



Another Balancing Act

Environmental concerns with large scale balance services from hydropower
Svein Grotli Skogen, at HydroBalance User Meeting, 13. Sept. 2016

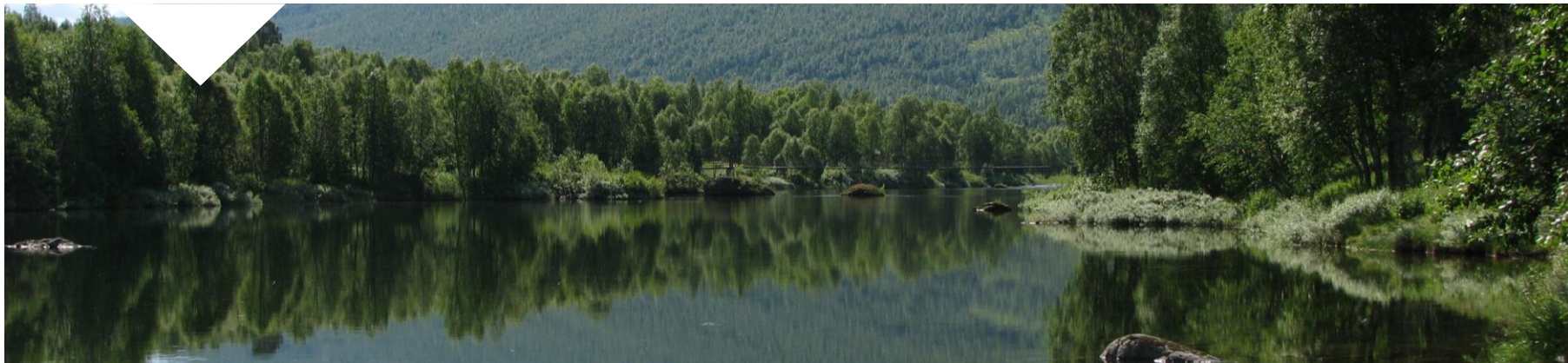


Foto: Anders Iversen

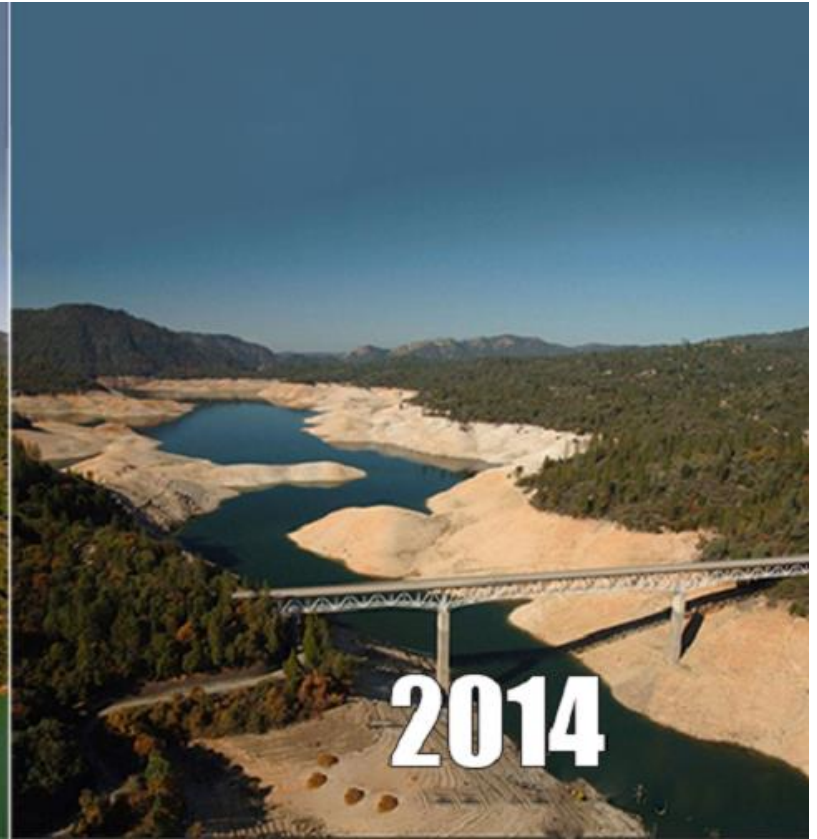
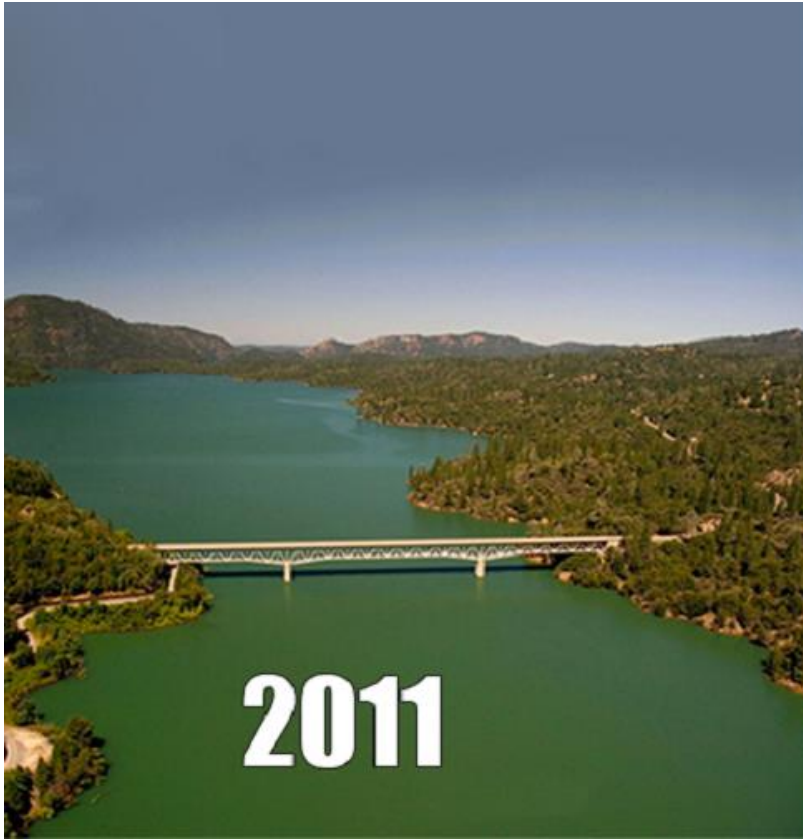
Hydro balancing vs. Environment & Climate

1. Environmental concerns & requirements
2. Benefit vs. “cost”/negative impact
3. EIA: as Planning System & Conflict Management System
4. Mitigation (hierarchy)

Formal terms for this session

- Nature Diversity Act = “naturmangfoldloven”
- Water Frame Directive (WFR) = “vanndirektivet”
 - Water Regulation = “vannforskriften”
 - River Basin Management Plans (RBMPs) = “vannforvaltningsplaner”
- EIA Directive = “KU-direktivet”
 - EIA Regulation = “KU-forskriften”
- Energy Act = “energiloven”
- Water Resources Act = “vannressursloven”
- Act relating to regulations of watercourses = “vasdragreguleringsloven”





Lake Oroville, California, Photo: U.S.Uncut

Climate responsibility & accounting



Meld. St. 14

(2015–2016)

Melding til Stortinget

Natur for livet

Norsk handlingsplan for naturmangfold



Meld. St. 25

(2015–2016)

Melding til Stortinget

Kraft til endring

Energipolitikken mot 2030



Needs & gains from HydroBalancing

Needs & gains must be assessed – but how?

“Choice of concept study”

Konseptvalgutredning (KVU)





Lite vann: Vanligvis er det godt med vann i Samsjøen på denne tiden av året, forteller hytteeier Eli Sesseng. Hun liker ikke det hun ser fra hyttevinduet nå. FOTO: PRIVAT

Her skulle det vært en innsjø

Hytteieier fortviler over nedtappet innsjø. Trønderenergi forklarer det med tørrere værforhold og fravær av svensk kjernekraft.

 ÅRETS AVIS
adressa.no

- Skammelig tapping av Samsjøen

Av AYNA LILE

- Dette er en skammelig måte å behandle et naturområde på, sier hytteeier Jan Jakobsen, som reagerer skarpt på at idylliske Samsjøen i Ådal er tappet ned.

DEL Det er Foreningen til Bægnavassdragets Regulering som står bak nedtappingen takket være en evigvarende konsesjon undertegnet 4.juli 1958.

Foreningen eies av 18 kraftverk i Begna og Drammenselva nedenfor Tyrifjorden.

Vanligvis er Samsjøen 3,5 kvadratkilometer stor. Nå har den krympet med én kvadratkilometer.





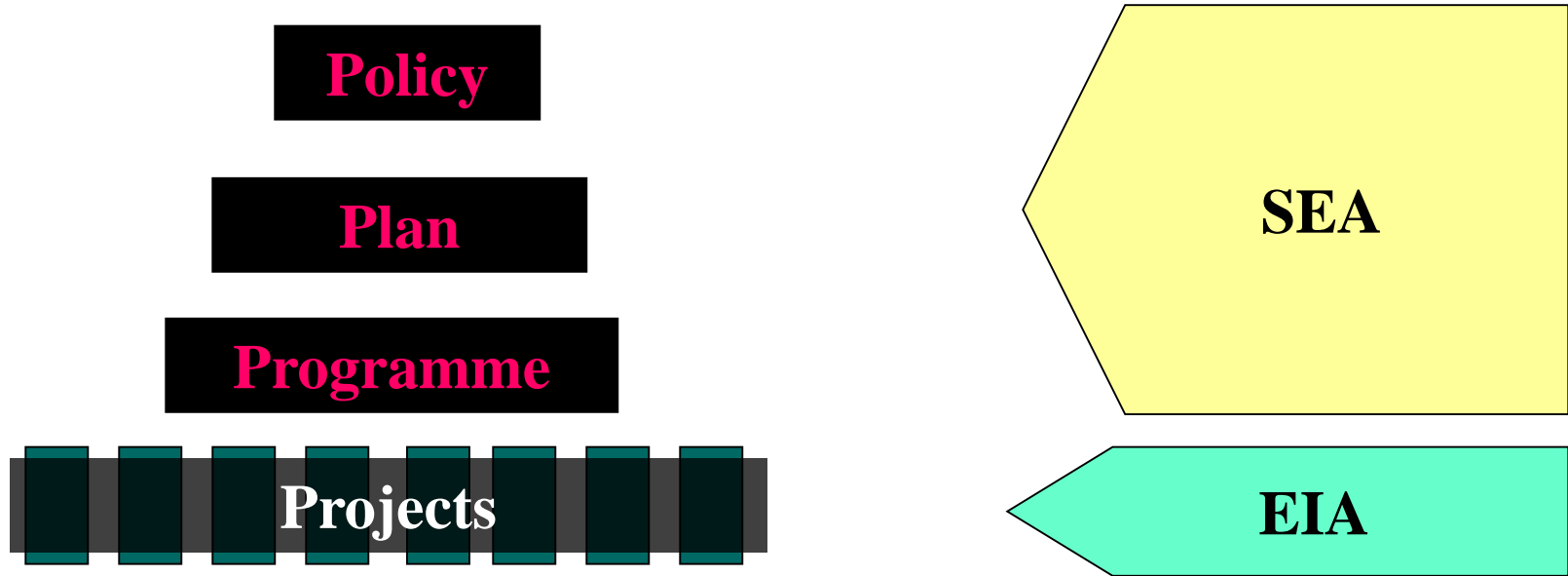
Foto: NRK

EIA Crash Course

Aims of an EIA

- Providing information for decision-making and follow-up
- Promoting transparency and participation

EIA for projects – SEA for PPPs

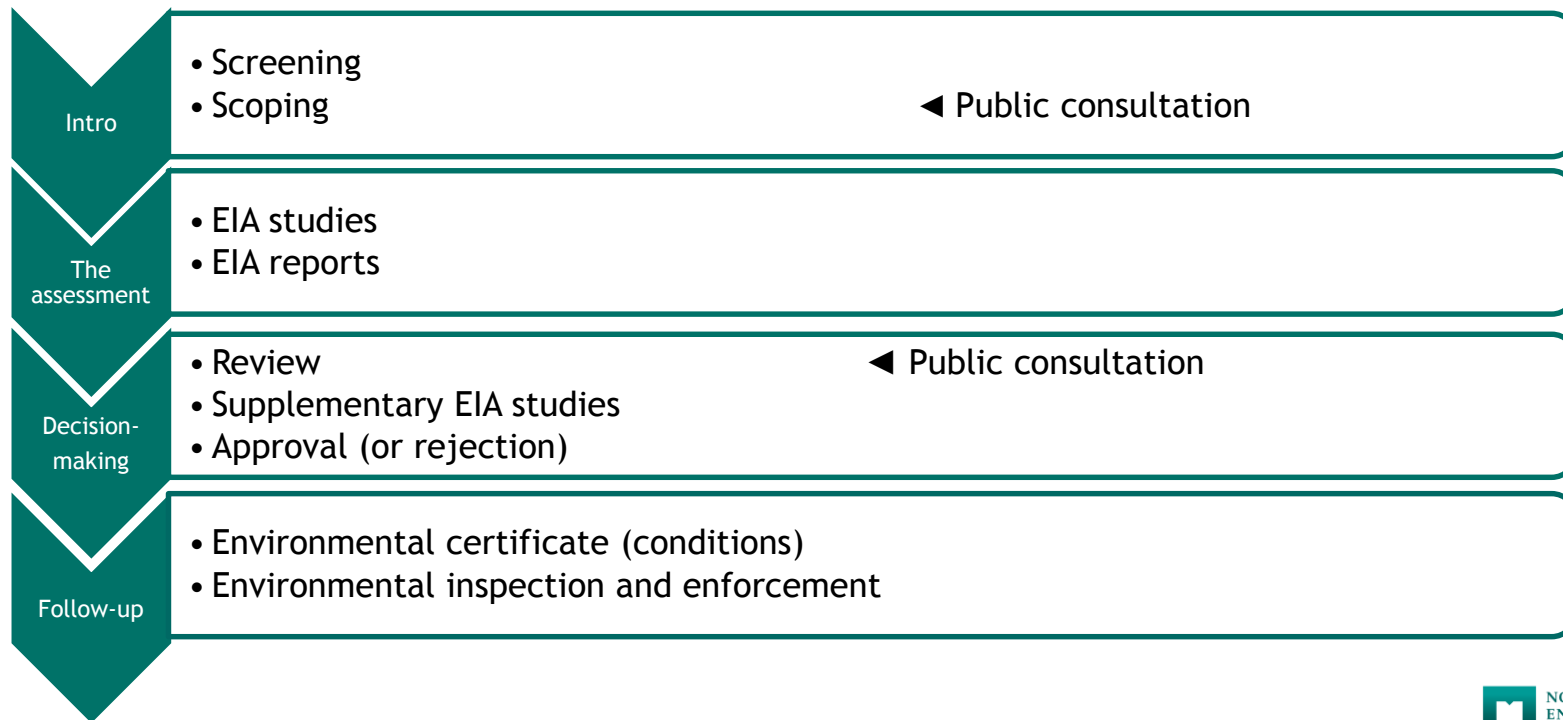


Good EIA's are...

... restricted to issues
that are likely to have
significant negative impacts



The EIA process



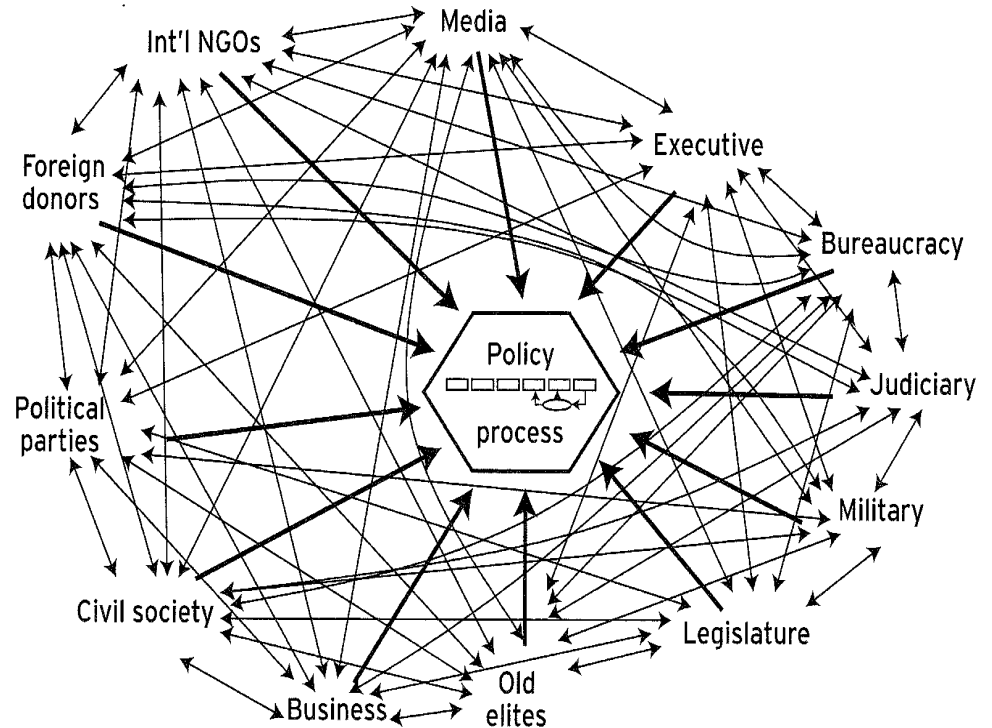
More EIA Aspects

- Direct & Indirect impacts
- Trans-boundary impacts
- Cumulative impacts
- Uncertainty of impacts



Key actors: Roles, interests & power

- Developer & Consultants
 - Private sector
 - Sector ministries
- NVE
- Civil society
- Finance institutes

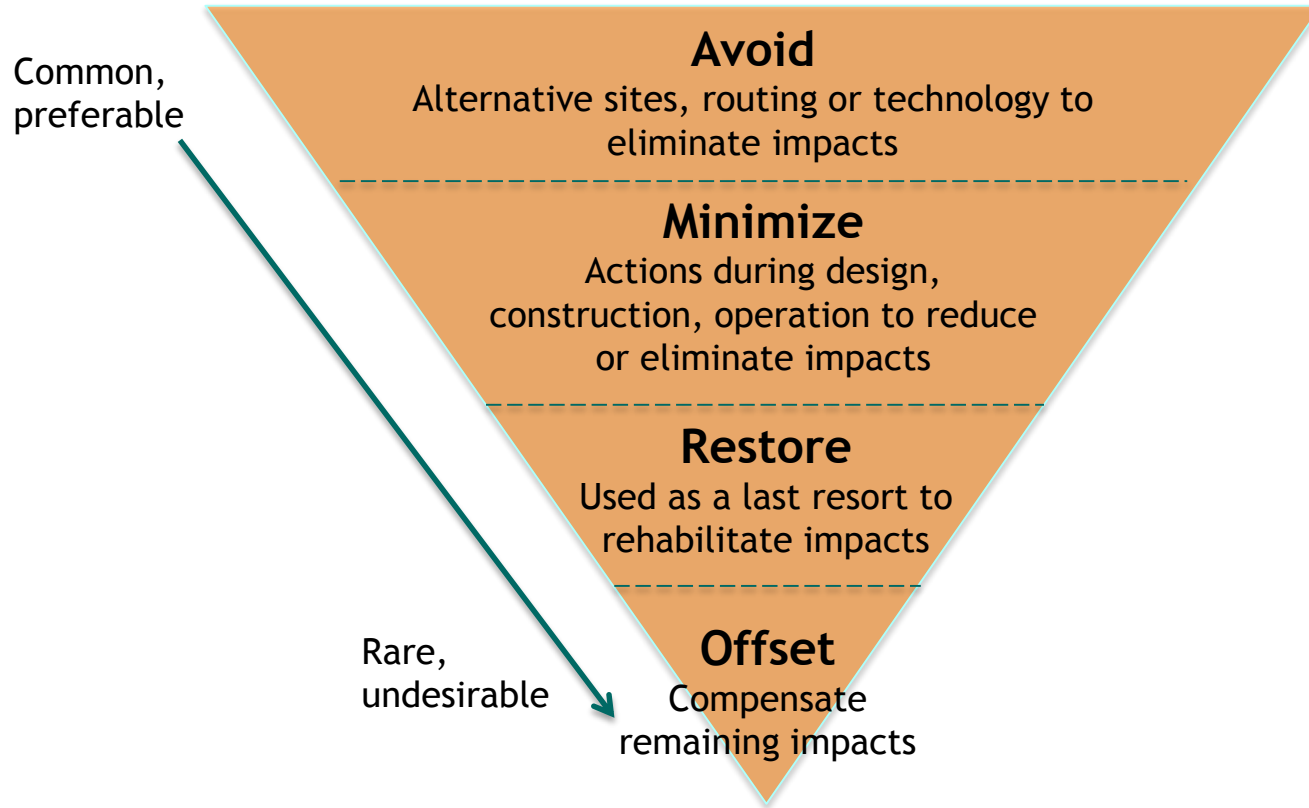


EIA in Norway

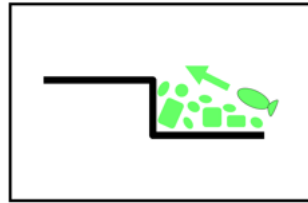
- Basic methodology from the Road Authorities
- The concept of Priced vs. non-priced



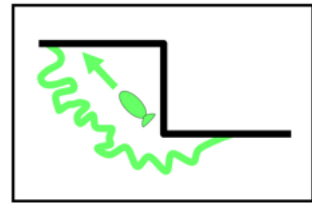
Mitigation



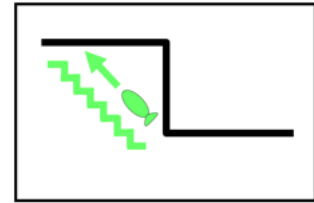
Mitigation and the WFD - 1



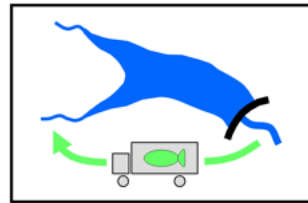
Constructing
ramp



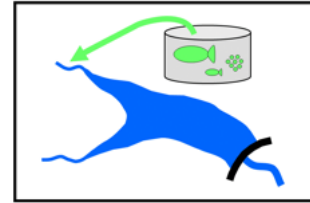
Constructing
by-pass channel



Constructing
fish pass (upstream)



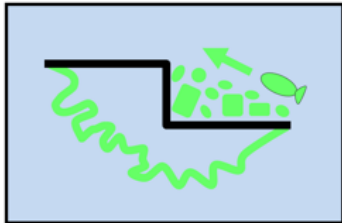
Catch, transport &
release



Introducing stock
from hatchery

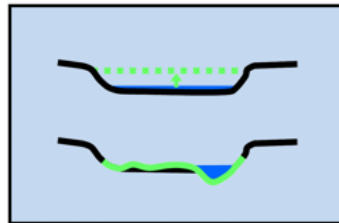
Mitigation and the WFD - 2

Key mitigation measure	% yes	Yes	No need to mitigate this impact	No relevant measure available	No answer
1. Upstream continuity - fish	86 %	18	2	1	0
3. Low flow	67 %	14	4	2	1
2. Downstream continuity - fish	62 %	13	3	4	1
5. Variable flow	52 %	11	5	4	1



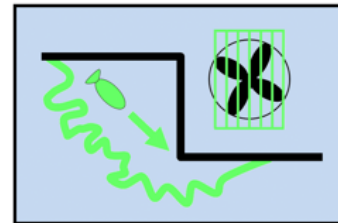
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1. Upstream continuity fish



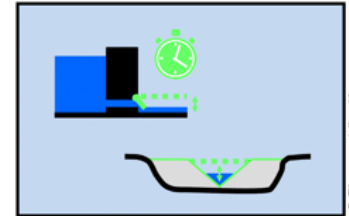
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3. Mitigation low flow



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2. Downstream continuity fish



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5. Mitigation variable flow



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