Environmental benefits of NSW oyster aquaculture

● Well-evidenced benefits ○ Emerging or conditional

WATER QUALITY

1 Filters & clears the water
Oysters remove algae & fine sediment. A Sydney rock oyster filters 3 L/hr; a Pacific oyster 5-8 L/hr

2 Curbs algal blooms
Grazing phytoplankton keeps algal biomass and eutrophication in check

3 Removes nutrients at harvest
Sydney rock: 5.58 kg N + 0.69 kg P per tonne; Pacific: 4.46 kg N + 0.55 kg P per tonne

4 May boost denitrification
Seabed deposits help bacteria turn nitrogen into inert N_2 gas – likely, but not yet confirmed in NSW

HABITAT & BIODIVERSITY

5 Adds 3-D habitat
Racks, posts & longlines add hard structure to bare estuaries, colonised by barnacles, mussels, sponges & algae, and used by 90 fish species on NSW leases

6 More fish & invertebrates
1.95x the abundance and 1.14x the richness of open sediment – fish and mobile invertebrates. ^

7 Seabed life often enhanced
Moderate biodeposits feed worms & crustaceans; heavy stocking in poorly-flushed sites can reduce diversity

8 Seagrass shading is managed
Only light-permeable longlines, designed to move with tides and currents, are permitted over seagrass

9 May lower disease
Oyster filtration cut blue crab infection by 32.7% in a US study ^

EMISSIONS & CLIMATE CHANGE

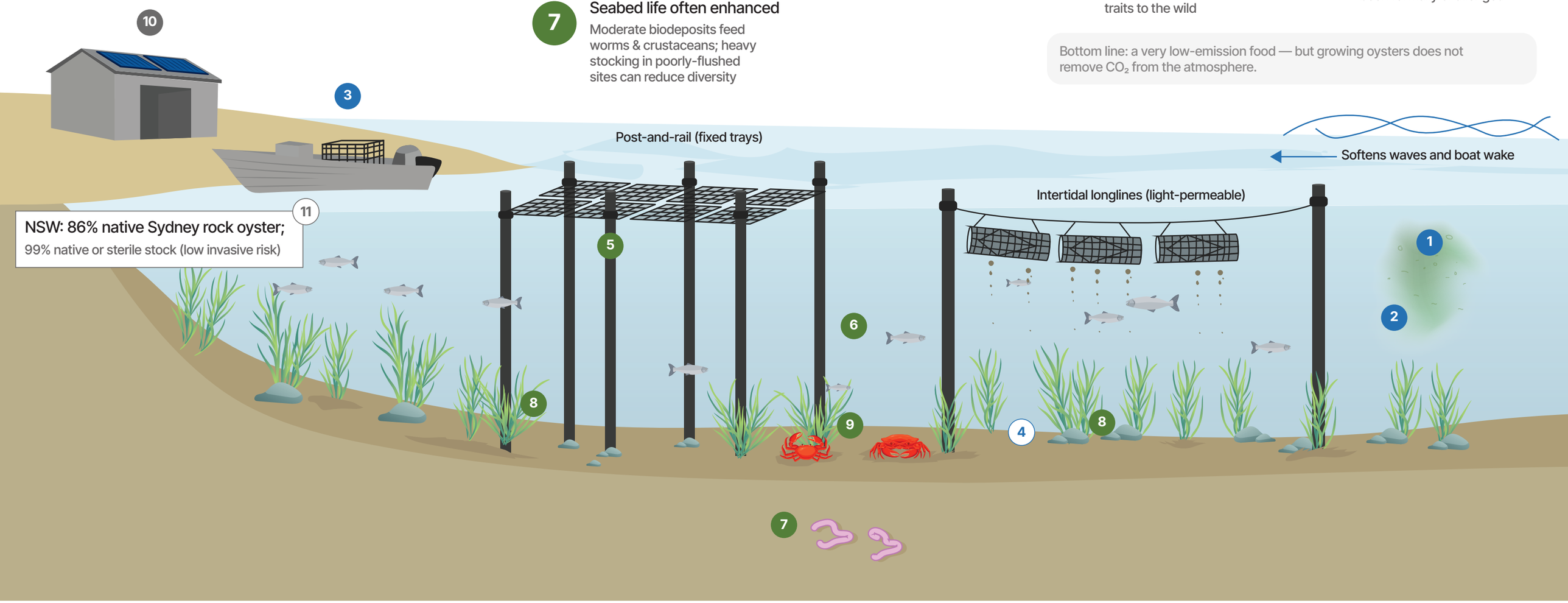
10 Very low emissions
3.75 kg CO_2e per 100 g of protein – among the lowest carbon footprints of any farmed protein. No feed, freshwater, fertilisers or chemicals used

11 Breeding for a changing climate
Sydney rock oysters are bred for tolerance to warrning & acidification; fertile stock may spread traits to the wild

○ A carbon store, not CO_2 removal
Oyster shell is a sink for carbon, but does not result in atmospheric CO_2 reduction

○ Ecosystem carbon-capture unproven
One study claiming oysters store carbon by driving the biological pump has been formally challenged

Bottom line: a very low-emission food — but growing oysters does not remove CO_2 from the atmosphere.



AT A GLANCE — across the whole NSW industry, each year

- ● Filters ~2 trillion litres of estuary water. Like emptying & cleaning Sydney Harbour four times over.
- ● Removes ~15.8 tonnes of nitrogen & ~2.0 tonnes of phosphorus. A nutrient removal service valued at $1.8m-$9.5m.
- ● Produces ~66 million oysters (2,900 tonnes). Well under the 7,500 tonne estimated sustainable level.
- ● Total emissions 2,640 t CO_2e. The cost to offset would be 1.5 cents per dozen.

For more information see NSW Farmers (2026). Restorative Aquaculture: An Evidence-Based Assessment of the NSW Oyster Industry. FRDC Project 2024-057.

^ Global / Proxy data.