LIFE AFTER WATER USE PLANNING

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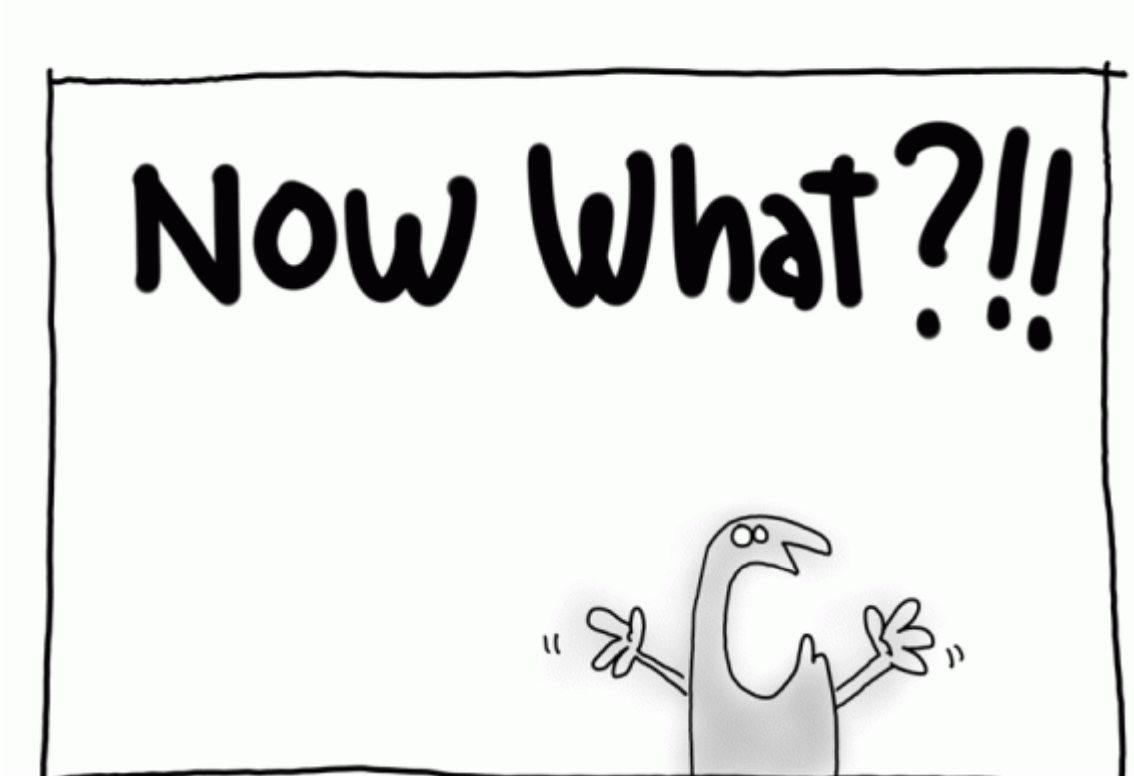
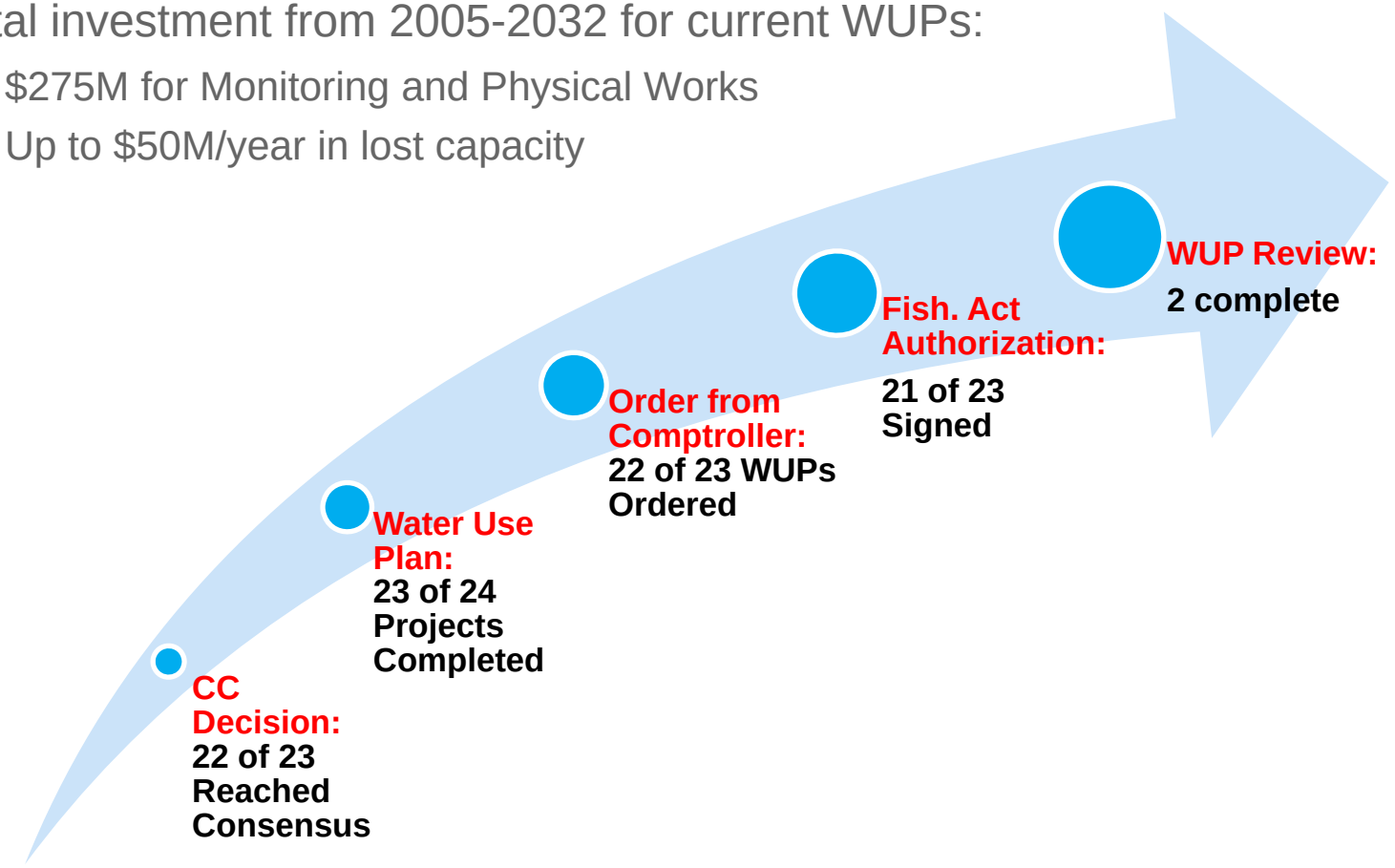


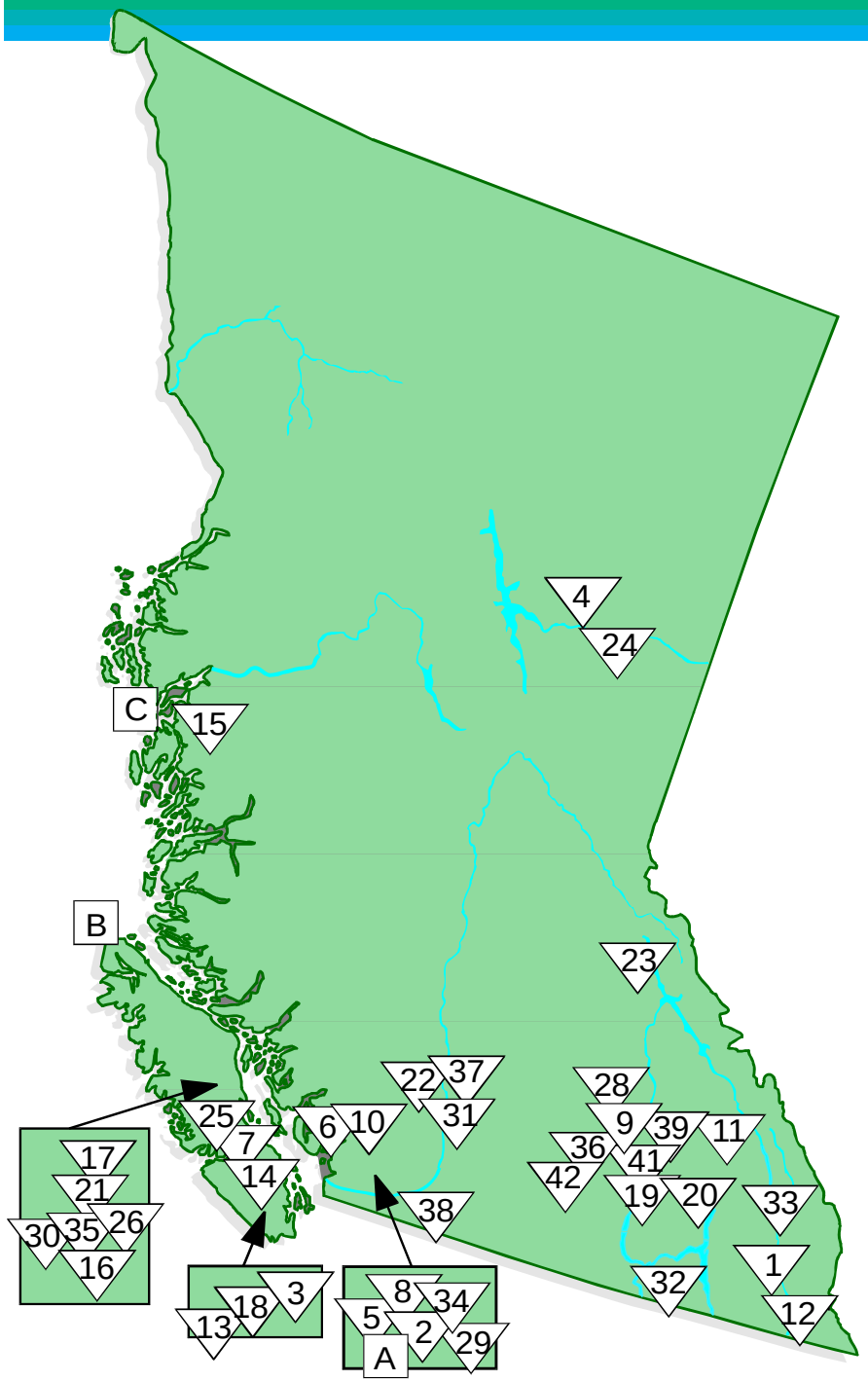
WHERE WE GOT TO…

WATER USE PLANS STRENGTHENED OUR RELATIONSHIPS WITH REGULATORS, FIRST NATIONS AND STAKEHOLDERS.

- Typical review periods ~10 years
- Total investment from 2005-2032 for current WUPs:
  - $275M for Monitoring and Physical Works
  - Up to $50M/year in lost capacity



BC Hydro Facilities



1 Aberfeldie
2 Alouette
3 Bear Creek
4 Bennett
5 Buntzen
6 Clowhom
7 Comox Lake
8 Coquitlam
9 Coursier
10 Daisy Lake
11 Duncan
12 Elko
13 Elliott
14 Elsie Lake
15 Falls River
16 Heber
17 John Hart
18 Jordan
19 Keenleyside
20 Kootenay Canal
21 Ladore
22 La Joie
23 Mica
24 Peace Canyon
25 Puntledge
26 Quinsam (2 dams)
28 Revelstoke
29 Ruskin
30 Salmon River
31 Seton
32 Seven Mile
33 Spillimacheen
34 Stave Falls
35 Strathcona
36 Sugar Lake
37 Terzaghi
38 Wahleach
39 Walter Hardman (2 dams)
41 Whatshan
42 Wilsey
A Burrard Thermal
B Keogh
C Rupert

WHAT WE DIDN'T DO…

SCOPE OF WUPs LIMITED TO INCREMENTAL OPERATIONAL CHANGES

- "Footprint" impacts and complex issues were scoped out:
  - Entrainment
  - Fish passage
  - Total dissolved gas
- Authorizations could not be given for impacts not addressed in WUPs
  - Originally Authorized for habitat loss
  - Eventually included mortality

WHERE WE WANT TO BE…

INCREASED “REGULATORY CERTAINTY”/PUBLIC CONSENT

- Several WUPs conditional on addressing other issues
- Recent upgrade projects required further Authorizations
- Incidents under WUP operations highlighted need for further controls/study
  - Authorizations for habitat loss and mortality associated with WUP Operations
  - Public consent to operate (and expand)

THE ROAD TO REGULATORY CERTAINTY

FOUR STOPS:

- Develop a process (“Strategy”) – agree on principles
- Develop/Use Fisheries Management Objectives
- Improve understanding – Impacts to FMOs
- Make decisions and implement

BC HYDRO'S FISH STRATEGIES

FOCUS ON COLLABORATION AND IMPROVING UNDERSTANDING

- Fish Entrainment Strategy
- Fish Passage Decision Framework
- Total Dissolved Gas Strategy
- Compensation Program Basin and Action Plans
- Approved Work Practices – Vegetation
- Compliance Protocol

USING FISHERIES MANAGEMENT OBJECTIVES

COMPLEX ISSUES REQUIRE FOCUSED OBJECTIVES AND TARGETS AROUND CONSERVATION AND USE

- WUPs focused on IMPROVING incrementally –
  - Enhance spawning success
  - Improving passage efficiency
- Complex programs such as the entrainment strategy and compensation programs focus on TARGETS –
  - Sustainable use targets
  - Conservation goals (e.g. diversity and SAR protection)

FMO Examples – Arrow Lakes

CONSERVATION –

Objective	Sub-Objective	Measure	Targets
Maintain a productive and diverse aquatic ecosystem capable of providing societal benefits	**Kokanee** - maintain sufficient abundance of forage fish to meet targets for large piscivores - increase the number of spawning populations - maximize the abundance of large kokanee in support of angling and harvest	Distribution	whole lake/reservoir
		Population Structure	maintain spawning distribution
		Abundance / Biomass	17 spawners / ha (550,000 total)
		Size / Age Distribution	24 cm average for spawners

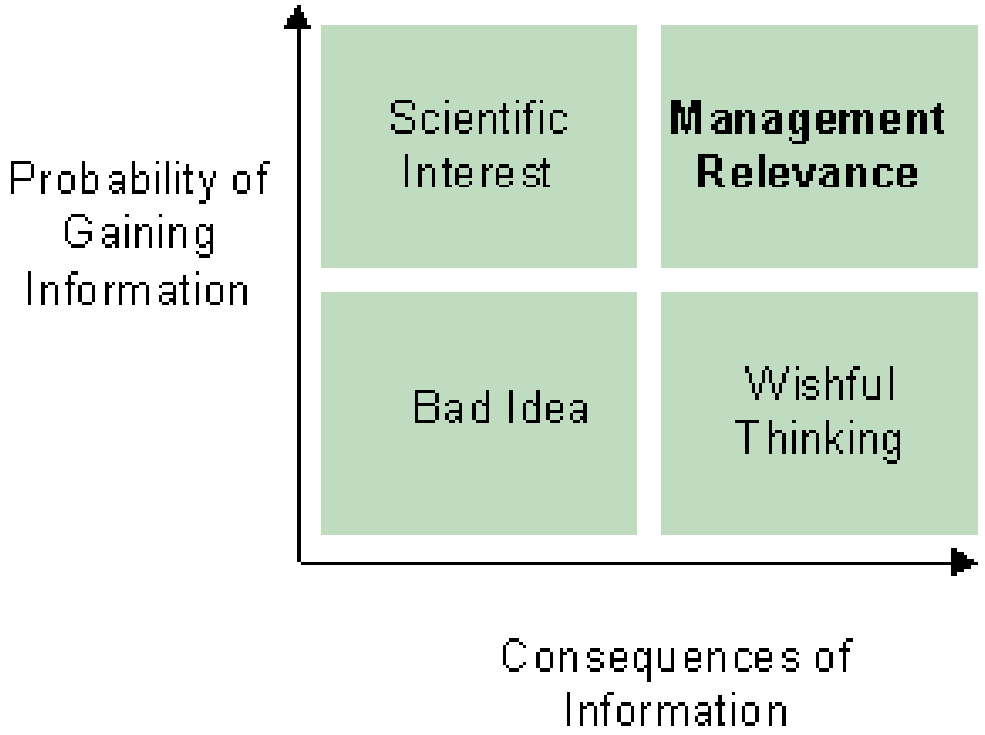
SUSTAINABLE USE -

Objective	Measure	Target
Optimize recreational angling opportunities, participation and local benefits	Angler days	43,000

IMPROVING UNDERSTANDING

APPLICATION OF FMOs REQUIRES UNDERSTANDING OF STATUS, IMPACTS AND REMEDIES

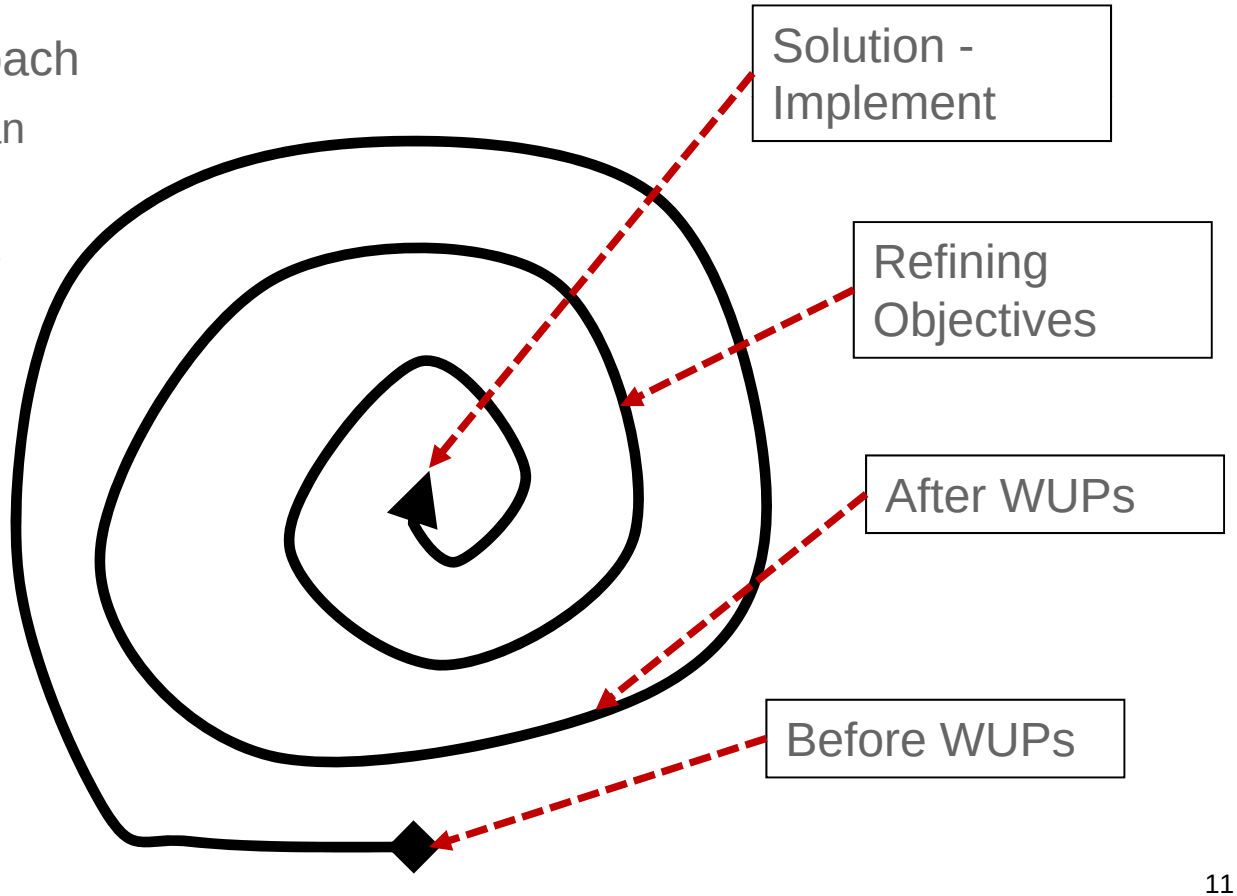
- Use Structured Decision Making to determine “What Matters”
- Use good science to improve understanding and find solutions to issues



MAKING DECISIONS

REQUIRES STRUCTURE AND MULTIPLE VALUE TRADEOFFS

- Need to consider all objectives
  - Regulatory, FMOs, costs, Societal values
  - Trust the process
- Take a stepwise approach
  - Develop an action plan
  - Refine understanding
  - Re-evaluate solutions
  - Implement
- Be patient…



ISSUES - STATUS

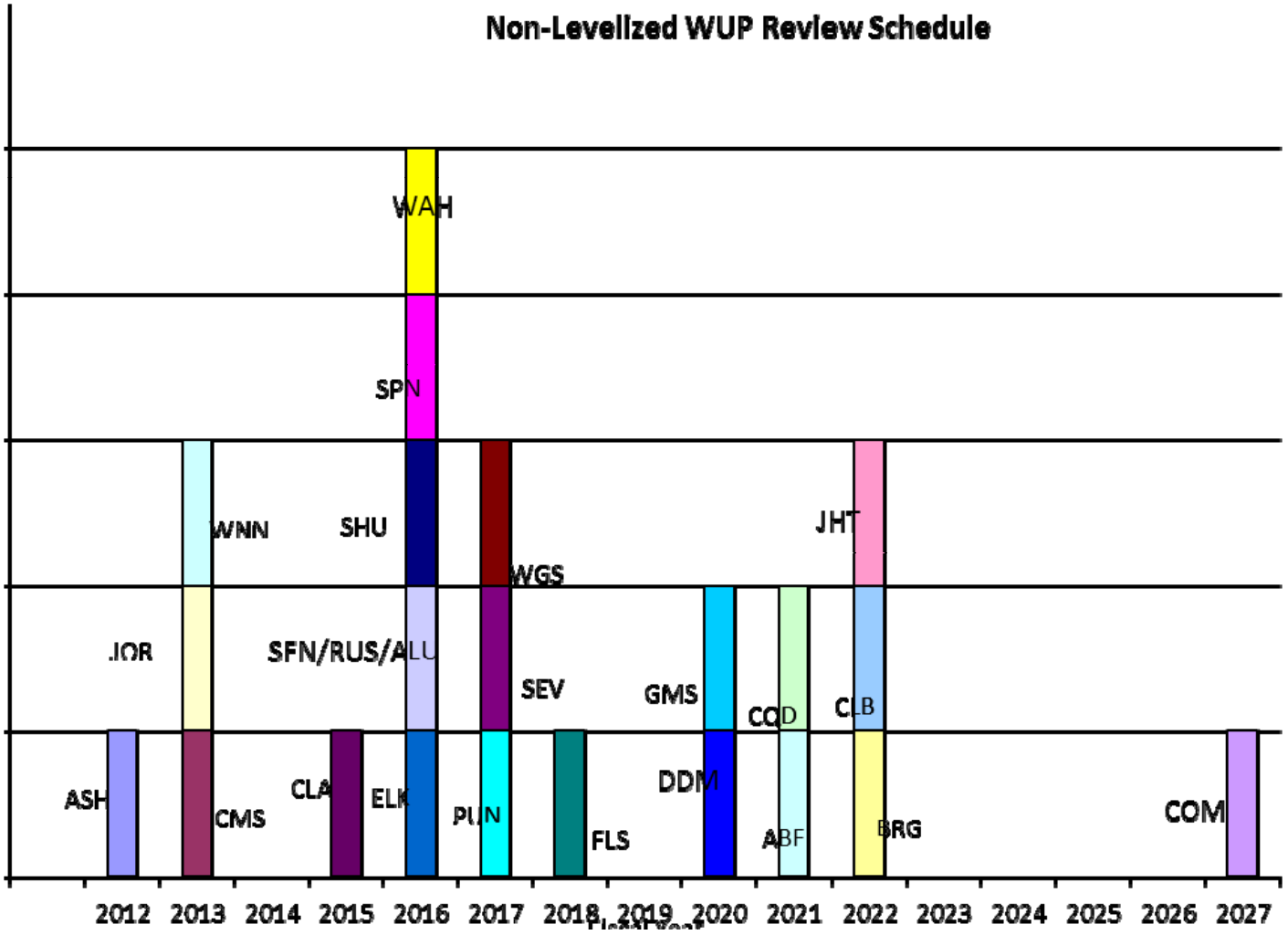
IMPLEMENTATION IS SLOW AND CAPACITY IS LIMITED FOR MEANINGFUL COLLABORATION

- 22 of 23 Consensus agreements on Water Use Plans →21 of 23 Authorizations completed
- Entrainment Strategy Action Plans in progress for 4 of 23 watersheds
  - Project related/high priority
- Compensation Action Planning is in place for Coastal and Columbia
  - Takes time to shift thinking
- Provincial and Anadromous fishery targets are not clearly defined
  - Requires support
- Passage Framework implemented at 4 watersheds
  - 1 endorsed proposal

NEXT STEPS

WUP AND FAA REVIEWS COMING QUICKLY

- Need to simplify process and prioritize



SUMMARY

FMOs AND COLLABORATION ARE KEY TO FINDING SOLUTIONS

- Bringing industry, research and regulators together – HydroNet
  - Science needs to be focused on management relevance
  - Can use FMOs and SDM to refine the scope of assessment
- Collaboration takes time and resources
  - Limited opportunities to engage all groups
  - Need to prioritize

QUESTIONS

- What is the role of collaboration in developing a Water Use Plan?
- What is the role of science?
- How does a Water Use Plan address regulatory requirements (e.g. Fisheries Act)?