From Guidance to Practice: Early Insights from SEEA EA Valuation

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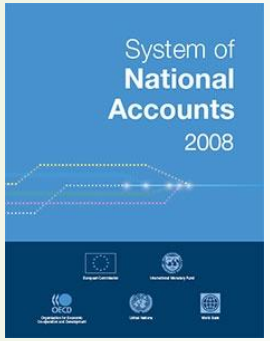
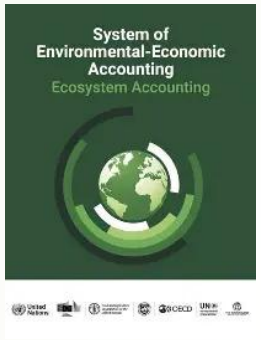
The 32nd meeting of the London Group on Environmental-Economic Accounting, 7 - 9 September 2026 in Guatemala City, Guatemala.

There is a disconnect between the SEEA EA valuation guidelines and what practitioners are seeing on the ground



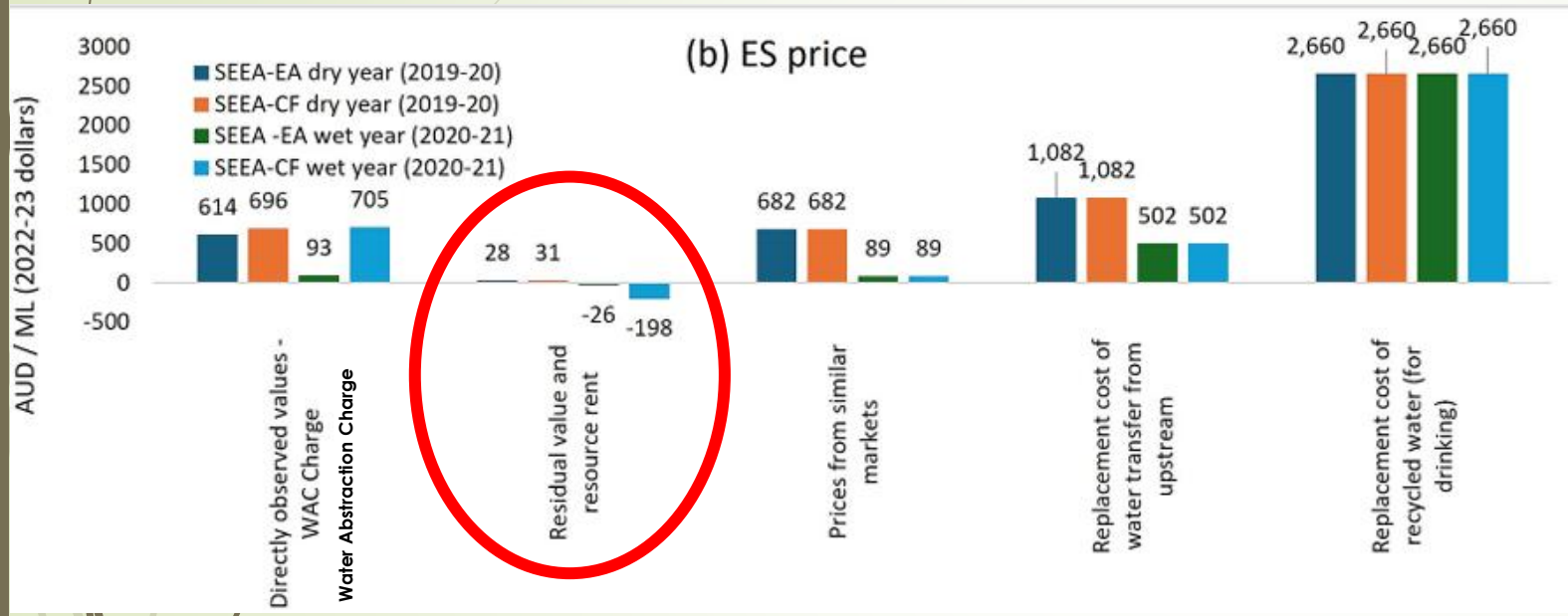


01 The wide variation in ecosystem service value estimates poses a significant challenge to the consistency of the SEEA EA framework

02 Not all techniques produce conceptually equivalent estimates of an exchange value of ecosystem services

03 Challenges remain in defining the correct accounting boundary – what are ecosystem services meant to capture?

Not all valuation techniques are created equal



Ecosystem Services

journal homepage: www.elsevier.com/locate/ecoser

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Full Length Article

Valuing and accounting for water-related ecosystem services for water pricing and management: An Australian case study

Yuqing Chen [a,*], Paul Wyrwoll [b,c], Peter Burnett [d], R. Quentin Grafton [b], Michael Vardon [a]

01 Residual value method produces negative numbers!

02 During dry (drought periods) value of extracted water is $28/ML (RVM)? Yet markets signal $682/ML – disconnect with real world

03 Replacement cost of recycled water measures industrial activity (bits within the production boundary – aka the SNA)

04 Orders of magnitude – how can these be conceptually equivalent?

What carbon price?

Country	Source	Method	Carbon price
Australia	City of Melbourne (2019)	Global SCC estimates	AUD$75 to AUD$178 per tCO_2-e
		Market prices	AUD$16 per tCO_2-e (ACCU)
		Replacement costs (target-based price)	AUD$74 per tCO_2-e (IPCC mitigation-consistent carbon price)
US	The US Government	SCC (2021)	US$51 per tCO_2 (3%)
		SCC (2016)	US$42 per tCO_2-e (3%)
			US$62 per tCO_2-e (2.5%)
US	Rennert et al	SCC (2020)	US$185 per tCO_2 (3%)
Australia	Infrastructure Australia (2024)	Target based approach	AUD$66 per tCO_2-e

01 Carbon prices based on market prices, replacement costs, social cost of carbon, or policy targets can substantially affect estimates

02 SCC estimates do not reflect ecosystem services and are highly susceptible to small changes in the discount rate

03 Target based approaches uses a normative framework (what should be) whereas the SEEA EA is a positive framework (what is)

04 The exchange value of carbon is determined by institutional settings (that may evolve over time)

Market based carbon price (National Ecosystem Accounts 2026)

Carbon retention (storage)

Consists of:

1. estimating carbon stocks of relevant carbon pools retained at the beginning of the accounting period;
2. multiplying this by a suitable carbon price; and
3. turning this into an annual service flow by multiplying this value by a suitable rate of return/discount rate (to create an annuity).

Stock (tC_0) * Pc * r

Intuition

an annual rental value represents a return to the owner of the asset by linking stored carbon to the underlying asset

The treatment of global climate regulation service in SEEA EA and its potential for informing climate policy

21 October - 2021

Bram Edens, United Nations Statistics Division[1]

Full Carbon Accounting Model (FullCAM)

Institutional settings determined – ACCU auctions

Australia uses a NPV approach to estimate the value of mineral and energy resources. The ABS has historically maintained a real discount rate of 4%.

AUD$218.2 billion

from

34.6 million kilotonnes

2021-22

The evolution of coastal protection – what are we actually measuring?

Publication	Valuation method	Result – Monetary value	Result – Physical value
National Ocean Account 2022	Replacement-cost	Mangrove: $1.96 to $7.84 billion per year Saltmarsh: $416 to $1,664 million per year	Mangrove: 88,100 dwellings Saltmarsh: 85,600 thousand dwellings **based on expected infrastructure lifespans of 25 to 100 years*
National Ecosystem Account 2025	Avoided-damage cost	Mangrove: $57 million per year Saltmarsh: $8 million per year	Mangrove: 4,006 dwellings Saltmarsh: 556 dwellings **based on the highest-risk dwellings (up to 1 m above the Highest Astronomical Tide)*
National Ecosystem Account 2026	No valuation	Under review	Mangrove: 69,400 dwellings Saltmarsh: 44,300 dwellings **based on a 1-in-100-year inundation event*

01 Current methods sometimes focus on SNA benefits such as the protected asset rather than the ecosystem service supplied by the mangrove ecosystem.

02 This is inconsistent with SEEA EA para. 8.24, which requires valuation of the ecosystem service contribution from the ecosystem asset.

Production Boundary - Valuation of recreation-related services

Key message: CE risks producing misleading policy signals, SEV relies on market assumptions and residual valuation, while MVP focuses directly on ecosystem characteristics valued by users.

Consumption Expenditure (CE)

- CE assumed to reflect minimum willingness to pay.
- Expenditure already recorded within the SNA production boundary. Interpretation?
- Changes in estimated ecosystem values may reflect changes in spending behaviour (e.g. camping versus hotel stays) rather than changes in ecosystem service supply.
- Risk of misattributing exchange value generated by produced capital and labour to ecosystems.

Simulated Exchange Value (SEV)

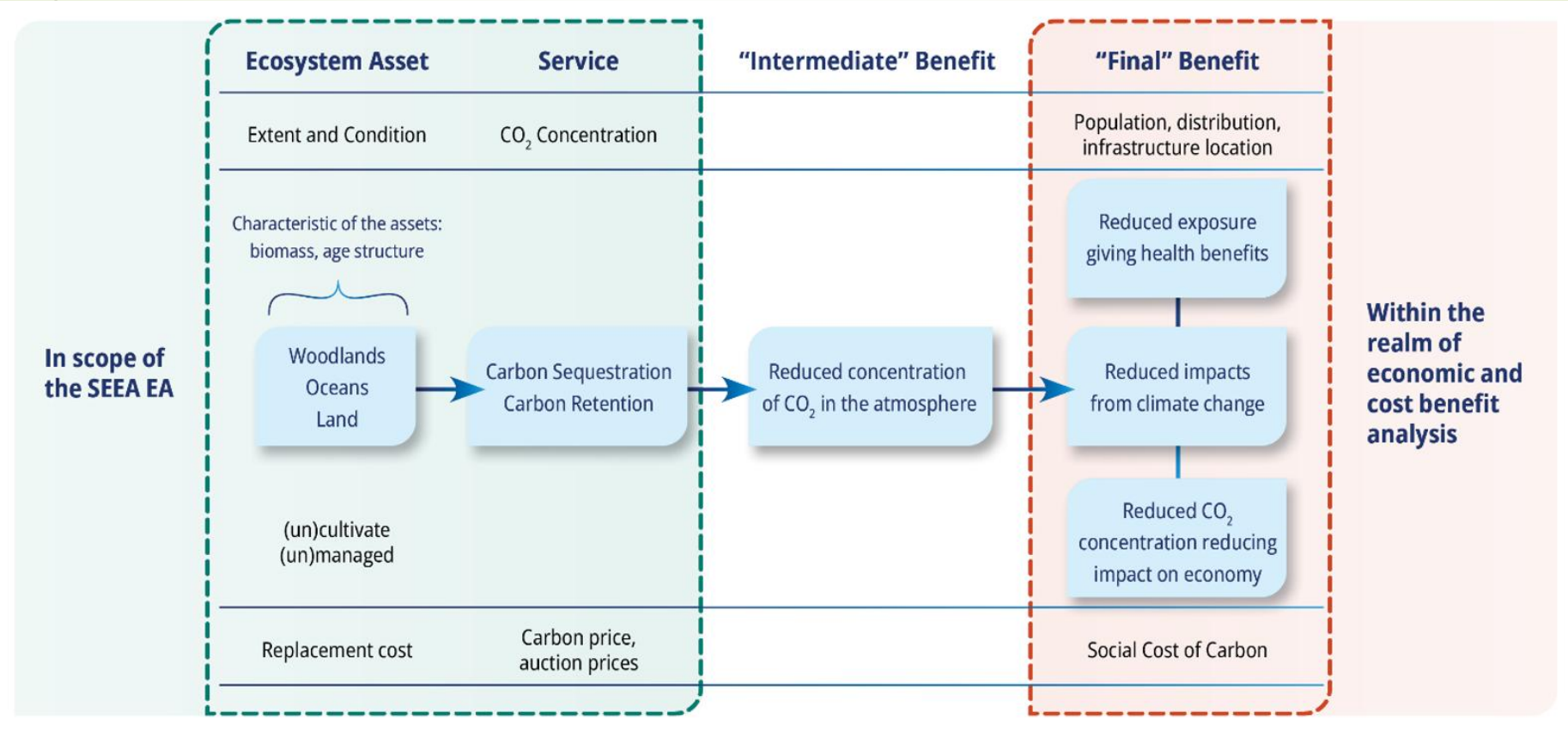
- Simulates a hypothetical market for trips that rely on recreation-related services.
- Relies on strong assumptions about supply behaviour, cost structures and pricing rules.
- Under assumed monopolistic competition, simulated prices may include monopoly rents.
- SEV can therefore contain both ecosystem rents and monopoly rents, creating an identification problem.
- Effectively combines a market simulation approach with residual valuation, which raises the question whether concerns about the latter also apply to SEV.

Marginal Value Pricing (MVP)

- Estimates exchange value of ecosystem characteristics that contribute to recreational experiences.
- Marginal values estimated using a random utility model of recreation site choice.
- Values the recreation-related service directly rather than benefits of recreational trips, which include produced capital and labour.
- Avoids concerns associated with residual valuation, monopoly rents and misattribution.
- Potentially aligns more closely with the objective of isolating ecosystem contributions.

Production boundary - Logic chain

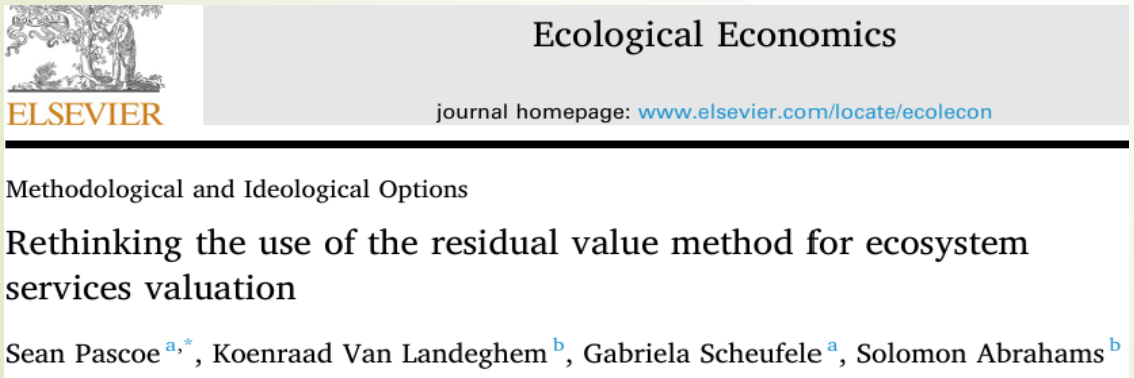
It is important to establish not merely a physical link between the ecosystem and beneficiaries, there is also the need to establish a monetary link, which forms the foundation of the monetary supply use tables.



Adapted from Hein et al 2019

On why the Residual Valuation Method does not represent an exchange value of ecosystem services

SEEA definition	Example
Revenue	Output times price
Less intermediate consumption	Cost of fixed and variable inputs
Less compensation of employees	Cost of employed labour
Less taxes on production	e.g. sales tax on inputs
Plus other subsidies on production	e.g. fuel rebate
= Gross operating surplus	
Less consumption of fixed capital	Depreciation
Less returns to produced assets	Normal returns to capital
Less labour of self-employed persons	Imputed (unpriced) labour
= Resource rent	Economic profits



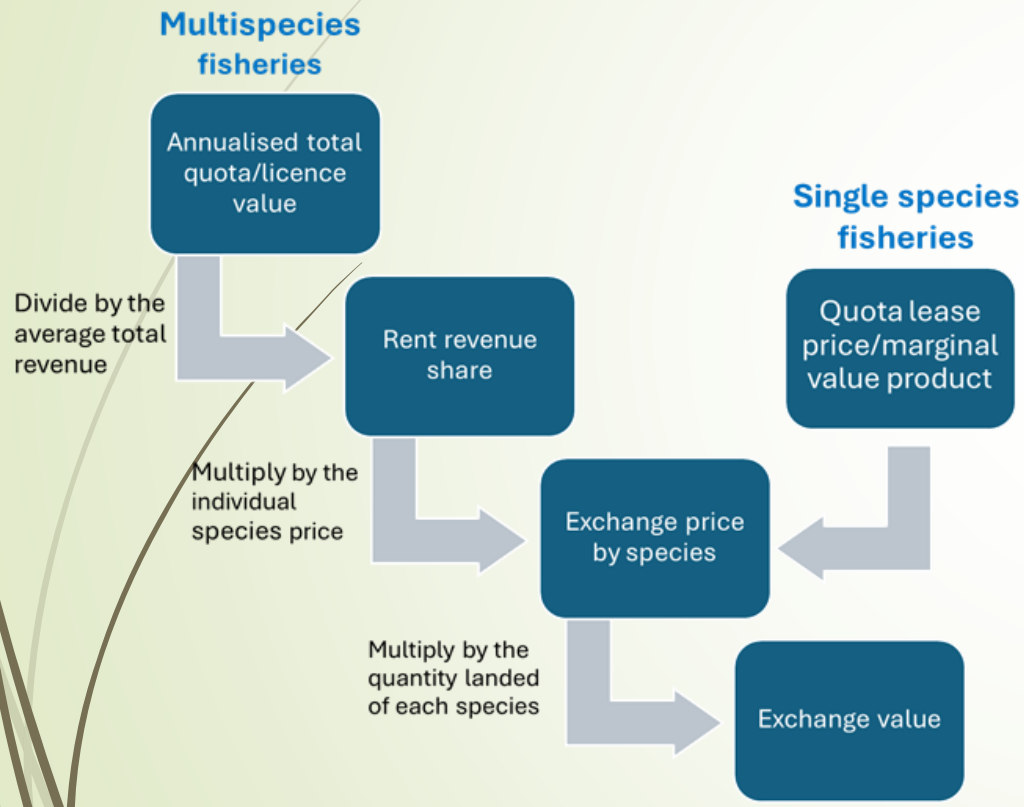
01 Many examples where the residual value is negative - first red flag!

02 Conceptually, it is not measuring the ES, but could by chance have the same value of the ES in some circumstances

03 Prioritises manufactured capital over natural capital

04 Estimates from RVM are unstable, systemically biased and unrepresentative

Joint production – accounting for multispecies wild-caught fisheries (National Ecosystem Accounts 2026)



Summary of process for estimating exchange prices for individual species
Source: Pascoe et al. (2024)

$$RRS_{F,t} = \sigma \bar{V}_{F,t} / \bar{R}_{F,t}$$

$RRS_{F,t}$ Rent Revenue Share of fishery *F* in time *t*

σ Discount rate,

$\bar{V}_{F,t}$ Average revenue of vessels

$\bar{R}_{F,t}$ Average value of quota/licenses held by vessels

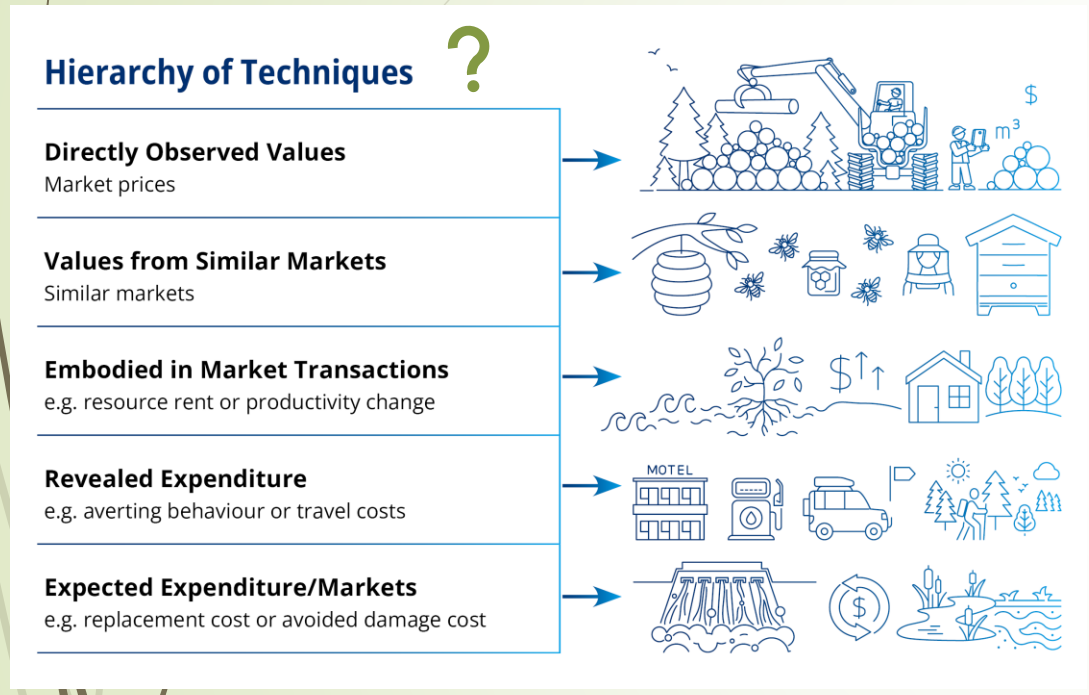
AUD$463 million

from

161.7 kilotonnes of fish

2021-22

Why the hierarchy of valuation techniques is problematic



01 Not all techniques are conceptually equivalent, nor do they line up as neatly with exchange value concepts as the guidelines suggest

02 Produces large range in estimates of exchange value for the same ecosystem service

03 Prioritising market-based prices reflects national accounting practices – not ecosystem experiences – not many environmental "markets"

04 Often what drives choice of technique is data availability – but does it actually measure ecosystem services?

05 The choice of valuation technique and their application in the production boundary or the extended production boundary implies weak or strong substitutability