

WebTable 4. Case studies of C_{org} losses and CO₂ efflux after disturbance and potential CO₂ emissions from blue carbon ecosystems reported from the literature

Disturbance	Method for estimating CO ₂ emission	C _{org} stock (to 1 m)	Time elapsed since disturbance (years)	Potential CO ₂ e emission Mg ha ⁻¹ yr ⁻¹	Reference
Tidal marsh					
Reclamation	Change in stock of soil C _{org}	10.2	9	0.73	Bu <i>et al.</i> 2015
Dieback due to wrack accumulation	Change in stock of soil C _{org} after 1 year	213*	1	4.4	Macreadie <i>et al.</i> 2013
Bioturbation and erosion of banks	Loss of soil volume (horizontal)	~400* [#]	30	13–54	Coverdale <i>et al.</i> 2014 calculated from loss of total stock within the marsh area
Herbicide treatment	Change in soil volume and gas flux	169*	1.5	5.5	Lane <i>et al.</i> 2016 for saltwater marsh
Mangrove					
Tree mortality	Change in soil volume and gas flux	525	2	25.3–35.6	Lang'at <i>et al.</i> 2014
Conversion to aquaculture	Change in soil C _{org}	627	29	82	Kauffman <i>et al.</i> 2014
Conversion to aquaculture	Gas flux chambers (pond floors, anoxic)	128*	25	16	Sidik and Lovelock 2013
Conversion to aquaculture	Gas flux chambers (pond walls, oxic)	128*	25	44	Sidik and Lovelock 2013
Clearing	Gas flux chambers	~600*	1	106	Lovelock <i>et al.</i> 2011
Clearing	Gas flux chambers	~600*	20	30	Lovelock <i>et al.</i> 2011
Hurricane damage	Change in soil volume	461	2	18.7	Cahoon <i>et al.</i> 2003
Seagrass					
Loss due to declining water quality	Change in soil C _{org} (top 15 cm)	231*	38	2.41	Marbà <i>et al.</i> 2015
Experimental clearing	Change in soil C _{org} (top 5 cm)	~30*	2	0	Macreadie <i>et al.</i> 2014
Loss due to erosion by boat moorings	Change in soil C _{org} (top 50 cm)	12.8*	40–80	4.4–8.8	Serrano <i>et al.</i> 2016
Seismic testing	Change in soil C _{org} (top 30 cm)	35*	50	1.9	Macreadie <i>et al.</i> 2015

Notes: We estimated a mean potential annual CO₂ emission as the total stock lost divided by the time since disturbance. Places where C_{org} stocks were extrapolated to 1 m depth because they were measured to

shallower depths are indicated with an *. #soil carbon density of sediments were assumed to be 0.04 g cm⁻³ (Chmura *et al.* 2003).

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