

# PONTOON: THE POLYSTYRENE WHITE DISASTER SPILL

## Resource two: Extreme weather and changing climate

### LEARNING OVERVIEW

Our climate is changing. The nightly news frequently delivers information of extreme weather events, floods, droughts and fires. In February 2022 'a rain bomb', dropped on the south east coast of Queensland. The impact was far reaching, floating pontoons washed ashore at Noosa from Brisbane 2-hours away. It was an extreme weather event! with an extreme ocean plastic problem. In this lesson students explore how the community, groups and Noosa Council came together to solve this climate induced extreme weather event problem.

### FOCUS QUESTION:

How is the polystyrene pollution problem connected to climate change?

**KEY CONCEPTS:** extreme weather events, climate impacts, ocean plastics, polystyrene.

### TEACHING STRATEGIES

- ★ Whole class collaboration
- ★ Using maps as a reference
- ★ Research and investigations
- ★ Reflection on documentary discussions

### EQUIPMENT & RESOURCES

- Paper and marker pens
- A device suitable to play the polystyrene documentary
- I pads or computers to assist students in their research
- Map of Queensland (printed out)
- Post-it notes for student thoughts

## NATIONAL CURRICULUM LINKAGES

Lesson	Years 3 and 4	Years 5 and 6	Years: 7 and 8	Years 9 and 10
2	<p><b>Critical and creative thinking</b> Identify and examine relevant information and opinion from a range of sources, including visual information and digital sources <a href="#">Level 3 (years 3 and 4)</a></p>	<p><b>Critical and creative thinking</b> Identify and examine relevant information and opinion from a range of sources, including visual information and digital sources <a href="#">Level 4 (Years 5-6)</a></p>	<p><b>Critical and creative thinking</b> Identify and examine relevant information and opinion from a range of sources, including visual information and digital sources. <a href="#">Level 4 (years 7 and 8)</a></p> <p><b>Geography: Knowledge and understanding: the World of water.</b> The causes and impacts of an atmospheric or hydrological hazard, and responses from communities and governments <a href="#">(AC9HG7K04)</a></p>	<p><b>Critical and creative thinking</b> Identify and examine relevant information and opinion from a range of sources, including visual information and digital sources. <a href="#">(Level 5 Years 9 and 10)</a></p> <p><b>Geography: Knowledge and understanding: Environmental change management:</b> The human-induced changes that challenge the sustainability of places and environments <a href="#">(AC9HG10K01)</a></p>

### LEARNING INTENTION:

To learn about how extreme weather events cause environmental problems.

- How is the climate changing?
- What effect does it have on the environment?
- How do we work together to help the environment after these events?

### SUCCESS CRITERIA

I am successful when I can describe:

- The type of extreme weather event that hit Queensland.
- How climate change contributes to extreme weather events.
- How the floating pontoons from Brisbane ended up in Noosa.
- Understand different perspectives of the people involved.

## ACTIVITY SEQUENCE

### 1. Tuning In:

In our changing climate we see more extreme weather events. The extreme weather is powered by both temperature and climate. Extreme rain events are linked to ocean temperatures and excess moisture in the atmosphere, creating stronger weather systems.

*In 2022 the global ocean was the warmest on record, making more water and energy accessible to weather systems and the process that generates significant storms and extreme rainfall events.*

*This is why heavy rainfall is expected to continue to become more intense with climate change. Australia's weather system is changing. In the coming decades Australia will experience ongoing changes to its weather and climate. It is expected that short term weather events will become more intense. Climate change is predicted but it is unpredictable. - Sally Jensen - Narrator*

#### 1. As a whole class discuss:

- Why do extreme weather events happen more frequently?
- How did the flooding event cause the loss of the pontoons?
- What is meant by the narrator's comment:
  - 'Climate change is predicted but it is unpredictable'

#### 2. Watch the documentary Pontoon: The polystyrene white pollution disaster. focus on sections timed at (19.29 -20.25 minutes).

## 2. Finding out:

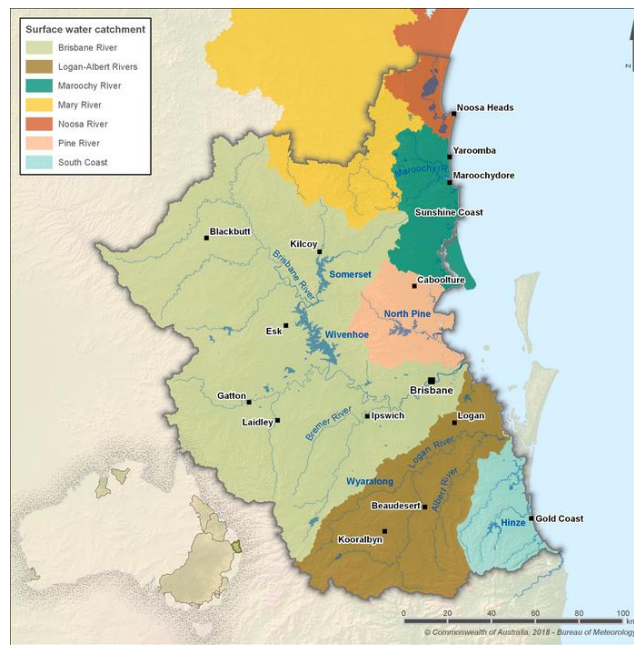
### Activity 1 : Where did the pontoons come from?

#### Extreme weather event scenario:

18 large (14 × 4 m) floating pontoons landed on 40 km of Noosa's east coast beaches. Broken away from their jetty-moorings in Brisbane, battered by the ocean swell and carried by currents to the coast of Noosa.

1. As a class: Use the map of Queensland to locate Brisbane and Noosa.
  - a. Find out the distance between these two locations
  - b. How far is it? Use the scale on the map to help.
2. Divide the class into small teams to investigate the following questions:
  - a. How did the pontoons get to Noosa?
  - b. What types of ocean systems helped them move down the coast? waves, currents, ocean swell etc.
  - c. Why did they end up on Noosa beaches?
3. Bring the class back together to share the group thoughts on the investigation questions.

Map of Queensland coastline and water catchments (see resources below).



Source: <http://www.bom.gov.au/water/nwa/2020/seq/regiondescription/geographicinformation.shtml>

## Activity 2: Whose problem is it to solve?

Roles and responsibilities: Exploring points of view from the documentary.

1. Provide each student or small group with post-it notes and paper to discuss their ideas. Students or groups can choose questions from below or create a new question to explore.

### Whose problem was it to solve?

- Why did Alison Foley from 'Ten Little Pieces' - create a 'call to action' to alert people and Noosa Council to the problem?
  - How did Sharyn Kerrigan link the disaster to an emergency fire response? Sharyn called it a 'coastal catastrophe'.  
Do you think this is correct? why?  
Who were the emergency responders for the coast?
  - How do you think the volunteers felt when they were responding to the polystyrene problem?
  - What did the Noosa Council do to assist with the clean up?
  - Why was it difficult to get large machinery on the beach? Were there any interesting innovations used to clean up the beach?
2. Listen to the viewpoints of other key people: Steven James (Surf rider foundation) talks of 'one connected ocean with no boundaries'- What does he mean?

Discover the viewpoints of:

- Kyrone Dodd - Noosa Council - Waste and Environmental Health manager.
- Sharyn Kerrigan - Local photographer and avid beach walker.
- Alison Foley - Ten Little Pieces.
- Shayan Barmand - Noosa Council - Project coordinator climate change adaptation.
- Jodi Salmond - Reef Check Australia.
- Rochelle Gooch - Peregrian Beach Community Association.
- Steven James - Surfrider Foundation.

### 3. Going further:

The documentary presents some interesting ways to solve the problem.

1. Use these ideas as thought starters to discuss with the students;
  - Polystyrene disaster round table discussion - bringing people together to solve the problem. How would this help?
  - Identification plates on existing pontoons so they can be traced back to the source. What would that mean?
  - Use of different materials, not polystyrene in the production of pontoons. How could this be done?
  - Better design of the pontoons and attachment to the jetty mooring.
  - Recyclability of the pontoon structure (individual parts to recycle) - What is the root source of the design - How can we use this to inform the future building of the structures?

What else can be done? Are their ideas missing? If so, what can be added to the list?

### 4. Taking action: We are the solution to pollution

Undertake research to find out more about:

- How is cleaning rivers and waterways a preventative action?
  - Investigate how the Brisbane 'Ocean Crusaders' - helps keep rivers clean. <https://oceancrusaders.org/>
- How does 'Ten Little Pieces' inspire the community to help protect ocean beaches? <https://tenlittlepieces.com/>
- What does 'Surfrider Foundation' do to help with ocean plastics? <https://www.surfrider.org.au/>

# Resources:

Map of Queensland and river catchments.

Map source:

<http://www.bom.gov.au/water/nwa/2020/seq/regiondescription/geographicinformation.shtml>

