

Socio-ecological Status of Spencer Gulf 2019



Based on: Tanner et al. (2019) *Potential social, economic and ecological indicators for integrated ecosystem assessment of Spencer Gulf*. Goyder Institute for Water Research Technical Report Series No. 19/32 (<http://www.goyderinstitute.org/>)

Weather Patterns 2019

- Second warmest year on record.
- Annual rainfall lowest on record.



Climate Indices 2019

- Neutral *Southern Oscillation Index* since El Niño event in 2015/16.
- Predicts moderate upwelling
- *Dipole Mode Index* sixth highest annual value since 1900.
- Likely low rainfall
- *Southern Annular Mode* negative for the first time this decade.
- Weak westerly winds in *Southern Ocean*



Ecological Assets

- **Cuttlefish:** abundance has fluctuated over last decade: 114,596 individuals in 2019. Sporadic surveys.
- **Seagrass:** recent declines in northern (up to 58%) and southern (up to 35%) gulf. Recovery (19%) near Whyalla steel plant. Limited time-series and number of sites.
- **Australian Sealion:** pup abundance declined from ~1,200 in 2006 to ~800 pups in 2015. (No recent data.)
- **Long-nosed Fur Seal:** pup abundance stable between 2005 and 2014 at ~10,000 pups. (No recent data.)



Pollution

- Nutrients from wastewater treatment plants reduced by >80% from 2002/03 to 2016/17.
- Nutrients from Whyalla steel plant are 10 times higher than from treatment plants
- Largest nutrient input into gulf is from finfish aquaculture (tuna and kingfish): 1,956 t in 2018. 10 times higher than Whyalla steel plant.

Marine Industries Value 2015/16 \$510M

- Aquaculture \$182M.
- Commercial Fishing \$117M.
- Marine Tourism \$103M
- Recreational Fishing \$67M
- Other \$40M

Fishery Status and Value 2018/19

- **Sustainable:** Prawns \$41M, Sardine \$22M, Abalone \$5.3M, Blue Crabs \$4.1M.
- **Recovering:** Garfish.
- **Depleted:** Snapper.
- Marine Scalefish Fishery \$7.4M

Aquaculture Value 2018/19

- Southern Bluefin Tuna \$129M.
- Yellowtail Kingfish \$39.5M.
- Mussels \$3.8M.

Ecotourism

- White Shark cage-diving ~\$5.9M per year.

Shipping 2011-17

- Highest ship movements and volume of exports in 2011 (234 movements and 4.7Mt).
- Stable during 2012-2017 (194-214 movements and 3.5-3.9Mt).

Communities

- Largest population centres are Whyalla and Port Pirie.
- Population size stable in majority of communities between 2012 and 2017.
- Median age higher whilst working age and unemployment rates are lower than average for South Australia.
- Median house prices are lower and outright ownership is higher than elsewhere in South Australia.



Population

- <1,000
- 1,001 - 5,000
- 5,001 - 25,000
- >25,000

Key

- Fishing/Aquaculture
- Shipping/Port
- Tourism
- Mining/Smelter
- Agriculture
- Aquaculture Zones
- Marine Parks