Fish Lake

The Fish Lake snow course is located at an elevation of 8700 feet, close to Fish Lake Utah and near the watershed border of the Sevier and the Fremont Rivers. It is in a relatively exposed area that can have extremely cold temperatures. As a result of these extremely cold temperatures, shallow snow accumulation, and sagebrush vegetation, this snowpack develops a large temperature gradient (TG) component. That is to say, a sun crust of some 2 to 4 inches can develop with perhaps as much as 2 feet of sugar snow underneath. These factors make this particular site extremely difficult to measure due to the friction that the sun crust creates in the snow sampling tube which then forces the TG snow to the outside of the sampler instead of the inside. In the context of vegetation change, this site has had relatively little.
Potential weather modification: 74-83, 89-

The following photos document the snow course in 1936 and again in 2005. A sagebrush complex interspersed with aspen stands is visible in the 1936 photos and is much the same in the current condition.

This photo is near the northerly end of the snow course. The course is some ¼ mile left in this photo.

This photo is looking east from the course.

From the north end of the course looking to the southwest.

Mytogee Mountain to the southeast.

Looking from the fish lake highway south to the course which is about a mile in the distance . Mytogee mountain is to the left.

The current course looking south along the course axis.  The end point of this course, near the marker pole, is now being impacted by the snow plowing of the road. Cabins have been built to the south and the road is plowed for winter access. If this continues, the end point may have to be relocated or discontinued.

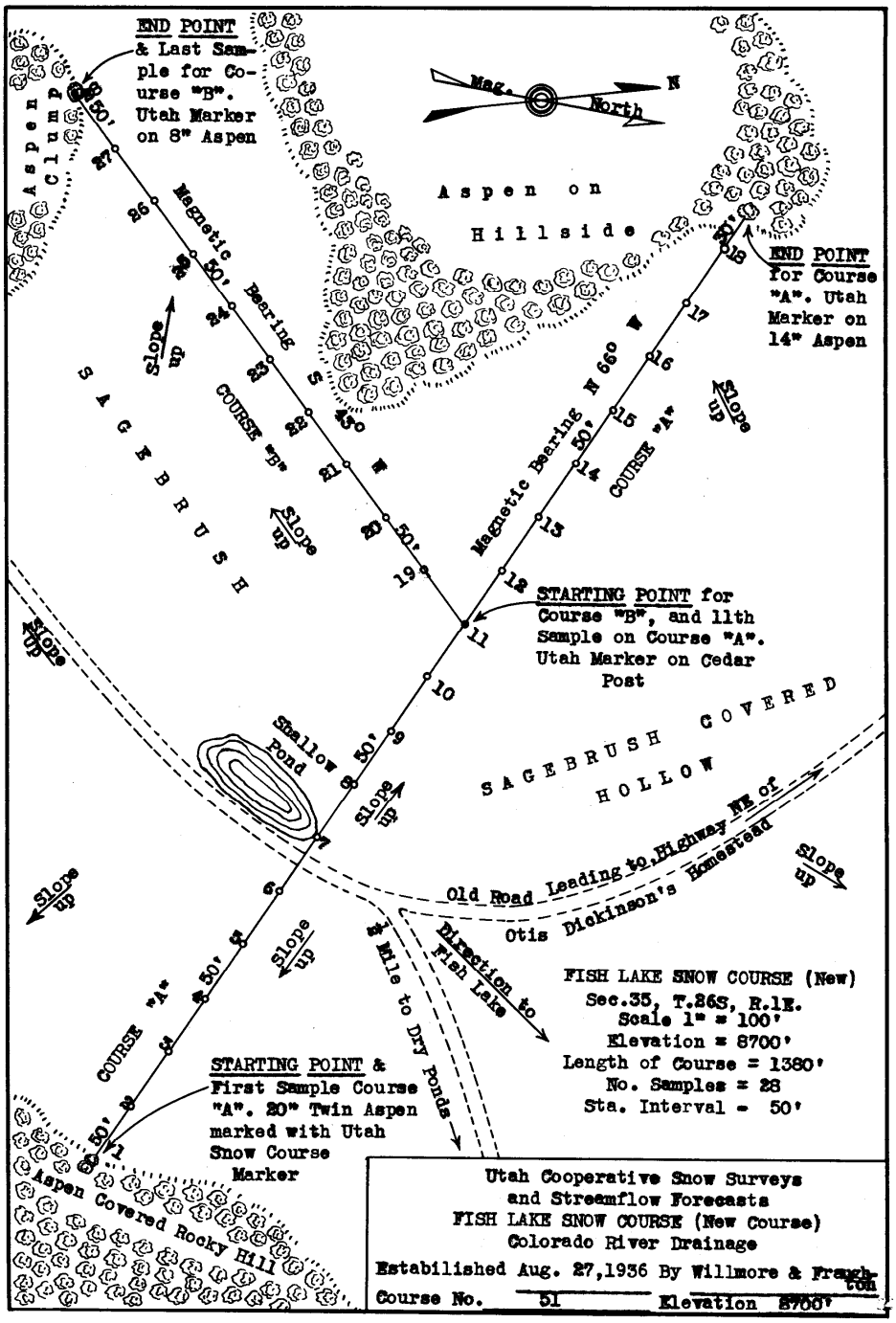
This is the course looking to the west. The north end of the course is near the white truck and about 20 yards from the aspen complex running roughly parallel to the road.

This photo is looking north from the center of the course.

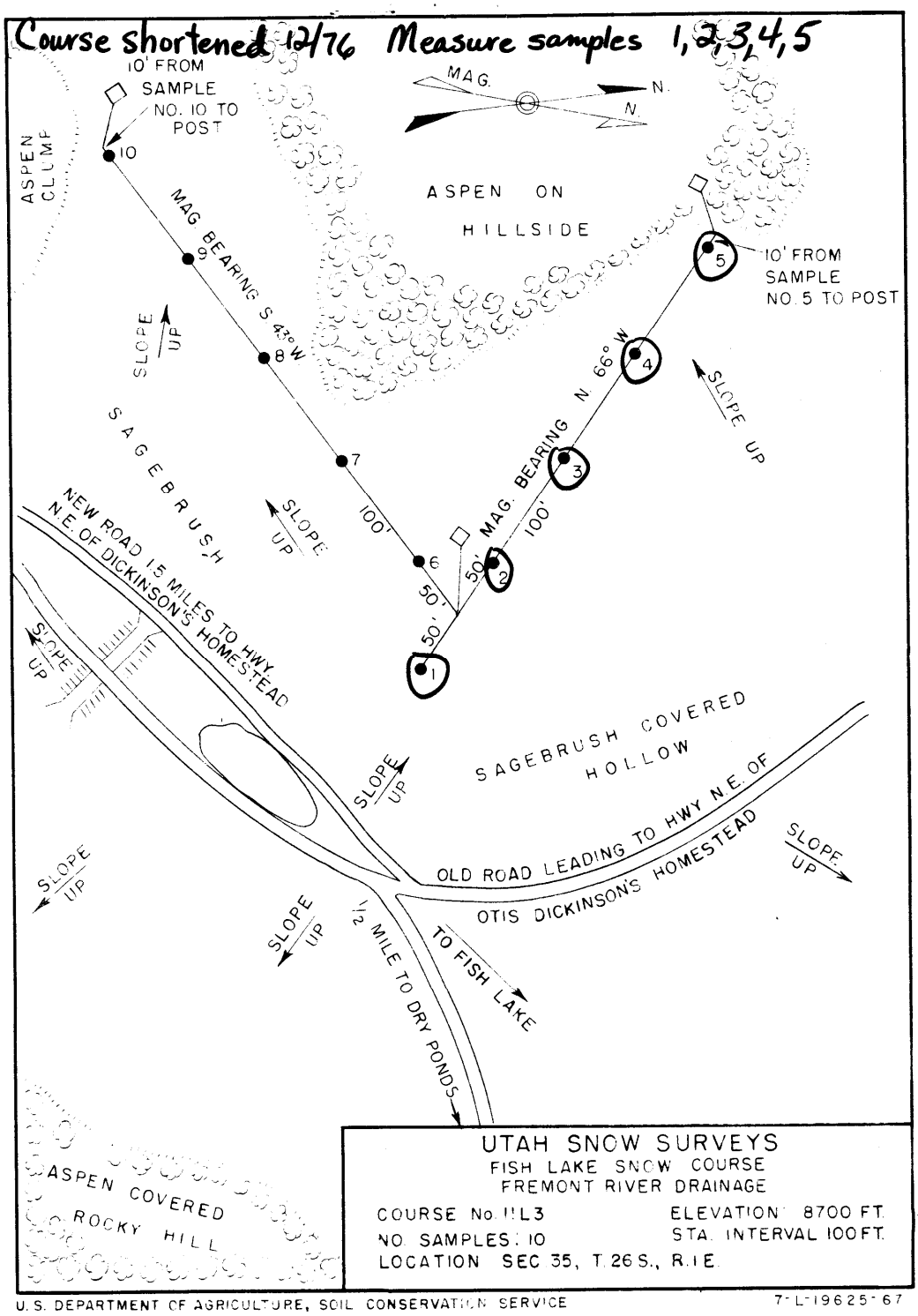
Overall the sagebrush is less dense than it appeared to be in the 1936 photos but it is still of sufficient height and density that one would expect snow to fill to at least to the top of the brush and higher.

Although the vegetation at this site has not experienced significant changes, the snow course itself has. The following maps show the course changes over time, beginning with 28 sample points at its establishment to the currently measure course of five points.

When a snow course was shortened, the original points continue to be measured, although they are renumbered, thus points 1,2,3,4 and 5 may have originally been points 13,14,15,16 and 17. This map also shows the relative position of vegetation and other features with respect to the course. Distances are not measured and asterisks do not represent individual trees rather a general depiction of vegetation. The density of vegetation is also relative and not absolute.




Original scan of the Fish Lake Snowcourse Map.




Course shortened. The road now goes between sample point 1 and 2 which has not been a problem until recently when the road is being plowed. There may be additional deposition on sample 1 due to the plow. This is very recent in nature beginning in 2004.

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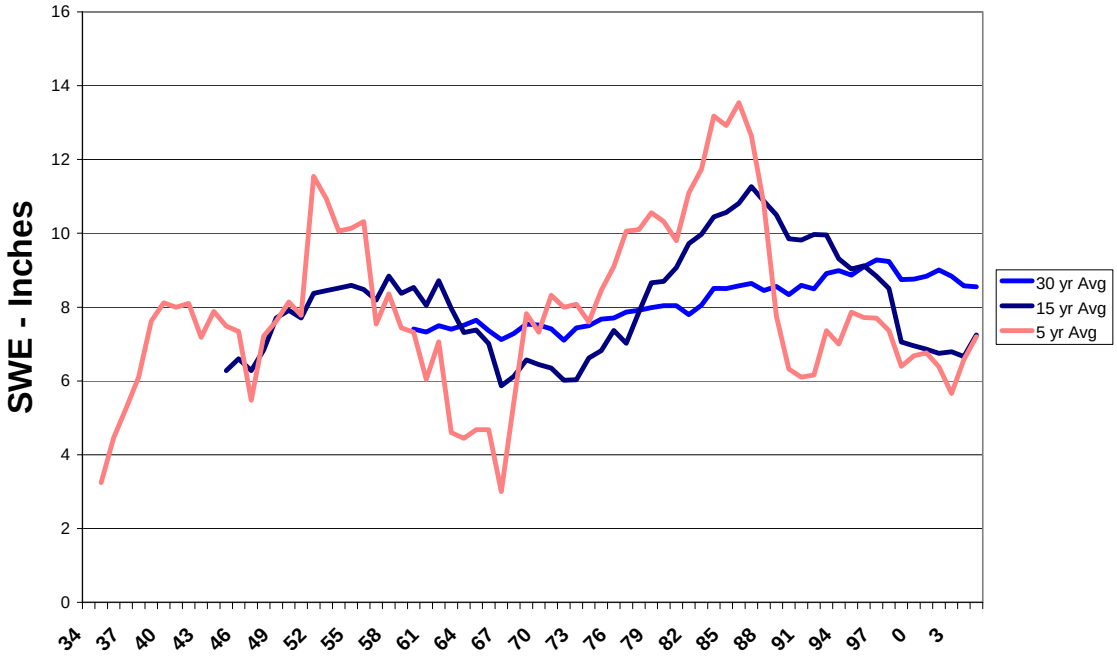


In this chart, April 1 swe has gradually increased over time from about 7 inches to nearly 9 inches. The pattern in the 30 year average has been one of fairly steady increase over time. There has been weather modification in this area since the early 1970's which may have enhanced accumulation. There has been a change in the survey as well. This site was measured by field office personnel for many years and then was added to the helicopter route and measured by the Snow Survey Staff (as were most courses). This one in particular, due to the difficulty in measurement, may currently be more accurately measured. This is speculative, but may be an additional factor in the apparent increase of April 1 SWE. Yes, all sites have had changes in sampling personnel and in general, this would not be a substantive issue. However, at this site it may have some un-quantified impact due to the extreme nature of the snowpack here. In summary, this site has seen: 1) increased snow accumulation, 2) no significant vegetative change, 3) weather modification, and 4) change in sampling personnel. Overall, this site would be recommended for long term comparison.

R Julander
2007