

Education Modules

LEARNING ACTIVITIES PART 3:

Monitoring for marine pests – a citizen science and advocacy project

Key learning outcomes

1. Understand why it is important to monitor marine pests and how
2. Explain what to do if you find a suspected marine pest
3. Learn a method to monitor change in marine communities over time, with a focus on marine pests
4. Identify key messages to inform others on marine biosecurity and share these messages

Time to complete: field trip plus 3-5 hours

In this section:



Read together:

Education outside the classroom



Watch:

Establish your own mm2 project

What if we can't go to the beach

What if you spot something unusual



Activities:

Be a marine biosecurity advocate.
Help spread the word about marine
pests!

Interview a marine expert!

Create a research survey

Education outside the classroom

Establish your own MM2 project!

Explore the plants and animals living on your local seashore. Marine Metre Squared (Mm2) is a nationwide citizen science programme that gives people what they need to monitor their local shorelines over time, making it an excellent tool for detecting species composition change, marine pests, and other unusual looking things.

What will you need?

- A beach
- Transport (can you walk?)
- A camera (a phone camera is perfect – these can be shared in groups)
- Pencil and paper
- A quadrat (which you can make from flax, PVC or rope)
- Datasheets

Watch this video to learn how to get started



Watch Now! www.youtube.com/watch?v=dkwP1MyAoAI&t=2s



Teachers:

Everything you need is on the Resource page of the Mm2 website:

- Instructional videos
- Identification tools
- Guides to monitoring for marine pests

Go to: www.mm2.net.nz/resources

Your Mm2 surveys can be used to track the presence and absence of marine pest species and where they are. Contribute to the base of community knowledge by loading your class's findings to the Mm2 website, so that you and others can spot changes over time.

What if we can't go to the beach?

You can still look at what is living on a local coastline of your choice through other people's data on Mm2! Head to the Mm2 visualisation area www.mm2.net.nz/visualisation/location-of-survey-sites and find the beach closest to your school. Have a look at the surveys that have been completed there and use this data for the activities in this module.

Teacher Info:



More information on how Marine Metre Squared relates to the Nature of Science can be found using this link www.mm2.net.nz/resources

Marine Metre Squared

GET INVOLVED | RESOURCES | COMMUNITY STORIES | VISUALISATION | IDENTIFICATION

Location of Survey Sites

This map shows the location and number of different survey records for all locations.

Choose a time period:
From: 01/01/2012 | Until: 31/03/2022

Choose a survey type:
Rocky Shore Mm2

| Date | Time | Surveyor |
|--------------------|------|----------|
| No survey selected | | |

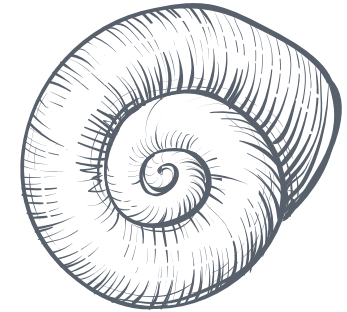
What if you spot something unusual?

How to record your finding

If you spot something of interest, a great first step is to take a clear photo.



Take a note of the location (often a phone camera will record the GPS co-ordinates).



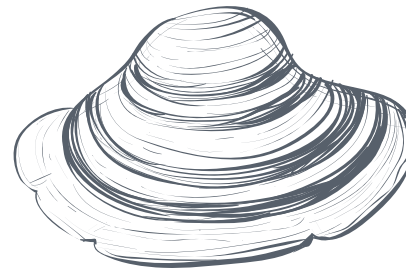
CLICK ICONS:

MM2's guide to taking marine identification photos

 **Get tips from Mm2**
www.mm2.net.nz/files/dmfile/tips-for-marine-photo-identification.pdf

For young photographers who want more detailed instructions, try this guide on iNaturalist

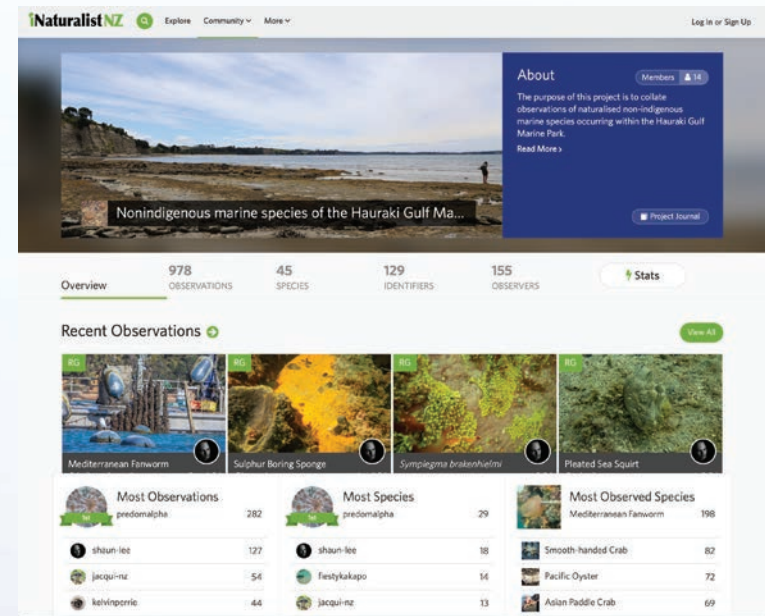
 **Get tips from iNaturalist**
www.inaturalist.org/guides/2465



Upload your photo to iNaturalist

If you find a new species or one of interest, upload it to iNaturalist. iNaturalist NZ - Mātaki Taio This is a community of scientists and interested community members who can help you with species identification. iNaturalist is also available as a convenient app for your smartphone so that you can upload photos on the spot.

Search iNaturalist for projects in your area, like Non-indigenous marine species of the Hauraki Gulf marine park
inaturalist.nz/projects/nonindigenous-marine-species-of-the-hauraki-gulf-marine-park



What if I find a marine pest?

If you think you have found a marine pest in an unusual location, please report it:



Take a photo



Note location



Contact MPI or your local council



Upload it to iNaturalist (optional)

TIP: The Ministry for Primary Industries has a tool for reporting marine pests online

If our beach is changing, how will we know?

Mm2 is a great tool to allow communities to monitor changes over time. Some changes can show improvement, and some may point to areas of concern. The work that your class does today, can help with ongoing knowledge about your local area.

On-going monitoring can be very useful to look for changes on your seashore over time. This could be from month to month, seasonal changes, annual changes, or changes over longer periods of time.

Re-visit your local seashore to see if marine pests change your shore or compare your shore to somewhere else – are the two places similar or different?

Some things to look for could be:

- Are there more or less species over time?
- Are there seasonal differences (e.g. Eggs under rocks at a certain time of the year)?
- Are there more or less marine pests over time? If there are more marine pests, does this change the number of other species?

Teacher Tip:

This inquiry could be turned into a great science fair project! Or encourage your students to work towards a CREST award – the world is your oyster! (excuse the pun)

www.royalsociety.org.nz/what-we-do/funds-and-opportunities/crest-awards/primary-crest/



Collate and talk about your data

After collecting your monitoring data and inputting it in Mm2, talk about what you have found. What do you think it tells you?

- How many species did you find?
- Were any of them marine pests?
- Using this resource www.otago.ac.nz/marine-studies/resources/download/otago678465.pdf to help guide you (see 'Name the coastal natives' on page 3), can you identify which species that you found are native to NZ?

- Take an additional step and add your finding/s to the iNaturalist app
- What other questions do you have?

You will use this in the next activity!

Tip: If you want to take your learning further, head to the Mm2 website

Activity: **Be a marine biosecurity advocate. Help spread the word about marine pests!**

Step 1: Decide your audience.

Everyone has a role to play in protecting our coastlines from marine pests. Sharing your findings and informing other people about marine biosecurity is a great way that you can help protect our shores from marine pests.

Group activity:

Who needs to know what you found?

Get the class to brainstorm who they think is the most interested in the information they collected during their Mm2 surveys. Some interested groups might be:

- Your family and friends
- Other classes in your school
- Other schools in your local area
- The community – people who live in the area
- Local environmental groups who work in weed or pest control
- The marine biosecurity team at your local council (the website marinepests.nz has links to all the councils involved in marine biosecurity)
- Scientists – people who study the sea and marine pests
- Young Ocean Explorers www.youngoceanexplorers.com

- The Department of Conservation or Ministry for Primary Industries. (You could start by contacting your local DOC marine ranger if you have one)
- Your local Member of Parliament

Is there anyone else who might be interested?

Discuss and vote on who should know what you have found out about marine pests in your area.

TALKING POINT

Who should know what you have found out? How can you share your information with them? Which ideas will you follow up on?



Step 2: Create a convincing piece!

We all need to know about marine biosecurity, and we all have a role to play in protecting our beaches from marine pests.

What is the best way to inform and convince other people you know that they need to take action against marine pests? This could be a story for the school, a letter, a poster or presentation, a play, or a video.

Think about the most important messages, for example:

- Explain what marine biosecurity is
- Information about any native creatures or marine pests you found in your study
- Cool facts about marine pests
- How can you and other people protect your coastline from marine pests
- Are there some marine pests that are worse than others? Why or why not?
- Who people can contact if they have questions

Teacher tip:

Optional activities with this module include an interview with an expert, and a survey to find out how much people your class is connected to know about marine biosecurity. If you decide to do either of these, complete them first.

Step 3. Share your creation!

How can your knowledge make a difference? Once you have created your story, presentation, video or play, think about how you can share it with the groups and people you identified in Step 1.

Can you email it to your friends and family, present it to another class, or post it on social media, Youtube or an online portal your school/class uses? Once you have shared it, discuss any responses you receive.

Tip: Make sure you send it to info@marinepests.nz – they would love to see what you've created!



Optional Activity:

Interview a marine expert!

This could be a marine scientist, or a marine biosecurity expert, or it could be someone who works around the sea and the water and who has experience of marine pests. Some questions to ask them could be:

- How did they get into the field?
- What advice would they give a student who is interested in getting a marine focused job in the future?
- What marine pest are they most concerned about and why?
- Where have they seen marine pests?
- How many marine pests can they name?

You can also talk to adults, parents, or other students. How many marine pests do they know? How many land pests do they know?



Optional Activity:

Create a research survey

Terrestrial biosecurity is all about biosecurity on land. In Part 1 we talked about some of the differences between terrestrial biosecurity and marine biosecurity.

Every day we can see signs of terrestrial pests around us – including animal pests like possums, mice, and weeds. But it's much harder to see marine pests and the damage they cause.

Find out how much people know about marine biosecurity by conducting a research survey.

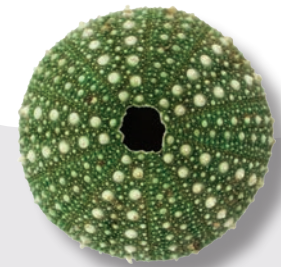
Questions you can ask:

- What is your level of marine biosecurity knowledge? (options can be: no knowledge, medium, expert)
- Are you aware that boats can spread pests?
- Do you know how to report a marine pest?
- Can you name a terrestrial (land) pest?
- Can you name a marine pest?

Present your findings using graphs back to your class

Tip: You can set up your poll using social media (ask an adult or your teacher to help), or Google Forms, or on paper.

This Education Resource was developed by the following organisations to support marine biosecurity awareness in Aotearoa New Zealand:



WITH THANKS TO:

Ministry for Primary Industries
Manatū Ahu Matua

