SAN MARCOS RIVER · THOMPSON’S ISLAND

Capes Dam — Talking Points

What Lives Here Today vs. What a Model Promises

Prepared for Ben Kvanli · November 22, 2026

To speak aloud at the meeting with Brian Olson, and with Mayor Amanda Rodriguez and Councilmember Alyssa Garza.

1. These are not hypothetical fish

The fountain darter and the Texas wild-rice are alive in this reach today. They are not a projection, not a hope, not a number in a model. They are in the water right now, in the Rio Vista to Cape’s Dam reach, where twenty years of mapped stands — 1989 to 2008 — prove it in Hardy’s own research. The U.S. Fish and Wildlife Service has protected them here for decades. That protection means something. It means these lives count exactly as they are, today.

2. We protected this river, and it worked

We have been protecting this river since the early 2000s — the dam kept standing, the Mill Race kept flowing, the water kept running over the falls. And the species answered. They stayed. They grew. The wild-rice stands mapped year after year, the darters in the backwaters — that is what protection looks like when it works. You don’t tear down the thing that worked and call it conservation.

3. A simulation is not a river

A model can project a percentage. It cannot hold a fish. The removal case rests on a computer simulation that says habitat suitability might improve by about a fifth. But suitability is a score, not a river. The river in front of us holds real water, real plants, real fish, in real backwaters where young darters hide. You cannot trade living habitat for a percentage and call it even. Percentages don’t swim. Percentages don’t spawn.

And Hardy’s own first dam-height study proves the point. In January 2012, Hardy and his team modeled full height, half height, and no dam at all. The model showed wild-rice habitat would only marginally improve with removal — and fountain darter habitat would incrementally *drop*. Then the same report recommended removal anyway — not because the numbers said so, but because the authors *believed* vegetation would grow back later, and because removal would move sediment and restore connectivity. Read it plainly: the model did not show the fish gaining. The recommendation did. That gap — between what Hardy’s model showed and what it recommended — is the honest core of this dispute, in Hardy’s own words.

4. The computer itself was the limit

And here’s the part they don’t tell you: the simulation was too big for the machines that ran it. Hardy and Raphelt’s own paper says so, in their words — they used what they called a “pragmatic modeling compromise,” because of the “intensive computational burden of the model.” Each single 30-day run took about 23 hours on a 64-node parallel computer — a whole day of round-the-clock computing, for one scenario. So they couldn’t model the real river at all. They squeezed years of storms into one 30-day blast at high flow and called that a stand-in for the future. That was before the AI era, before the machines we have today — and even now, nobody has rerun it. The whole case for tearing out the dam rests on a handful of day-long computer runs from 2015. Meanwhile the real river has been running the experiment for a hundred and fifty years, and the fish voted with their lives.

5. Do the math they don’t say out loud

Shoemaker and Hardy themselves — in 2004, in the executive summary of their own San Marcos framework — said losing this dam cuts fountain darter habitat by about two-thirds, at all flows. Not a modeled gain. A two-thirds loss, in their words. Hardy’s own 2015 report says the study reach loses 15 to 17 percent of its surface area — and that average hides the real loss. Most of it is the Mill Race losing its flow: a quarter-mile of slow backwater where young darters live. The Mill Race, wet at every flow today, goes dry below 7.8 cubic meters a second without the dam. And we already know what a dry Mill Race costs — in January 2000 the dam breached and a quarter of the entire Texas wild-rice population had to be carried out of the river by hand. A modeled gain of about twenty percent, on a smaller river, does not buy that back.

6. What “insignificant” really means

They call a twenty-percent modeled gain significant. But significance isn’t measured in a spreadsheet. It’s measured in the water. The darter lives only in two rivers on earth — this one and the Comal. The wild-rice lives almost nowhere else. There is no other river to move them to. There is no backup population. When you gamble the only home a species has on a model’s promise, the stakes aren’t a percentage. The stakes are everything.

7. The choice in front of us

We don’t have to choose between the fish and the river. Rebuild Cape’s with safe fish passage up the Mill Race side, and everybody gets what they asked for: the fish get their passage, the city gets its safety fix, the veterans keep the water they can reach, the history stands, and the river businesses keep their livelihood. Or we can trade all of that — everything alive in this water today — for a simulation’s promise that a smaller river will somehow hold more life. The fish can’t wait for the model to be right. Protect what lives here today.

APPENDIX

Sources and Citations

The citations below are the sources for the numbers and quotations in the talking points, with the exact location each one came from.

Shoemaker & Hardy (2004) — Executive Summary

Shoemaker & Hardy (2004), executive summary:

> *“for Fountain Darter the loss of the dam results in a reduction of habitat by approximately two thirds at all flows for the modified geometry and existing vegetation distribution”*

(Thornton Dam = Cape’s Dam).

Hardy & Raphelt (2015) — Fountain darter / habitat quantity section

Hardy & Raphelt (2015), “Effects of changing height of Cape’s Dam on recreation, Texas wild rice and fountain darter habitat in the San Marcos River, Texas,” Oct 12, 2015, fountain darter / habitat quantity section:

> *“the total surface area is reduced by ~ 15-17 percent”*

for the whole study reach (Rio Vista Dam to hatchery outflow).

Hardy, Raphelt, Kollaus, Heard & Tennant (Jan 17, 2012) — Discussion and Conclusions

Hardy, Raphelt, Kollaus, Heard & Tennant (Jan 17, 2012), “Effects of changing height of Cape’s Dam on Texas wild rice and fountain darter habitat in the San Marcos River, Texas,” USFWS, 16 pp., Discussion and Conclusions.

Hardy & Raphelt (2016) — §2.2

Hardy & Raphelt (2016), “Application of Adaptive Hydraulics for Estimation of River Bed Evolution After Dam Removal” — 7.8 m^3/s Mill Race figure, ~22% modeled wild-rice gain, and §2.2 (each 30-day simulation ~23 hours on a 64-node parallel architecture; “pragmatic modeling compromise” given the “intensive computational burden”).

Sources and Citations (continued)

Hardy (2009) and Hardy et al. (2010)

Hardy (2009) and Hardy et al. (2010) — 1989–2008 wild-rice stands and depth/velocity criteria.

USFWS Endangered Species Bulletin, May 1, 2000; San Marcos Daily Record, Jan 5 and 7, 2000

USFWS Endangered Species Bulletin, May 1, 2000, “Texas Wild-rice Finds Refuge at Hatchery” — January 2000 breach rescue (184 plants to the hatchery, 60 moved in-river; botanist Paula Power); San Marcos Daily Record, Jan 5 and 7, 2000.

Verified Nov 18, 2026: the “early 2000s” rebuild is the January 2000 breach and repair. Over New Year’s 1999–2000, heavy rains breached Cape’s Dam; the river dropped and narrowed, leaving 25% of the entire Texas wild-rice population high and dry or in water flowing too fast. U.S. Fish and Wildlife Service biologists at the San Marcos National Fish Hatchery and Technology Center potted and transferred 184 wild-rice plants to the hatchery and moved 60 more to safer sites in the river (USFWS Endangered Species Bulletin, May 1, 2000, “Texas Wild-rice Finds Refuge at Hatchery,” botanist Paula Power). USFWS then repaired the dam with cement bags. The San Marcos Daily Record covered it January 5 and 7, 2000: “Wildlife officials rescue wild rice after dam fails.” An earlier blowout, about 1997, was repaired by Texas Parks & Wildlife for about $300,000.

Note on the 3x / 2x figures

The 3x/2x figures were removed from point 5 on Nov 22, 2026 because the Nov 19 check found no 3x in the 2015 report, and the question of which Hardy table or page gives the 3x and 2x still stands.