers a rich resource.

Nature Watching at the Beach

by John Walsby. Pub. Wilson Horton 1990.

Very useful teaching resource that explains basic biological and ecological concepts simply.

Structured around the marine food cycle it has separate sections on seaweeds, grazers, filter feeders, predators, scavengers and deposit feeders in which the lives of most common seashore animals and seaweed's are covered. Other sections on ocean drifters, driftline wash-ups, coastal plants and mangroves complete the coverage for class visits to most shores. Single or double page layout of each topic designed for easy classroom use. Now out of print but in many school and public libraries.

Between the tides

by Mike Bradstock. Published by Reed Methuen 1985.

Useful in describing the lives of intertidal animals when the tide is in and covers a range of habitats and all the main animal groups.

Margins of the Sea

By Ron Cometti and John Morton. Pub. Hodder and Stoughton, 1985

An excellent book that links the local geology, regional climate and wave exposure to the biology of 38 feature shores all around New Zealand from Whangaroa Harbour in the far north down to Bluff at the foot of the South

Island. It has the full range of examples from rugged wave exposed rocky shores to surf beaches, quiet fiords and sheltered harbours and includes all the various substrates from bedrock to boulders, sand and mudflats. Animals, plants and seascapes are all beautifully and accurately illustrated by Cometti and text skillfully assembled by one of New Zealand's foremost marine biologists, Professor John Morton.

Identification books

Which seashell?

by Andrew Crowe Pub. Penguin 1999

Good coverage of most common rocky and sandy shore shells. 133 species illustrated with clear photographs, New Zealand wide distribution, and notes about traditional uses of shells or animals.

Collins guide to the New Zealand seashore

by Dave Gunson 1983

Broad coverage of all shoreline marine life from coastal plants, anemones, jellyfish, sponges, echinoderms, crustacea and molluscs, seaweeds, insects reptiles, birds, fish and marine mammals. Over 600 entries with biological notes on many. Quality water colour and line drawing illustrations.

Powell's Native animals of New Zealand

by A.W.P. Powell Pub. Bateman 1998.

4th and updated edition of the excellent original Auckland Institute and Museum book.

What's around the rocks?

By Glenys Stace Pub. Penguin 1998.

What's on the beach?

By Glenys Stace Pub. Penguin 1997.

Examples of many common shoreline animals photographed in their natural habitats, with short, simple notes about each one. Good for primary classes.

Marine teaching resources

Grazers and Predators (Seashore Shells)

by John Walsby and Richard Coote.

Pub. Auckland Science Advisory Service. 1994.

For 'Making sense of the living world'. An example of an interactive investigation using sets of five very common shells as a foundation for studies of the rocky shore. Classroom and beach tested scheme ideal for marine reserve studies and preparation as it mainly uses empty shells and therefore has low environmental impact.