IS Synthesis Report
Update

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Can we improve recovery planning by looking across Implementation Strategies?

Are there Strategies (Activities, Pressures) common across individual Implementation Strategies?

Today

- What are common <u>Strategies</u> across Implementation Strategies?

Next

- What are common <u>Activities</u> across Implementation Strategies?

- How are Strategies linked across Implementation Strategies?

- What are Strategies common to Pressure Sources/Stressors?

- Data source: Miradi (MiradiShare)
  - July 2019 download

- ISs:
  - BIBI, Chinook, Eelgrass, Estuaries, Floodplains, Land Development and Cover, Shellfish, Shoreline Armoring, Toxics in Fish
  (no Marine Water Quality)

Extract reporting data (*Miradi*)
Sort/filter data (*Excel*)
Code data (*Atlas.ti* + *Brain*)
Analyze codes (*Excel* + *Brain*)
Expand inference using other materials (*RCs, Narratives*)

Next: code in R

Common Strategies

Two ways "common" is defined and strategies are aggregated

1) Specific strategies that are common to >1 Implementation Strategy, grouped by theme*.

2) "Packages" of alike strategies

(Now go to Excel/Sheet "Result 7_a")

* Theme – Interpretation/coding by TBF

- Repeat analysis for <u>Activities?</u> Might be too fine-grained

- Common Strategies per Pressure Sources/Stressors

- Network analysis of linked strategies
  - Links between strategies & pressures
  - Distance between strategy & pressure (likelihood)
  - Multiple pressures per Vital Sign
  - Linked Vital Signs

- Relationship to other regional efforts
  - Future scenarios
  - Orca Task Force
  - Model Consortium (VELMA, SSM, Atlantis)
  - KC WQBE
  - Water 100

- Miradi data needs/limitations/opportunities

Additional follow-up activities

- Cross-walk Strategies, Activities, GUM → Identify specific data/technical needs

- Policy analysis: <u>Which</u> regulations need alignment/improvement, <u>which</u> policies need strengthening
    - BPAs as a starting point

Thank you!

OLDER SLIDES

Step 1: Extract information from Miradi (MiradiShare)

- ISs:
    - BIBI, Chinook, Eelgrass, Estuaries, Floodplains, Land Development and Cover, Shellfish, Shoreline Armoring, TIF (no Marine Water Quality)

- Used standard report ('Strategy & Activity Progress')
    - Relevant IS
    - Strategy Name
    - Strategy Type (Strategy/Activity)
    - Strategy Status (Draft/Strategy)
    - Relevant Results Chain(s)
    - Pressures-Sources

Step 2: Sort/filter standard data

- Filter
  - Only Strategies
  - Exclude Drafts
  - Only Strategies from Results Chains (not Conceptual Models)

Step 3: Import data to Atlas.ti & Code textual data (content analysis)

- Unit = individual strategy
- Coding framework
  - IS
  - Type of activity (Outreach/Education, Regulation Reform, Research)
  - Target of activity (Water Quality, Working Lands, Governance)

- Group (& re-group) by Codes to form Strategy categories and sub-categories

Multiple codes applied to each strategy, because strategies are potentially related in multiple ways

Some codes turned out to be not useful, but a *multi-scale approach* to coding is useful
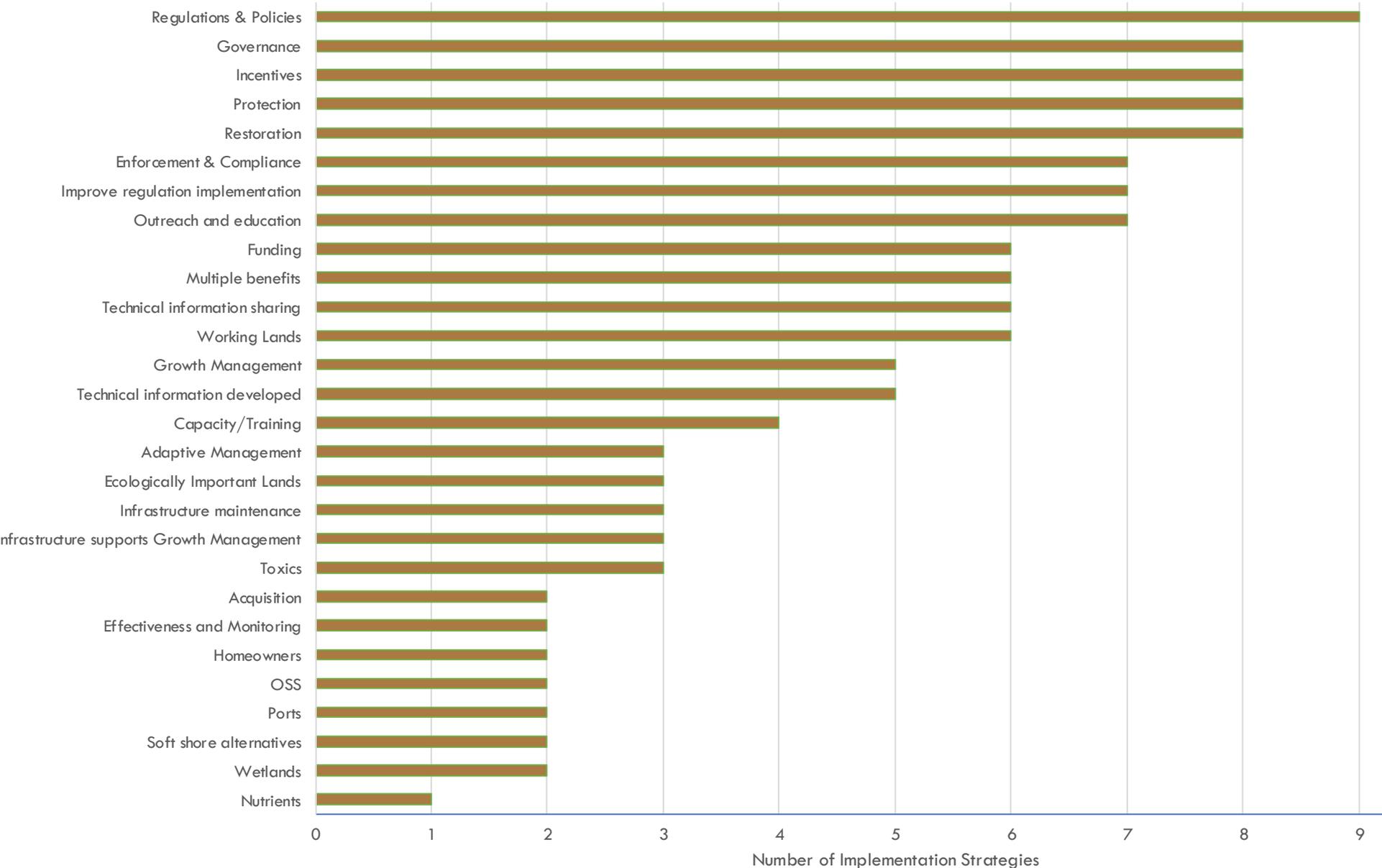
Coding is an iterative process

Step 4: Analyze strategy categories and sub-categories

- Data exploration
    - Strategies by category
    - Strategies by sub-category
    - Frequency distribution of category/sub-category across IS

- Data analysis
    - Common strategies within sub-category across ISs
    - Packages of similar strategies across ISs

Common strategies **inform where intervention might benefit multiple ISs**

Strategy packages **inform thematic investments**

Strategy Category Frequency

Category	Number of Implementation Strategies
Regulations & Policies	9
Governance	8
Incentives	8
Protection	8
Restoration	8
Enforcement & Compliance	7
Improve regulation implementation	7
Outreach and education	7
Funding	6
Multiple benefits	6
Technical information sharing	6
Working Lands	6
Growth Management	5
Technical information developed	5
Capacity/Training	4
Adaptive Management	3
Ecologically Important Lands	3
Infrastructure maintenance	3
Infrastructure supports Growth Management	3
Toxics	3
Acquisition	2
Effectiveness and Monitoring	2
Homeowners	2
OSS	2
Ports	2
Soft shore alternatives	2
Wetlands	2
Nutrients	1

Number of Implementation Strategies

Strategy Subcategory Frequency

Subcategory	ISs with >=1 strategy in that category	# ISs
Education and outreach	BIBI, Chinook, Estuaries, Floodplains, LDC, Shellfish, Shoreline Armoring	7
Local jurisdictional capacity	BIBI, Estuaries, Floodplains, LDC, Shoreline Armoring	5
Urban Growth Area	Estuaries, LDC, TIF	3
A5.2 Align policies, regulations, planning, and agency coordination to support multi-benefit floodplain management, incorporating climate change forecasts	Eelgrass, Estuaries, Floodplains	3
A1.2 Support local governments to adopt and implement plans, regulations, and policies, consistent with protection and recovery targets, and incorporate climate change forecasts	Floodplains, LDC, Shoreline Armoring	3
A2.1 Protect and conserve ecologically important lands at risk of conversion	Estuaries, LDC, TIF	3
B2.3 Remove armoring, use soft armoring replacement or landward setbacks	Eelgrass, Estuaries, Shoreline Armoring	3
A4.2 Provide infrastructure and incentives to accommodate new and re-development within urban growth areas	Estuaries, LDC, TIF	3
C3.2 Ensure compliance with regulatory programs designed to reduce, control,or eliminate pollution from working farms	Eelgrass, Estuaries, Shellfish	3
B2.2 Implement prioritized nearshore and estuary restoration projects and accelerate projects on public lands	Eelgrass, Estuaries, Floodplains	3

Ecologically Important Lands

- Protect and conserve ecologically important lands at risk of conversion
- Preserve working lands and ecologically important rural lands
- Protect ecologically important lands in and out of UGAs
- Regional support for conservation of ecologically important lands and working lands

Technical Information Developed/Shared

- Regional technical support provided
- Improve data and information to accelerate floodplain protection
- Require risk tolerance considerations in land management and development
- Create data visualization tools that show cumulative effects and various scenarios
- Determine geographical areas where WWTPs are having an impact
- Use technologies such as GIS to link certain farm types or practices to water quality impacts
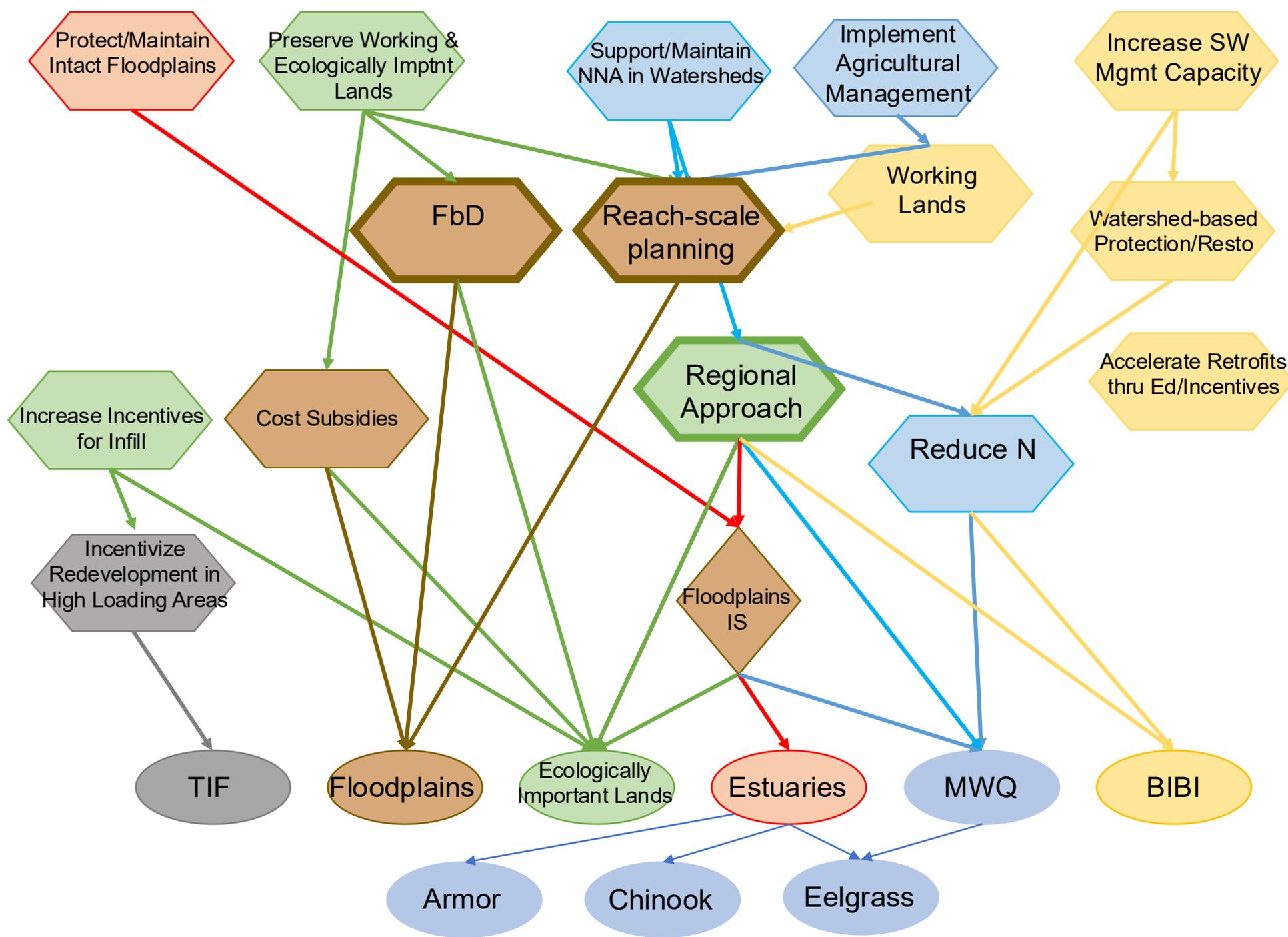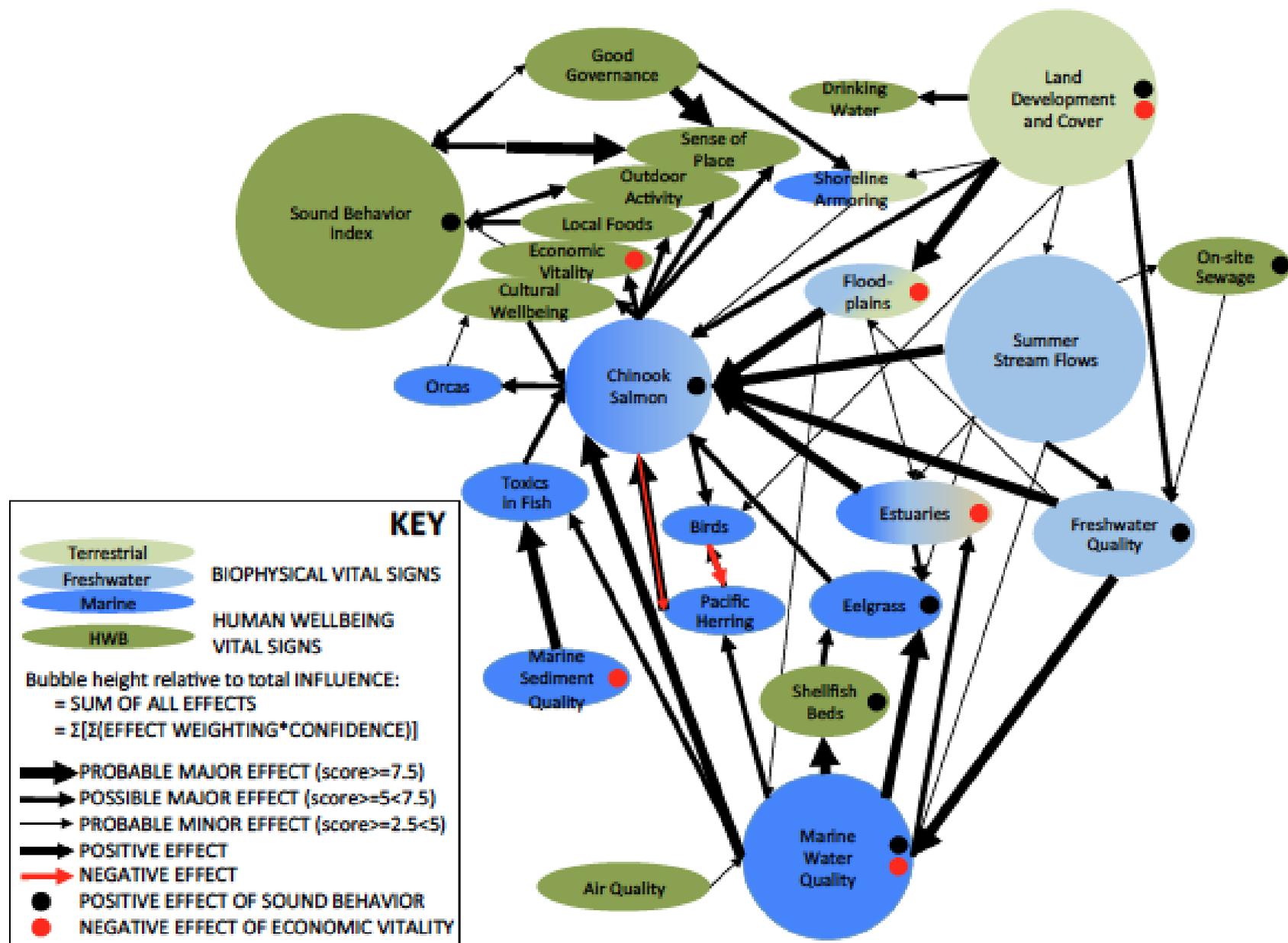
Figure 2. A causative network of Vital Signs (see text for explanation of symbols).

KEY

Terrestrial
Freshwater   BIOPHYSICAL VITAL SIGNS
Marine
HWB   HUMAN WELLBEING
                 VITAL SIGNS

Bubble height relative to total INFLUENCE:
= SUM OF ALL EFFECTS
= Σ[Σ(EFFECT WEIGHTING*CONFIDENCE)]

➡ PROBABLE MAJOR EFFECT (score>=7.5)
➡ POSSIBLE MAJOR EFFECT (score>=5<7.5)
➡ PROBABLE MINOR EFFECT (score>=2.5<5)
➡ POSITIVE EFFECT
➡ NEGATIVE EFFECT
● POSITIVE EFFECT OF SOUND BEHAVIOR
● NEGATIVE EFFECT OF ECONOMIC VITALITY

Pressures identified in ISs

Agricultural & Forestry Effluents
Annual & Perennial Non-Timber Crops
Commercial and Industrial Areas
Domestic & Municipal Wastewater to Sewer
Domestic and Commercial Wastewater to Onsite Sewage Systems (OSS)
Floodgates
Freshwater Levees
Freshwater shoreline infrastructure
Freshwater shoreline infrastructure
Housing and Urban Areas
Industrial Runoff
Industrial Wastewater
Livestock Farming & Ranching
Marine Levees
Marine shellfish aquaculture
Marine shoreline infrastructure
Oil Spills
Roads & Railroads (Including Culverts)
Runoff from residential and commercial lands
Shipping Lanes and Dredged Waterways
Tidegates
Utility & Service Lines
Wood & Pulp Plantations

Commercial and Industrial Areas

- Acquisition
- Adaptive Management
- Capacity, Training, Design
- Collaboration Community
- Compact communities
- Cost-benefit analysis
- Cumulative effects
- Data visualization
- Development
- Easements
- Ecologically important lands
- Ecosystem services
- Education
- Enforcement and compliance
- Floodplains by Design
- Funding
- GMA
- Governance resilience
- Home owners
- Improve regulation implementation
- Incentives
- Infill
- Integrated land use planning
- Integrated planning
- Multiple benefits of land use
- New markets
- Outreach and communication
- PDR
- Political Will
- Protection/Conservation
- Regional approach
- Regional infrastructure supports growth management
- Restoration
- Restructure regulations/permitting
- Risk assessment
- Scenarios
- Sense of place
- Smart development
- SMP
- Social Marketing
- Social science
- Sources
- Stormwater
- Technical information developed
- Technical information sharing
- Terrestrial
- TMDL
- Toxics
- Urban growth area
- Water quality
- Water quantity regional standards
- Wetlands
- Working lands
- Zoning
- Public engagement in restoration & recovery

Housing and Urban Areas

- Acquisition
- Adaptive Management
- Capacity, Training, Design
- Collaboration Community
- Compact communities
- Cost-benefit analysis
- Cumulative effects
- Data visualization
- Development
- Easements
- Ecologically important lands
- Ecosystem services
- Education
- Enabling condition - Cross-jurisdictional planning coordination
- Enforcement and compliance
- Floodplains by Design
- Funding
- GMA
- Governance resilience
- Home owners
- Improve regulation implementation
- Incentives
- Infill
- Integrated land use planning
- Integrated planning
- Large scale restoration
- Multiple benefits of land use
- New markets
- Outreach and communication
- PDR
- Political Will
- Protection/Conservation
- Regional approach
- Regional infrastructure supports growth management
- Research
- Restoration
- Restructure regulations/permitting
- Risk assessment
- Scenarios
- Sense of place
- Smart development
- SMP
- Social Marketing
- Social science
- Sources
- Stormwater
- Technical information developed
- Technical information sharing
- Terrestrial
- TMDL
- Toxics
- Urban growth area
- Water quality
- Water quality regional standards
- Water quantity regional standards
- Wetlands
- Working lands
- Zoning
- Public engagement in restoration & recovery

How can this be used?

- Hub idea
- Investment themes
- Research/analysis priorities
- Network model
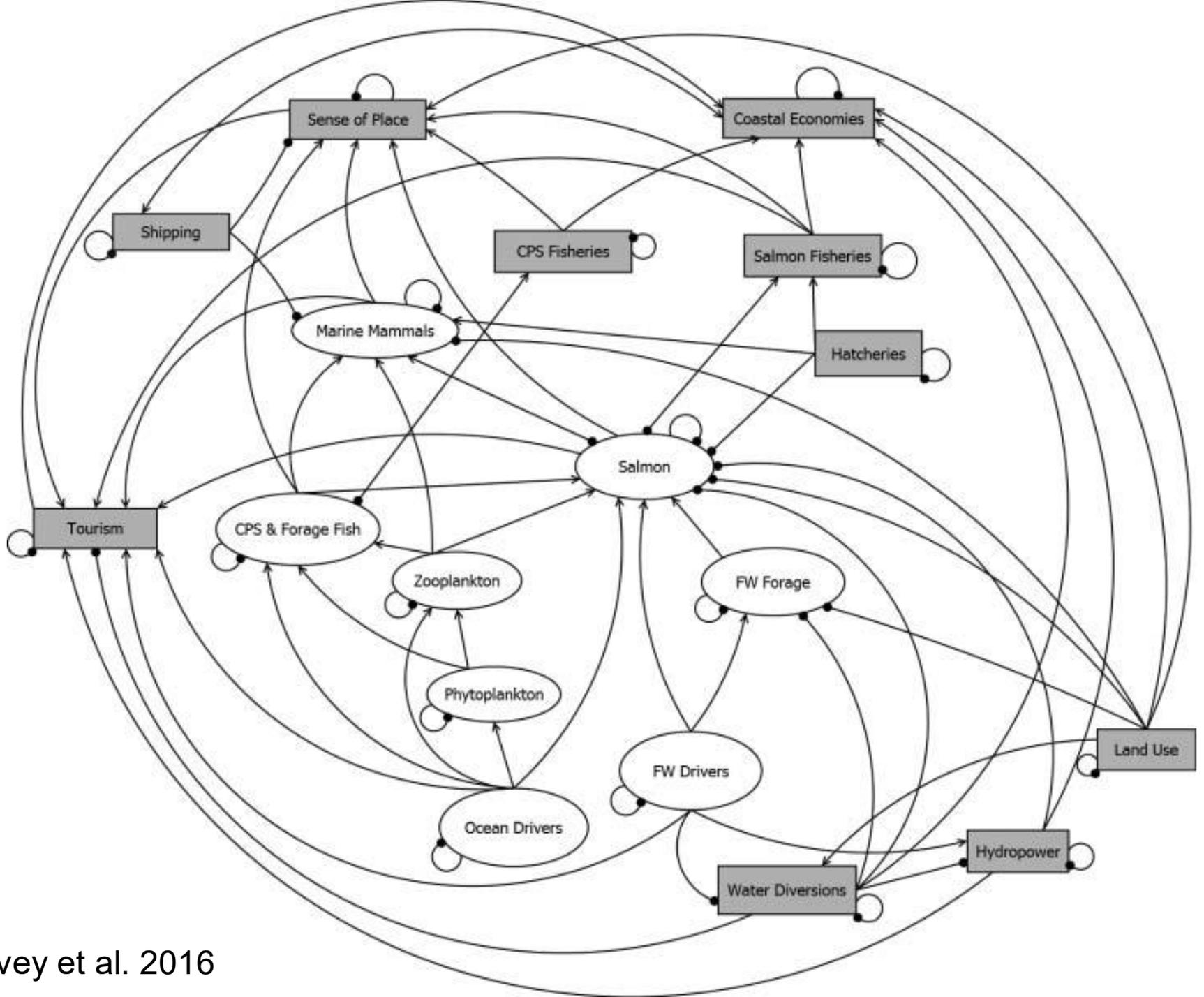
Harvey et al. 2016

Data management

- Lots of this was manual & labor intensive – implications for standardizing
- Old ISs organize their thinking differently, which impedes comparison
- Even new IS use different 'grain' for strategies and descriptions
- Incomplete data entry/tagging/linking
  - Link to RC vs CM
  - Pressure-Sources
  - Links to other IS
  - IS names impossible to interpret alone
  - Priority impossible to infer