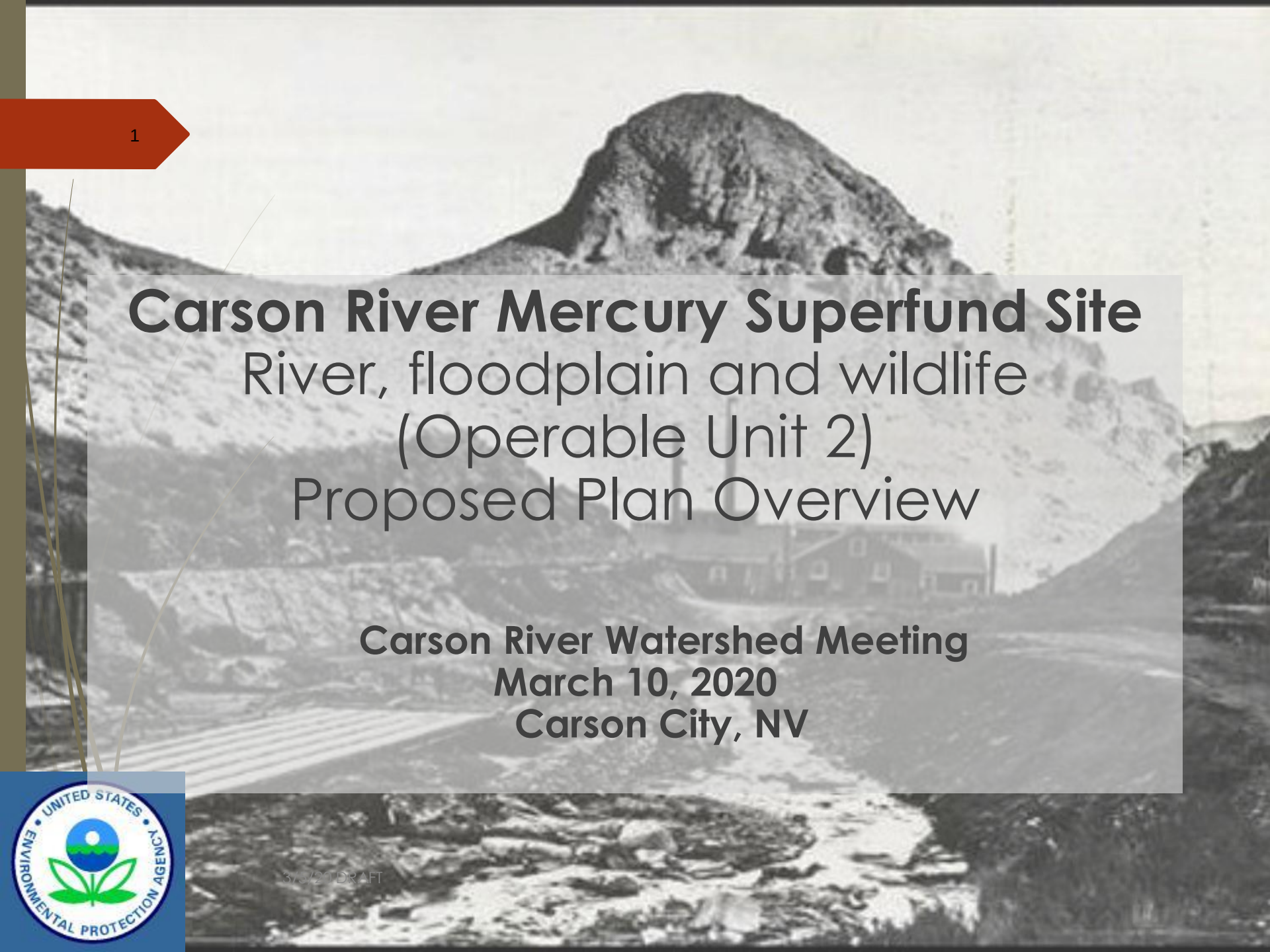


Carson River Mercury Superfund Site

River, floodplain and wildlife (Operable Unit 2) Proposed Plan Overview

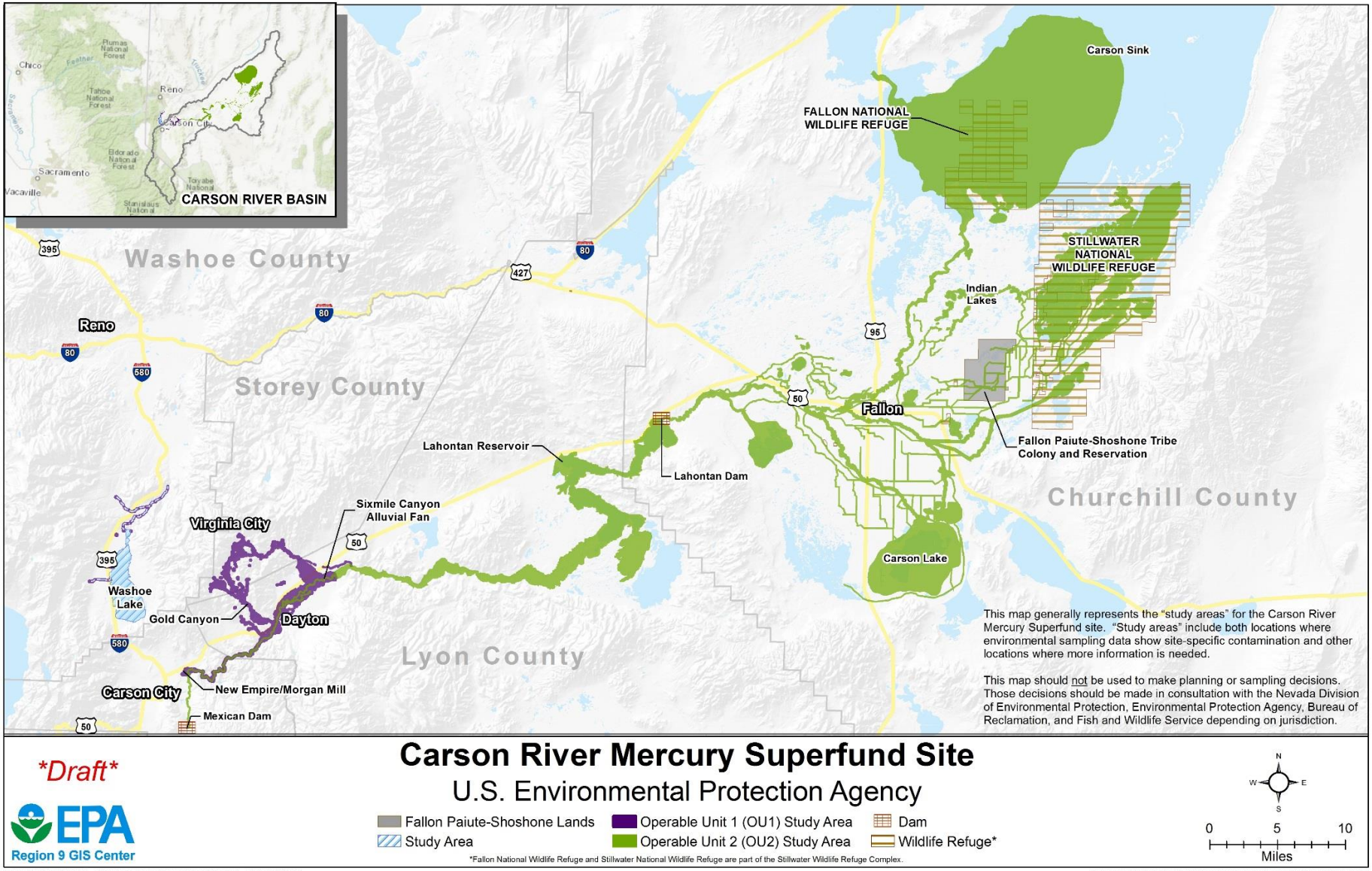
Carson River Watershed Meeting
March 10, 2020
Carson City, NV

3/2020 DRAFT

Agenda

- Remedial Investigation/Risk Assessment findings
- Feasibility Study summary
  - Alternatives
  - Comparative Evaluation
- Region 9's Preliminary Preferred Alternative
- Proposed Plan and public comment schedule
- Next steps


1-800-UR-RENTS
4x4


CARSON RIVER BASIN
Carson Sink
FALLON NATIONAL WILDLIFE REFUGE
STILLWATER NATIONAL WILDLIFE REFUGE
Indian Lakes
Washoe County
Storey County
Lyon County
Churchill County
Reno
Fallon
Fallon Paiute-Shoshone Tribe Colony and Reservation
Lahontan Reservoir
Lahontan Dam
Carson Lake
Sixmile Canyon Alluvial Fan
Virginia City
Washoe Lake
Gold Canyon
Dayton
Carson City
New Empire/Morgan Mill
Mexican Dam
This map generally represents the "study areas" for the Carson River Mercury Superfund site. "Study areas" include both locations where environmental sampling data show site-specific contamination and other locations where more information is needed.
This map should not be used to make planning or sampling decisions. Those decisions should be made in consultation with the Nevada Division of Environmental Protection, Environmental Protection Agency, Bureau of Reclamation, and Fish and Wildlife Service depending on jurisdiction.
Draft
Carson River Mercury Superfund Site
U.S. Environmental Protection Agency
EPA
Region 9 GIS Center
Fallon Paiute-Shoshone Lands
Study Area
Operable Unit 1 (OU1) Study Area
Operable Unit 2 (OU2) Study Area
Dam
Wildlife Refuge*
*Fallon National Wildlife Refuge and Stillwater National Wildlife Refuge are part of the Stillwater Wildlife Refuge Complex.
N
W
E
S
0
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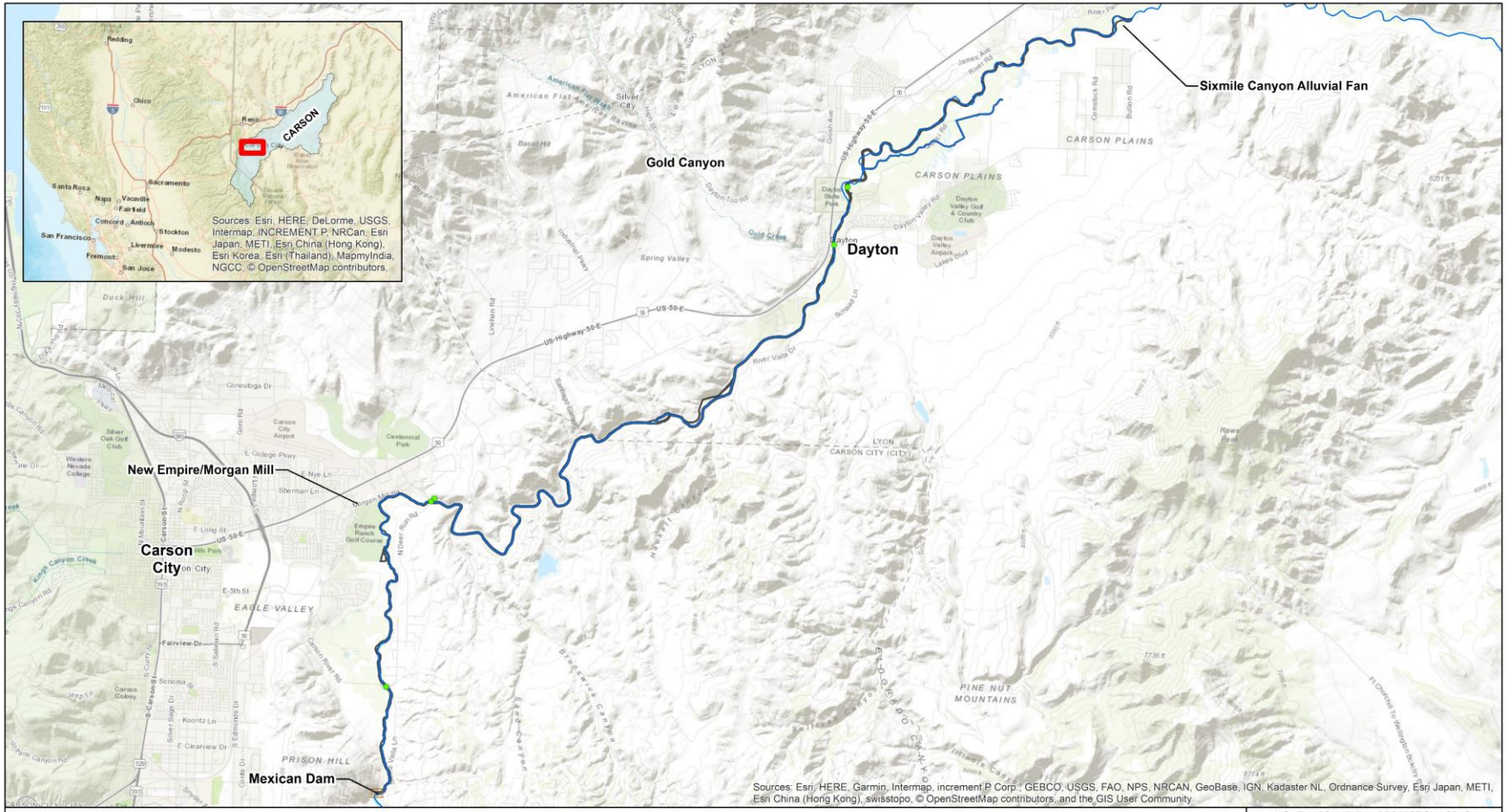
10
Miles
Project: SFD-17-02996 Document Name: CarsonRiverOverview Date: 3/6/2018
For more information, visit: http://www.epa.gov/superfund/carsonrivermercury

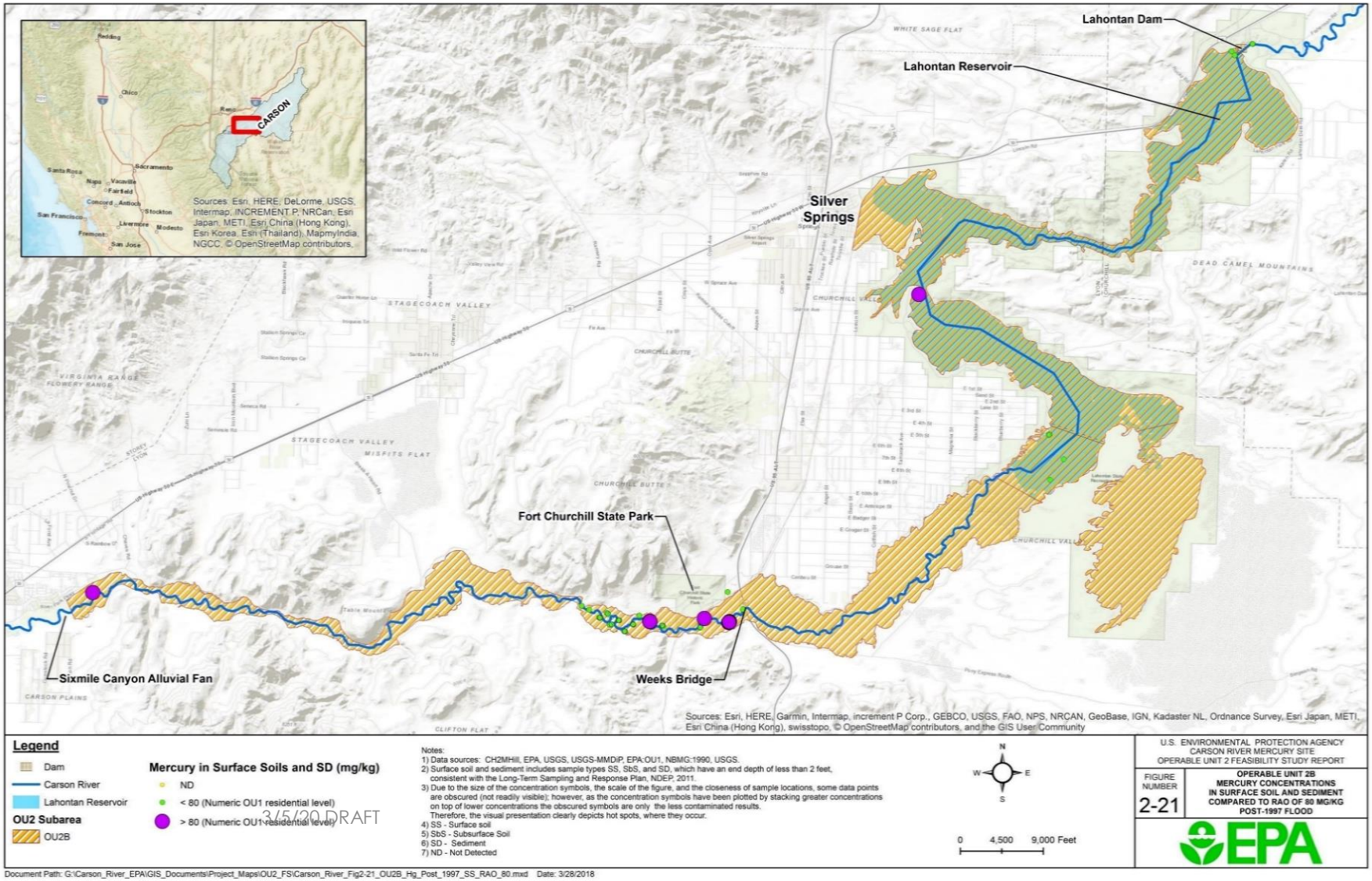
OU2 RI Report (April 2017)

- informed the risk assessment (Tribal too) using wealth of data
- completed map coverage
- identified obvious datagaps
- scoped and peer reviewed RI with HQ, State, Tribes, local and Federal government experts throughout process
- met with and informed the communities

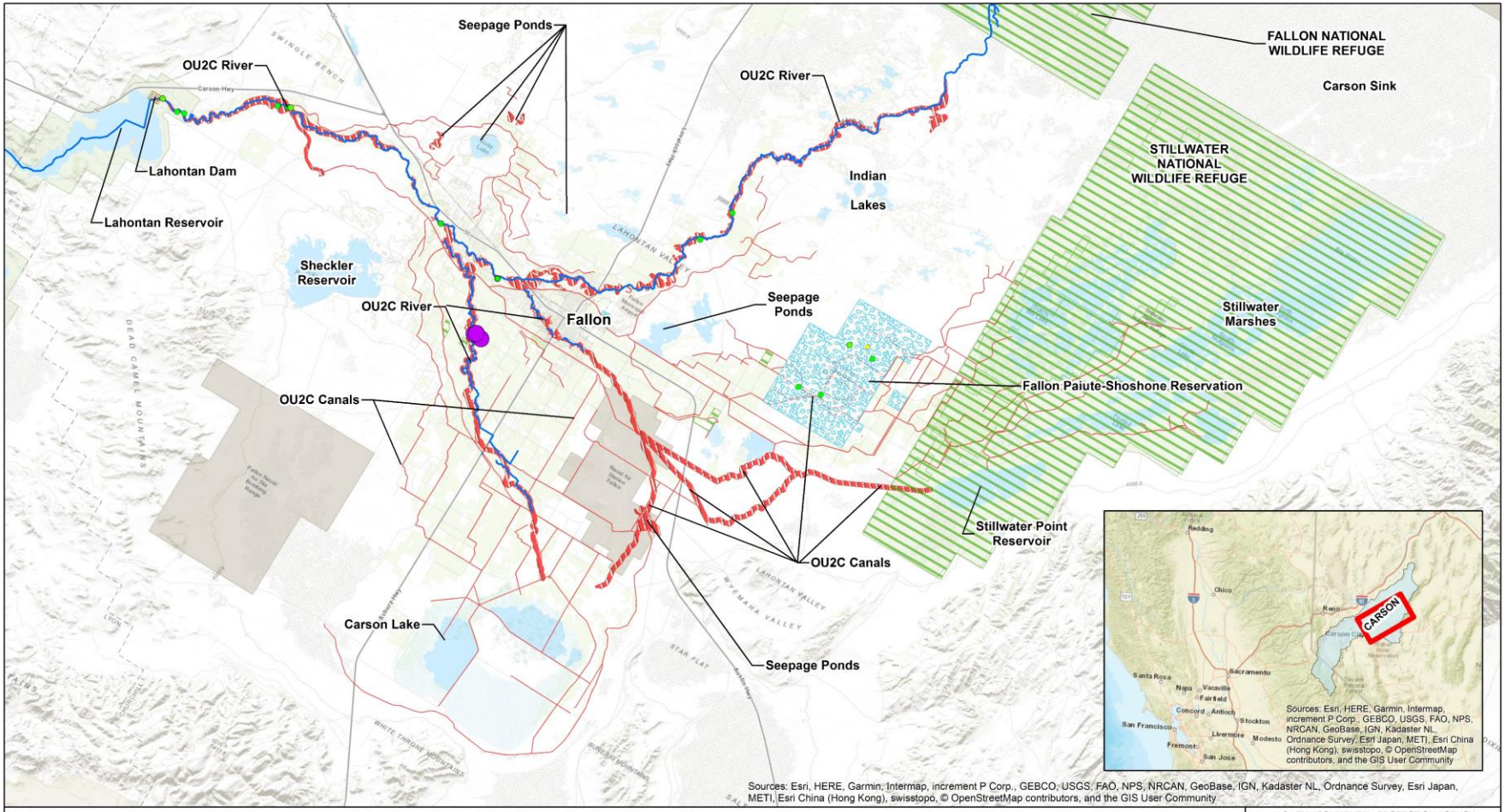
OU2a: Sediments Mexican Dam to the eastern edge of Sixmile Canyon fan



OU2b: Sediments Sixmile Canyon fan to Lahontan Dam



OU2c: Sediments Lahontan Dam to terminal wetlands, including canals and drains



RI Conclusions

- Estimated 14 million lbs of mercury released 140 years ago
- Mercury is deep in the channels, but released during flooding or construction from meander scars
- 1997 flood fundamentally transferred contaminated sediments from the OU2a to OU2b area, with little impact to the river reaches beyond the Lahontan Reservoir
- USGS estimates **more than 90% Hg is trapped** in Lahontan Reservoir
- Elemental mercury trapped in river and Reservoir sediments converts to methylmercury (bacteria) through the food chain, reaching high levels in sport fish, such as walleye, bass and wiper

Risk Assessment findings

- Fish consumption
  - **tribal fishing** (**off-reservation**)
  - **Adults and children eating Sac. Blackfish** from Lahontan and Indian Lakes (sold in Calif)
  - **Children eating fish** (OU2B area only)
- Wild plants and waterfowl
  - traditional tribal users based on soil & sediment (**not** a concern at Reservation or OU2D)

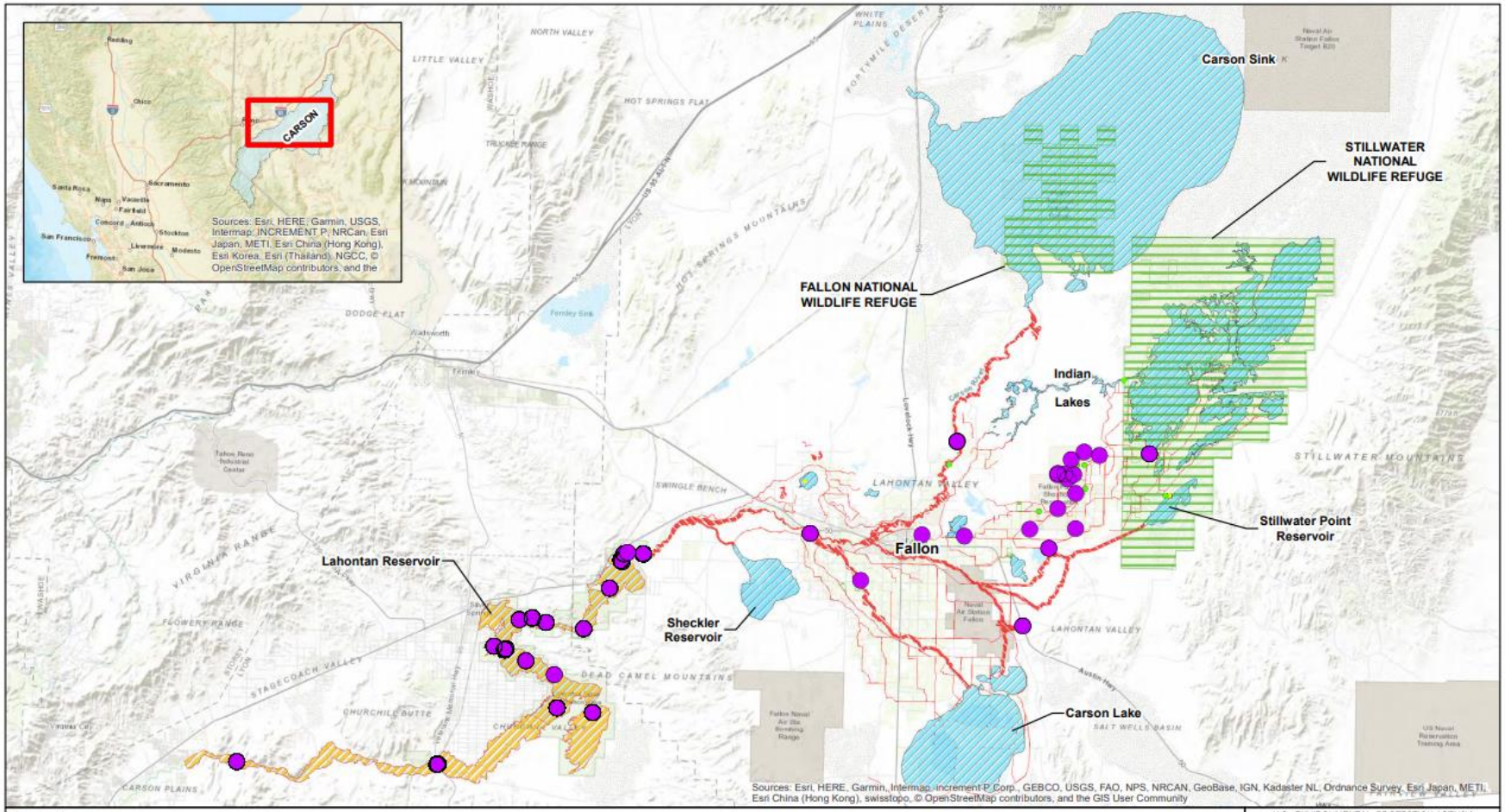
Other risk considerations

- Existing residences in the floodplain ***may*** be at risk for Hg exposure in areas that have <u>not been sampled</u>
- Future development (residential and commercial) in the floodplain is a ***potential*** future risk to Hg exposure in areas that have <u>not been sampled</u>

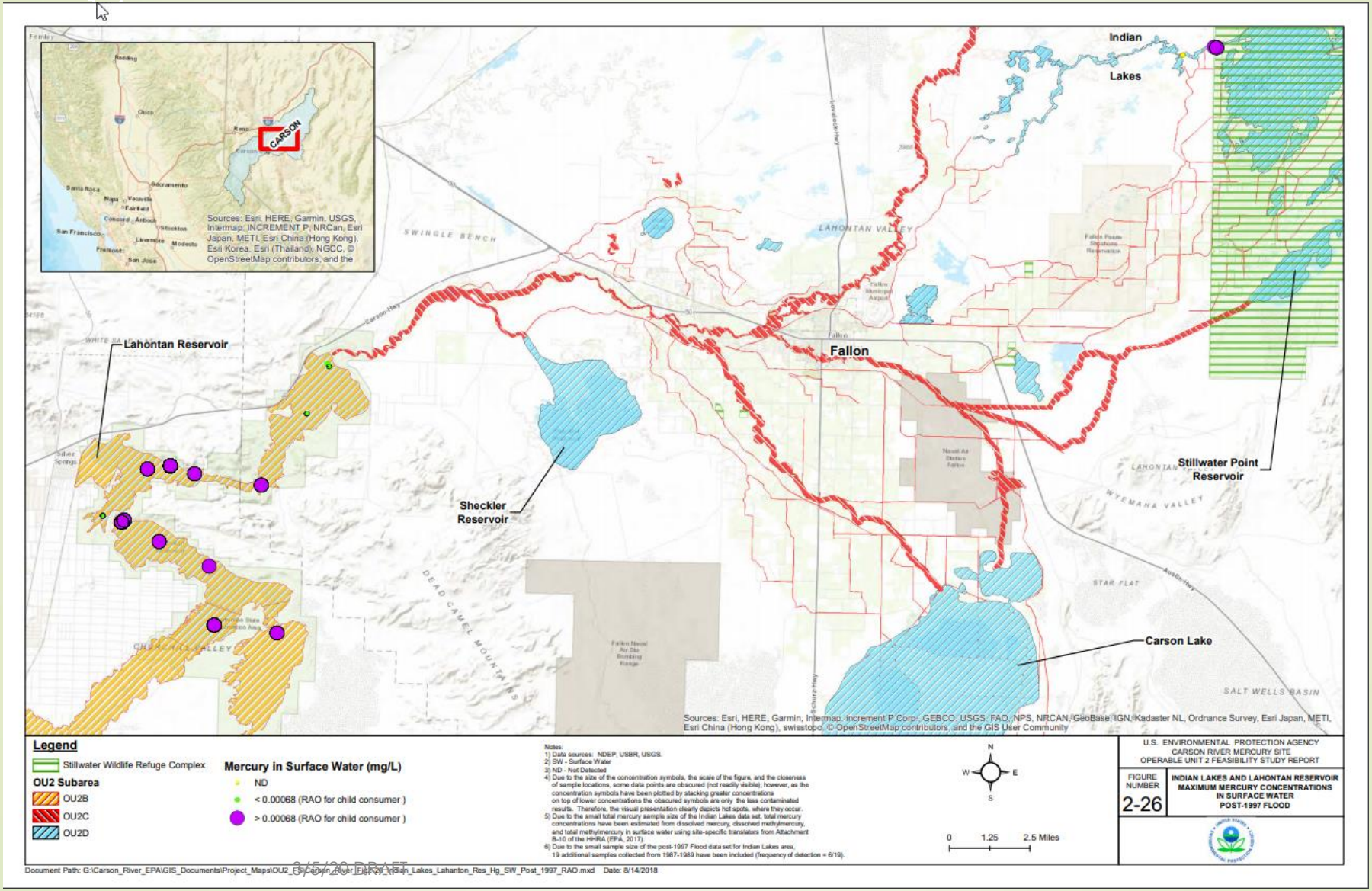
Risk Assessment findings cont'd

- Mercury hazards **acceptable** for surface water used for irrigation around the city of Fallon and Churchill County, Nevada.
- bioaccumulation (uptake) of mercury in plants, including vegetables and fruits, forage for cows (dairy) and forage for steers/heifers (beef) is **not a concern**. Similar for upstream areas in OU2A and/or OU2B that may also be using Carson River waters for irrigation purposes.
- **Insignificant ecological risks** were identified; therefore, are not addressed in the FS.

Surface water risk (fish): tribal youth



Surface water risk (fish): children



Remedy Objectives

developed based on the risk assessment results and are as follow:

- Reduce ingestion of biota (**wild plants and waterfowl**) exposed to mercury-impacted soil/sediments and could result in hazards from bioaccumulation through the food chain.
- Reduce ingestion of **game fish** that have been exposed to mercury-impacted surface water, which could result in hazards from bioaccumulation of methylmercury through the aquatic food chain from Subareas OU2A - D, and the **commercial harvest** and consumption of **Sacramento blackfish** from Indian Lakes (OU2D) and Lahontan Reservoir (OU2B).
- Reduce future exposure to mercury-impacted **soil/sediments** in **existing and future residential developments** in uncharacterized areas.
- Use 80 mg/kg mercury value to address concerns of soil/sediment disturbance during construction activities, to **prevent release** and downstream migration from **future residential and non-residential developments** in uncharacterized areas

Alternative 2: Adaptive Management, Land Use Controls and monitoring

- **Adaptive Management:** soil sampling and soils management for future construction activities (residential and non-residential Long-Term Sampling & Response Plan)
- Reduces exposure to risks by actively managing sediment disturbances
- Expands existing land use controls:
  - Fish, wild plant and waterfowl consumption advisories, bilingual signage, annual surveys, enhanced outreach, and education
  - Change commercial fishing permit – no human consumption, consider bounty program
  - Press to ban stocking all sport fish (trout are fine)
  - Environmental Covenants on all construction in the river and floodplain
  - webmap as advanced monitoring tool
- Annual monitoring surface water, sediments and fish tissue for trend analysis, including verifying OU1 releases are contained
- Implementation will require the active involvement of principal stakeholders

Build upon Institutional Controls success of existing Fish Advisory Program

Conversations with Local Stakeholders and Community Members

In 2019, TASC had discussions with about 40 local stakeholders, including tribal stakeholders, and community members to gain more insight on local fishing practices, local understanding of contamination in the Carson River and CRMS-impacted water bodies, local awareness of the importance of not consuming fish, local understanding of the fish advisory, and how people are made aware of the fish advisory. Local stakeholders included representatives from:

- Carson City
- Carson Valley Conservation District
- Churchill County
- Fallon Paiute-Shoshone Tribe
- Healthy Communities Coalition – Lyon & Storey Counties
- Lyon County
- NDOW
- Nevada State Parks
- Silver Stage Food Pantry
- U.S. Bureau of Reclamation
- U.S. Geological Survey
- Washoe Tribe of Nevada and California

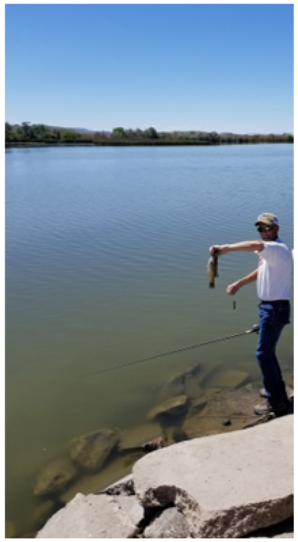


Figure 11. Angler catching a smallmouth bass at Harmon Reservoir.

Conversations were also held with staff at nearby fishing supply stores as well as with community members recreating at Big and Little Washoe Lakes, the Lahontan Reservoir and the Harmon Reservoir.

Key findings are summarized on the following pages.

3/5/20 DRAFT

Awareness of Fish Contamination in the Carson River and Nearby Water Bodies

There is fairly widespread awareness among community members, fishing and supply store operators, and local health practitioners that fish within the Big and Little Washoe Lakes, the Carson River and the Lahontan Reservoir may contain high levels of mercury. For example, one community member commented that, "The word that people should not be eating fish from the Carson River has been out there for a long time." A fishing supply store attendant remarked that, "If you are from around here, you know about the fish contamination." Likewise, a local stakeholder who had recently asked tribal members if they fished at the Lahontan Reservoir was informed that they did not fish there because of the mercury contamination. There were some exceptions to this sentiment, however. For example, some local stakeholders indicated that people who are traveling to the recreation areas from outside the region and those who have recently moved into the area may not be as informed about the mercury contamination as long-time residents.

"The word that people should not be eating fish from the Carson River has been out there for a long time."

- Community member

Awareness of the Fish Advisory and Fish Advisory Messages

Even though community members and local stakeholders generally were aware that they should not consume fish from Big and Little Washoe Lakes, the Carson River and the Lahontan Reservoir, local stakeholders and community members had mixed perspectives on the awareness of the state of Nevada fish advisory and related fish advisory messages. Some were aware of the advisory and thought it was clear to most others that a fish advisory was in effect. For example, a long-time community member remarked that essentially everyone he knew was aware of the fish advisory. However, some local stakeholders indicated not everyone is aware of the advisory or related fish advisory messages. Moreover, how people become aware of and understand the fish advisory varies. For example, some community members appear to know about the fish advisory because they saw the fish advisory on NDOW's website. Others know not to eat the fish because they heard they should not eat the fish via word-of-mouth, from park rangers or from EPA/NDEP's fish advisory signs. In a slightly different perspective, a local stakeholder working at the Lahontan Reservoir added that although he was confident that local anglers understood the fish advisory, he was unsure if the fish advisory message reached women and children.

"Everyone I know is aware of the fish advisory."

- Community member

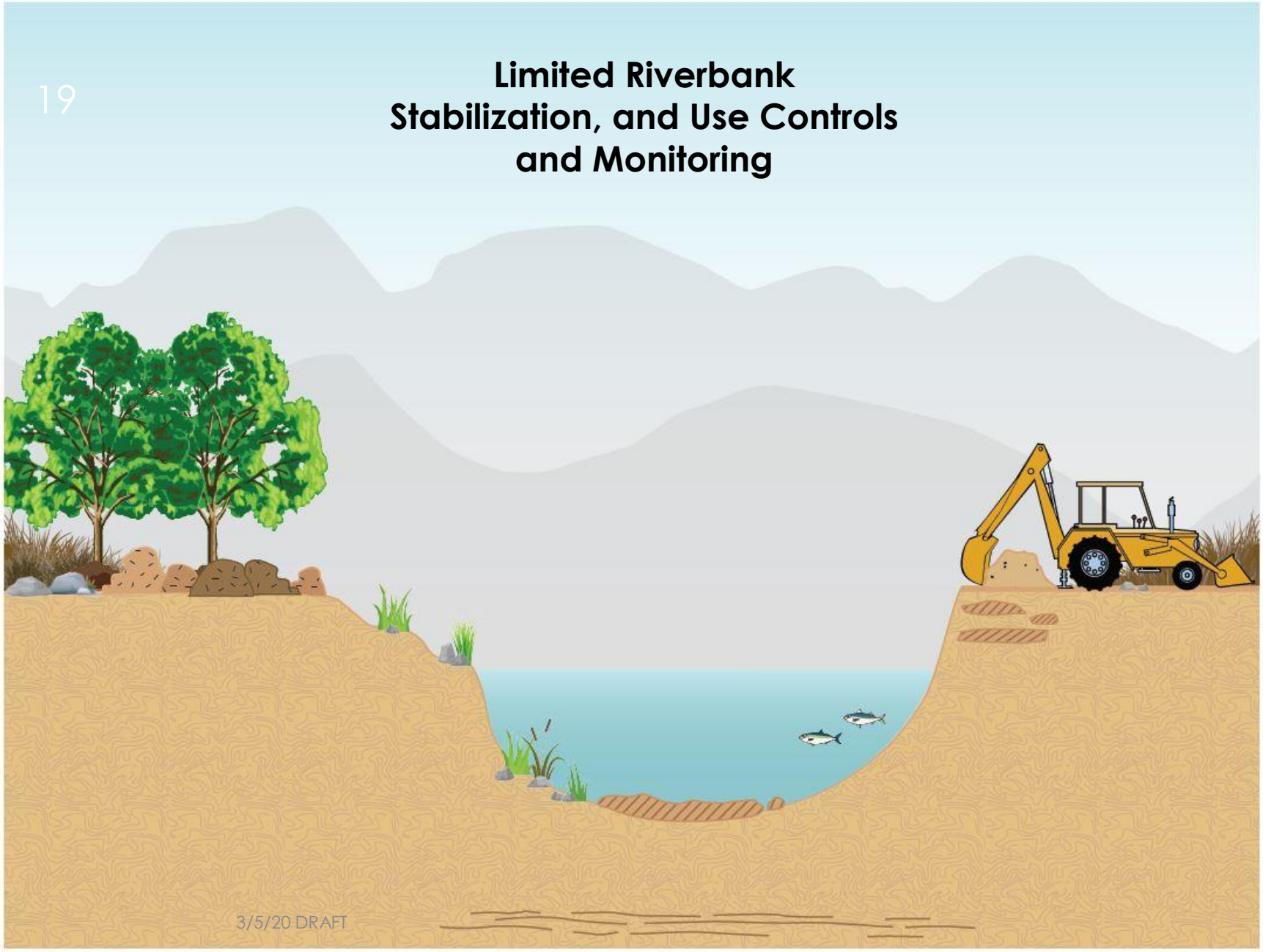
Extent to Which People Eat the Fish

Discussions indicated that generally people understand they should not consume fish from CRMS-impacted water bodies. For example, one community member commented, "All the people I know follow catch and release." Another community member commented that "I

Alternative 3: Limited areas of riverbank stabilization with sediment excavation and disposal, Land Use Controls and monitoring

- Everything in Alternative 2, plus:
  - annual inspections as part of the long-term monitoring program, including identification of areas of new erosion from major flood events or high flow conditions
  - limited areas of riverbank stabilization with sediment excavation and disposal (or beneficial reuse such as road bed construction)
  - riverbank stabilization using rock, a vegetative cover, or a combination of rock and vegetative cover as appropriate for location

Limited Riverbank Stabilization, and Use Controls and Monitoring

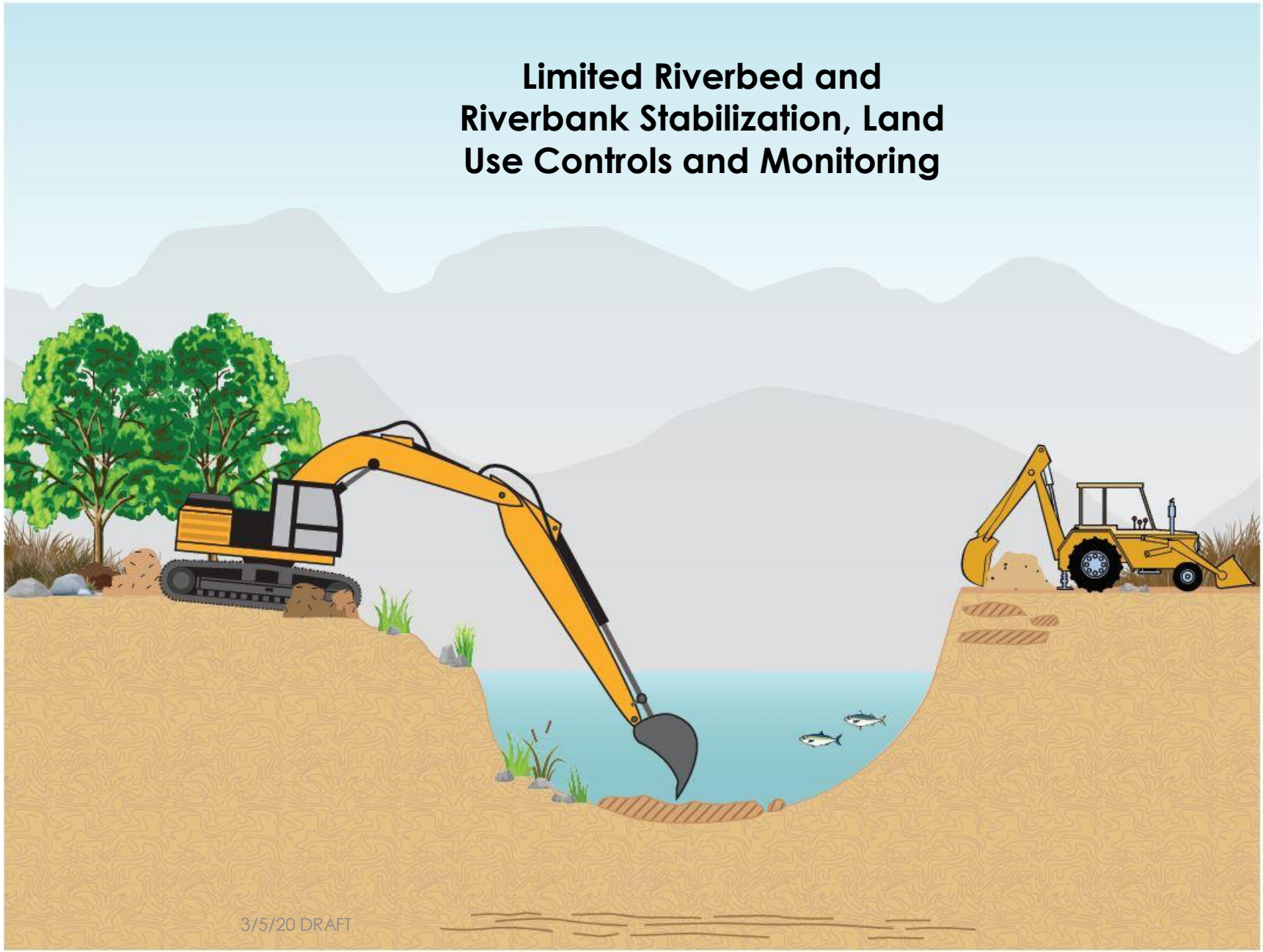


Alternative 4: Limited areas of riverbank and river bed removal and disposal, riverbank stabilization, Land Use Controls and monitoring

- Everything in Alternative 2 and Alternative 3, plus:
  - removing limited areas of **riverbed** to capture contaminated riverbed sediments for permanent removal from the Carson River drainage.

Note: Alternatives 3 and 4 do not apply to the terminal wetlands (OU2D)

Limited Riverbed and Riverbank Stabilization, Land Use Controls and Monitoring



Nine criteria analysis

Alternative Evaluation Table for Carson River OU2

	No Action Alternative	LUCs/ICs, Monitoring & Adaptive Mgmt	Limited Riverbank excavation, restoration, LUCs, Monitoring & Adaptive Mgmt (not needed OU2D)	Limited Riverbed, Riverbank excavation, restoration, LUCs, Monitoring & Adaptive Mgmt (not needed OU2D)
Overall Protectiveness	○	◔	◔	◔
Compliance with State and Federal Requirements	○	●	●	●
Long-term Effectiveness	○	◔	◔	◔
Implementability	○	◔	◒	◒
Short-term Effectiveness	○	●	◒	◒
Reduction of Toxicity, Mobility, or Volume by Treatment	○	○	○	○
Estimated Project Costs	$0	$22.4 million	$156.3 million	$206.1 million*
Tribal and State Acceptance	We will offer formal consultation to the Fallon Paiute Shoshone Tribe and other tribes that respond to 106 notice.			
Community Acceptance	Community acceptance of the preferred alternative will be evaluated after the public comment period.			

● = Fully meets criterion ◕ = mostly meets criterion ◔ = Partially meets criterion ○ = Does not meet criterion

What's next?

- Prepare draft Proposed Plan (March)
- Tribal and State consultation (March/April)
- Finalize fish advisory risk communication strategy (Spring 2020)
- Proposed Plan, comment period and meetings (June)
- Record of Decision (late 2020)
- Design: non-residential Long-Term Sampling & Response Plan and adaptive management plan (2021)
- Remedy implementation (2022)
- outreach, reuse, redevelopment and recreation (ongoing)

Teamwork and collaboration

Questions/Comments and Feedback

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