

Table 1 Open ocean respiration and organic matter inputs

Component	Low estimate (Gt C yr ⁻¹)	High estimate (Gt C yr ⁻¹)	Central estimate (Gt C yr ⁻¹)
Respiration			
Photic zone*	32	42	37
Mesopelagic†	21	28	24.5
Ocean interior‡	1.3	1.6	1.5
Mesozooplankton§	1.5	4.5	3
Vertebrates			0.01
Total respiration	55.8	76.1	66
Organic matter inputs			
Measured primary production (¹⁴ C-based)	28	52	40
Unmeasured gross production¶	13.4	25	19.2
Total production	41.4	77	59.2
Import from coastal areas	6	6	6
Atmospheric inputs	3	3	3
Ancient organic matter	0.5	0.5	0.5
Total inputs	50.9	86.5	68.7
Export and new production			
Suess ⁷			<6
Emerson <i>et al.</i> ⁶⁵			<11
Sambrotto <i>et al.</i> ⁶⁶			15
Falkowski <i>et al.</i> ⁶⁷			16
This paper[†]	23	31.8	27.5

*The range results from applying the two available equations (in refs 15 and 16) to scale R to P .

† Assumed to be two-thirds of photic layer R and a minimum error of 35%.

‡ A minimum error of 10%.

§ Assumed to be on average 10% of total R with a minimum error of 50% around central value.

¶ Assuming 35% algal respiration and 10% DOC release of ¹⁴C-based production.

† Calculated as $R_{\text{mesopelagic}} + R_{\text{interior}} + (0.5 \times R_{\text{zooplankton}})$.

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