

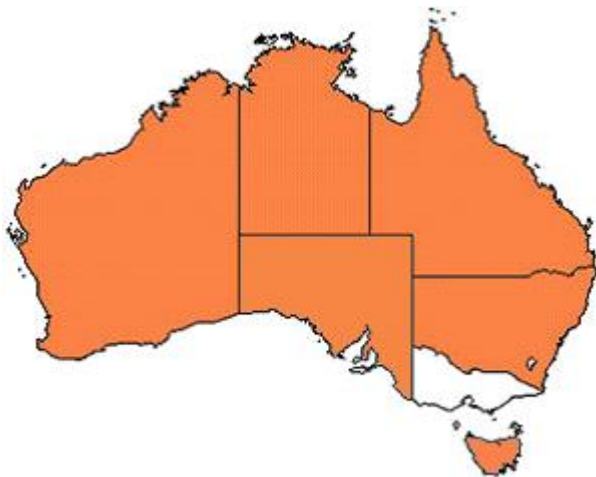
# Viral Encephalopathy and Retinopathy (VER)

Disease agent: Viruses in the genus *Betanodavirus*, in the family Nodaviridae.



Presence in Australia: Endemic

Presence in Queensland: Endemic



VER has been officially reported from New South Wales, the Northern Territory, Queensland, South Australia, Tasmania and Western Australia. It is primarily reported to affect larvae or fry.

## Signs of Disease:

Fish infected with these viruses may exhibit the following signs:



- abnormal swimming behaviour, including erratic, uncoordinated darting, spiral and/or looping/corkscrew swimming patterns
- hyperactivity
- loss of equilibrium, colour changes
- failure to feed/anorexia
- high mortalities in larval and juvenile fish

### **Viral Encephalopathy and Retinopathy:**

Diseased juvenile seven-banded grouper (*Epinephelus septemfasciatus*) with VER. The dark fish are affected; while the light fish are the normal colour. Conversely, barramundi show lighter colouration than normal when affected

Photo: Barry Munday

**Host Species affected may include:**

Australian bass	Barcoo grunter
Barramundi	Cobia
Eels (all)	Estuary cods (all)
Flatfish (all)	Groupers (all)
Golden perch	Jungle perch
Macquarie perch	Murray cod
Sleepy cod	Silver perch
Mangrove jack	Coral Reef Fish
Sea mullet	Samson fish
Snubnose dart	Silver trevally
Tilapia	Yellowtail kingfish

**At risk fisheries in QLD may include:**

Marine Aquarium Fish Fishery  
Queensland Eel Fishery  
Coral Reef Finfish Fishery  
Deepwater Finfish Fishery  
Gulf of Carpentaria Line Fishery  
Rocky Reef Finfish Fishery  
East Coast Inshore Finfish Fishery  
Gulf of Carpentaria Inshore Finfish Fishery  
Finfish (Stout Whiting) Trawl Fishery  
Gulf of Carpentaria Developmental Finfish  
Trawl Fishery

**Introduction Pathways to avoid:**

This disease is endemic in wild fishes in QLD, so movement controls in the wild fishery are unlikely, however interstate movements of live VER infected fishes may not be permitted.

**Basic decontamination information:**

These disease agents are susceptible to the following treatments: Desiccation (drying out in the sun for 7 days), temperatures above 60°C for over 30 minutes, 100 mg/L chlorine for 5 minutes, 0.2% formalin for 6 hours, 100 mg/L iodine for 10 minutes, 50 mg/L benzalkonium chloride for 10 minutes, UV light >200 mJ/cm<sup>2</sup>, or 0.5 mg/L/min ozone.

**What to do if this disease is suspected:**

If you suspect this disease is present please contact the Department of Agriculture and Fisheries (13 25 23) or the National 24 hr Emergency Animal Disease Hotline (1800 675 888) immediately.

**How to collect and store samples for diagnosis:**

If you are taking samples to help authorities to test for this disease, whole fish should be provided alive (if possible), chilled and on ice, or frozen at minus 20°C in a domestic freezer.

**Learn more**

For more information about VER and other diseases of aquatic animals of significance to Australia, download the **Aquatic Disease Field Guide App** available for iOS, android and windows devices at these locations:

**IOS**<https://goo.gl/9UJNp9>**ANDROID**<https://goo.gl/T4Tn1X>**WINDOWS**<https://goo.gl/Y8Vibj>

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