

Marine ecosystem services: how to consistently report the trophic chain relationships into the accounting framework without double counting

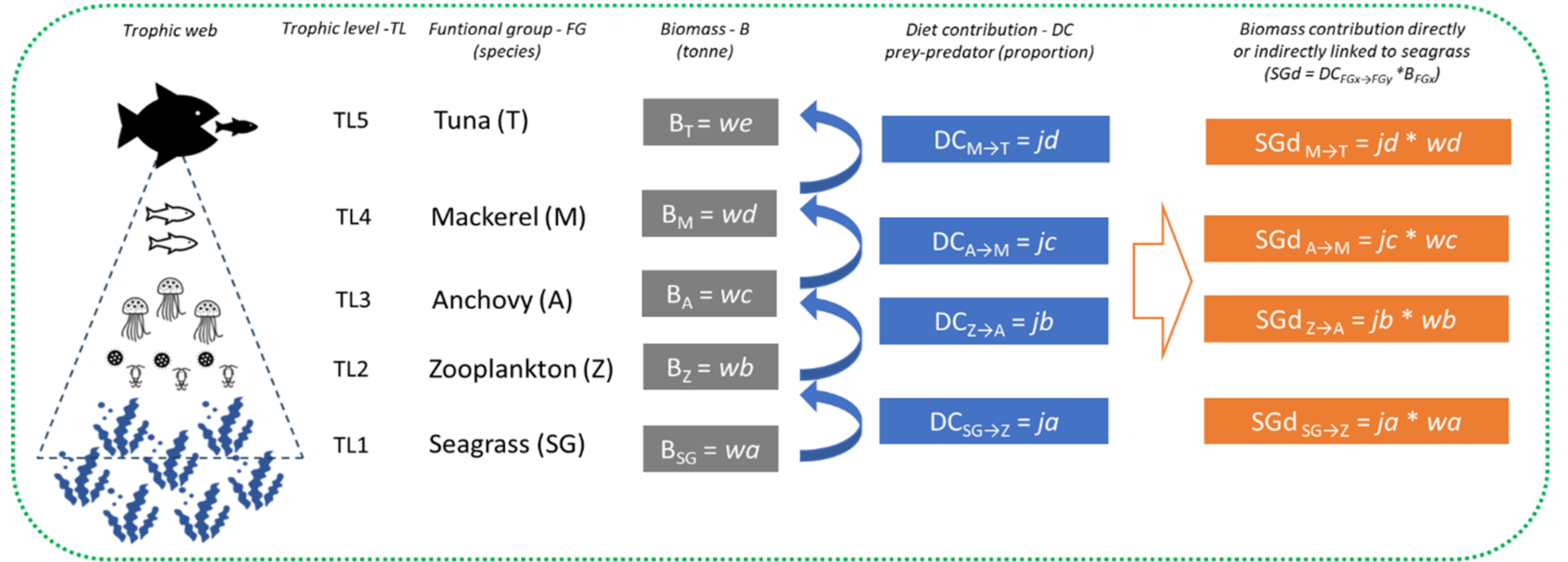
The case of seagrass in the Mediterranean Sea

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The Integrated System for Natural Capital Accounts first assesses Ecosystem Services in physical terms, then it estimates their monetary value to finally report both in accounting tables.

TROPIC-BASED SEAGRASS DEPENDENCY (TB SGd)

Seagrass is important for many ecosystem services, including fish provision.



$$TOTAL TB SGd_{SG→T} = SGd_{SG→Z} * SGd_{Z→A} * SGd_{A→M} * SGd_{M→T}$$

SUPPLY TABLE

	Ecosystem types			Total
	Coastal (C)	Shelves (S)	Open waters (OW)	
Fish provision (F) <i>(associated with seagrass)</i>	x	x	x	TF(x) <i>(y)</i>
Raw biomass provision (RB) <i>(associated with seagrass)</i>	x	x	x	TRB(x) <i>(y)</i>
Blue carbon (BC) <i>(associated with seagrass)</i>	x	x	x	TBC(x) <i>(y)</i>
Nature-based recreation (NB) <i>(associated with seagrass)</i>	x	x	x	TNB(x) <i>(y)</i>
Total	TC(x)	TS(x)	TOW(x)	TOI(x)

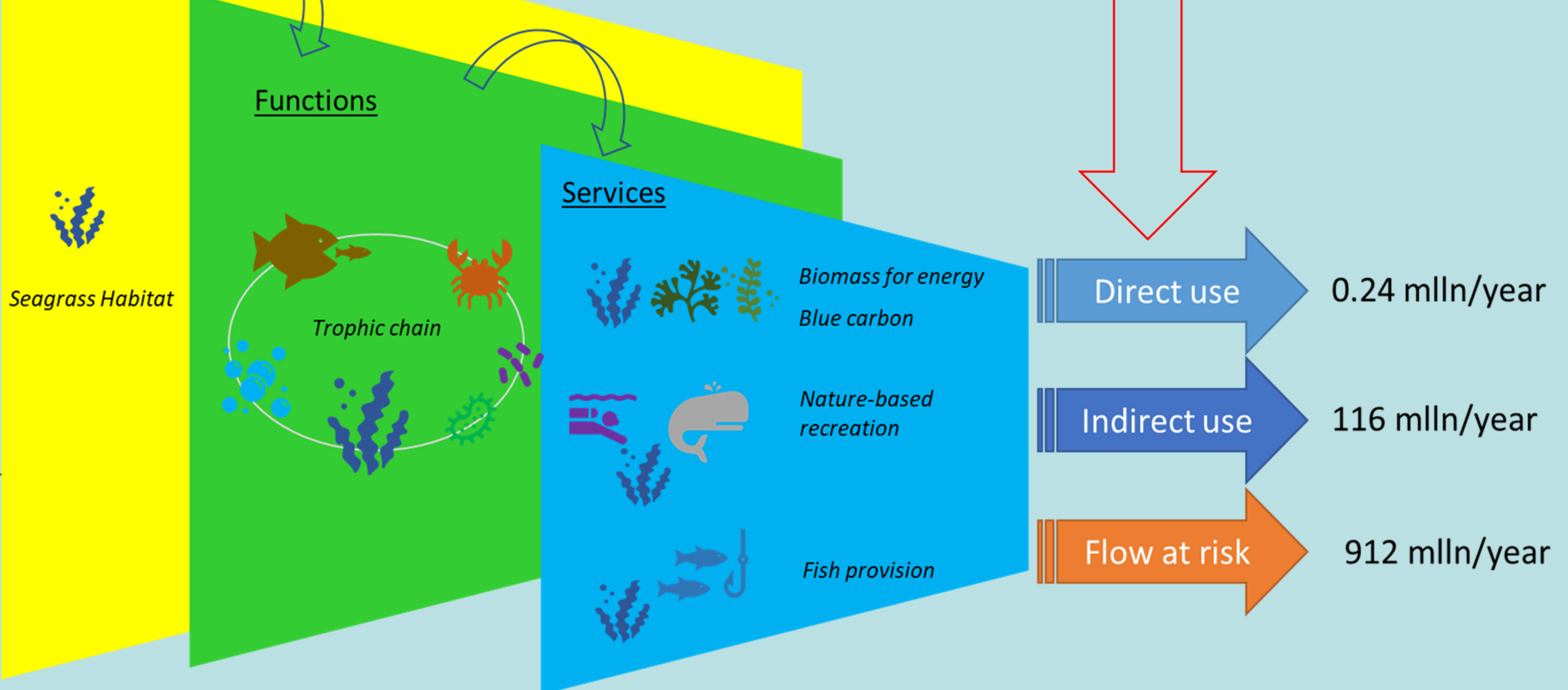


USE TABLE

	Economic units					Total
	Primary sector	Secondary sector	Tertiary sector	Households	Global Society	
Fish provision (F)	TF(x)					TF(x)
Raw biomass provision (RB)			TRB(x)			TRB(x)
Blue carbon (BC)					TBC(x)	TBC(x)
Nature-based recreation (NB)				TNB(x)		TNB(x)
Total	TF(x)		TRB(x)	TNB(x)	TBC(x)	TOI(x)

Seagrass dependency can be explicitly accounted for as a share of the total ecosystem service flow in both physical and monetary terms

Biophysical structure



Source:

Addamo et al. (under review) Marine ecosystem services of seagrass in physical and monetary terms. The Mediterranean Sea case study, Ecological Economics

Addamo et al. (2024) Status of mapping, assessment and valuation of marine ecosystem services in the European seas, Ecosystem Services, Volume 67, <https://doi.org/10.1016/j.ecoser.2024.101631>