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BEFORE THE ARIZONA NAVIGABLE STREAM

ADJUDICATION COMMISSION

IN THE MATTER OF THE NAVIGABILITY OF THE SALT RIVER FROM THE CONFLUENCES OF THE WHITE AND BLACK RIVERS TO THE GILA RIVER CONFLUENCE, MARICOPA COUNTY, ARIZONA	Nos. 03-005-NAV and 04-008-NAV (Consolidated) (Salt) **GILA RIVER INDIAN COMMUNITY'S OPENING POST-HEARING MEMORANDUM**

> *"It's the depth of the water when you're trying to determine whether you can float boats or not."*
>
> ~ J.E. Fuller (October 20, 2015)[1]

> "I mean, putting a depth on any river is sort of an amorphous sort of definition. I mean, rivers are defined by obstacles, rocks, and deep channels, shallow channels, deep channels. You know, they're dynamic animals. *So to put a depth on a river, it's just really not a logical way to look at it.*"
>
> ~ Tyler Williams (October 21, 2015)[2]

After decades of litigation, the Arizona State Land Department ("ASLD") and the proponents of navigability are not any closer to meeting their burden of proving that the Salt River was navigable as of the date of Arizona Statehood, February 14, 1912. The large volume of evidence presented to the Commission in this matter clearly

[1] Tr. 10/20/15 at 36.
[2] Tr. 10/21/15 at 376.

demonstrates inherent problems in using flow rates and depth as the primary criteria for determining the historical navigability of a river. This stands in stark contrast to hundreds of years or more of history clearly demonstrating that the Salt River is non-navigable.

The Community incorporates the arguments made in its Opening Post-Hearing Memorandum, dated June 9, 2003, and its Responsive Post-Hearing Memorandum, dated August 11, 2003. The Community also incorporates the Report, Findings and Determination Regarding the Navigability of the Salt River From Granite Reef to the Gila River Confluence, dated September 21, 2005 (the "2005 Lower Salt Report"), and the Report, Findings, and Determination Regarding the Navigability of the Upper Salt River from the Confluence of the White and Black Rivers to Granite Reef Dam dated December 13, 2007 (the “2007 Upper Salt Report”).

I. THE COMMISSION MUST APPLY THE FEDERAL STANDARD OF NAVIGABILITY FOR TITLE.

Navigability for title is a federal law issue. *See PPL Montana, LLC v. Montana,* 132 S.Ct. 1215, 1227 (2012) ("It follows that any ensuing questions of navigability for determining state riverbed title are governed by federal law.") (citation omitted). While the State of Arizona has developed a *procedure* for making navigability determinations, A.R.S. § 37-1101 *et seq.*, the *standard* to be applied through that procedure is a federal standard. To the extent there are conflicts between state law and federal law on navigability for title, federal law would most certainly control.

These resumed proceedings were prompted by the decision in *State ex rel. Winkleman v. Ariz. Navigable Stream Adjudication Comm'n,* 224 Ariz. 230, 229 P.3d 242 (App. 2010) ("*Winkleman*"). In *Winkleman,* the Court of Appeals vacated the superior court's judgment upholding ANSAC's determination that the Lower Salt River was navigable as of February 14, 1912, and remanded the matter for further proceedings. 229 P.3d at 257. Subsequent to the decision in *Winkleman,* the Supreme Court of the United States decided *PPL Montana. PPL Montana* casts serious doubts on the viability of portions of *Winkleman* and prior Arizona navigability jurisprudence.

PPL Montana is a navigability for title case involving three rivers in Montana. One question in the case involved the segmentation of the rivers for the purposes of determining navigability for title; a second question involved how to evaluate evidence of modern recreational use of the rivers; and a third involved the burden of proof of navigability. While *PPL Montana* contains a thorough discussion of the history of the doctrine of navigability, 132 S.Ct. at 1226-28, this brief discusses those portions of *PPL Montana* which impact the prior opinions of Arizona's state courts. Given the supremacy of federal law in this area, such a discussion would not be necessary but for the continued reliance in these proceedings by the proponents of navigability on principles that were expressly or implicitly rejected in *PPL Montana.*

The formulation of the navigability for title test was set forth in *The Daniel Ball,* 10 Wall. 557, 563 (1871):

> Those rivers must be regarded as public navigable rivers in law which are navigable in fact. And they are navigable in fact when they are used, or are susceptible of being used, in their ordinary condition, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water.

In cases involving navigability for title, "navigability is determined at the time of statehood and based on the 'natural and ordinary condition' of the water." *PPL Montana,* 132 S.Ct. at 1128 (citations omitted).

A. Navigability is determined based upon the physical condition and usage of a river at the time of statehood.

PPL Montana holds that the proper time for a determination of navigability is at "statehood." *Id*. at 1128. The Supreme Court has never, in any navigability for title case, held that the date for determining navigability is anything other than the date of statehood. Any questions regarding when the determination of navigability is to be made were laid to rest in the Supreme Court's opinion regarding evidence of modern-day recreational use. It held that such evidence may be considered "to the extent it informs the historical determination whether the river segment was susceptible of use for commerce *at the time of statehood.*" *Id.* at 1233 (emphasis added). The Court said that evidence of modern-day recreational use could be considered if it could be shown that the river's post-statehood condition "is not materially different from its ***physical condition at statehood."*** *Id.* (emphasis added).

This is consistent with the legislative mandate to the Arizona State Land Department, which is that ASLD is to transmit evidence to the Commission "[a]fter collecting and documenting all reasonably available evidence regarding the *condition*

and usage of a watercourse *as of February 14, 1912*" and "the *present* uses of the underlying land." A.R.S. § 37-1124(B) (emphasis added). Unfortunately, *Winkleman* failed to consider A.R.S. § 37-1124(B) in its analysis. Instead of looking at conditions and usage at the time of statehood, the Commission was directed to assess the Lower Salt River for navigability at a time period over one hundred years or more prior to Arizona statehood. *Winkleman,* 229 P.3d at 254.

B. *PPL Montana* clearly requires determination of a river's susceptibility for use for commerce; travel alone is not enough.

Opening its discussion of evidence of modern-day recreational use, *PPL Montana* notes that navigability must be assessed at the time of statehood and "concerns the river's usefulness for 'trade and travel' rather than *for other purposes."* 132 S.Ct. at 1233 (citations omitted) (emphasis added). Indeed, the rejection of modern recreational use as an independent basis for navigability in *PPL Montana* refocuses the navigability in fact determination on a river's actual use or usefulness for trade or commerce. While error is not inherent in considering evidence of modern-day recreational use, "the evidence must be confined to that which shows the river could sustain the kinds of commercial use that, as a realistic matter, might have occurred at the time of statehood." *Id.*

PPL Montana's discussion consistently identifies commercial uses of rivers as the locus of the inquiry. Evidence of present-day use may be considered in determining navigability in fact "to the extent it informs the historical determination of whether the river segment was susceptible of use for commercial navigation at the

time of statehood." 132 S.Ct. at 1233. If using a susceptibility analysis, "it must be determined whether trade and travel could have been conducted 'in the customary modes of trade and travel on water.'" *Id.* (citation omitted).

At hearings in this matter, it was suggested by one proponent of navigability that proof of either trade *or* travel was sufficient. In *Defenders of Wildlife v. Hull*, 199 Ariz. 411, 18 P.3d 722 (2001), a case decided in 2001, the Court of Appeals of Arizona rejected the position that a watercourse must be susceptible to a commercial use to be navigable, noting that federal test as articulated in *The Daniel Ball* "has been interpreted to neither require both trade and travel together nor that the travel or trade be commercial." 18 P.3d at 731 (citation omitted). The clear references to commercial use and navigation in *PPL Montana* on the federal issue of navigability should lay this argument to rest.[3]

C. The hypothetical susceptibility determination the proponents of navigability urge cuts against the rationale for sovereign ownership of navigable riverbeds.

PPL Montana's language clearly cuts against the argument made—based upon an overly broad reading of *United States v. Utah*, 283 U.S. 64 (1931)—that navigability determinations can be purely hypothetical. To the contrary, *PPL Montana* suggests that a navigability determination must be historically and presently meaningful; that is, generally that some trade or commerce which took place on a

[3] In addition, the statutory construction of the "trade and travel" requirement in *Defenders* directly conflicts with the statutory construction of the phrase "ordinary and natural" in *Winkelman*.

river at the time of statehood establishes a pattern that should be recognized at the time of the present-day navigability determination:

> A key justification for sovereign ownership of navigable riverbeds is that a contrary rule would allow private riverbed owners to erect improvements on the riverbeds that could interfere with the public's right to use the waters as a *highway for commerce*.

132 S.Ct. at 1230 (emphasis added).

While *Utah* is often cited in support of the proposition that susceptibility to navigation is all that is required to prove navigability for title, there are three clear limitations of *Utah*, two of which are apparent in the Court's opinion and a third appearing in *PPL Montana.* First, the *Utah* standard is appropriate "where conditions of exploration and settlement explain the infrequency of limited nature of such use." 283 U.S. at 82. From the record in *Utah,* it is clear that some of the rivers considered had *never* been the subject of significant exploration or development. 283 U.S. at 81. In contrast, the Salt River has been the subject of settlement for *thousands* of years or longer. In such cases, *Utah* dictates that the proper inquiry is the historical use of the river.

Second, in considering susceptibility as a standard, *Utah* requires that the susceptibility be "to use as a highway for commerce." 283 U.S. at 82. "It is, indeed, the susceptibility to use as a highway of commerce which gives sanction to the public right of control over navigation upon them, and consequently to the exclusion of private ownership, either of the waters or the soils under them." *Packer v. Bird,* 137 U.S. 661, 667 (1891). Limiting the navigability standard to simply "travel" without

consideration of the commerce element renders the navigability for title test meaningless.

Third, the *Utah* "susceptibility" standard was ultimately based upon the standard previously established in *The Montello;* they were both discussed in the same paragraph of the Supreme Court's opinion in *Utah.* 283 U.S. at 83. *PPL Montana* is critical of using *The Montello,* 87 U.S. 430 (1874) in navigability for title determinations, noting that in *The Montello* "[t]he Court did not seek to determine whether the river in question was navigable for title purposes but instead whether it was navigable for purposes of determining whether boats upon it could be regulated by the Federal Government." 132 S.Ct. at 1232 (citation omitted). The focus in *The Montello* was not on navigability in fact but whether the river was a "navigable water of the United States," an inquiry that "is doctrinally distinct." *Id.* (citations omitted). Neither the Commission nor Arizona's courts can ignore the federal law of navigability, even to the extent it negatively affects their prior decisions. In this case, as the Community has previously argued, the subsequent decision in *PPL Montana* appears to clearly confirm that the Commission applied the proper federal legal standard to its navigability determinations in the last go around.

D. Reliance on recreational use of a river as proof of or justification for a finding of navigability renders the navigability for title determination meaningless.

The Commission has received a large volume of evidence of modern-day recreational use of the Salt River. *First,* recreational use is poor evidence of navigability for title. This was best highlighted in testimony ASLD presented from

two recreational boaters–Tyler Williams and Alex Mickel.[4] The experience of recreational whitewater boating is not of transporting goods from one port to another, but "the experience of, you know, being splashed, hitting the waves, the ups and downs, that sort of thing."

Relying on recreational use as proof of navigability for title is improper because the nature of recreational use is much different than commercial uses of a river. Mr. Williams, for example, testified that the upper end of the optimum flow range for adventure boating was 1,500 cfs and that for the users he serves "it would just be a more powerful stream and be a little bit hazardous."[5] In addition, the minimum cfs requirements he identified were for the purpose of "a whitewater paddler's expectations for a pleasant experience."[6] The bottom line is fun:

> Q. And part of it is you want the flow to be in a range that creates a maximum amount of fun for the people who are doing the boating?
> A. Yes.[7]

When asked whether the conditions that make boating "recreationally fun" are the opposite of what commercial activities require, Mr. Williams would not agree that the conditions are the opposite, but are "substantially different."[8]

Mr. Williams and Mr. Mickel also use modern boats which are substantially different than those used at the time of statehood. The whitewater kayaks that Mr.

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[4] Tr. 10/21/2015 at 468.
[5] Tr. 10.21/2015 at 302.
[6] Tr. 10/21/2015 at 304.
[7] Tr. 10/21/2015 at 364.
[8] Tr. 10/21/2015 at 368.

Williams uses are made out of plastic.[9] Mr. Mickel described modern plastic canoes as more durable than fiberglass.[10] Plastic kayaks were not developed until the mid-1970s; Mr. Williams recalled that the Hollowform River Chaser was the first plastic kayak on the market.[11] The flows he described were for kayaks; the lowest flow being 200 cfs for an inflatable kayak.[12] Mr. Mickel uses different kinds of boats, based upon the thrill individuals might have in a particular craft.[13]

Because recreational boating is done on flows far below those necessary for commercial purposes, it should not be considered for purposes of determining navigability for title. As the advocacy organization American Whitewater notes, "each year kayakers and canoeists descend virtually every stream [in the United States], including those that even rarely have enough water to float a kayak."[14] The AW publication also notes that "[v]irtually all streams are enjoyed by paddlers, anglers and other recreationists, even small intermittent streams."[15] Permitting recreational use as a test of navigability for title, given that all streams are navigated recreationally, renders the navigability for title test meaningless.

Recreational use fails to consider a number of factors that are relevant to commercial uses of a river. These factors include time, safety, cost of fuel, availability

[9] Tr. 10/21/2015 at 327.
[10] Tr. 10/21/2015 at 452.
[11] Tr. 10/21/2015 at 328.
[12] Tr. 10/21/2015 at 349.
[13] Tr. 10/21/2016 at 410.
[14] C041 at 316.
[15] C041 at 316.

of a market for goods, access to docks, safely securing a commercial load, to name a few.

Second, the Commission should reject recreational use as a justification for navigability. The admitted goal of the proponents of navigability in this matter is not preservation of rivers for use for *commerce*, but maintaining *access* to rivers for recreational and preservation purposes. Some states, for example, "have also adopted a variety of navigability definitions to satisfy different policies regarding resource conservation, apportionment of waterways between private and public uses, and protection of public access to waterways." *Defenders*, 199 Ariz. at 418. Arizona, however, has not done so.

While *Defenders* cautioned against relying on judicial precedent from other jurisdictions which apply definitions or tests of navigability which go beyond the navigability for title determination under the equal footing doctrine, its language, its warning could also be applied to the positions advanced in this matter; that is, in evaluating the positions advanced in this matter, any reliance "should be predicated on a careful appraisal of the purpose for which the concept of navigability is invoked." *Defenders*, 199 Ariz. at 419. From the perspective of the State and the proponents of navigability, this case is not about the use or susceptibility of use of the Salt River for commerce, but protecting access to the Salt River for recreational purposes. While these are commendable goals, it is not a proper application or use of the navigability for title doctrine.

II. THE SALT RIVER WAS NOT HISTORICALLY NAVIGATED DESPITE SUBSTANTIAL NEED.

Courts acknowledge that the "most persuasive" evidence of navigability is the *actual* use of a river for commercial navigation. *See Utah*, 283 U.S. at 82 ("the evidence of the actual use of streams, and especially of extensive and continued use for commercial purposes may be most persuasive"). Following these resumed proceedings, there has not been any substantial additional evidence adduced showing historic navigation of the Salt River for travel or commercial purposes; if anything, the evidence received reemphasizes that (1) there is no evidence of prehistoric navigation of the Salt River; (2) there was a substantial need for navigation of the Salt River, even in "undeveloped" times; and (2) most attempts at navigating the Salt River were unsuccessful.

A. There is no evidence of boating on the Salt River in "prehistoric" times.

Humans have inhabited the Salt River Valley for thousands of years. As Mr. Fuller's report on the Lower Salt River in 2003 ("2003 Fuller Report") observed, "[t]he Salt River Valley was densely settled, and the water control system was the largest irrigation network in the country that was built and used prehistorically."[16] The 2003 Fuller Report concluded that the Salt River Valley "was one of the most densely populated areas in the prehistoric Southwest."[17] Professor Jack August testified that

[16] Lower Salt X030 at 2-13.
[17] Lower Salt X030 at 2-17.

the general range of population for the Hohokam in the Lower Salt River Valley was 80,000 to 100,000 "and maybe more on occasion."[18]

Missing from this massive prehistoric society, however, is any evidence of boating. The 2003 Fuller Report notes that, "[i]n the late 19th century, [Frank Hamilton] Cushing speculated that the Hohokam also used their canals for floating balsa rafts (David Wilcox, personal communication, 1993)."[19] The conclusion section of Chapter 2 of the 2003 Fuller Report states that, "[t]he archaeological record does not, of course, provide any data that indicates that the Salt River was used for as [sic] a navigable waterway as of the time of statehood, as defined by A.R.S 37-1100. However, some archaeologists have speculated that the Hohokam used light boats on their canals…"[20]. There is no citation of authority for the statements made in the conclusion of the 2003 Fuller Report.

At these resumed hearings, Mr. Fuller testified from a PowerPoint presentation, "Presentation to ANSAC: Salt River Navigability," dated October 15, 2015.[21] In a slide entitled, "Archaeology: Key Findings" Mr. Fuller listed the following as "Archaeological Evidence of Boating" along with the cited sources: Hohokam boats (Cushing, 1890; USBR 2000); balsa rafts in canals (Wilcox, 1993); boat ramps on canals (Henderson, 2015); and boat building materials (Henderson,

[18] Tr. 1/26/2016 at 1881.
[19] Lower Salt X030 at 2-13.
[20] Lower Salt X030 at 2-17 - 2-18.
[21] C030 ASLD #364.

2015).[22] A review of the sources Fuller cites shows that they are actually all derived from the same primary source—Cushing's exploration of Los Muertos in the late 1800s. That expedition did not find evidence of use of boats (balsa or otherwise) on the Salt River and the notion that boats were used in the canals was and is purely speculative.

Mr. Fuller was not able to identify the "USBR 2000" reference and the "Wilcox 1993" reference was a personal communication in which Wilcox speculated about Hohokam boat use based upon Cushing's findings. The "Henderson 2015" citation is a cultural assessment done for the Phoenix Sky Train project. The portion of the Sky Train assessment discussing possible boat use is based upon a specific canal feature (Feature 57) from Cushing's explorations. However, the Sky Train report emphasized that Feature 57 could be two or three different things, including a walk-in for canal access, a tail water collection basin, or an artificial wetland to cultivate plant food or weaving materials.

The Sky Train assessment also cited to a publication by Frank Hodge. Hodge was a member of Cushing's Hemenway Expedition. The first and most comprehensive analysis of Cushing's Hemenway Southwestern Archaeological Expedition was done by former University of Arizona Professor Emil Haury.[23] The Foreward to Professor Haury's work was written by Frank Hodge, who had some unkind words for Mr. Cushing. According to Hodge, "instead of recording copious

[22] C030 ASLD #364 Slide #110.
[23] C041 at 277-287.

notes on his ethnologic and linguistic observations, [Cushing] depended almost entirely on his memory and imagination."[24] Hodge further described Cushing as "not always accurate in his statements" and that "even if given to exaggeration to gain a point," Cushing was plausible and appealing.[25] Hodge attributed the paucity of information from the Hemenway Expedition, in part, to Cushing's "overwrought imagination and a species of egotism."[26]

Professor Haury laid any speculation regarding Hohokam boating in canals to rest. He noted that "[m]atted reeds, found during the course of this work, which had undoubtedly floated in the river, convinced Cushing that navigation by *balsas* was known to the natives. Needless to say, there is no justification for this view."[27]

Other experts who testified in this matter agree with Professor Haury and opined that there is no evidence of Hohokam boating. Professor Jack August, an acclaimed historian, testified that he reviewed civilizations that interacted with the Salt River from the Hohokam through Statehood.[28] While the Hohokam traveled extensively, they would get from the Salt River Valley to the West Coast "by foot."[29] Academic research on the Hohokam indicates that the society engaged in large-scale trading in organized marketplaces and trade fairs using clay containers that could be transported on foot.[30] Dr. August opined that a navigable river would have been

[24] C041 at 282.
[25] C041 at 282.
[26] C041 at 283.
[27] C041 at 286.
[28] Tr. 1/26/2016 at 1880.
[29] Tr. 1/26/2016 at 1881.
[30] C041 at 290-313.

helpful to the Hohokam based upon where and what they were trading.[31] Instead, the Hohokam were prolific walkers and utilized walking trails throughout southern Arizona, California and Mexico.[32] This was true of subsequent inhabitants as well.[33]

B. There is no credible evidence of boating on the Salt River among the Pima or Maricopa.

Possibly the most outrageous claim made in this proceeding came at the end of Mr. Fuller's "rebuttal" testimony. After providing the Commissioners with a series of documents that ASLD initially refused to provide or identify to the parties participating in the proceeding, Mr. Fuller provided additional testimony that was not included in any of the 138 slides in his "rebuttal" PowerPoint presentation.[34] After reading and misinterpreting historical accounts and descriptions from a handful of exhibits, Mr. Fuller concluded that "it's possible" that the Maricopa Tribe could have been using boats.[35] The accounts he relied on include an undated hearsay account in flood conditions,[36] a line without any supporting citation from a cultural assessment which states simply that the Maricopa "fished the rivers from boats,"[37] a line from the Phoenix Sky Train archeological assessment which states that, on the Colorado River, the Maricopa and Halchidhoma used conveyances similar to the Cocopah (quoting Spier from 1933),[38] an excerpt from Hackenberg which cited Bartlett as locating Pima

[31] Tr. 1/26/2016 at 1885.
[32] C041 at 349-380.
[33] Tr. 1/26/2016 at 1885.
[34] C053 ASLD #385.
[35] Tr. 05/18/16 at 4880.
[36] C018 ASLD #22.
[37] C028 ASLD #276.
[38] C028 ASLD #313.

and Maricopa fishing parties 12 miles upstream from the confluence,[39] and, finally, a line from Bartlett's narrative in which he records seeing "a body of twelve or fifteen Indians on the river."[40]

This opinion exposes the primary flaw in Mr. Fuller's approach to and evaluation of the historical evidence. While Bartlett's record only states that the Pimos were "on the river," Mr. Fuller testified that "it does say on the water."[41] It does not. The phrase "on the river" is equivocal at best and capable of several meanings, including next to or along the river. However, instead of evaluating and considering the *entire* context of the journal entry, which does not mention boats at all, or the significance of the absence of boats in the account, Mr. Fuller accepts this as evidence of possible boating. While it is not evidence of possible boating, it is clearly evidence of poor reasoning.

Another serious shortcoming in Mr. Fuller's analysis is his failure to consult primary sources, which was very clear in his testimony regarding Native American boating. Some of the sources relied upon by Mr. Fuller cite Spier's 1933 work, *Yuman Tribes of the Gila River*. Spier's description of boating was on the Colorado River and primarily by the Halchidhoma, a tribe which was absorbed into the Maricopa when it relocated near the confluence.[42] The map in Spier's work locates the Maricopa along the Gila River downstream from Pima Butte. Forde's 1931 work, *Ethnography of the*

[39] C053 ASLD #389.
[40] C053 ASLD #393.
[41] Tr. 05/18/16 at 4879.
[42] C058 at 106.

Yuma Indians, is also cited as a primary source. His section on "river navigation" also focuses exclusively on the Lower Colorado River.[43] Despite the fact the Spier was a repeated primary source in the materials Fuller relied on, he could not recall the title of Spier's book,[44] and he did not know that the reference to boating in Spier's book was to the Colorado River[45]

After repeatedly testifying that there were no accounts of Native American boating on the Salt River, in the absence of any specific accounts of Maricopa boating on the Salt River despite their relatively recent presence, and the fact that any boating would have to be upstream from the confluence, Mr. Fuller is comfortable with his opinion, based upon incorrect interpretations of second-hand sources, that it is possible that the Maricopas boated on the Salt River.[46] Again, this opinion illustrates the shortcomings of his approach to the historical evidence.

C. While the explanations provided for of lack of commercial navigation, other than non-navigability, are clearly lacking, there was a great need dating back to prehistoric times.

It is clear from the Boating PowerPoint[47] that Mr. Fuller applied the incorrect standard for determining navigability. In his Boating PowerPoint, Fuller has two bullet points under the heading "Susceptible to Trade and Travel," "Sufficient depth of flow" and "Actual historical use not required."[48] As Mr. Fuller explained in his testimony on the Gila River, "susceptibility ... basically is, there is sufficient depth of

[43] C058 at 111.
[44] Tr. 05/19/16 at 5034.
[45] Tr. 05/19/16 at 5035.
[46] In addition to the fact that a "possibility" falls far short of meeting the burden of proof.
[47] C018 ASLD #149.
[48] C018 ASLD #149 Slide #5.

flow to float a boat"[49] and "[i]f it's deep enough to float a boat, it's susceptible to navigation."[50] This is *not* the federal standard for navigability and the formulation does not give any meaning to the "highway for commerce" element of the *Daniel Ball* test or the phrase "trade and travel."

The Boating PowerPoint attempts to provide explanations for why there are not more historical accounts of boating on Arizona's rivers.[51] One primary explanation is that "[w]hen the rivers had the water, Arizona didn't have the population."[52] However, Fuller's "US Census Bureau" population numbers did not take into account that, in early years, Native Americans were excluded from census counts.[53] Mr. Fuller refers to this as the "population paradox." However, there clearly was a time period when Arizona had both the water and the population—the Hohokam period. And, despite evidence of a large agricultural economy and active trading, there is no evidence the Hohokam used boats. The available and credible evidence suggests that the Hohokam did their trading on foot.

Some of the reasons Fuller suggests for why there are not more historical accounts of boating in Arizona are the *result of the non-navigability* of the rivers, including that population centers were not located on rivers, that transportation routes were not on rivers and that there were alternatives available.[54] This is perhaps most

[49] No. NAV-03-007, Tr. 6/16/2014 at 20.
[50] No. NAV-03-007, Tr. 6/16/2014 at 61.
[51] C018 ASLD #149 Slide #61.
[52] C018 ASLD #149 Slide #61.
[53] C022 at 53, 55-56.
[54] C018 ASLD #149 Slides #64-65. Navigable rivers generally have all of these things—population centers on rivers, transportation routes on rivers and lesser use of alternatives.

apparent in Slide #67 of the Boating PowerPoint, which contends that some segments of Arizona rivers are "[n]ot conducive to carrying major tonnage (e.g., ore)."[55] That is, there are no accounts of boating on some rivers ***because those rivers were not physically capable of sustaining commerce.*** Taken with the other explanations for why there are not more boating accounts on Arizona rivers, the Commission could easily reach the conclusion that Mr. Fuller is opining that the reason there are not more boating accounts on Arizona rivers because those rivers are non-navigable.

Fuller's second explanation for why there are not more boating accounts is likewise lacking in credibility; that "[b]oating may not have been newsworthy."[56] This directly contradicts Dennis Gilpin's 2005 testimony regarding attempts to navigate the Salt River. The descriptions of the various attempts to navigate the Salt River clearly indicate the unusual—and sometimes tongue-in-cheek—nature of the attempts. If there is "faulty logic" in these proceedings, it is that many of the reasons proffered for lack of boating accounts either constitute or relate to non-navigability. To phrase it another way, the non-navigability of the Salt River best explains the lack of accounts of navigation of the Salt River.[57]

Mr. Fuller's analysis of the need for navigation completely ignores what was, during "pre-development" conditions on the Salt River, a documented booming economy among the Hohokam.

[55] C018 ASLD #149 Slide #67.
[56] C018 ASLD #149 Slide #63.
[57] The first factor Mr. Fuller identifies as a "reason why not to boat a navigable river" is "flow depth." C018 #149 Slide #68. If navigability is almost exclusively dependent on flow depth, as Mr. Fuller sometimes testifies, then the first reason why not to boat a navigable river would be because, due to lack of depth, it is not navigable.

D. The historic accounts of attempts to navigate the Salt River support a finding of non-navigability.

ASLD placed a lot of emphasis in these hearings on historic accounts of boating on the Salt River. It is important, from the outset, to recognize these accounts for what they are and to place them in a proper historical context. From 1873 to 1919, Mr. Fuller identified (by his count) 31 accounts of boating on all segments of the Salt River. That's 31 accounts over a period of 46 years, or roughly **.67 boating accounts per year (i.e., less than one account per year on the entire river)**. When one excludes the accounts that are actually unsuccessful, divides the accounts out by the segment of the river on which they took place, and further divides the accounts by the percentage of the segment actually boated, the .67 number necessarily drops even lower.

1. Evaluating historical accounts of boating.

One primary problem with Mr. Fuller's evaluation of the historic boating accounts is that, instead of performing a critical evaluation of these accounts, he indulged every inference possible in favor of boating success. This carried over from his testimony on the Gila River; when the following exchange took place:

> Q. Are you counting this trip successful or not?
> A. It's certainly not unsuccessful.
> Q. Not unsuccessful?
> A. That's correct.
> Q. You don't know if they made it.
> A. You don't know that they didn't.[58]

[58] C041 at 233-234.

Per Mr. Fuller's reasoning, the absence of evidence of completion of a boating trip permits an inference that the trip was successful. While Mr. Fuller changed at least one of the prior combined Gila River/Salt River accounts from "successful' to "unknown," his approach to the historical accounts improperly involves a presumption of success, contrary to basic principles of science and reasoning.

Perhaps the most revealing insight into ASLD's analysis of the historical accounts is found in Slide #50 of Mr. Fuller's rebuttal presentation.[59] In criticizing the evaluation of the historical accounts by other experts—which Mr. Fuller pejoratively labels "other guys"—he notes that there is "*no adjustment for depleted river flow conditions.*" There are two methods of demonstrating navigability for title—actual navigation and susceptibility to navigation. Thus, one of Mr. Fuller's primary criticisms is that the other experts did not apply the susceptibility analysis to the actual historical accounts. This is a major indictment of Mr. Fuller's approach to historical evidence of navigability—he wants the Commission to "rewrite" history to make all these accounts successful by inferring that the outcomes would have been better in "ideal" conditions.

Dennis Gilpin, an archaeologist and historian, was a member of ASLD's team and testified at these proceedings in 2005. Mr. Gilpin testified that it is important to try to critically evaluate the resources used and that "historians generally look at several criteria in evaluating these things [sic]."[60] First, one should look at what the

[59] C053 ASLD #385.
[60] Tr. 10/20/2005 at 13.

writer or author's source of information was; for example, was it direct observation or hearsay?[61] Second, what is the writer's motivation or objective in writing the account?[62] Third, is there corroborating evidence?[63] Mr. Gilpin opined that the newspaper accounts he reviewed at the time exhibited a "range of reliability."[64] Significantly, and contrary to Mr. Fuller's testimony, Mr. Gilpin observed:

> Overall, I think what these -- and when you are thinking about, you know, the general consistency of all of these accounts, it's pretty clear that this was a fairly rare occurrence for people to be floating the Salt River -- or the Upper Salt River.[65]

Mr. Gilpin undercut the argument recently made by Mr. Fuller regarding the discovery of new newspaper accounts, acknowledging that newspaper accounts may constitute a sample of what was occurring but, even so, "it does appear that it was a relatively rare occurrence, rare enough that when it did occur, it was usually newsworthy."[66]

2. Newspaper boating accounts on the Salt River.

The historical accounts used by ASLD and Mr. Fuller to demonstrate the navigation in fact of the Salt River are riddled with problems. Some of the accounts violate Mr. Fuller's own criteria, as they are flood accounts or accounts of crossing the river. Others are statements of intended launches. And, in all cases, Mr. Fuller again indulges every possible inference in favor of success, even when there is no

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[61] Tr. 10/20/2005 at 13.
[62] Tr. 10/20/2005 at 13.
[63] Tr. 10/20/2005 at 14.
[64] Tr. 10/20/2005 at 14.
[65] Tr. 10/20/2005 at 15.
[66] Tr. 10/20/2005 at 15.

evidence or evidence to the contrary. When viewed in the larger context of navigability, these accounts do not demonstrate even a minimal level of commercial use necessary for a finding of navigability. For the convenience of the Commission, a comprehensive chronology of these accounts, with citations to all relevant record exhibits, is attached to this post-hearing memorandum.

Five Tons of Wheat**:* Mr. Fuller practically scoffed at the suggestion that this account was either a publicity stunt or manufactured story to generate publicity for Hellings & Co. Mill. While there was no corroboration on what would have been a watershed event on the Salt River, the record does indicate the following: The event was held in conjunction with a new flour mill, as documented by a large advertisement on the same page as the story. Hellings & Co. was the *Weekly Arizona Miner's* largest advertiser and Hellings & Co. was an agent for the *Miner*, which likely explains the substantial amount of free publicity Hellings & Co. received in the newspaper.[67] At the time of the account, Hayden had just finished his mill on the opposite side of the river. Had this truly been a commercial success, it would have been repeated many times. Instead, if one accepts the veracity of this account, Hellings & Co. transported ***.003% of the total flour it made in 1873 on a few miles (at most, 3 miles out of 41.3 miles in Segment 6, or ***.07 percent of Segment 6***) of the Salt River.[68]

[67] Documented in numerous articles from the *Weekly Arizona Miner* from 1872-1874 [C058].
[68] C058 at 122.

Day Brothers: When cross-examined regarding the historical accounts of boating on the Salt River, Mr. Fuller was asked, as to the 28 accounts he mentioned on the Salt River, "did any of the commerce mentioned in those accounts turn into a regular commercial enterprise on the Salt River?"[69] After initially evading the question, Mr. Fuller answered, "**I said that we have no evidence of that.**"[70] After a break in the proceedings and conferring with ASLD's counsel, Mr. Fuller "amended" his answer to include the Day Brothers and Gerald Fogel, who purportedly conducted trapping on the Salt River.[71]

Mr. Fuller suggests that the trapping industry was alive and well in Arizona at the time of Statehood; it was not. In addition to the vague account in the *Arizona Sentinel*, there is no corroboration of the Day brothers' trips. Histories of fur trapping in the southwestern United States suggest that fur trapping was not commercially viable on the Salt River. A recent thesis on the fur trapping infrastructure in the southwestern United States noted that large-scale navigation was impossible on the Salt River due to its rough waters and failure to connect to populated areas such as St. Louis.[72] In the southwest, trappers and traders transported goods and furs overland via pack animals and eventually wagons.[73] "Beasts of burden were a necessity for the fur trade in the Southwest, more so than other regions of North America where major

[69] Tr. 10/23/2015 at 790.
[70] Tr. 10/23/2015 at 791.
[71] Tr. 10/23/2105 at 791.
[72] C058 at 10.
[73] C058 at 10.

water-ways were the common means by which to travel."[74] Chittenden's seminal work, *The American Fur Trade of the Southwest*, dismissed the southern Arizona watersheds in one paragraph, simply stating that the rivers were too far south to be of any importance in the fur trade.[75]

Lt. Robinson/Tiburon Island: The account of Lt. Robinson is an account from 1909 in the *Bisbee Daily Review* which recounts, after the fact, that Robinson left Phoenix going down the Salt River to Yuma. At the time, the *Arizona Sentinel* reported that Robinson was a "news fakir" who was "addicted to concocting sensational stories," and suggested that he had made up the story.[76] Later the same week, the *Arizona Republican* reported that Robinson was alive and in Mexico City.[77] If anything, the story of Robinson and Tiburon Island is a representative picture of the frontier journalism in Arizona, as described by Professor August, with elements of sensationalism including planting false stories in newspapers. Once again, the failure to research and evaluate additional news accounts—in this case closer in time to the event—resulted in a claim of success on an account that was subject to various conflicting interpretations and involving an individual of questionable credibility.

III. THE GEOMORPHOLOGY OF THE SALT RIVER PROVIDES EVIDENCE THAT IT WAS NON-NAVIGABLE AS OF STATEHOOD.

[74] C058 at 11.
[75] C058 at 13.
[76] C060 at 6.
[77] C060 at 7.

Issues involving the geomorphology and hydrology of the Salt River clearly expose the shortcomings of *Winkleman*. In its attempt to give meaning to all terms in the definition of navigability, A.R.S. § 37-1101(5), which, in turn, is a codification of a non-statutory judicial test, the Court of Appeals determined that the Commission "was required to determine what the River would have looked like on February 14, 1912, in its ordinary (i.e., usual, absent major flooding or drought) and natural (i.e., without man-made dams, canals, or other diversions) condition." 229 P.3d at 253. This test is contrary to the basic character of the Salt River as described by the Commission:

> The flow of water in the Salt River through the Salt River Valley is characterized by periodic floods (sometimes extremely heavy) interspersed during periods of drought.[78]

The test adopted in *Winkleman* defines a river that the Salt River has never been and could never be.

Because the Court could not ascertain whether the Commission considered the Salt River in both its ordinary and natural condition, as defined by the Court, the matter was remanded to the Commission. In *dicta*, the Court addressed the question of, "When was the River in its natural condition?" 229 P.3d at 254. The Court noted that the "obvious answer" was that the Salt River was in its natural condition before the Hohokam arrived "many centuries ago." *Id.* Because of a lack of historical data from that time period, however, the Court opined that "the River could be considered to be in its natural condition after many of the Hohokam's diversions had ceased to

[78] ANSAC 2005 Lower Salt Report at 38,

affect the River, but before the commencement of modern-era settlement and farming in the Salt River Valley." *Id.* Thus, an arbitrary time period long before Statehood was determined by the Court to be "the best evidence of the River's natural condition." *Id.*

The time period identified in *Winkleman* would be anytime from the end of the Hohokam era to the modern-era settlement and farming, a period of hundreds of years with little or no actual data. *To be clear, knowledge of actual conditions on the Salt River for the time period specified in Winkleman is mostly impossible.* Streamflow constructions can provide only gross approximations of flow rates and guesses as to depth. And, as the testimony in this matter demonstrates, those constructs are of limited value when applied to boating. This, again, was previously recognized by the Commission when it found that "[flow] averages are not particularly meaningful since it cannot be shown that on any specific day of any specific year that average flow was attained."[79]

The Lower Salt River has been consistently described by nearly all of the expert witnesses in these proceedings as a braided river with islands and multiple or compound channels which shift following flood events. The only substantive defense to this characterization was a "semantic war" over the definitions of various terms.

There are, however, basic principles of geomorphology and hydrology that cannot be escaped: First, "[r]ivers change, with or without humans."[80] The Lower Salt River, as it existed during the Hohokam period, is different than what it would have

[79] ASNAC 2005 Lower Salt Report at 38.
[80] C022 at 85.

been in the early to mid-1800s, and neither is the same condition the river would have been in at the time of Statehood in its "ordinary and natural" condititon.[81] Likewise, "[r]ivers are variable."[82] The time period identified for the "ordinary and natural" condition of the Lower Salt River in *Winkleman* is problematic, because: (1) from 1867 through 1939, the river was in a consistently braided condition; (2) before 1867, there are few observations of the river due to conflicts between various tribes; and (3) after 1939, the river was compromised by non-Indian development.[83]

The entire length of the Lower Salt River was surveyed in the 1860s by the Government Land Office.[84] The plats of this survey are attached as Appendix A to the report of Allen Gookin.[85] An undisputed review of these reports indicates that approximately 80% of the Lower Salt River was braided in pre-development time and that, while there were usually two separate channels, on occasion there were three or more channels.[86] Thus, if *Winkleman* is interpreted to require that the channel or shape of a river be examined in its "ordinary and natural" condition, the available evidence suggests that the shape of the Lower Salt River was not conducive to navigation, commercial or otherwise.

Professor Graf's study of channel changes on the Salt River supports the opponents of navigability. In his investigation of 112 years of change on the Lower Salt River, Dr. Graf investigated the issue of how channel locations have changed in

[81] C022 at 85.
[82] C022 at 85.
[83] C022 at 85-86.
[84] C022 at 93.
[85] C022 at 93.
[86] C022 at 93.

response to floods and how those observed changes can be generalized.[87] Professor Graf noted that "on the valley floors the channel only rarely encounters bedrock, and on the surface of alluvium several thousand metres thick it develops an unstable braided channel."[88] Dr. Graf concluded that "floods have caused channel relocation and rearrangement with lateral migration up to 1.6 km (1 mi)," and that observed changes lead logically "to spatial definition of alternating stable and unstable zones along the general flow area."[89] He concluded by noting that "[e]quilibrium concepts implying a balance among water, sediment, and channel dimensions are of limited utility, at least on a time scale of a century."[90]

IV. THE STREAMFLOW RECONSTRUCTIONS DO NOT SUPPORT A FINDING OF NAVIGABILITY.

Beyond additional historical accounts of boating, the other primary category of evidence introduced at the resumed hearings involves streamflow reconstructions for the Salt River based upon available historical data. The Community contends that none of the streamflow reconstructions indicate enough flow or account for river conditions at the time of statehood to support a finding of navigability for any segment. In addition, the criteria identified by the proponents of navigability are modern recreational standards which do not meet the federal test of navigability.

A. Recreational boating standards cannot be used for a determination of navigability for title.

[87] C042 at 1.
[88] C042 at 3.
[89] C042 at 14.
[90] C042 at 14.

Under his definition of navigability (i.e. "float a boat"), Mr. Fuller has repeatedly opined in these proceedings that canoeing in six inches of water is sufficient to meet the *Daniel Ball* test. The six-inch figure, in turn, comes from a source identified in the Boating PowerPoint as "US Fish and Wildlife, 1978."[91] While the slide is titled, "Federal Minimum Standards for Boating," they are not.[92] The source cited is a federally-funded study titled, "Methods of Assessing lnstream Flows for Recreation," authored by Ronald Hyra in 1978. That study specifies that it "presents the techniques of assessing instream flows for recreation."[93]

While 0.5 feet is specified in Table 1 of Hyra's study as a required stream depth for a canoe-kayak, the study further states that "[t]he criteria of Table 1 are minimal and would not provide a satisfactory experience if the entire river was at this level."[94] More importantly, Hyra specifies that **"the cross section measured for this method is the shallowest in the stream reach."**[95] Mr. Fuller did not perform a single depth measurement on the Salt River. The figures in Hyra's study assumed modern recreational watercraft.[96] And while 0.5 feet is identified by Hyra as a "physical" minimum depth, he identifies 1.0 feet as a "safety" depth and 2.5 feet plus as

[91] C018 ASLD #149 Slide #76.
[92] There is no evidence that Hyra's standards have been adopted by any federal agency or court as a standard for navigability. In fact, there is a specific disclaimer in the study that views expressed by the authors do not necessarily reflect the views of the United States government. C022 at 456.
[93] C022 at 460.
[94] C022 at 462.
[95] C022 at 462.
[96] C022 at 462.

"optimum" for canoeing-kayaking.[97] In questioning on the standard he used, Mr. Fuller used recreational terms; that one foot would be "more fun than half a foot."[98]

A second study previously utilized by ASLD and Mr. Fuller as "federal criteria for navigability" is a study done by Cortell & Associates for the Bureau of Outdoor Recreation of the Department of the Interior in 1977.[99] As with Hyra's study, the purpose of the Cortell work was to quantify water requirements for instream recreation use.[100] Cortell clearly advised against use of cfs in determining suitability for recreation; "[i]t is not possible to say in absolute terms that a discharge of so many cfs is suitable for a certain activity."[101] Thus, while Cortell identifies minimum and optimum depths similar to Hyra for recreational use, the actual use of a river for recreational boating is condition dependent. Volume 2 of Cortell's work, which was not consulted by ASLD or Mr. Fuller, provides the "nuts and bolts" of a method for evaluating rivers, which was also not used by Mr. Fuller despite ample opportunity to do so.

Given that the only standards for navigable depth identified are taken from studies of instream flows exclusively for modern recreation and recreational boating, which assume modern watercraft, and that the depths identified are bare physical minimum for recreational canoes or kayaks, the Commission could conclude that the proponents of navigability have failed to meet their burden of proof of navigability.

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[97] C022 at 487.
[98] C041 at 209.
[99] C022 at 179.
[100] C022 at 182.
[101] C022 at 195.

See Winkleman, 229 P.3d at 250 ("this court has previously recognized that the burden of proof rests on the party asserting navigability"). The fact that a river can be used for a few months at very low flows for canoeing or kayaking falls far short of meeting the burden of proof for navigability for title.

B. Other non-recreational sources suggest a consistent depth of at least three feet for commercial navigation.

However, there are other standards upon which the Commission can rely. In *United States v. Utah,* the Special Master determined that the Green and Grand Rivers were navigable based, in part, upon a survey of the rivers and a finding by the Special Master that the mean depths of those rivers fell below three feet during 53 (Green) and 16 (Grand) days of the year, considerably deeper than the Salt River under any of the streamflow reconstructions.[102] Given the date of Utah statehood (1896) and that Utah is also a southwestern state, it provides a strong comparison for this matter. Likewise, other sources identify necessary depths for navigation in ranges generally starting above three feet.[103]

C. The pre-development flow depths generated by the credible expert testimony in this matter are not sufficient to support commercial navigation.

Because the Lower Salt River has been subject to human exploration and settlement for thousands of years, it would not be appropriate to apply the susceptibility test as outlined in *United States v. Utah*. However, should the

[102] C021 at 26. Rich Burtell's Declaration quotes the survey that "3 feet is, therefore taken as the governing low-water depth to be considered in improvement."
[103] C021 at 26-27; C022 at 108.

Commission determine that it is appropriate to apply the test, the Lower Salt River falls far short of meeting the susceptibility standard. The Community's expert witness, Allen Gookin, performed a simple analysis of the Lower Salt River.[104] First, he computed the pre-development or virgin flows of the Lower Salt by subtracting the flow of the Gila River from the combined flow of the Gila and Salt Rivers below the confluence. This figure Mr. Gookin used represents a conservative estimate because the flows of the Salt River along the Gila River Indian Reservation were lower than at the confluence. The flows for Segment 6b were computed as a mean flow of 1,760 cfs, a median flow of 581 cfs, and a minimum flow of 86 cfs. Using Manning's n, Mr. Gookin computed a mean depth for 1,760 cfs of 1.30 feet and a maximum depth of 2.39 feet. For the median flow of 581 feet, the mean depth was .86 feet and the maximum depth was 1.5 feet.

D. The river outside Arizona which most closely resembles the Salt River was found non-navigable over 50 years ago.

In addition to the rivers adjudicated in *Utah*, the Commission may also consider the subsequent proceedings involving the navigability of the San Juan River from the Utah-Colorado border to the mouth of Chinle Creek, which took place in the early 1960s. *Utah v. United States*, 304 F.2d 23 (10th Cir.), *cert. denied*, 371 U.S. 826 (1962). Although there was evidence of use of the San Juan for recreational boating (for a period of 20 years), the federal court in Utah found that the San Juan was non-

[104] The information in this section is from C022 at 96-112 unless otherwise noted.

navigable[105] and the decision was affirmed by the Tenth Circuit. The San Juan River shares many of the same characteristics as the Salt River; it is a braided river with irregular flows in multiple channels. The flow for most months of the year is less than 1,000 cfs, although the average flows are about 3,000 cfs. Like the Salt River, the periods of higher flows occur during spring runoff and flood conditions. Also like the Salt River, the San Juan was historically used by explorers and prospectors in small boats. Studies of the discharge of the San Juan at Shiprock, just upstream from the segment in question, show flow rates much higher than those proffered by ASLD and Mr. Fuller for the Salt River.[106]

CONCLUSION

The Commission should affirm its findings from 2005 and 2009, and conclude that the Salt River was *not* used or susceptible to being used, in its ordinary and natural condition, as a highway for commerce, over which trade and travel were or could have been conducted in the customary modes of trade and travel on water as of February 14, 1912, as defined in A.R.S. § 37-1101(5).

DATED this 18th day of July, 2016.

GILA RIVER INDIAN COMMUNITY

By Thomas L. Murphy
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[105] C041 at 381-393.
[106] C058 at 93-103.

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SUMMARY OF ASLD'S SALT RIVER HISTORICAL BOATING ACCOUNTS
ANSAC/Salt River - July 2016

#	Trip ID & Fuller Slide # (C030 - #364)	Specific Source(s) & ANSAC Exhibit #	Date(s) of Boat Trip	Seg #	Purpose	Success?	Notes
1	Logan (**NEW**)	*Hayden* [C053 #392]	Before 1873	1-6a	Exploration	Fuller - Yes	• flood account • Hayden would have known difference between flood and normal flows
2	5 Tons of Wheat (Vandermark & Kilgore) (Fuller #158)	*Weekly Arizona Miner* 5-3-1873 [C002 - #5]; various articles from *Arizona Weekly Miner* 1872-1874[C058]	April 1873	6b	Publicity	Fuller – Yes	• length of trip was not meaningful - **.07% of Segment 6** • event in conjunction with new flour mill (same page as advertisement) • Hellings & Co. was *Miner's* largest advertiser • Hellings & Co. was an agent for the *Miner* • *Miner* gave Hellings & Co. free publicity • Hayden had just finished mill • never replicated • **.003% of total flour made by mill in 1873** (10,000 pounds out of 3 million for 1873),
3	Hayden (Fuller #159-160)	*The Citizen* 6-14-1873 [C002 - #1]; *Arizona Sentinel* 8-9-1873 [C002 - #4]; *Arizona Weekly Miner* 6-21-1873 [C028 - #326]; Arizona Weekly Miner 6-28-1873 [C002 - #6]; *Arizona Weekly Miner* 6-28-1873 [C041]	May-June 1873	1-3	Exploration; floating logs for sawmill	Fuller – No	• trip on foot upstream • no idea where canoe was put in water; could have been Gila River • pronounced scheme a failure • lost arms, ammunition, provisions • had to abandon boat • Salt River is not "navigable" for saw-logs
4	Hamilton, Jordan & Halesworth (Fuller	*Arizona Sentinel* 1-25-1879 [C018 - #128]	Dec. 1878 –Jan. 1879	6b	Exploration	Fuller – Yes	• primarily focused on Gila River • no details of Salt River navigation

	#161)						
5	Stewart (Fuller #162)	*Arizona Republican* 10-2-1920 [C018 - #75]	40 years prior/Oct 1880	N/A	Unknown	Fuller – Unknown	• statement of intended launch • in "Forty Years Ago Today" column • "will launch his boat in the Salt river tonight"
6	Cotton & Bingham (Fuller #163)	*Arizona Gazette* 2-17-1881 [C048]	Feb 1881	N/A	Unknown	Fuller – Yes, then Unknown	• statement of intended launch • "Will leave tomorrow" • Fuller changed opinion to "avoid discussion"
7	Yuma or Bust [Brown, Copeland & O'Neal] (Fuller #164)	*Arizona Gazette* 11-30-1881*; Arizona Gazette* 12-3-1881 [C048]	Nov 1881	6b	Recreation	Fuller – Yes	• reported dates do not match length of trip • seen wading in mud pulling boat on Gila • "compelled to wade in the water the greater portion of the time" • authors doubted account • not Bucky O'Neill
8	Willcox & Andrews (Fuller #165-166)	*Arizona Gazette* 2-14-1883 [C018 - #248]	Feb 1883	6a-6b	Recreation	Fuller – Yes	• starting point unclear • took two full days • slower than walking • same distance in 6b as 5 Tons of Wheat Account
9	Meadows (Fuller #167)	*Arizona Republican* 10-4-1909 [C028 - #272]	~ 1883	3-6a	Exploration	Fuller – Yes	• account is over 25 years after the fact • probably same as Burch account • got hung up on rocks • had to roll rocks into the water
10	Burch, Meadows/Meaders, Robinson, Logan, (Fuller #168-170)	*Arizona Gazette* 6-3-1885 [C018 - #132]; *Arizona Gazette* 6-5-1885 [C018-#133]; *Arizona Gazette* 6-6-1885 [C018 - #134]; *Arizona Gazette* 6-8-1885 [C018 - #135]; *Daily Phoenix Herald* 6-5-1885 [C018 - #131]	June 1885	3-6a	Exploration; floating logs for sawmill	Fuller – Yes	• failed in commercial purpose • determined suitability for dam • wrecked on one occasion • lost provisions, firearms, etc. • stuck on a rock
11	Spaulding & Hatfield	*Phoenix Daily Herald* 12-12-	Dec 1888	6a	Unknown	Fuller – Yes	• death during portage

	(Fuller #171-173)	1888 [C028 - #323]					
12	Sykes & McLean (Fuller #175)	*Coconino Sun* 9-7-1945 [C018 - #18]	~ 1890s	6b	Avoid winter	Fuller – Yes	• account was 52 years prior • "shoving off, the river went dry on us" • "sand down the river bed as far as we could see" • reported sand until they reached the Gila River • Five Points Corral was near 7th Avenue and Van Buren • Sykes was a attention seeker
13	J.K. Day (Fuller #176-177)	*Arizona Sentinel* 4-2-1892 [C002 - #8]	Sept 1891	6	Trapping expedition	Fuller – Yes	• notes trip is "fifth one" • unclear as to location of any other trips
17	J.K. & George Day (**NEW**)						• adding four additional trips without any details or accounts
18	Hudson Reservoir & Irrigation Co. (Fuller #178)	*Arizona Republican* 6-2-1893 [C018 - #60]	May 1892	4	Survey	Fuller – Yes	• boat "was overturned and occupants were thrown into the water" • ribs of the boat were smashed • "nearly rendered unserviceable"
19	Robinson (Fuller #179)	*Bisbee Daily Review* 10-6-1909 [C018 - #76]; *Arizona Sentinel* 6-23-*1894 [C060]; Arizona* Republican 6-27-1894 [C060]; *Arizona Republican* 7-28-1902 [C060]	N/A	N/A	Unknown	Fuller – Yes	• statement of intended launch • "two previous expeditions have resulted in death and disaster" • past account on Salt River not credible • Robinson was known to manufacture news
20	"Trappers" (**NEW**)	*Arizona Republican* 2-11-1894 [C053 - #383]	N/A	N/A	Trappers	Fuller – Yes	• statement of intended launch • author met a couple of brothers who were building a boat • intended to navigate Salt and Gila Rivers
21	Adams & Evans (Fuller #180)	*Phoenix Herald* 2-18-1895 [C029 - #360]; *Phoenix Daily Herald* 2-25-1895 [C029 - #361]; *Arizona Daily Gazette* 2-26-1895 [C029 - #362];	Jan-Feb 1895	6b	Prospecting	Fuller – Yes	• hauled boat from Sacaton to Phoenix • only one of four articles mentions Salt River

		Arizona Sentinel 3-9-1895 [C029 - #363]					
22	Gentry & Cox (Fuller #174)	*Tombstone Daily Prospector* 2-24-1889 [C018 - #247]	Jan 1889	Unk	Transport ferry	Fuller – Yes	• boat had been used as ferry on Salt River • account is on the Gila River • context suggests Gila River • "cut in two parts"
23	Roosevelt Freight (Fuller #183-185)	*Arizona Republican* 4-30-1905 [C018 - #249]	April 1905	4	Freight	Fuller – Yes	• flood account • "recent rains have put the Salt River in the raging torrent class" • claim of transport up the river is dubious
24	Advertisement (Fuller #186)	*Arizona Republican* 5-23-1905 [C018 - #66]	N/A	N/A	Big game hunting	Fuller – Unknown	• statement of future intent
25	USRS/Fowler (Fuller #187-188)	*Arizona Republican* 12-9-1905 [C048]	Dec 1905	6	Government	Fuller - No	• "They found the Salt river a poor stream for navigation" • shipwrecked twice • hit rock and sandbar
26	Shively (Fuller #182)	*Arizona Republican* 3-24-1905 [C018 - #81]; *Arizona Republican* 329-1905 [C018 - #201]; *Arizona Republican* 4-3-1905 [C018 - #203]	March 1905	6	Unknown	Fuller – Yes	• tongue-in-cheek account • launched from the Phoenix Shipyards • "for a time the boat was semi-submarine"
27	Globe Power Co. (**NEW**)	*Arizona Silver Belt* 7-12-1906 [C053 - #384]	N/A	N/A	Engineering	Fuller – Yes	• having a boat built • no indication it was ever used
28	Rains/Theft (Fuller #189)	*Arizona Republican* 4-29-1909 [C018 - #73]	April 1909	6b	Theft	Fuller – Yes	• tongue-in-cheek account • boat was anchored to a sand bar • were going to pursue a voyage to Tucson • worked through "shoals and rapids"
29	Selly (Fuller #190)	*Arizona Republican* 6-27-1909 [C018 - #61]	N/A	N/A	N/A	Fuller – Yes	• article does not mention any actual boating • unclear where boats are being built for • unclear what type of boats are being built

30	Thorpe & Crawford (Fuller #191)	*Arizona Republican* 6-28-10 [C048]	June 1910	3-6a	Recreation; Exploration	Fuller – Yes	• "Many times the men were compelled to lift their craft from the water and carry it over obstacles and at other times had to haul it along the stands." • boat in dilapidated condition at end • "many" obstacles and portages
31	Ensign & Scott (Fuller #192)	*Arizona Republican* 6-28-1919 [C018 - #62]	June 1919	3-5	Recreation	Fuller – Yes	• described boat as cone • boat upset more than once • canal for portion of trip • "being so unusual" • on a release; not natural flow
	OTHER ACCOUNTS						
	Floating Logs (Fuller Slide #181)	*Salt Lake Herald* 5-3-1895 [C048]	N/A	Unk	Commercial	Fuller – included in slides but not summary	• effort abandoned • taken out of Fuller chronology
	Hydrographic Survey of Arizona	*The Herald* 10-30-1884 [C041]	N/A	N/A			• all streams, with exception of Colorado, "are entirely unavailable for navigation purposes"
	Chicago Account	*Arizona Journal Miner* 7-21-1897 [C041]	N/A	N/A			• mocks idea that Salt River is navigable
	Hayden's Ferry	*The Citizen,* 2-23-1874	N/A	N/A	Ferry		• notes that ferry used when the river rises (i.e., not ordinary and natural)