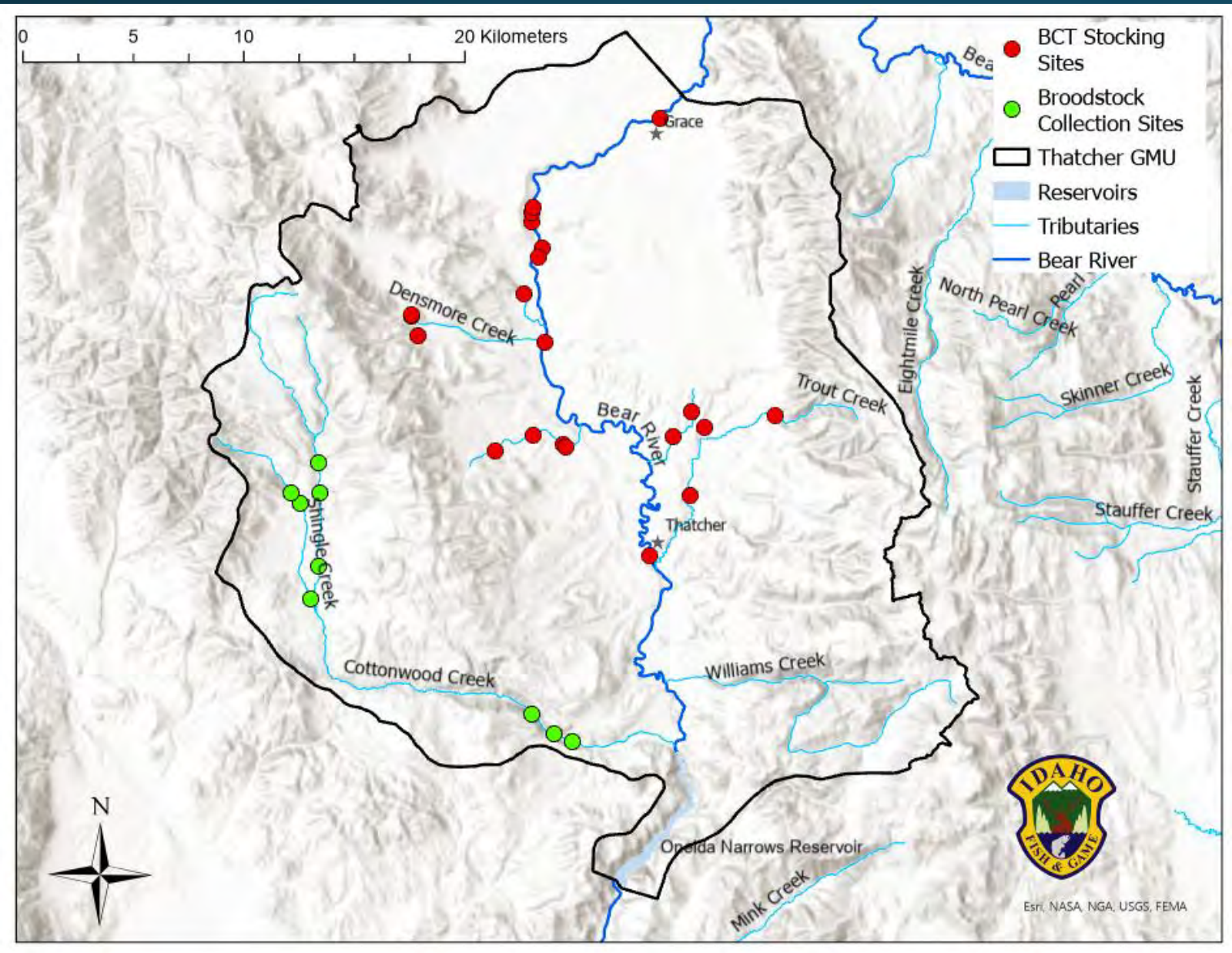


Bear River Fish Projects



Article 404 - BCT Conservation Aquaculture





- Implemented only in the Thatcher MU
- Evals:
 - Habitat suitability
 - Avian pred. in spring
 - Natural production
 - Genetics
 - Fish health
 - Brood/spawning/rearing

BCT broodstock

- Article 403 – Broodstock successfully developed
- Broodstock collected in the fall via electrofishing
- Uniquely marked – PIT tagged
 - Analytical flexibility for ongoing evals
- Maintained in PacifiCorp's ponds through winter
- Ongoing evals:
 - Winter survival for ponded brood
 - Wild broodstock source declines
 - Avian predation from brood ponds
 - Growth and maturity of ponded brood



BCT spawning

- Some volitionally migrate, most manually captured
- Requires a lot of staff, not currently funded
- Recipe: at least 53 female Bear River BCT are spawned annually to achieve the 20,000 fish release target (approx. 31,400 green eggs). This is based on current averages for fecundity, survival green egg to eyed egg, and survival eyed egg to release
 - Average fecundity = 592 eggs/female (range = 35 – 4,580 eggs/female)
 - Average survival green egg to eyed egg = 81.7%
 - Average survival eyed egg to release = 79.3%



BCT stocking

- Total Bear River BCT stocked = 272,697 (2011-2023)
 - Goal: 20,000 annually (avg. 22,725)
- Offspring marked (ad. clip) for future evals
- Tributaries – 3" released in spring
- Mainstem – 8" released in fall
 - Based on past evals of avian predation



BCT rearing – lessons learned

- Rearing:
 - Eye-up rates were low to begin with and have significantly increased
 - Feeding study to determine when it was best to start feeding fry
- Feed study: Initial feed timing evaluations in 2020 and 2021 indicate that direct survival is maximized using an initial exogenous feed timing of 968 DTU for Bear River BCT. This has resulted in SOP for this species at Grace Hatchery to maximize survival



BCT conservation aquaculture needs

- Effectiveness monitoring evals
 - Post-release survival, alt. MU releases, alt. brood sources, genetic diversity/integrity
- Temporary employee for evals, collecting brood, spawning, etc.
- Increase synergy between articles (i.e., habitat rehab., land and water)
- Broodstock ponds
 - Reduce sediment (dredge)
 - Improve water quality (high in phosphates)
 - Permanent avian pred. netting



Fish population evaluations

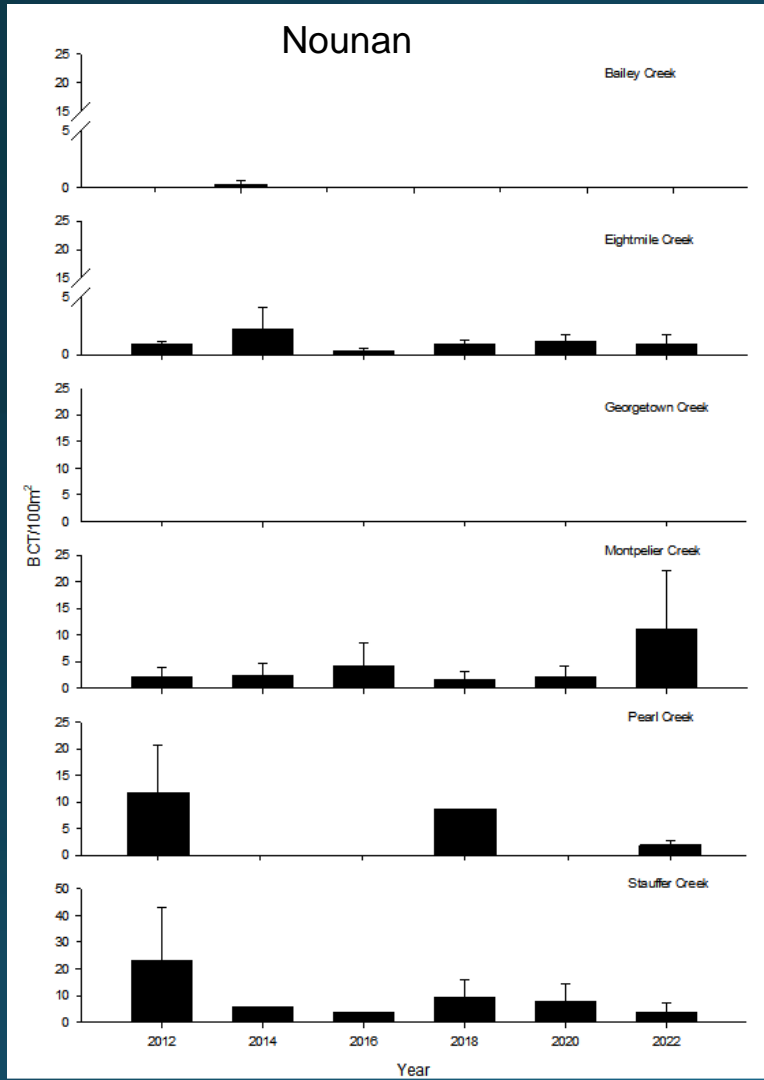


Fish population evaluations

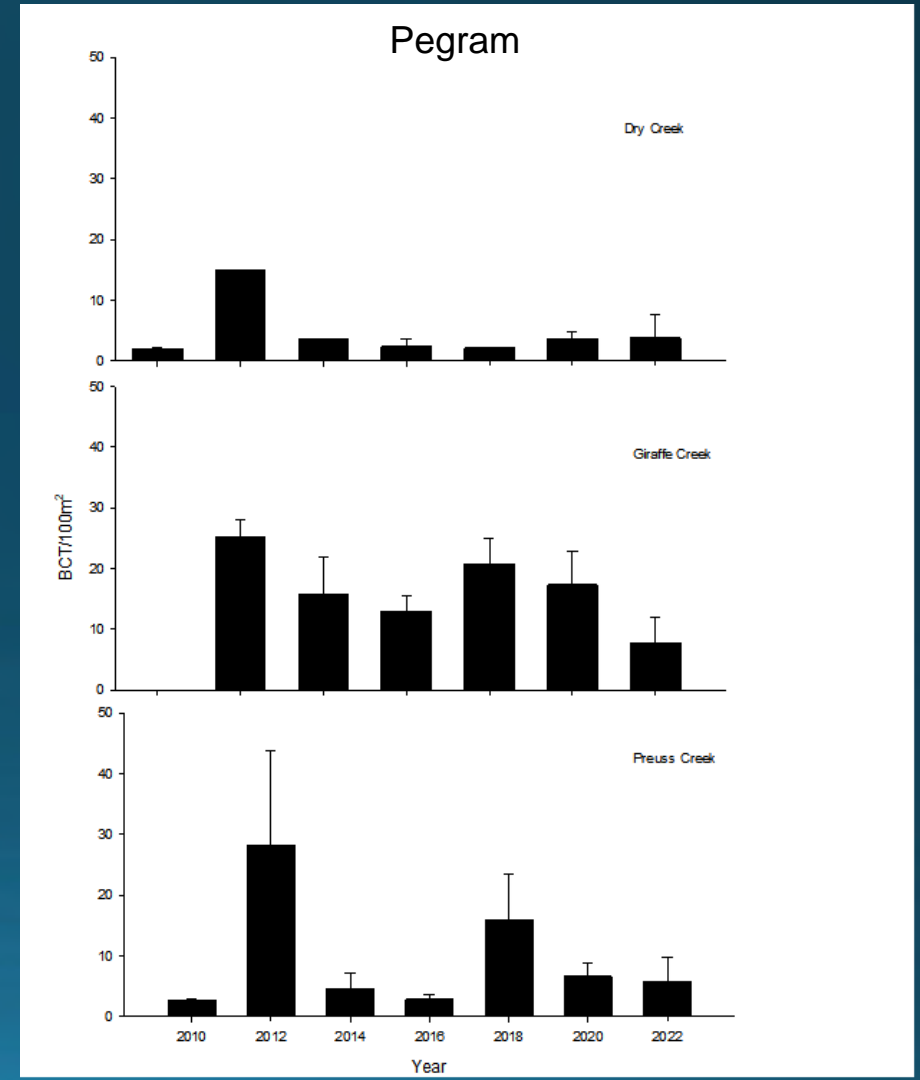
- Why?
- In 20 years of ECC efforts, BCT remain in critically low abundance with no apparent progress toward recovery



BCT trends in abundance



Estimated $\lambda = 1.04$





Management Plan for the
**Conservation of Bonneville
Cutthroat Trout in Idaho**

2022



Prepared by IDAHO DEPARTMENT OF FISH AND GAME
July 2022

- Google:

“IDFG BCT Management Plan”

Fish population evaluations

- Primary goal:
 - Identify factors limiting BCT recovery
 - Increase synergy between BRSA articles to increase effectiveness
 - Articles – Habitat rehab, BCT Conservation Aquaculture, Land/Water Acquisition, Rec.
- Trend monitoring for SGCN/SGIN?
- Recreational angling supplementation (synergy with rec. articles)



ECC improved strategical approach

- Lack of synergy between BRSA articles has limited success
 - e.g., Thatcher (404), Riverdale (406), Nounan (405)
- Fish surveys would inform project funding prioritization
 - Irrigation fish screening
 - Habitat rehab
 - Land/water acquisitions
 - BCT conservation aquaculture
 - Recreational angling supplementation
- Can we align these efforts and target limiting factors?



BRSA - effectiveness monitoring

- To date, BRSA articles have had limited success in improving trends in abundance for the focal species (BCT)
- Action effectiveness
 - Screening projects
 - Habitat rehab
 - BCT conservation aquaculture
- Are we (ECC) achieving our goals?

