Some thoughts on aggregation

Bethanna Jackson

School of Geography, Environment and Earth Sciences Victoria University of Wellington

Capital thinking. Globally minded.



Accounts aggregate spatial units and aggregate /map information to tables



4 types of units -Basic spatial units (BSU) -Ecosystem asset (EA) -Ecosystem type (ET) -Ecosystem **Accounting Area** (EAA)

Both conceptual and pragmatic issues of aggregation in account details

		Proxy ecosystem type (based on land cover)															
		Artificial surfaces	Herbaceous crops	Woody crops	Multiple or layered crops	Grassland	Tree-covered areas	Mangroves	Shrub-covered areas	Regularly flooded areas	Sparse natural vegetated areas	Terrestrial barren land	Permanent snow and glaciers	Inland water bodies	Coastal water and inter-tidal areas	Sea and marine areas	
Example indicators of condition		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Vegetation (e.g. native cover) Water quality (e.g. turbidity, pH)	Opening condition Closing condition Opening condition Closing condition																
Soil (e.g. erosion, pH, nutrients)	Opening condition																
Carbon (e.g. net primary productivity)	Closing condition Opening condition Closing condition																
Biodiversity (e.g. species richness)	Opening condition Closing condition																
Habitats (e.g. fragmentation)	Opening condition Closing condition																
Overall index of condition	Opening condition Closing condition																

Summary issues pointed out by SEEA:

Aggregation -> composite indicators:

- Per characteristic (e.g. vegetation soil) -> issue of weighting
 - E.g. soil condition; texture, nutrients, pH, soil organic matter content and other factors
- Across characteristics within ecosystem types
 - Relative importance of soil quality and vegetation quality
- For example, average of water quality measures
- Aggregation in spatial terms -> issue of scaling
 - One measure may representative of a larger area
 - "Average soil quality" may hide erosion in certain spots
- Aggregation in temporal terms -> issue of **exceedance** (disturbance)

Summary from condition w.g.

"A meaningful condition framework contains condition variables and comes with a method or procedure for thematic, spatial and temporal aggregation (for different purposes)"

- Expert knowledge or oversight is needed to ensure that aggregation is done correctly
- Aggregation is useful but not necessary (?)"

"Data availability is strong driver for selecting variables reported but modelling needed as well (to ensure balanced account)"

 ... data availability also can dictate a level of aggregation broader than might otherwise be desired. Condition of wetlands for example- might aggregate for reporting but want separate indicators for condition by type of wetland underneath

Issues also came up in valuation w.g...

- Water regulating services- regulation of low flow versus peak flow as different services
- Disaggregation of type of service! Regulation vs provisioning etc.
- Some things can't be measured or calculated at small scales, e.g. many biodiversity indices. At what scales are calculations vs reporting meaningful?
- For other services such as water and carbon we may keep calcs at small scale and although reporting more aggregated info, avoid loss of information
- Key is maintaining ability to recover spatial and other info going back from tables to interrogate
- How does this change with land, water, carbon, biodiversity, condition accounts?

Purpose is important for display and to dictate detail of underlying data/ability to map back



GRACE – mm water anomaly at ~100km



