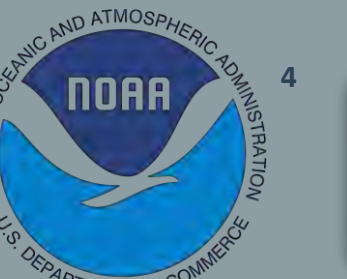


Juvenile Chinook Salmon Life History Variation and Phenotype Success on The Lower American River, CA



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Successful Juvenile Chinook Salmon Migration Strategies Vary Under Different Water Year Types

BACKGROUND

- CV fall-run Chinook Salmon juvenile river rearing and ocean migration timing is variable and influenced by spring flow magnitude
- Longer in-river rearing has been associated with higher survival to adulthood
- However, the relative fitness of juvenile migration strategies may depend on spring flow
- Otolith microchemistry offers a tool to reconstruct juvenile out-migration timing of returning adults

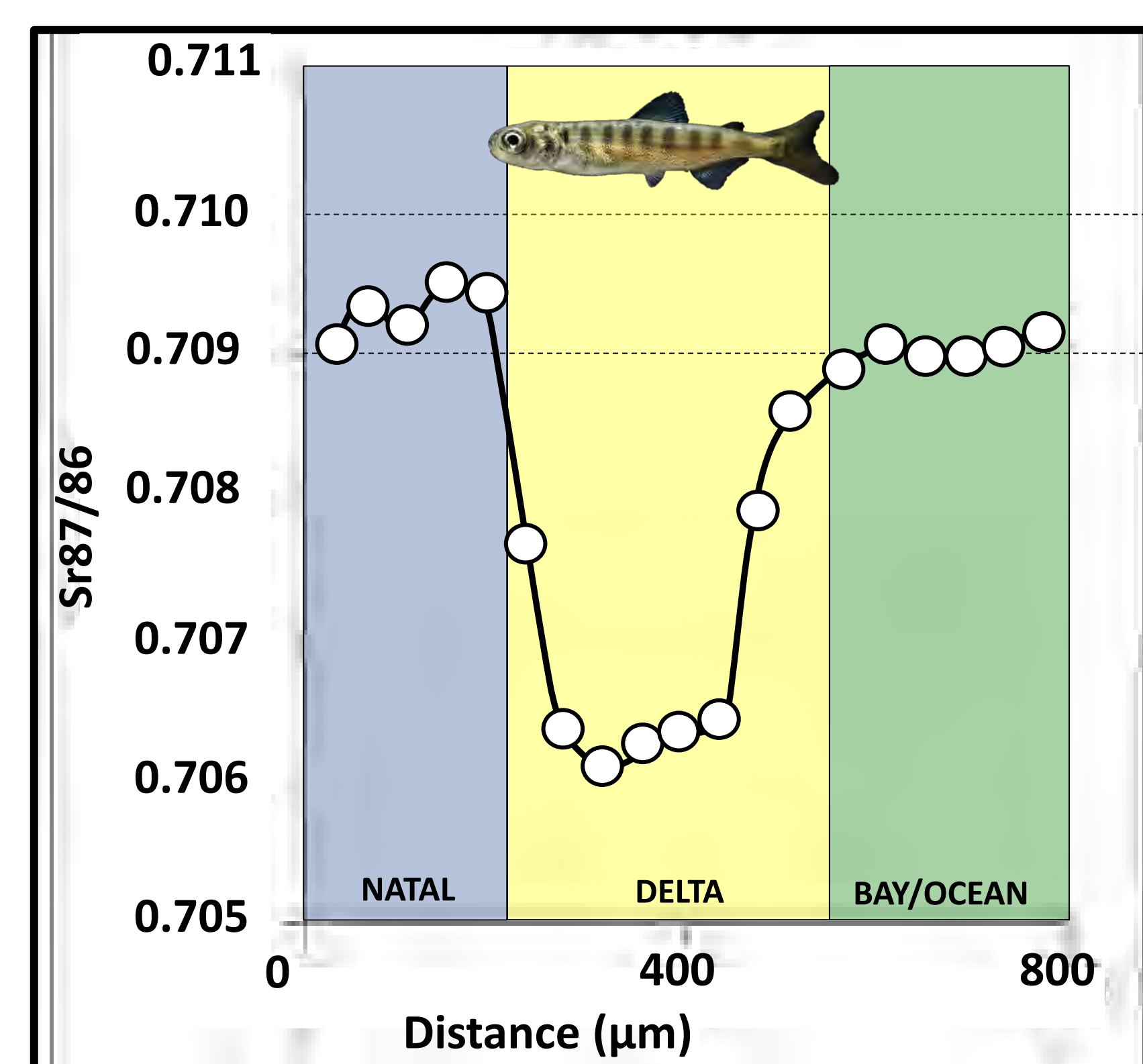
METHODS

- Collect otoliths from adult Chinook Salmon carcasses on the Lower American River between 2014 - 2021

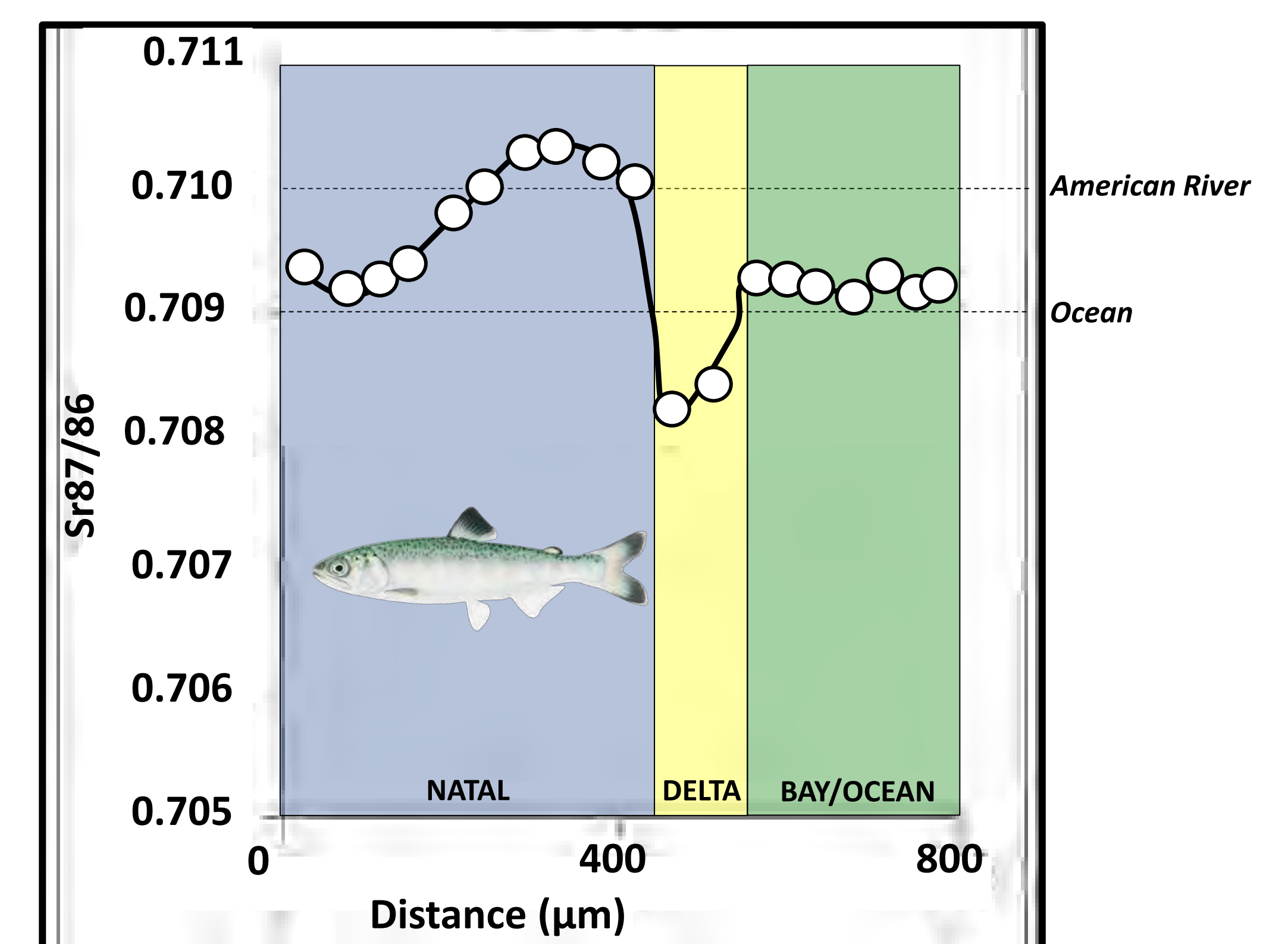


- Analyze 2014-2017 otolith data using strontium isotope ($^{87}\text{Sr}/^{86}\text{Sr}$) and radius measurements to reconstruct origin and out-migration timing

RESULTS Successful spawners in 2014 - 2017 exhibited two dominant juvenile migration strategies

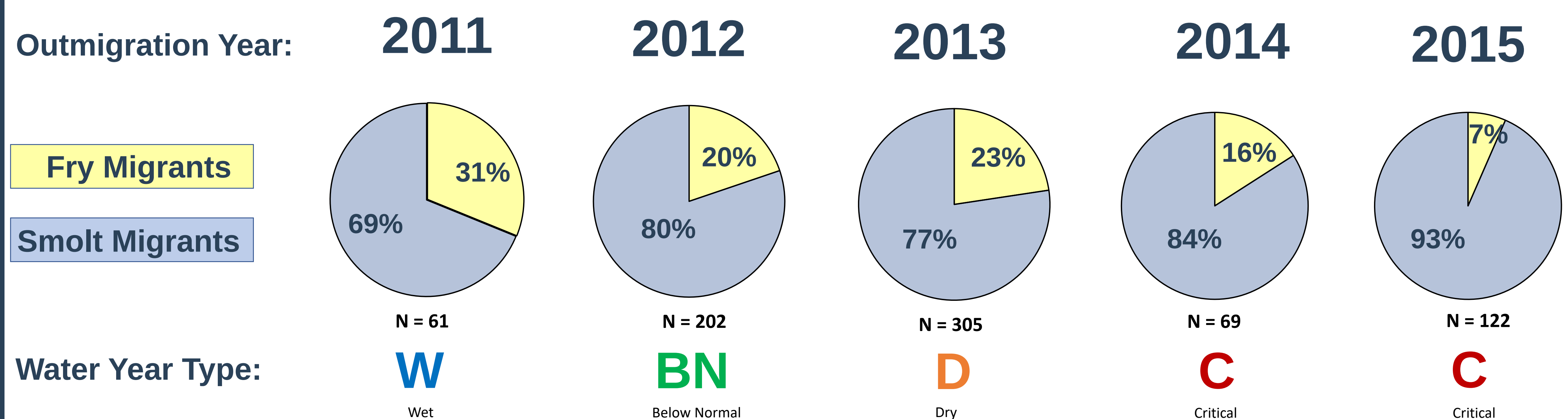


FRY MIGRANTS / DELTA REARERS



SMOLT MIGRANTS / IN-RIVER REARERS

Proportion of juvenile migration strategies utilized by successful 2014 – 2017 spawners



- More successful spawners exhibited a smolt out-migration strategy across all water year types
- There was a trend toward higher successfully returning fry outmigrants during wetter years compared to drier years

Next steps:

- Use rotary screw trap data to compare proportion of juveniles that out-migrated as smolts/fry to the proportion of smolts/fry that returned as adults
- Analyze outmigration strategies from additional years
- Use novel eye lens isotope method to filter out unmarked hatchery origin fish prior to otolith processing (saves effort/funds)

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For more information on eye lens method, check out poster:

“From Eyes to Origin: Using Eye Lenses to Differentiate Hatchery vs. Wild Chinook Salmon”