



Considerations for Using Integrated
Reporting subcategory 4C

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NC 4C Overview

- Current NC approach
- Dam removal handbook
- Standards Adjacent Parameters
- Theory of Intentions
- Other potential 4c scenarios
- Considerations and
- What not to do

4c Hydrologic Alteration (HA) → hydrology?

*** Intended ~ pollution** → hydrology?
Unintended ~ pollutant → hydrology?

Current NC Method for 4c: Shellfish harvesting (5 CACCA PRO) → 4c Feed 4/43 (4c) CACCA PRO

Recreation: 5 enterro → 4c enterro; 4c Posting → 4c enterro

Aquatic Life: 5 bathes/fish → 4c bathes/fish (n=13); 5 numeric WQS DO → 4c numeric WQS DO (n=2)

Proposed NC use 4c 4r Hydrology

- In Restoration plan areas: 4r EC hydro → 4r post restoration
- Dam Removal (hydropower/US): 4c Dam identified as obsolete → 4r Dam removal plan → 4r barrier gate
- Barrier Removal (head, SC, debris, debris): 4c Stream valve → barrier valve (obsolete) → 4r barrier restoration plan

4r consequences / modified hydro / ditches?

5 bathes/fish - WQS → 4c hydrology → 4s bathes/fish - WQS

Hydro (above this) → pollution intended

Societal Trade of functions

Intended to: Running water functions → Dammed functions

Running water: All bathes, All WQS, running natural

Dammed functions: All WQS, Storage, Peaking

Intended: Barrier valve > natural value, once natural value > barrier value = obsolete 4c

4c scenarios:

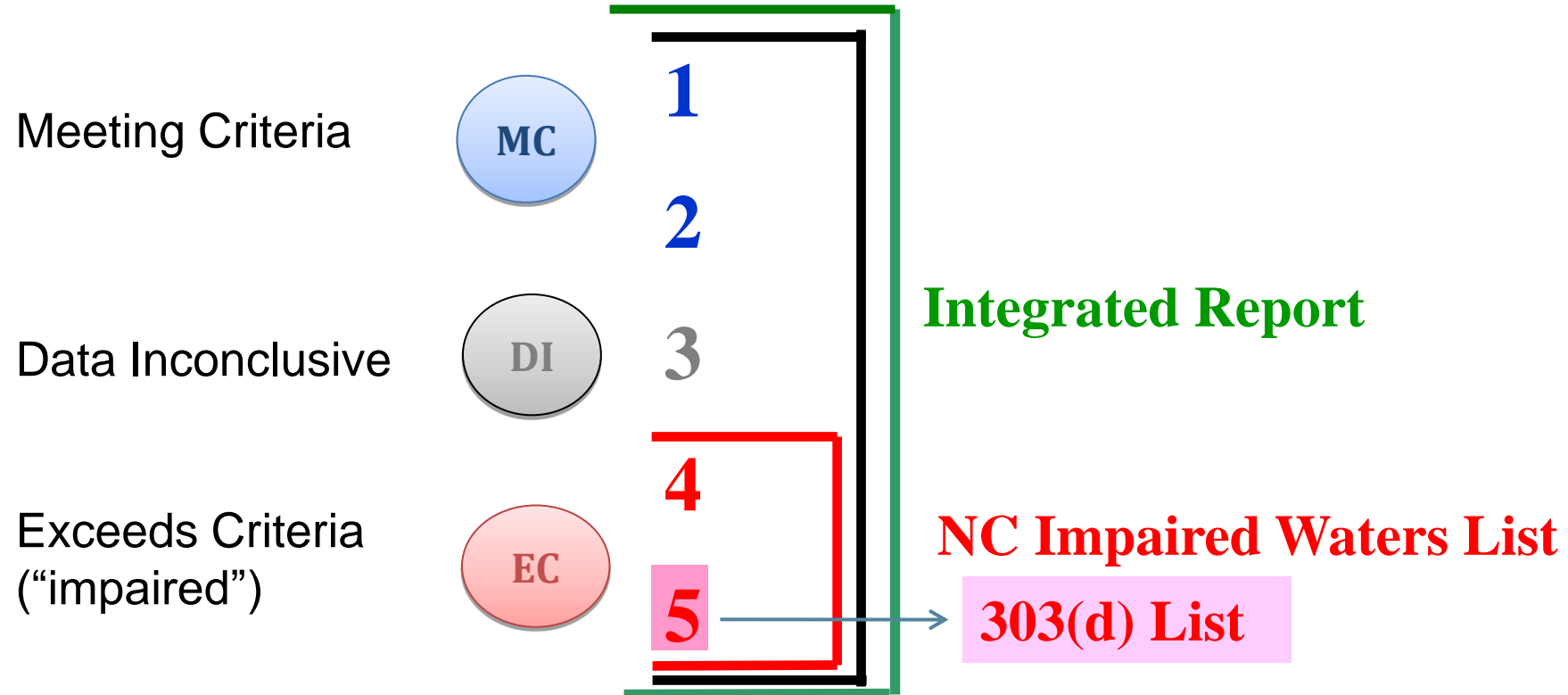
- 1 ditch / Ag
- 2 SW network
- 3 Small dams - non-specific purpose
- 4 Large dams - specific related purpose
- 5. High ground / rock
- Ending hydro alterations
- EC MC DI
- Structure obsolete

Other notes:

- Barrier is no longer serving purpose it was intended to and thus should be traded back to the previous use
- Need criteria to make determination of obsolete.
- Discussion of "uses" in the problematic in NC
- Pollutant in 4c problematic
- Intended bypass
- Peaking Ops
- Value Point / s not the ocean
- here in where necessary
- Intended pollution is a permitted/publically acceptable trading of uses. The "pollution" can be elected once the decision is made that the Intended pollution is now obsolete or not needed
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- restorable pollution unintended
- 4c scenarios
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Integrated Reporting Categories



Current Approach

- Parameters directly affected by dam operations
 - Dissolved Oxygen
 - Benthic Community
- Obsolete dams
 - New for 2022
 - Dam Removal handbook



Dam Removal Handbook

https://www.americanrivers.org/wp-content/uploads/2023/01/NC-Dam-Removal-Handbook_FNL46.pdf

4C determination that the dam is obsolete

4R plan in place for dam removal

1R dam removed

Parameters are outlined in the handbook. This is how we measure success



Standards Adjacent Parameters

- Never used in Category 5
- Straight to implementation
- Associated with water quality standards
- Qualitatively assessed
- Hydraulics, hydrology, aquatic passage
- Livestock, riparian condition, geomorphology also available



Theory of Intentions

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Other Potential Scenarios

- NC Explored these in terms of 4c and hydrology
- Interface of Stormwater infrastructure and WOTUS
- Ditch networks
- Decided to use 4R for these (straight to implementation)



Considerations and What not to do

- Should all dams be in 4c?
- How would 4c impact the 303d list?
- Do not confuse “uses” and “water quality standards”
- Meeting uses and blaming Dams

