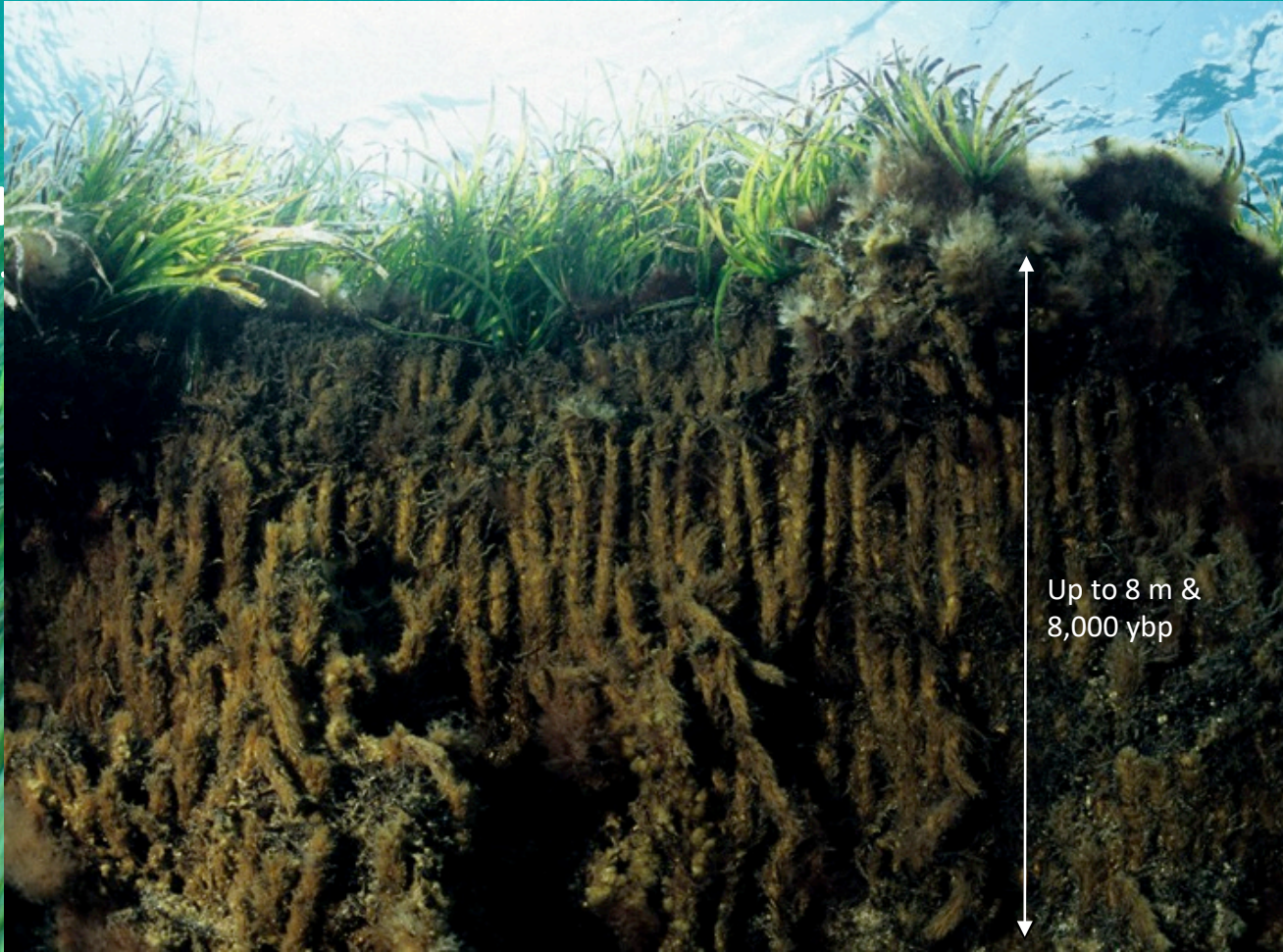


# Restoration Potential



## Bang for your buck



Laffoley & Grimsditch 2009



Nellemann et al. 2009

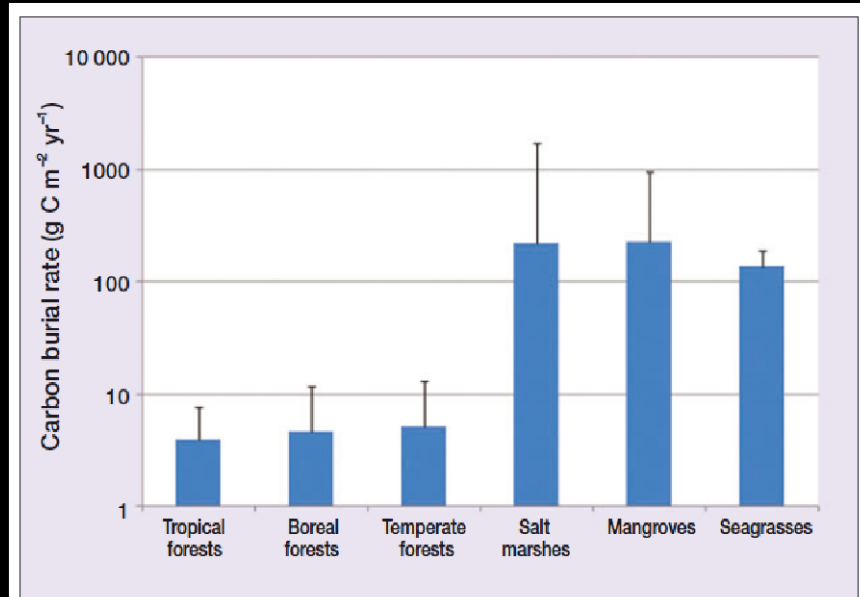
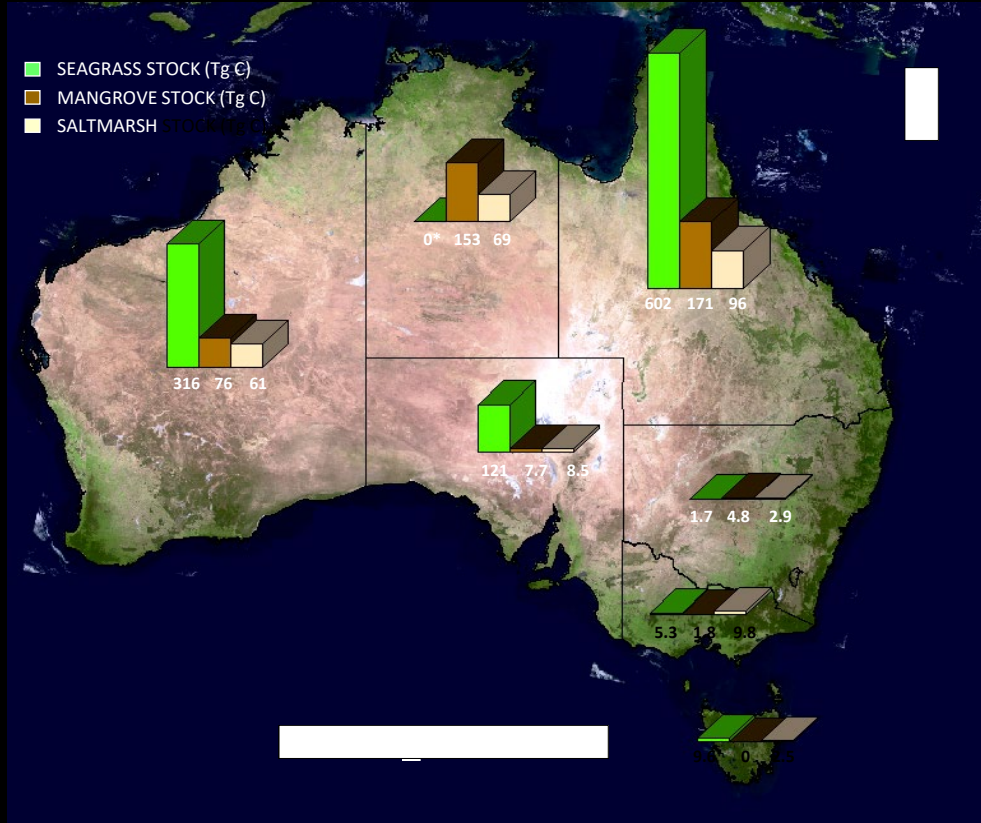


Figure 5. Mean long-term rates of C sequestration ( $\text{g C m}^{-2} \text{yr}^{-1}$ ) in soils in terrestrial forests and sediments in vegetated coastal ecosystems. Error bars indicate maximum rates of accumulation. Note the logarithmic scale of the y axis. Data sources are included in Tables 1 and 2.

## Australia's Blue Carbon Stocks (Serrano et al 2019)



1500 mill t  $C_{org}$  in BC soils

- 10-30% of global BC
- 413 y of road transport emissions

Every year 20 mill t  $CO_2$  sequestered

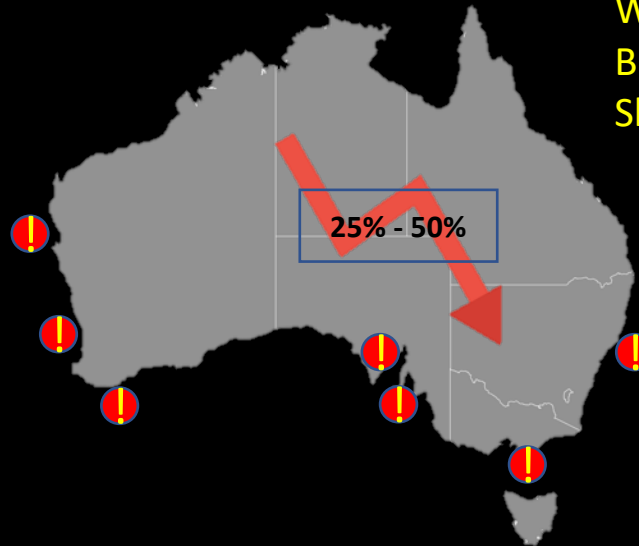


This could all go back to the atmosphere if we lose our seagrasses

And losing them we are ...



# Historical seagrass loss in Australia



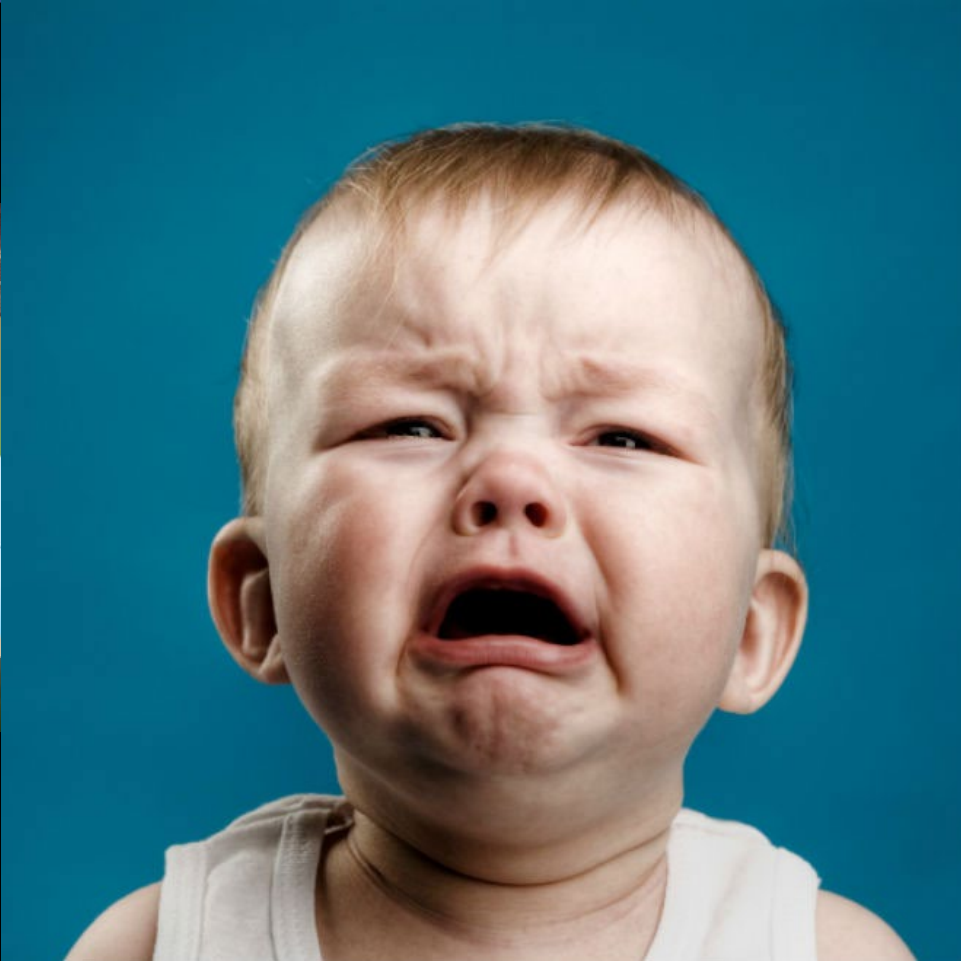
	Ha.
Cockburn Sound	3,300
Albany Harbours	1,600
Gulf St Vincent	6,500
N Spencer Gulf	12,700
Western Port Bay	9,800
Botany Bay	260
Shark Bay	100,000


# Restoring seagrass






Remove pressure  
 catchment management






Facilitate recovery


Active restoration  
 Plant biology









 Paul



## Seeds for Snapper Dive Group

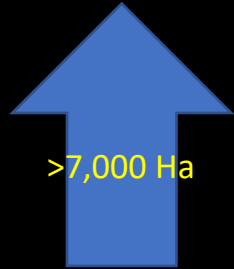
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Massive  
recovery of seagrass  
in Adelaide's coastal  
waters



# Seagrass changes over time at Grange

Seagrass line

1972

Over the last half century around one third of seagrass along the Adelaide metropolitan coast has been lost. The dark blue colour shows seagrass meadows that once existed along the Adelaide coast.

1979

Once destroyed, seagrass ecosystems do not easily recover. The dark patches in the water show some of the remaining seagrass after the loss of the meadows.

2018

Since water quality has improved in our coastal waters, some seagrass has regrown, but it has taken many years.



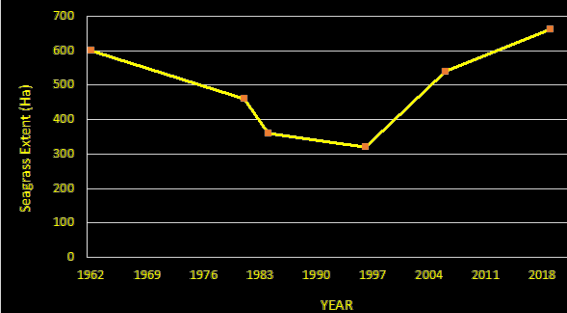
## Seagrass changes and carbon benefits in Albany, W.A.







Princess  
Royal  
Harbour

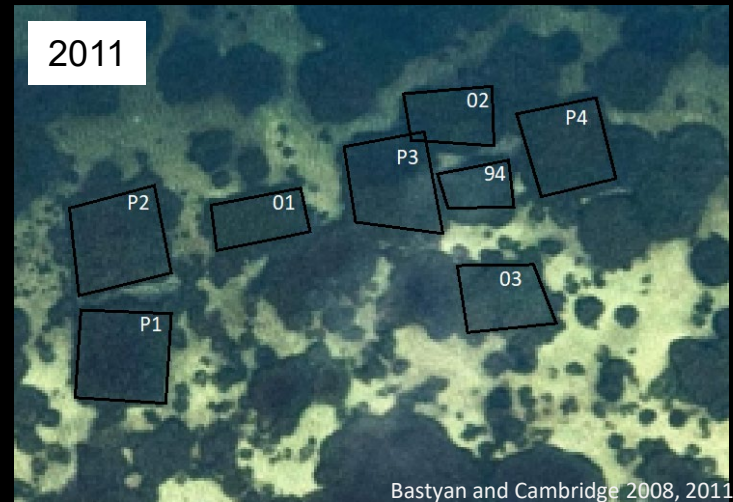
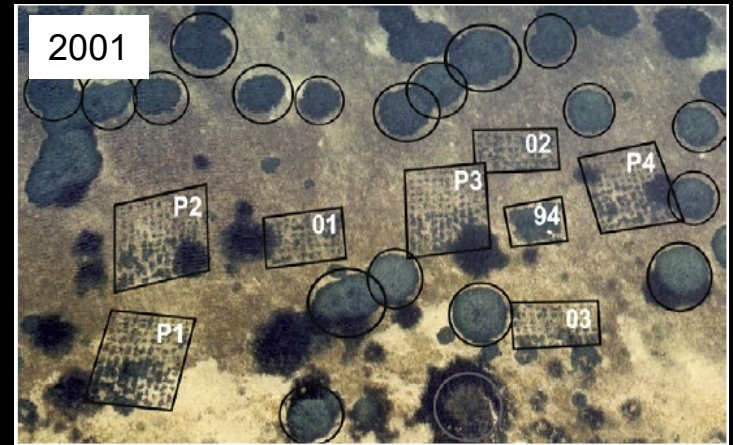


Oyster  
Harbour

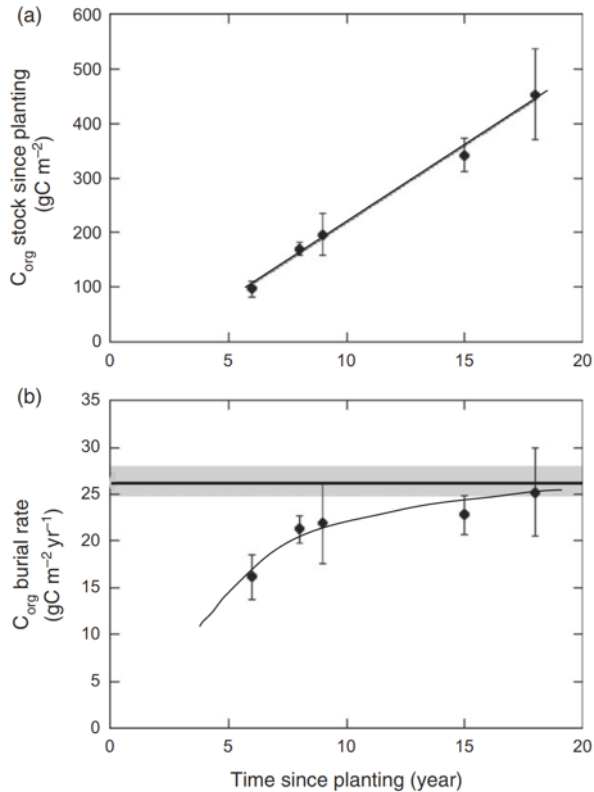
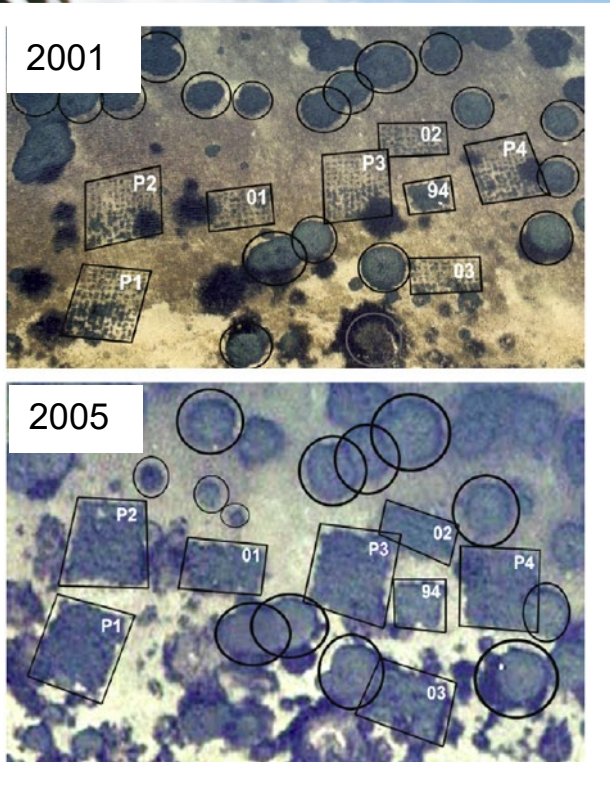


Princess Royal Harbour

Oyster Harbour







1.5

Area restored

14

tonnes

$CO_2$  buried

83

tonnes

$CO_2$  not released



# The role of Blue Carbon Ecosystem restoration

- Not a silver bullet
- Bang-for-buck' factor
- Co-benefits are considerable
- Financial considerations
- First BC method now being developed
- Seagrass yet to be included, but lots of interest

