

From Shape Sleuths to Island Sleuths

Continuing the biodiversity series into 2014 in *Otherways* by Jeanie Clark



Have your children seen, or been on, a small island this summer? Perhaps Swan Island, Phillip Island, French Island, Raymond Island or Gabo Island along Victoria's coast? Or further afield, maybe to Kangaroo Island, Rottnest Island or a Queensland island? Perhaps you recognise, in the photo below, taken from Tidal River, the Glennie Group of islands southwest of the Prom?

In this biodiversity series, the 2013 focus was on the use of maths, as a contribution to *Maths of Planet Earth*. Skills learned then can continue to be used, for example in learning about small island nations and family farms for the 2014 international years. All come under my general aim of supporting the *United Nations Decade of Biodiversity*, and its aim for the world *to live in harmony with nature*.¹

Introducing islands

In 2013, *Shape Sleuths* used shape clues to discover more about life along a creek and from overhead views. *Island Sleuths* can similarly discover more about islands by exploring clues. Let's start by using Glennie Island (on the right in the above photo) as an example by:

- noticing and describing its shape from a side-view;
- discovering and describing its shape from above using a map, (for example in a *Vicroads* book) or on the web (for example on a *Bonzle* page), or from a satellite view on the web;
- discovering its size – length and width – by using the scale on the map;
- working out its area, by using graph paper (see box A) or by researching using an encyclopaedia or the web;
- researching on-line for its geology to discover the rock that contributes both its colour and shape;
- researching on-line, or by interviewing people who live near, for its life (i.e. its biodiversity and people).

When searching for information, 'tourist' sites or personal accounts may be valuable. A 'Bonzle' webpage has a location map, a zoomable map and a 'states' area. It may also have a photo and biodiversity notes. Personal accounts may also contain such details, for example – Rob Jung² visited the Glennie Group by kayak in 1995, describing landform and wildlife and showing how to live in harmony with its nature.

From these sources, *Island Sleuths* discover that Great Glennie Island's size and shape is linked to rock type, which affects soils and plants, and thus wildlife. From above, it is a long, narrow, club-shape, about three kilometres by mostly less than half a kilometre

in area. It was formed by hard, granite (volcanic) rock, which gives it its sheer, shining slopes and crocodile-shape from the side (see photo above). Tough tussock grass is its main plant, with occasional tea-tree found in more sheltered sites. The landform and grass provide safe nesting sites for birds, especially the little penguin, and for skinks.

The International Year of Small Island Developing States (IYoSIDS) is about small island nations. Glennie Islands are part of a larger adjacent country, but a familiar island like this may be used as a comparison to islands further afield and less well known. Some small islands, by virtue of their history and location, are well-developed. Others struggle.

Introducing the Small Island Developing States

The IYoSIDS³ aims to:

- improve knowledge of small island developing states (SIDS) – their culture, environments, sustainability options and issues;
- encourage them to work together, with a main focus on a conference in Apia, Samoa, in the Pacific in September 2014. Its slogan, '*Island Voices – Global Choices*', puts IYoSIDS into the bigger world view.

So, in 2014, the UN turns a global spotlight onto about 50 SIDS⁴. About half of these are in the Pacific, many are in the Caribbean, and some are in the Indian and Atlantic oceans⁵. Where would *Island Sleuths* start discovering such islands? It seems to me that investigating a place is much the same as getting to know a person. Basic information is what is needed first. Encyclopaedias could be used, but there are other ways to build knowledge and awareness.

Islands and SIDS nations

How could you introduce and extend knowledge about SIDS nations in a way that is relevant to your children? As a first step, run a brainstorming session to see how many islands can be named - it doesn't matter what their political

Box A - Using graph paper for finding a map area

- Trace the map onto graph paper and its linear scale.
- Measure a block on the graph paper.
- Use the scale ($L \times L$) to calculate that area. This is the area scale.
- Count the number of partial and full squares covered within the island outline (dotting squares as you count them).
- Multiply the number of squares by the area scale. This equals the island's area.

Why include small islands in your education program?

This series of articles aims to provide ways that the United Nations Decade of Biodiversity (UNDB) 2011-2020 can be incorporated into education, especially for its first target of improving awareness of biodiversity, its values and how to use them sustainably¹.

The 2014 International Year of Small Island Developing States (IYoSIDS) can be used to contribute to the above. In addition:

- One of its aims is to develop better awareness of its islands.
- Mostly what we hear about these countries is when a disaster hits, e.g. cyclones/hurricanes. Learning about these islands should help develop a more positive and fuller concept of them.
- In the future, these islands are expected to face issues which will need the help of other nations, like ours.
- These islands will need our support for their cultures and environments as they face issues of development and sustainable living, while trying to 'live in harmony with nature'.
- Taking a sleuth approach, and discovering things from clues, encourages inquisitiveness and investigation skills.
- It will use literacy, numeracy and communication skills.
- And there may be personal reasons to study these islands.

status is - just names already thought to be islands. Then check in a good atlas to see if they are all islands and cross off any names that aren't. If there are names that are towns on islands, then replace the town with the island name. Have a discussion about what led to the names being included on the lists - how do we know about such places? Now, are they SIDS nations? Check the SIDS list (reference 4). If you don't feel your list is big enough to work with, add some SIDS that matter to you, and explain the reasons, for example, history, literature, news. Four should be the minimum.

What do these SIDS nations have in common? The features of SIDS were described by United Nations Environment Programme⁶ as:

- a relatively small-sized island nation with limited financial resources;
- economies that rely heavily on natural resources for international trade,
- susceptibility to natural disasters and global economic changes.

Island Shapes

Use the list of SIDS nations to make a matching game. Developing the ability to recognise nations by their shape will involve literacy, numeracy and geographic skills. Rule some A4 paper into four. Two islands will then fit on each A4 sheet. On the left side, write the name of a SIDS nation from your list – check that spelling is correctly copied. On the right side, copy an outline shape of that island from an atlas or webpage. Make sure there is a north arrow copied to show which way is 'up'. The IYoSIDS Facebook page³ has on-line maps as part of individual nation reports in the bottom part of its timeline. Discuss the shapes, for example roughly triangular or oval? Make a copy of these A4 pages (for example a digital photo) as a quick reference for later. Now cut the A4 pages into their four parts and pack up!

Come back to this later. Lay the sheets out randomly. Now see how quickly the names can be correctly matched with the outline shapes.

Island Sizes

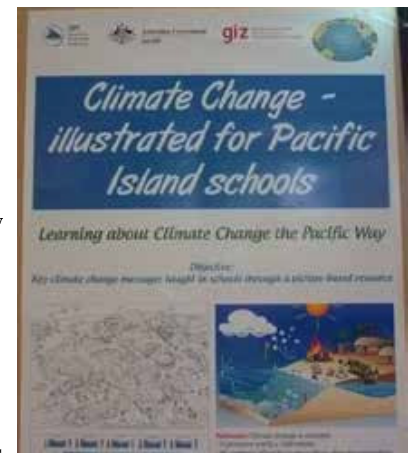
If an atlas was used earlier, sleuths will have seen sizes, but did they notice them? Assuming the names of the islands are now known by their shapes, line the shapes up from expected largest to smallest. This is a visual hypothesis that can now be tested. How? A global map (e.g. as per reference 5 below or an atlas) can only give a general group ranking, due to their small sizes!

Box B – Using thread to find an island's coastline length

- Mark a white thread with pen for the starting point.
- Carefully follow the coastline around with the thread, making as many of the bends as possible by holding down the thread as you go.
- Mark the end of the coastline on the thread with pen.
- Lay the string against the linear scale and read off the distance,
- OR measure it, then multiply this by the scale = the distance.

References

- 1 *Strategic Plan for Biodiversity 2011–2020 and the Aichi Targets "Living in Harmony with Nature"* by the Convention for Biodiversity (2011) at <http://www.cbd.int/doc/strategic-plan/2011-2020/Aichi-Targets-en.pdf>
- 2 *Glennie Islands, Wilson's Promontory* [24] by Rob Jung (1995), at <http://inswsk.wordpress.com/1995/11/24/glennie-islands-wilsons-promontory-24/>
- 3 2014 as International Year of Small Island Developing States (2014) at <https://www.facebook.com/pages/2014-as-International-Year-of-Small-Island-Developing-States/229001360600581>
- 4 *SIDS list* by UNESCO (2014) at <http://www.unesco.org/new/en/natural-sciences/priority-areas/sids/about-unesco-and-sids/sids-list/>
- 5 *Map of SIDS* by United Nations Conference on Trade and Development (2013) at <http://unctad.org/en/Pages/ALDC/Small%20Island%20Developing%20States/SIDS-map.aspx>
- 6 *2014 is the IYoSIDS* by Caribbean Environment Program (2014) at <http://www.ccp.unep.org/2014-is-the-international-year-of-the-sids>
- 7 *Length of Coastlines* by 2014 as IY of SIDS (2013) at <https://www.facebook.com/photo.php?fbid=236528729847844&set=pb.229001360600581.-2207520000.1389754152.&type=3&theater>
- 8 *Sandwatch* by The Sandwatch Foundation (2011) at <http://www.sandwatch.ca/>



What will give better detail for relative size of islands: area, maximum length by width, coastline length? (see Box B for instructions on how to measure coastal length).

Decide what will be best for you, and why. Then use the scales on the maps to do the measurements, possibly adding your results to your map sheets. Or you can use encyclopedias or the IYoSIDS Facebook³ site to find this information. It also has a jpg of coastline distances⁷ for about 20 of these island nations. Correct the ranking of your list of SIDS nations from largest to smallest. Then, from this list, choose one SIDS nation for further investigation of its environment and people.

What is its size? Compare this island nation with the one used for introducing islands. Also, consider any places you regularly travel between that are a similar distance apart. Do likewise for area. Then find out the island's population (e.g. from the web or encyclopedias) and what its natural resources and agriculture are.

Sleuthing into the islands and their peoples

This is where the sleuthing goes in as deep as you want as you get to know a place and its people. Where will you find out about the island's environment (land, water, climate, living things and infrastructure) and its people, their culture, challenges, successes etc? Try:

- Encyclopedias – hard copy or on-line.
- Web searches – use island name and feature e.g. food
- Library searches – for country-specific books
- Historical accounts
- Immigrant groups living in your area. Members can provide first-hand accounts and a depth of understanding not found elsewhere.

Search for enriching and positive '*island voices*', giving a different perspective to that of the media's. Keep in mind the slogan '*island voices-global choices*' for what you can learn from, be inspired by, or do for, a SIDS. Here are two examples of inspiring *island voices*. In 2013, in Marrakesh, at the World Environmental Educators Congress, there was a delightful poster on climate change made by and for, Pacific Islanders (see photo above). The *Sandwatch website*⁸ supports a volunteer network in 40 nations which monitors beach changes and create sustainable solutions to problems. This started in the Caribbean in 1999.

What island voice will your Island Sleuthing discover?

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