

-----Original Message-----

From: Jensen, Stacey M CIV USARMY CEHQ (US)

Sent: Tuesday, September 05, 2017 1:00 PM

To: 'Goodin, John' <Goodin.John@epa.gov>

Cc: Eisenberg, Mindy <Eisenberg.Mindy@epa.gov>; Moyer, Jennifer A CIV USARMY CEHQ (US) <Jennifer.A.Moyer@usace.army.mil>; Kwok, Rose <Kwok.Rose@epa.gov>

Subject: RE: Two actions

Hi John,

I have provided the graphics you requested (attached) along with some draft "key takeaways." Let me know what you think. I am also putting together a graphic for the visual of the flow relationships; I'll have something shortly.

Stacey M. Jensen

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-----Original Message-----

From: Goodin, John [<mailto:Goodin.John@epa.gov>]

Sent: Monday, September 04, 2017 6:08 PM

To: Jensen, Stacey M CIV USARMY CEHQ (US) <Stacey.M.Jensen@usace.army.mil>

Cc: Eisenberg, Mindy <Eisenberg.Mindy@epa.gov>; Moyer, Jennifer A CIV USARMY CEHQ (US) <Jennifer.A.Moyer@usace.army.mil>; Kwok, Rose <Kwok.Rose@epa.gov>

Subject: [EXTERNAL] Two actions

Hi, Stacey-- Mindy and I poured over the totality of the briefing materials for Lamont and the Administrator and made some edits consistent with my last email to the group and Mindy's forthcoming one tonight. Two things that would benefit from your expertise are:

[REDACTED]

[REDACTED]

Thanks!

John

(b)(5) deliberative process

CLASSIFICATION: UNCLASSIFIED

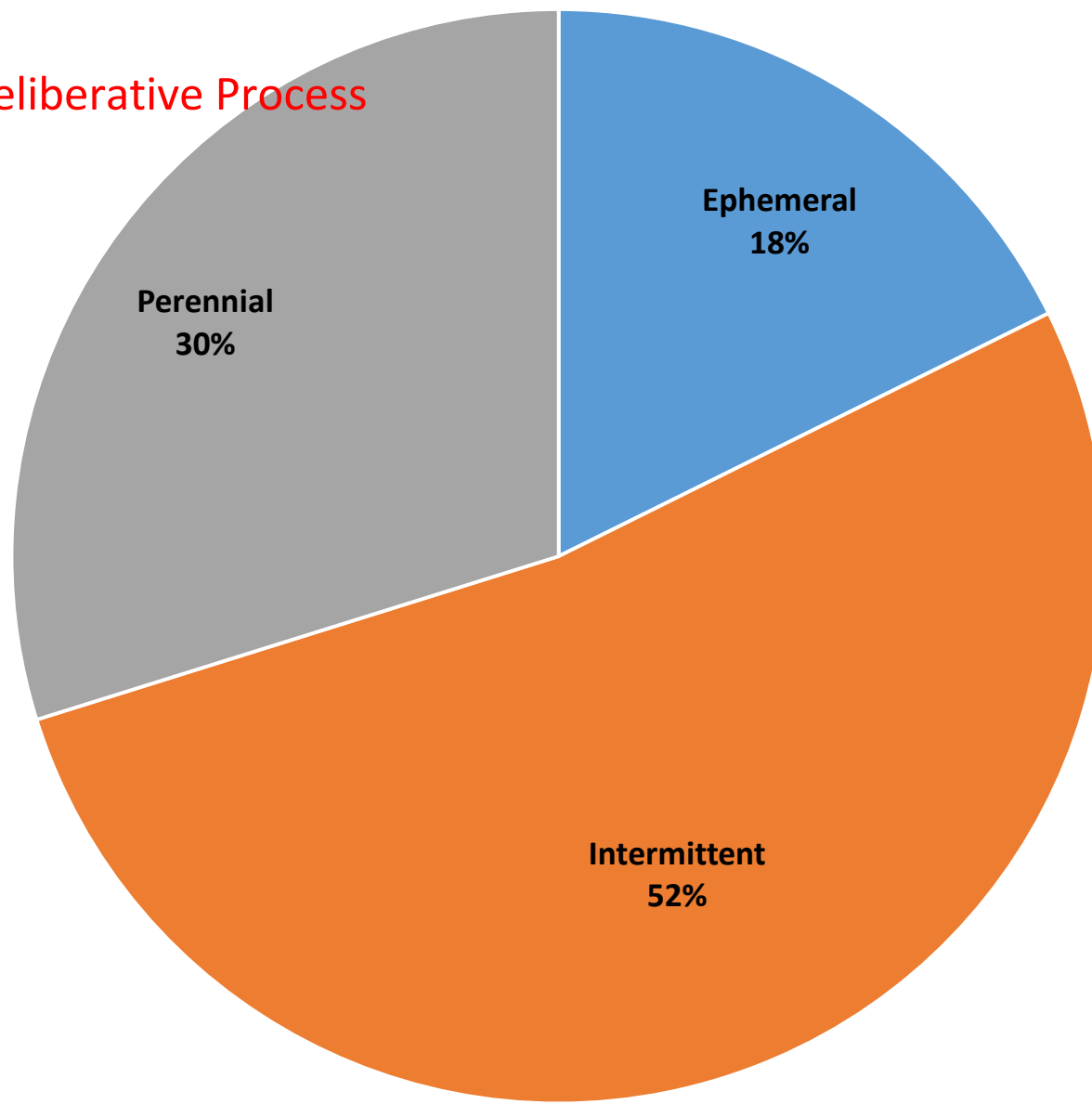
CLASSIFICATION: UNCLASSIFIED

# Breakdown of Flow Regimes in NHD Streams Nationwide

**Both length (miles) and count (number) of streams were the same percentages.**

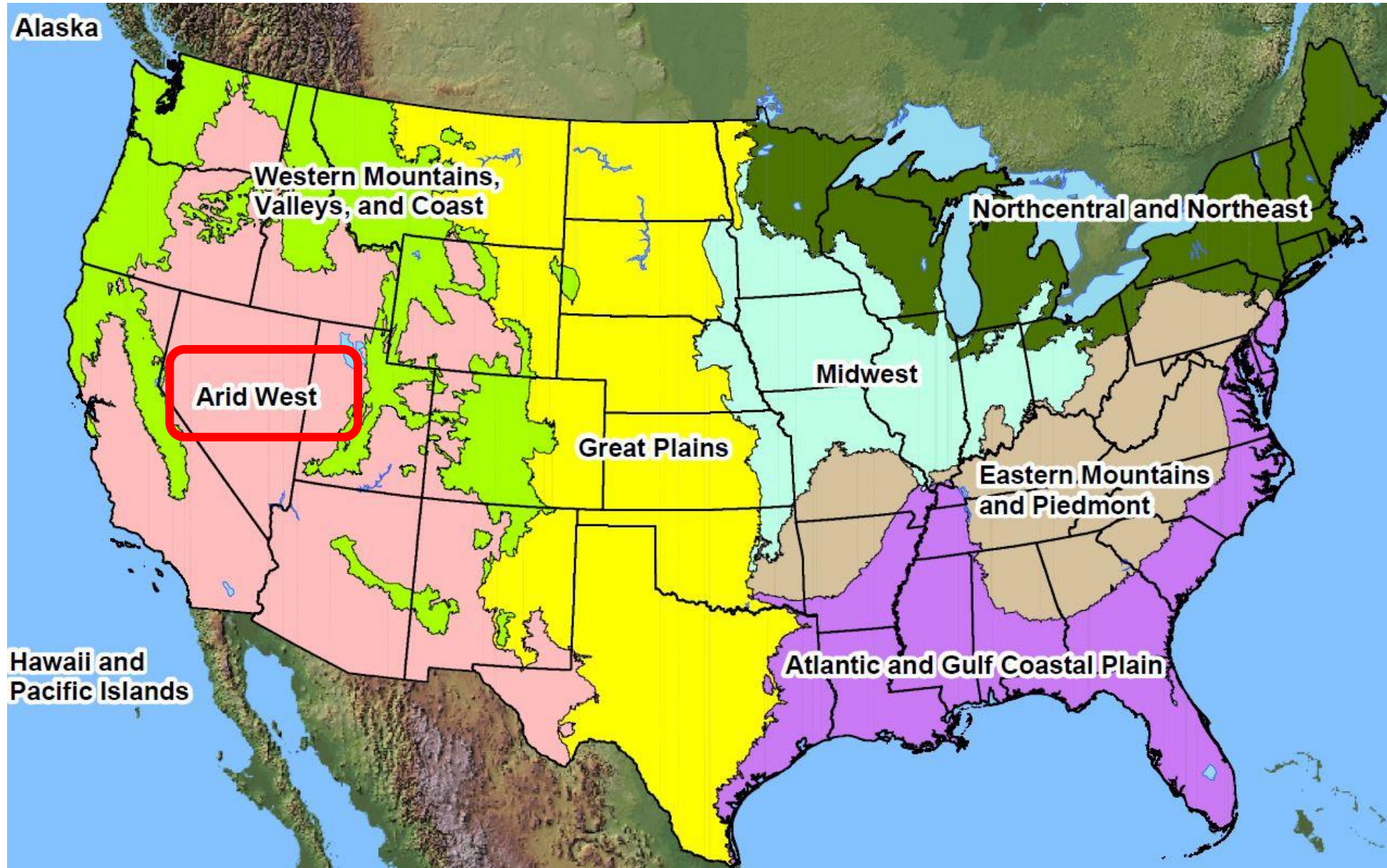
**30%** of all streams are perennial; **52%** of all streams are intermittent; **18%** of all streams are ephemeral.

Withhold in Entirety (b)(5) Deliberative Process



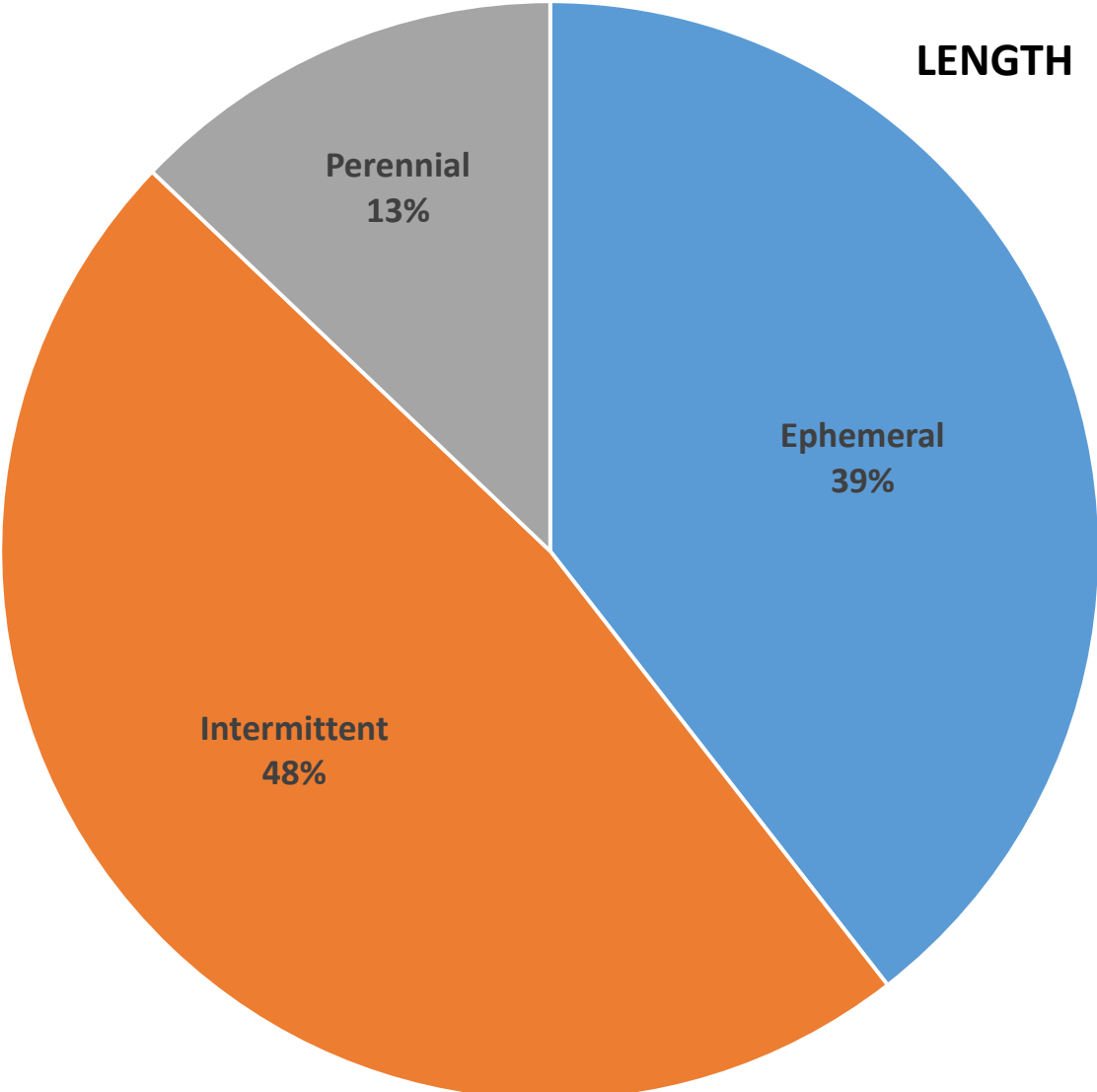
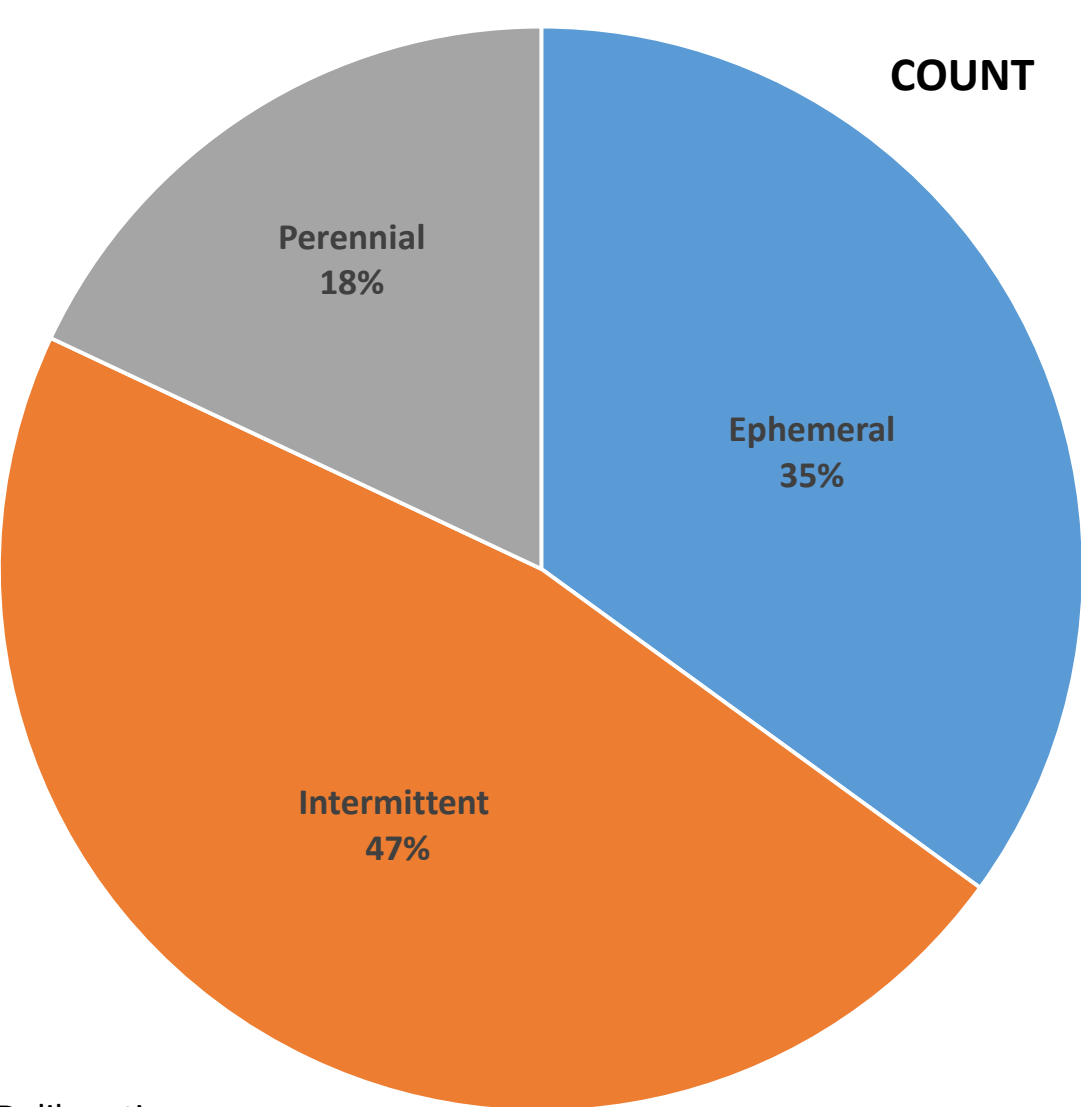
\*Note that NHD focused their mapping efforts of ephemeral streams in the Arid West. In the rest of the country, many of the ephemeral streams are classified as intermittent or are not mapped.

**Arid West for NHD analysis included AZ, CA, CO, ID, NV, NM, OR, TX, UT, WA, WY**



Breakdown of Flow Regimes in Arid West Streams as Mapped in NHD

18% of all streams count in the Arid West are perennial; 47% of all streams count in the Arid West are intermittent; and 35% of all streams count in the Arid West are ephemeral. 13% of all stream length in the Arid West is perennial; 48% of all stream length in the Arid West is intermittent; and 39% of all stream length in the Arid West is ephemeral.



# Key Takeaways for NHD-mapped Waters

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- Intermittent Streams:
  - Majority of total length and number of NHD features comprise Intermittent Streams (~52%)
  - Intermittent Streams are found in every state.
  - The median value of stream miles by type for all states is: Intermittent Streams - ~46,000 miles; Perennial Streams - ~24,000; and Ephemeral Streams - ~300 miles.
  - Potential policy options for defining “relatively permanent flow” excluding Intermittent Streams could result in a large reduction in jurisdiction and would impact every state.
- Arid West:
  - NHD mapping has focused on distinguishing Ephemeral from Intermittent Streams in the Arid West more than other parts of the U.S. In NHD, the majority of mapped Ephemeral Streams (~99%) and a large portion of mapped Intermittent Streams (47%) are in the Arid West.
  - ~87% of all mapped stream length in the Arid West is either Ephemeral (39%) or Intermittent (48%).
  - Based on NHD analysis, the proposed options for defining “relatively permanent flow” could result in a greater reduction of jurisdiction in Arid West states than in other states.
- Canals/Ditches:
  - NHD does not map all canals/ditches that may be of stakeholder interest. Canals/Ditches comprise 4% of the overall NHD-mapped features.

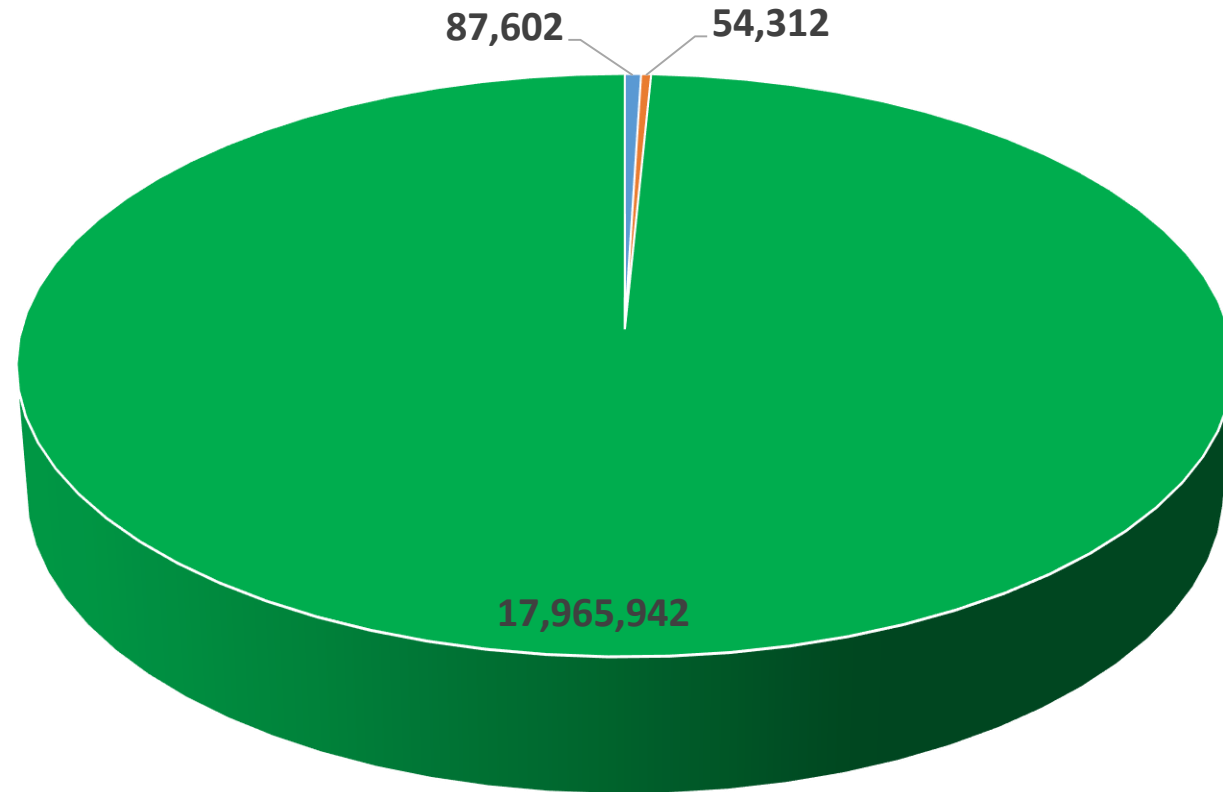


# NHD Caveats and Status

- Caveats:
  - NHD does not map all streams or waterbodies. The majority of perennial and most intermittent streams are captured at this resolution.
  - Ephemeral streams: although such streams do exist throughout the country, the NHD dataset focused their mapping efforts on ephemeral streams in the Arid West. Ephemeral streams in the rest of the country were generally classified as intermittent or are not mapped in the dataset. This may result in an underestimation of the number of ephemeral streams throughout the country, although it does give a more accurate picture of the stream network in the Arid West.
  - Canals/Ditches: not all canals/ditches are mapped in NHD or they may be mapped as tributaries.
  - NHD does not depict jurisdictional status of streams. **No available national datasets depict the jurisdictional extent of all mapped waters.**
- Status: still reviewing data for further, more detailed analysis. **Need to complete analysis of NHD lakes/ponds data.**

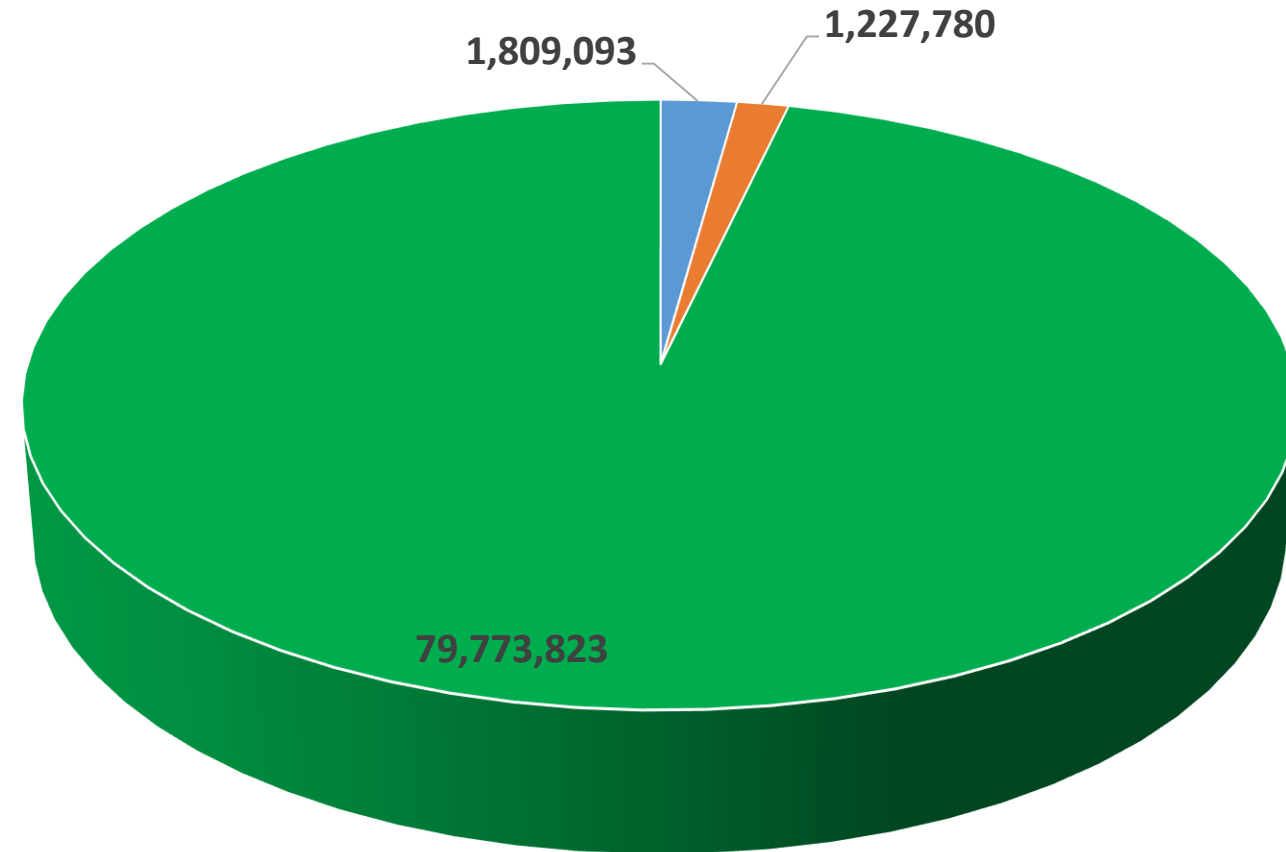
## Withhold in Entirety (b)(5) Deliberative Process

Total Number of Potential Wetlands in NWI  
Nationwide



■ Estuarine ■ Lacustrine ■ Palustrine

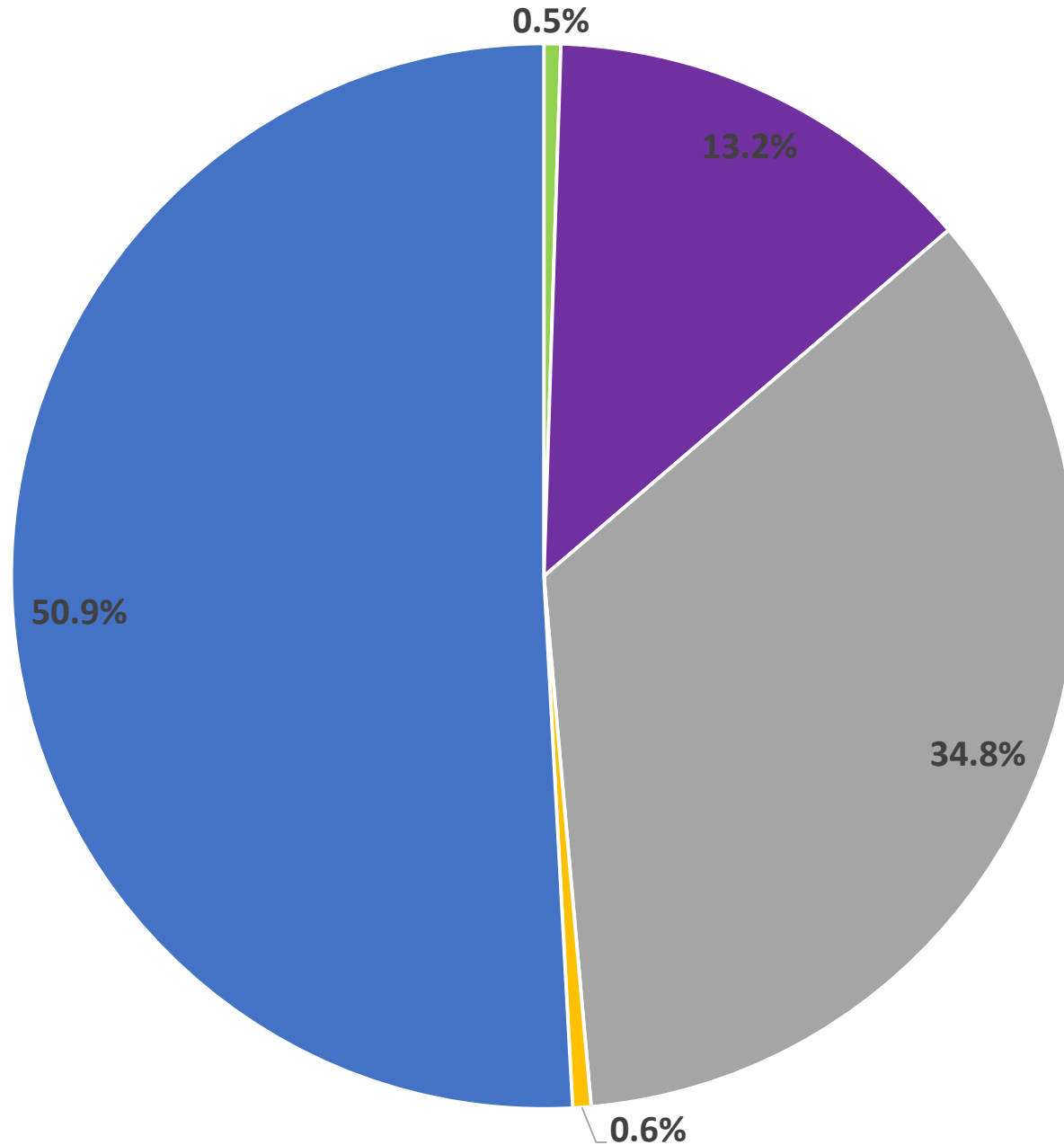
Total Acreage of Potential Wetlands in NWI  
Nationwide



■ Estuarine ■ Lacustrine ■ Palustrine

# Nationwide Percentage of NWI Potential Wetland Acreage Intersecting NHD-mapped Streams

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Process



Ephemeral Intermittent Perennial Undefined Flow Not Intersecting



# Key Takeaways for NWI-mapped Potential Wetlands

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Deliberative Process

- Majority of NWI-mapped potential wetlands in both number and acreage are Palustrine (freshwater wetlands). This may be because wetlands associated with lakes/ponds (Lacustrine) are generally smaller in number and size due to the depth of water and limited floodplains compared to streams, and there are many more interior freshwater systems than remaining coastal wetlands (Estuarine) due to coastal development.
  - Potential policy options for defining “continuous surface connections” may reduce jurisdiction over Palustrine waters the most since they may not be directly touching rivers, lakes, or tidal waters.
- Majority of NWI-mapped potential wetlands (by acreage) do not intersect any NHD stream feature.
  - The proposed option of defining “continuous surface connection” as directly touching a waters of the U.S. may result in ~51% of NWI-mapped potential wetland acreage not being considered adjacent.

# Key Takeaways for NWI-mapped Potential Wetlands (cont'd)

- Of the 49% of NWI-mapped potential wetland acreage which does intersect an NHD stream, the largest proportion intersect Perennial Streams.
  - Perennial Streams would be expected to have wider floodplains and larger acreages of adjacent wetlands than Intermittent or Ephemeral Streams.
  - Majority of potential wetland acreage which intersected NHD streams was Palustrine which correlates with the majority of mapped potential wetland acreage in NWI being Palustrine; larger wetlands may more often intersect NHD-mapped streams due to their size, landscape position, and hydrology. However, 51% of all Palustrine wetlands did not intersect any NHD stream.
  - Estuarine potential wetlands almost exclusively intersected perennial streams.
  - The option selected for RPW would have an effect on the option selected for CSC; for example, ~13% of NWI potential wetlands intersected Intermittent Streams.
- Small amounts of acreage of NWI-mapped potential wetlands intersect Ephemeral Streams.
  - Ephemeral Streams often lack adequate hydrology to maintain adjacent wetlands.
  - Reminder: NHD has generally not mapped Ephemeral Streams outside the Arid West.

# NWI Caveats

Withhold in Entirety (b)(5) Deliberative Process

- NWI does not map all wetlands and deepwater habitats. Certain wetland habitats may be excluded from the NWI because of the limitations of aerial imagery interpretation.
- The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, and the amount of ground truth verification work conducted.
- Wetlands or other mapped features may have changed since the date of the imagery and/or field work.
- NWI does not recognize ephemeral water areas as a wetland type so ephemeral waters/wetlands are not included. These are areas flooded or ponded less than seven days.
- Certain wetlands are harder to identify remotely (e.g., wetlands in forested areas).
- NWI excludes certain types of “farmed wetlands” as defined by the Food Security Act.
- Wetlands are dynamic systems that may sustain several years of drought conditions, making it difficult to identify and map simply because they are not detected on aerial imagery.
- Small wetlands <1.0 acre are not required to be mapped; minimum mapping unit target for NWI is 1.0 acre.
- Wetland boundary location can be an inaccurate up to 10 meters and still be acceptable.
- NWI does not depict jurisdictional status of wetlands. **No available national datasets depict the jurisdictional extent of all mapped wetlands.**