



TECHNICAL COMMITTEE MEETING

Monday, November 14, 2011, 8:30 A.M.
Historic Utah County Courthouse, Suite 211
51 South University Avenue, Provo, Utah

ATTENDEES:

Greg Beckstrom, Provo City
Ben Bloodworth, Forestry, Fire, and State Lands
Neal Winterton, Orem City
Adam Cowie, Lindon City
Greg Flint, Santaquin City
Lee Hansen, Saratoga Springs City
Curtis Chatwin, Lehi City
Chris Keleher, Department of Natural Resources
Mike Mills, June Sucker Recovery
Richard Nielson, Utah County
Reed Price, Utah Lake Commission

ATTENDEES:

Douglas Sakaguchi, Department of Natural Resources
Sarah Sutherland, Central Utah Water Conservancy District

VISITORS:

Jim Price, Mountainland Association of Governments
Dee Chamberlain, Saratoga Springs HOA
Cory Meyers, JUB Engineering
Bill Pope, HDR Foundation

ABSENT:

Mapleton City, American Fork City, Pleasant Grove City, Springville City, Vineyard Town, Utah Division of Parks and Recreation, Woodland Hills Town, State Division of Water Resources, Utah Lake Water Users, Department of Environmental Quality, and U.S. Army Corp of Engineers.

1 **1. Welcome.**

2 Chairman Greg Beckstrom called the meeting to order at 8:35 a.m. He welcomed the Technical
3 Committee members and all visitors. He asked those present to introduce him or herself.
4

5 **2. Review and approve minutes from the September 21, 2011 meeting.**

6 Mr. Beckstrom asked for discussion, comments, or corrections for the minutes of the meeting held on
7 September 21, 2011. It was motioned by Mr. Jim Price to approve the minutes; it was seconded by Mr.
8 Richard Nielson. The motion carried and it was unanimously approved.
9

10 **3. Review the 2012 meeting schedule.**

11 For informational purposes, Mr. Beckstrom reviewed the proposed meeting schedule for 2012
12 Governing Board and the Technical Committee Meetings. The Technical Committee meets the fourth
13 Monday in Room 211 before the Governing Board, which meets on the fourth Thursday in the Ballroom.
14 Technical Committee meeting dates might change due to holidays, and several meetings might be
15 cancelled due to the holidays and summer schedules.

1 **4. Updates on current Utah Lake issues.**

2 **a. Report on shoreline restoration/phragmites removal (Mr. Reed Price, ULC).**

3 Mr. Price said the third year of phragmites treatment was completed of the area on the east side
4 between the Lindon Boat Harbor and Center Street in Vineyard. The treatments were successful. The
5 Phragmites Removal Team (PRT) believes there is 98 percent removal and the shoreline has been
6 reclaimed. It will continue to be monitored to assure success. Fall phragmites work began in September
7 2011. A helicopter sprayed 260 acres on the west side of Utah Lake between the Jordan River outlet into
8 Saratoga Bay, and an additional 1.5 miles of shoreline near the city's marina on the south end of Saratoga
9 Springs. With the onset of cold weather, the county crews will be working to smash down the biomass.
10 During the winter, crews will be removing the Russian olive and tamarisk growing along the shoreline in the
11 treatment areas. A grant proposal for treating areas in the Saratoga Springs area is being written and will
12 be submitted by the end of December. PRT is expanding the area to the east side along the Provo airport
13 dike and an area just north of the Utah Lake State Park. The acreage is being calculated with the funding
14 the Commission put forth and the availability for funding through the grant received the past three years.
15 PRT is desirous to receive the grant again in hopes to continue work on the phragmites removal and
16 shoreline protection/restoration project.

17 Mr. Ben Bloodworth, FFSL, stated they decided to purchase a piece of equipment manufactured in
18 Europe called the Truxor. A representative from FFSL and DWR's Randy Berger, the phragmites expert in
19 the state, evaluated the machine, and felt it would be effective on Great Salt Lake and on Utah Lake. FFSL
20 plans on purchasing it before the end of the year. Mr. Chris Keleher asked how the machine worked. Mr.
21 Bloodworth said it is an amphibious vehicle with self-propelled paddle tracks and can go through anything.
22 It has a cutter/trimmer with blades and teeth across the front of it, with additional attachments like a rake.
23 They are hopeful to find a market that can use the phragmites. Mr. Price said YouTube videos show the
24 equipment's capabilities.

25 Someone asked if it could cut and rake simultaneously to collect the phragmites. Mr. Bloodworth said
26 it would use two different pieces of interchangeable equipment but it could be modified to do both.

27 **b. Report on the Utah Lake Symposium (Mr. Mike Mills, JSRIP).**

28 Mr. Mike Mills said the Utah Lake Symposium held on October 25, 2011, at Utah Valley University, was
29 successful. About 75 people attended throughout the day. Seven different presentations were given on a
30 variety of topics about the lake.

31 Dr. Jim Allison, professor at Brigham Young University talked about the pre-history of the lake and
32 discussed the number of cultural sites/digs around the lake. Anthony Macharia, a graduate student from
33 the University of Utah, spoke on isotope sampling with the cores on Utah Lake, tracking isotope
34 concentrations and the changes in the concentrations that have occurred over history. Mr. Reed Harris
35 updated the group on the June Sucker Recovery Program, which continues to make progress in stocking
36 fish, carp removal, and the benefits of the Hobble Creek Delta Restoration. Monitoring June sucker
37 spawning with the high river flows was difficult. Overall, the program is progressing. Mr. Price gave an
38 update on Utah Lake Commission activities with the Commission and county making great strides in
39 phragmites removal. Nate Hough-Snee, another graduate student from Utah State University, gave an
40 overview of his research for phragmites removal pointing out Utah State has a lot of ongoing phragmites
41 research. Mr. Robert Baskin, USGS, gave a similar report as he gave to the Committee in spring 2011
42 showing the variety of work on the lake. The day finished up with Sam Rushforth from Utah Valley
43 University. He presented a summary of the State's National Science Foundation Program grant application
44 submitted earlier this month. If the grant is awarded, it will provide a lot of opportunities for furthering
45 research in the state. He was appreciative of everyone who comes and supports the symposium year after
46 year. JSRIP is still planning on holding a symposium next year in late September or October.

47 Mr. Dee Chamberlain asked if any transcripts would be available from the presentations. Mr. Mills said
48 a summary of the program would be in the group's newsletter. Mr. Beckstrom said he was grateful JSRIP

1 put the program together as it was always interesting with useful information. He had one suggestion for
2 the presentation structure and timing such as allowing time for questions and answers. He felt the
3 presentations were rushed by quickly moving into the next one, trying to fit everything in one day. Mr.
4 Mills said he tells the presenters one hour and they feel like they need to fill it and seldom leave time for
5 questions. He thanked Mr. Beckstrom for the feedback and JSRIP will consider it.

6 **c. Report on carp removal efforts (Mr. Mills, JSRIP).**

7 Carp removal efforts continue and have not let up for almost 18 months. October was productive
8 especially the last two weeks. Since starting, the total carp removed is over 6.2 million pounds and will
9 continue. JSRIP is pursuing various funding opportunities to keep things moving. This time of year is the
10 most productive time. As long as the water stays open, it is anticipated the fishermen will reach their goals.
11 JSRIP is continuing to look at disposal options allowing the group to recover the costs and make removal
12 efforts more manageable. One prospect showing promise is turning carp into fish meal. JSRIP went to the
13 University of Washington and worked with some researchers of the National Fishery Service. They have a
14 different process for making fishmeal. JSRIP was impressed to use it with the Utah Lake carp. They are
15 encouraged by the prospect, but it is still early in the process. Mr. Beckstrom asked how much funding
16 JSRIP had for carp removal, and Mr. Mills said enough funding to go for another year.

17 Someone asked what fish meal is. Mr. Mills said it is a product used for a number of different things. It
18 is a common component in fish food used in hatcheries, poultry or pork feeds, or as a meal product used in
19 different products. It is an international commodity traded on the commodity market and has an
20 established value. Other products evaluated in the past have been fuzzy and hard to get a handle on them.
21 This one is more straightforward and there is a shortage with more demand on fish protein than even ten
22 years ago. More research is looking at untapped resources to get fish protein from fish like the common
23 carp that are seen as trash fish.

24 **d. Report on Northern Pike in Utah Lake (Mr. Doug Sakaguchi, DWR).**

25 Mr. Doug Sakaguchi said DWR crews collected four northern pike during spring/winter 2011 including
26 two from the Hobbler Creek Restoration area, one from the mouth of Provo River and the other from
27 American Fork River. DWR does not want northern pike in Utah Lake and the Wildlife Board approved the
28 catch-and-kill regulation proposed by the region for northern pike in Utah Lake. The rule states if an angler
29 catches a northern pike, they are to immediately kill it and not release it. Previous catches of the fish were
30 by Mr. Bill Loy in 2003 that caught one northern pike. Four in one season was surprising to DWR.

31 Mr. Beckstrom asked if catching the northern pike was incidental to some other activity. Mr. Sakaguchi
32 said they were caught during routine sampling programs. Mr. Beckstrom asked how the catch-and-kill
33 regulation was communicated to the communities. Mr. Sakaguchi said the publicized manner was with
34 communication was in news releases, sports writers reported on the Wildlife Board or new fishing
35 regulations. It is also on the Fish and Guide Book Regulations for different fish species of various waters.
36 Mr. Beckstrom asked if this regulation was permanent. Mr. Sakaguchi said indefinite is a better term than
37 permanent. Mr. Chamberlain asked if any of the fish were female fish. Mr. Sakaguchi said he did not ask
38 the biologists that question.

39 **e. Report on permitting private docks at Utah Lake (Mr. Bloodworth, FFSL).**

40 Mr. Bloodworth said a small cleanup of 75 tires was completed in the Lindon Marina. They had drifted
41 from the American Fork Boat Harbor, and American Fork City donated a dumpster to use for the removal.

42 Dock permitting was taken before the advisory council to get a moratorium on any lake permitting until
43 FFSL determines what to do. A quorum was not present. A conference call will determine the
44 recommendation request from FFSL to put a six-month moratorium in place, and hoped to have the
45 permitting worked out by spring 2012. Members at the advisory board meeting recommended a year-long
46 moratorium to allow time to work out the situation. Information is being gathered from other areas of the
47 country to find similar situations of what is permitted and how they approach it. There is not much
48 information because Utah Lake is a unique area due to the shallowness of the water body and the winter

1 ice, which can rip out docks. The feeling of the Army Corps of Engineers is anything put out will need to be
2 retracted and would not survive a winter. FFSL is getting a moratorium in place and then will analyze the
3 situation to determine if anything is appropriate.

4 Mr. Beckstrom said it seemed docks on a lot of lakes have winters as harsh as Utah Lake. He asked why
5 permanent docks would be more of an issue at Utah Lake than in other areas with colder climates. Mr.
6 Bloodworth said it was the Corps recommendations. The Corps has given approval of a one-boat dock to
7 someone who did not know they needed permission from FFSL. The reason for Utah Lake is movement of
8 the ice is more severe in winters on Utah Lake in the winters than as far as what the Corps would permit for
9 a personal dock versus something with huge concrete piles or something. The Corps has permitted one
10 boat house with two boat lifts to a man who has already invested \$80,000 in design, etc. FFSL is looking
11 hard, but one of the main things in the rule about docks and piers on public waters is they have to be out to
12 a useable depth and it is an issue on parts of the lake. FFSL is in the information gathering stages to see
13 what would work. Mr. Keleher asked if the Corps approved a boathouse on Utah Lake. Mr. Bloodworth
14 said they approved two, but it had two boat lifts with permanent boat storage. He originally proposed a
15 boathouse, but the Corps approved it on the condition he would pull it out of the water in the winter and
16 he invested the large amount of money to figure a way to do it. FFSL has not had any contact with the
17 applicant, although several attempts have been made. Mr. Keleher asked if FFSL had been in contact with
18 the Corps. Mr. Bloodworth said Mr. Ryan Nesbitt met with the Corps last week.

19 Mr. Mills asked the proposed location of the boathouse. Mr. Bloodworth said it was off of the Saratoga
20 Springs area. Part of FFSL's perspective is the individual is not an adjacent land owner, because the
21 Homeowners Association technically has the trail and canal so it is an odd situation.

22 **f. Report on bridge review process (Mr. Bloodworth, FFSL).**

23 There is nothing to report on the bridge review, as FFSL has not heard from the proponent in several
24 months and neither has UDOT. The applicant had daily questioning about the process and now nothing.

25 Mr. Price said the last time it was reported the rules created by the Transportation Commission were
26 provided to the project proponent and he knows what UDOT and FFSL are expecting from the list provided
27 to him of what needs to be adequately addressed. We are waiting for a response from the proposer. If
28 that were to happen, the Technical Committee would be available to assist FFSL in reviewing the
29 submissions from the project proponent. The Technical Committee would state whether we feel it
30 addresses the concerns identified and provided to FFSL as well. Mr. Bloodworth said they were waiting for
31 the information, but they are not sure what is going on in the process on the applicant's side.

32 **g. Report on voting results of Santaquin sewage discharge proposal (Mr. Greg Flint, Santaquin).**

33 Mr. Flint reported on the "sewage discharge process" vote in the Santaquin City Election. The
34 Technical Committee previously heard about the plan to build a treatment plant, or to discharge into Utah
35 Lake was presented here and to the Governing Board. Mr. Price provided information to the Santaquin City
36 Council, and the information presented was helpful. It went out for a public vote in the recent election
37 with approximately 1400 citizens voting. The resolution did not pass the nine million dollar bond by four
38 votes. The other resolution was a contingency of the nine million dollars, which is for \$0.9 million, and it
39 passed by only three votes. The final vote is still undecided, as there are a few absentee ballots needing to
40 be counted that could make a difference either way. After they are counted by Wednesday, they will
41 possibly recount the ballots for the resolutions. He said it doesn't look like the system will pass, but things
42 can happen with the absentee ballots and the recount. Until it is official, it is unofficial. There are three
43 new council members, who will make the decision of where Santaquin goes from here. The city will wait
44 for the final count, and then move forward with Plan B. One of the plans is to discharge into Utah Lake, but
45 it is not one Santaquin staff wants to pursue. Mr. Beckstrom said it would be interesting to see how the
46 proposal plays out in the community.

47

1 **5. Presentation by Richard Nielson on current and future plans for Utah County trails.**

2 Mr. Beckstrom introduced Mr. Richard Nielson. His presentation topic is “Current and Future Plans for
3 Utah County Trails around Utah Lake.”

4 Mr. Nielson said there are several segments of the Utah Lake Trail between the Provo River trail and
5 the Jordan River with a section of trail in Saratoga Springs. In the future, a goal is to see a trail all the way
6 around the lake, but it is a distant goal with no formal planning for it. In March 2007, URS conducted a
7 wetlands’ delineation in the Provo/Jordan River section. The study showed an alignment with a 25-foot
8 wide corridor along 14.5 miles section of trail with over seven acres of wetland affected by the alignment.
9 The corridor is kept close to the Lake with the idea the trail would be the line between any development
10 and the lake. The trail has kept to the alignment outlined in the 2007 study going from Provo Boat Harbor
11 to the Jordan River. A lot of sections are complete with other sections roughed in and ready for pavement.
12 Parts of the trail have had work done on it in Saratoga Springs area. The trail near the Provo Boat Harbor is
13 called the Skipper Bay Trail. With the Provo River Delta Restoration, the trail would be constructed on the
14 east side of the delta area, thus allowing water to flow into the lake.

15 A substantial amount of trail is still not built, but the county keeps working through the different
16 budgeting processes. Saratoga Springs has a segment of trail completed south of Jordan River, almost all
17 the way down through Saratoga Springs. Mr. Chamberlain said part of the trail goes on to the roads. Provo
18 City’s Westside connector project that goes from Provo Airport to I-15, plans to have a trail built on the lake
19 side of the road. The county will continue to work on sections not yet built, depending upon the available
20 funding. They would like to coordinate with the cities and look into acquiring rights-of-way for the trails by
21 either annexation or development. A lot of the trails have been built in conjunction with developments
22 and other projects. The county is looking at talking with UTA, with an anticipated second rail front runner.
23 When UTA has the second rail, there will be substantial widening in the area and they will require land
24 from the county. The County asked UTA when they do their environmental work and wetland mitigation to
25 include enough area to accommodate the trail along the corridor and plan to build it with their rail project.

26 There will eventually be signage throughout the entire trail system including the Utah Lake trail. The
27 Utah County part of the trail is completely constructed up to the Salt Lake County line. Segments are
28 completed in Salt Lake County and that county planned to continue the trail from the Salt Lake County line
29 up to Great Salt Lake and connect with trails along Legacy Parkway. A system of trails called the Wasatch
30 Loop is 250 miles of trails, which is a substantial trail system where the trails interconnect along the
31 Wasatch front and Wasatch back, and Utah County is included in that loop.

32 The Jordan River Trail was built 20 years ago and it has seen a lot of use and development along the
33 area. The Murdock Canal is in the process of being piped, with 75 percent completed. They are working on
34 the pipeline in the Lindon/Pleasant Grove area, and the canal should all be piped by April/May. Then the
35 county will be working on the Murdock Trail project. Some pieces of trail are under construction in the Dry
36 Creek area in Highland and plan to have the trail completed in the spring of 2013.

37 Overall, the Murdock trail goes along the foothills and through seven cities in the north end of the
38 county; the Provo River trail goes from Utah Lake State Park up through Provo to Vivian Park, segments
39 along University Avenue, and ties in at the mouth of the canyon with the Murdock Trail. The completion of
40 the Utah Lake Trail is several years out. When everything is completed, it will create a 50-mile loop in the
41 north end of the county going through ten different cities interconnecting with other trails. It will be a
42 good amenity for the people of Utah County.

43 Mr. J. Price said there are 55,000 people who use the Provo River Trail on a regular basis. He asked if
44 there was a status or an update of the link connecting Vivian Park to Deer Creek. Mr. Nielson said
45 Commissioner Larry Ellertson was working with canyon property owners and has had several meetings with
46 them. He didn’t know if a resolution was reached, but the Commissioner was trying to resolve it. The
47 majority of the area is in Wasatch County and he has been working with Wasatch County. There are some
48 areas they have the right of way for the Heber Creeper and some places there is not enough physical room

1 to go in the corridor and keep the separation from the rail. There are places that it can happen easily and
2 other places it will be a challenge. Mr. Beckstrom said there are a lot of places where that trail is not
3 completed. Sidewalks or relatively low volume streets act as practical alternatives. He gets feedback on
4 the trail system – Provo River, community trails, and eventually Utah Lake connection with Jordan River
5 and it is one of the great recreational assets of the county in the Provo Canyon region.

6 Mr. Sakaguchi asked if Provo City Westside Connector had any trails incorporated into the project. Mr.
7 Nielson replied in the affirmative. Mr. Beckstrom said the plan is to construct a lakeside trail and part of
8 the lake project will probably replace the trail. Part of the Provo River Delta Restoration Project will
9 ultimately tie back into the currently identified Utah County alignment for Utah Lake Trail. Mr. Price asked
10 if the URS report was available. Mr. Nielson said he had an electronic version and would forward a copy.

11 Mr. Beckstrom thanked Mr. Nielson for the report and told him if the Technical Committee could do
12 anything in any form towards the project, they would be supportive.

13
14 **6. Presentation by Chris Keleher on creating a Utah Lake Monitoring Plan.**

15 Mr. Beckstrom introduced Mr. Keleher, Department of Natural Resources, for his presentation on
16 creating a Utah Lake Monitoring Plan. Mr. Keleher said he has been working on Utah Lake since the early
17 1990s, starting with the DWR and the June sucker endangered fish. He lived in Utah Valley for almost 10
18 years, and enjoys spending family time at Utah Lake.

19 Mr. Keleher explained the need for a planned comprehensive Utah Lake ecosystem monitoring
20 program, which he considered long overdue. He had been involved with the Utah Lake was concerned with
21 the June sucker going extinct with only a few remaining adults (300-500) in the lake. The June sucker
22 would spawn and lay eggs in the Provo River. The eggs would hatch and feed off the yolk while drifting in
23 the river. When the yolk is finished, they actively need to start feeding. Researchers were not finding any
24 young or juvenile fish, and only a handful of adults. A conceptual model was created from the goal. There
25 is a desired condition, which was to save the species, which were close to extinction. The stressor
26 preventing extinction was there were very few animals left and they weren't naturally reproducing. The
27 immediate solution was to capture, rear, and then stock the fish. The hatchery program began. Juvenile
28 fish were raised and thrown into the lake with the six to ten inch fish surviving. Those juvenile fish have
29 been coming in to the spawning run and laying their eggs. The program is still working to improve
30 spawning conditions.

31 It was found that juvenile fish could survive in the system. DWR knew there were problems with
32 spawning flows and didn't have water in the river, and animals were dying in the Provo River when they
33 came in to spawn. Their habitat had been altered, which was one of the problems. There was nonnative
34 predation going on. The proposed solution was to control the predators, get water into the Provo River,
35 and restore the habitat conditions. As time went on, DWR learned as the project progressed. The
36 Endangered Species Act's purpose is "to promote the recovery of the species and those ecosystems upon
37 which they depend." The endangered species are an indication of the ecosystem itself. June sucker was a
38 reflection of something greater going on in the Utah Lake ecosystem. When determining how a system
39 functions, there are causes and effects. A cause is the problem of predation resulting in recruitment
40 failure. DWR realized there was a real connection between habitat and spawning, and predation. There is
41 not any habitat in the lake for young fish to hide in and avoid predation. After research, the literature says
42 carp are destroying this habitat. When habitat is not present, the predators can take advantage of
43 everything in the system.

44 Utah Lake is a very shallow lake, 26 miles north to south, with a maximum depth of 14 feet. In terms of
45 shallow lake ecology, there are potentially two different ecological states. One is a clear water state, with
46 clear water and a lot of rooted aquatic vegetation out in the system, including emergent vegetation
47 growing through the water, floating vegetation, which is rooted, and submerged vegetation that grows
48 along the bottom. Utah Lake doesn't have any of this kind of vegetation. A disturbance can cause a lake to

1 switch back and forth between these two states. Once a state is achieved, there is a tendency to stay in
2 that state. The pristine state for most shallow lakes is clear water, vegetative-driven state. A typical
3 progression happens in shallow lakes is they switch from pristine clear water to the turbid state when the
4 human population starts to grow. Humans are attracted to water, and with development, there are
5 increases in nutrient loading. The algae, single-cell plants biomass increases in the system. The single cell
6 plants cover the aquatic vegetation limiting their ability to photosynthesize. Turbidity/muddiness increases
7 in the water, there is an increase in shading, which decreases the penetration of the light, and eventually
8 the aquatic vegetation community collapses. After they are gone, all the bugs that live on them and the
9 animals that feed on the plants, the fish that hide in the plants and feed on the plants, and birds that feed
10 on the fish and bugs -- all disappears and there is less diversity in the system. Other things that occur are
11 the large zooplanktons (single-celled animals) disappear. Once these disappear and nutrients increase, it
12 elevates and provides the opportunity for the algae to grow in the system. Without vegetation there is
13 nothing keeping, the waves from churning up the bottom and the wave-generation in the water and add to
14 the turbidity. Because there are not any bugs living on the vegetation, no small fish would be hiding in the
15 cover. Food starts disappearing and the fish community starts to become dominated by fish that feed off
16 of the bottom sediments. With the foraging behavior, they churn around in the bottom mud and promote
17 nutrient flux out of the sediments and through their digestive track.

18 He cited a valuable book called "Shallow Lake Ecology" where the author (Scheffer, 1998), compiled
19 scientific literature on how shallow lakes function. "Many shallow lakes have degraded badly as a result of
20 human activities from an attractive clear water state with a high diversity to a monotonous murky pool."
21 Referring to ecosystem drivers Scheffer said, "In ecosystems several independent mechanisms do often
22 contribute to an observed phenomenon that could also in theory be explained from each mechanism
23 alone. One of the mechanisms will often dominate but dominance will differ from case to case and may
24 even shift in time." In the scientific literature concerning shallow lakes, there is an interaction between
25 nutrient loads, water level fluctuations, and bottom-eating fish. The major driver in Utah Lake is unknown,
26 but it seems lake levels have always fluctuated, the bottom-eating fish and nutrient loads are also issues in
27 Utah Lake.

28 A new conceptual model, looking at the desired condition of having a healthy, shallow lake ecosystem
29 has been developed. The three drivers for Utah Lake is the dominance of common carp, heavy nutrient
30 loading in the lake, and lake level fluctuation.

31 Mr. Lee Hansen asked a question of nutrient loading, stating some data indicates the lake might be
32 nitrogen limiting. Mr. Keleher said he was not a chemist, but it is nitrogen limiting because the phosphorus
33 is high. Mr. Hansen confirmed citing the red field ratio. Nitrogen is limited but there is evidence it might
34 not be the case. Mr. Keleher said these types of questions are the real reason why the monitoring program
35 is so important. He wished he could answer all the questions.

36 He gave some management scenario planning with the options of the three drivers. To understand if
37 the group will be effective and are going to achieve what we they want, they we need to monitor
38 ecosystem response to carp removal. After they did research of the nonnative fish population, they
39 discovered carp was the problem. The research results came back stating the carp can be dealt with. The
40 strategy was then developed. For carp removal, they utilized the adaptive management mode. As a
41 strategy is being implemented, monitoring and evaluation should be ongoing. The results could be
42 anywhere along the spectrum. Depending on the outcome, there is revision of the strategy and getting
43 back into the loop. The real target for carp control is to get aquatic plants back into the system by reducing
44 the carp population 75 percent. With the strategy, if 75 percent reduction in carp is achieved but there is
45 not the healthy lake target condition, then other drivers, nutrient loading and lake fluctuation, should be
46 addressed. Then decisions about funding and other opportunities will be made.

47 Historically, monitoring of Utah Lake has had a lot of problems, has been sporadic, and hasn't been
48 adequate statistically. It has been incomplete, highly focused at times, such as on June sucker, nonexistent

1 for resource parameters, or there has not been much work done at all. The research hasn't been
2 integrated among every entity that has been doing monitoring, which is driven by funding availability. He
3 cited Department of Water Quality, with Mr. Dave Wham, how they decide to monitor water quality. Mr.
4 Wham said they look at how much money and how many sites it will cover, and that is how the decision is
5 made. There have been problems with the way Utah Lake was monitored in the past.

6 ULMG is formed from a loose-knit group including June Sucker Recovery Program, Utah Valley
7 University, Utah State University, agency people, DWR, and others. This will be an attempt to increase
8 communication and collaboration among the different entities of Utah Lake, thus trying to compile all the
9 monitoring activities into a single comprehensive monitoring plan.

10 The overall goal with the monitoring program is to implement a deliberate, systematic, and
11 comprehensive monitoring program that provides a reliable and precise assessment of resource conditions
12 of Utah Lake in a time frame that allows for that active adaptive management. The four sections are:

- 13 • **June sucker recovery** – evaluate the status and trends of June sucker in Utah Lake in order to track
14 progress towards achieving species recovery goals identified in the JS recovery plan
- 15 • **Effectiveness and impact** – evaluate the effectiveness of specific management actions in achieving
16 their desired objective(s) and evaluate the potential impact of specific projects that may affect the
17 Utah Lake ecosystem.
- 18 • **Regulatory Compliance** – ensure compliance with environmental laws and regulations.
- 19 • **Ecosystem Change and Resources Dynamics** – using selected key parameters as indicators, track
20 resource dynamics and environmental change over time. This can be associated with things like
21 carp removal, but even without trying to do big management actions. A system like Utah Lake
22 warrants this kind of an approach to monitoring so that we can track as the area develops and
23 becomes more urbanized, we can track the changes happening in the systems hopefully do some
24 management actions to maintain and get the lake to the desired condition.

25 Using selective key parameters as indicators, ULMG proposes to develop a monitoring plan designed to
26 track resource dynamics and environmental changes over time. The selective key parameters for
27 monitoring are water chemistry, diatoms and algae, macrophytes (aquatic plants), Zooplankton,
28 Macroinvertebrates (aquatic bugs), and fish.

29 The approach is to conduct research to develop a statistically valid monitoring program based on the
30 key parameters. The stratified sampling will be taken for all the resource parameters from nine geographic
31 strata in the lake. Research was started this past fall by Utah State University personnel to gather aquatic
32 invertebrates, water chemistry, and others. The idea is to collect the parameters from the nine strata and
33 run the statistical power analysis after they have at least three series of samples. The end-product will be a
34 monitoring plan with two main sections and each broken into subsections: June sucker recovery, regulatory
35 compliance, effectiveness, and impact monitoring, and tracking resource dynamics and ecosystem change.
36 The first section will be explained what was monitored and why. The second section will be a Techniques
37 Manual updated as new and better techniques arise for the different monitoring components. A
38 geographically-based standardized database will be easier for everyone to contribute or retrieve data in the
39 standardized database. ULMG hopes to find funding to be able to implement the lake-wide monitoring
40 program, which will be a collaborative effort in accomplishing and implementing, and provide updates as it
41 moves forward.

42 He invited anyone to ask questions, and as the program moves forward, Mr. Keleher will provide
43 updates. Mr. Bloodworth said there has been a lag in coordinated research since the 1970s. It is difficult to
44 tell how the activities have affected the lake. ULMG are trying to get into a more coordinated approach to
45 understand what the lake is doing. Mr. Keleher said it is particularly important with the carp removal and
46 things not being adequately tracked. To prove if the project is successful, there needs to be information to
47 demonstrate it. In the end if carp removal is successful at re-establishing aquatic vegetation, then other
48 ecosystem drivers will need to be addressed.

1 Someone asked if there are examples of lake monitoring. Mr. Keleher said yes. *The Shallow Lake*
2 *Ecology* book he identified is a collaboration of all the scientific literature in 1998. Also, Lake Elsinore in
3 California just completed a carp removal effort. It is 3000 acres compared to almost 100,000 acres at Utah
4 Lake. They finished the removal, and say, they are just coming back to where they wanted their lake to be.

5 Someone asked about a budget in terms of what is needed to make a meaningful first step for the
6 maintenance program. Mr. Keleher said there was a budget for the research and for sampling the nine
7 strata. Samples are needed in every one of the nine strata for good research. The research may come back
8 with the nine strata. Samples are needed in every one of the nine strata and for good research. Someone
9 asked if it is initial research and asked the timeframe for the research. Mr. Keleher said ULMG hoped to
10 have the monitoring plan completed by next fall. It is a big effort but those involved say it is long overdue.
11 Utah Lake, in and of itself, is worthy of monitoring and to keep an eye on what is going on. Mr. Bloodworth
12 said it is hard to get federal funding and they say no monitoring and no maintenance. It is hard to get
13 money to do actual monitoring

14 Mr. Beckstrom thanked Mr. Keleher for his excellent report and the Technical Committee will look
15 forward to seeing the results learned from the various phases of research.

16
17 **7a. Other Business.**

18 Mr. Beckstrom asked the group if there were additional questions or business items. There was none.

19
20 **7. Consider canceling the meeting scheduled for Monday, December 19, 2011.**

21 Mr. Beckstrom said the next regularly scheduled meeting would be on December 19, 2011. It is
22 anticipated with the holiday season, time of year, and lack of business the cancel the scheduled meeting.
23 The only reason there would be an exception is if there were issues or questions that would arise not seen
24 now. With cancellation, the next Technical Committee will be held in Suite 212 of the Historic Utah County
25 Courthouse on Monday, January 23, 2012, at 8:30 a.m., which is in about 10 weeks. Mr. Price will confirm
26 if the December meeting will be cancelled.

27 Mr. Beckstrom noted the leadership of the Commission Governing Board and Technical Committee
28 serves for two-year terms. The current term is closing for Mr. Beckstrom as chairman and Mr. Keleher as
29 Vice-chair. Mr. Price is chairman of the Technical Committee Nominating Committee. If anyone has any
30 ideas, wants to volunteer, or has submission of nominations, selection of leadership will be one of the
31 items on the agenda for the January meeting. If there are thoughts on the leadership changes, forward
32 them to Mr. Price for consideration.

33 Mr. Beckstrom thanked the members of the Committee. He hoped the Committee was worthwhile for
34 the members and hoped the information was passed on to their communities. He thanked each of them
35 for their time, participation, and interest.

36
37 **8. Adjourn.**

38 Mr. Beckstrom adjourned the meeting at 10:15 a.m.