BC hydro

FOR GENERATIONS

Report Title: *Peace River Fisheries Investigation - Peace River and Pine River Radio Telemetry Study 2007*
Project: Peace River Site C Hydro Project
Prepared By: Amec Earth & Environmental and LGL Limited
Prepared for: BC Hydro

NOTE TO READER:

This is a report on a study commissioned toward the development of engineering, environmental and technical work conducted to further define the potential Site C project.

For environmental studies, the focus is on the development of an environmental and socio-economic baseline around the area of the potential Site C Project. Baseline studies are generally a survey of existing conditions within a project study area.

This report and other information may be used for future planning work or an environmental assessment or regulatory applications related to the potential Site C Project.

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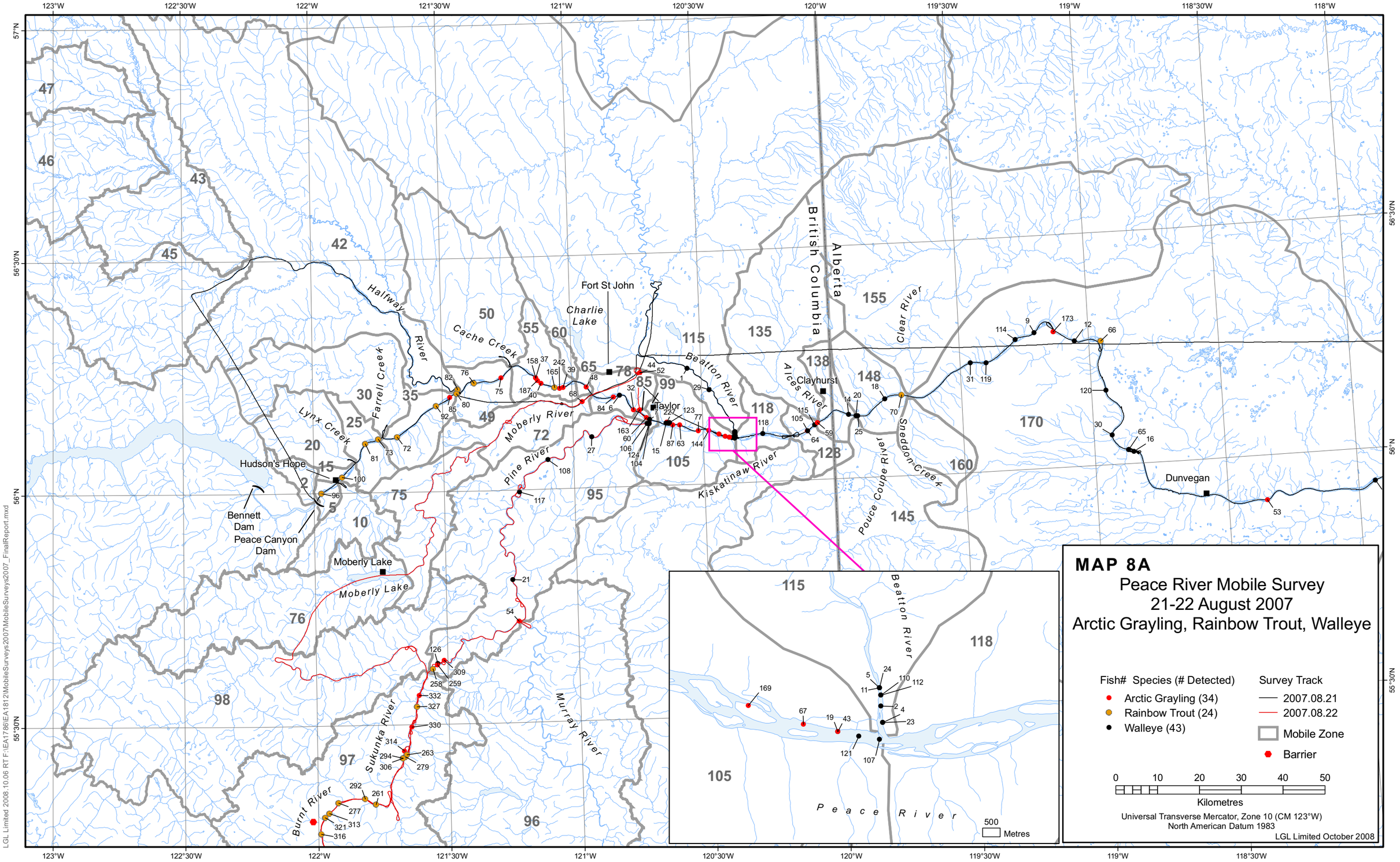
August Track, 21-22 August (Map 8)

In general, the distribution of detections of bull trout in August was similar to that recorded in July. Of the 40 bull trout detected in August, 95% were in the Pine River drainage; 29% in the Pine River mainstem and 33% in each of the Sukunka and Burnt rivers. However, some notable movement was detected between these two surveys. Most notable was that of an individual fish (*Tag # 322*) which moved from the Burnt River to the headwaters of the Halfway River, a distance of some 400 km. In addition, a few more fish had moved from the Sukunka River into the Burnt River. The single bull trout previously detected in the Peace River mainstem near Cache Creek was in approximately the same location.

Similarly, the distribution of walleye detections in August was not appreciably different from that recorded previously, other than that there was a slight increase in the number of detections in the Peace River mainstem downstream of the Beatton River, mostly of fish previously detected at the Beatton River mouth. Of the total 43 walleye detected in the August track, 14%, 16%, 28% and 42% respectively were in the Peace River mainstem upstream of the Beatton River, lower Pine River, Beatton River and vicinity of mouth, and Peace River mainstem downstream of the Beatton River to almost Peace River, Alberta.

The distribution of detections of Arctic grayling and rainbow trout showed no appreciable change in August from that recorded in July. However, there is a slight increase in the proportion of mountain whitefish detected in major tributaries (e.g., 5; 6% detected in lower Pine River) which is probably related to some spawning in these areas.



MAP 8A

Peace River Mobile Survey
21-22 August 2007
Arctic Grayling, Rainbow Trout, Walleye

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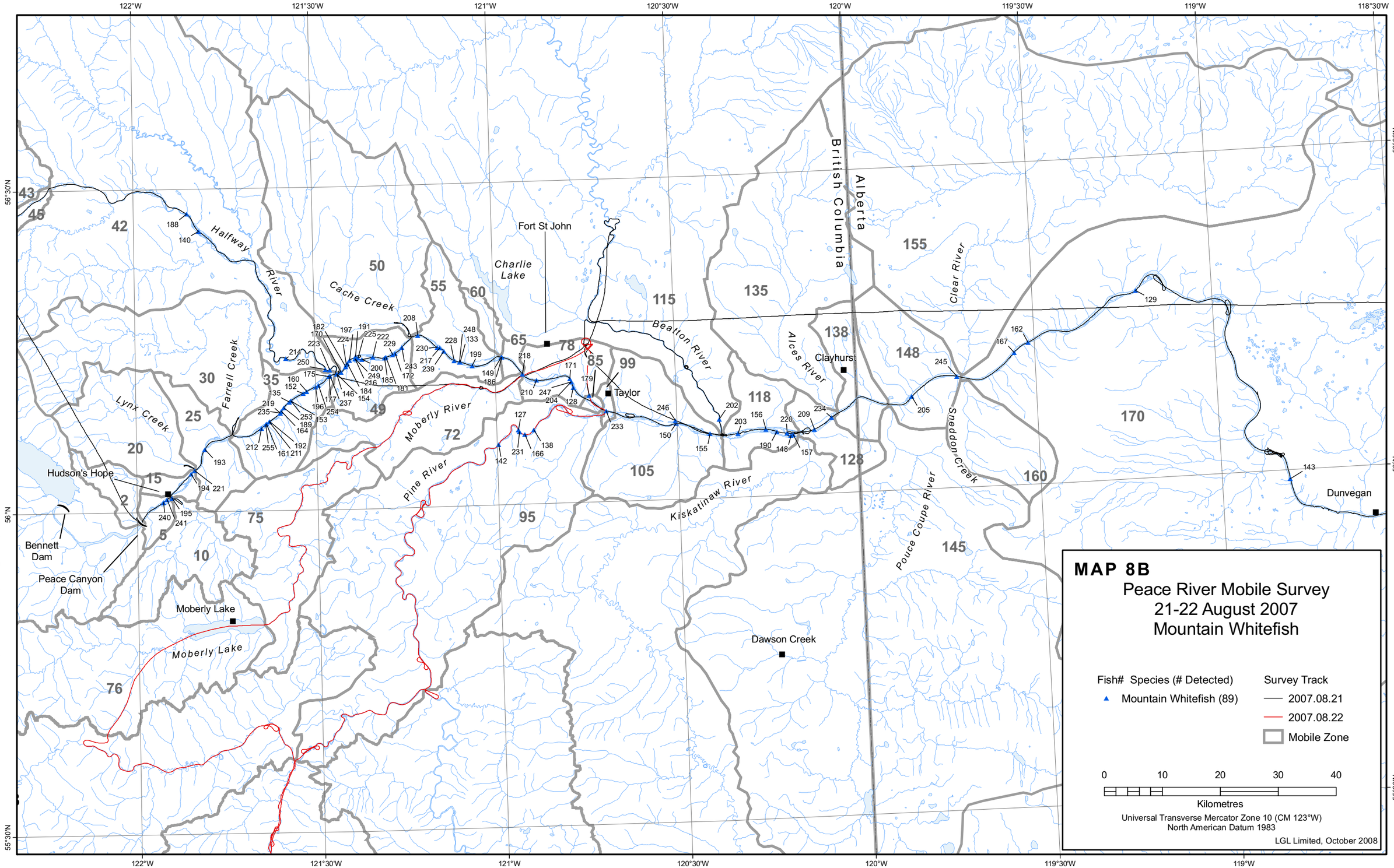
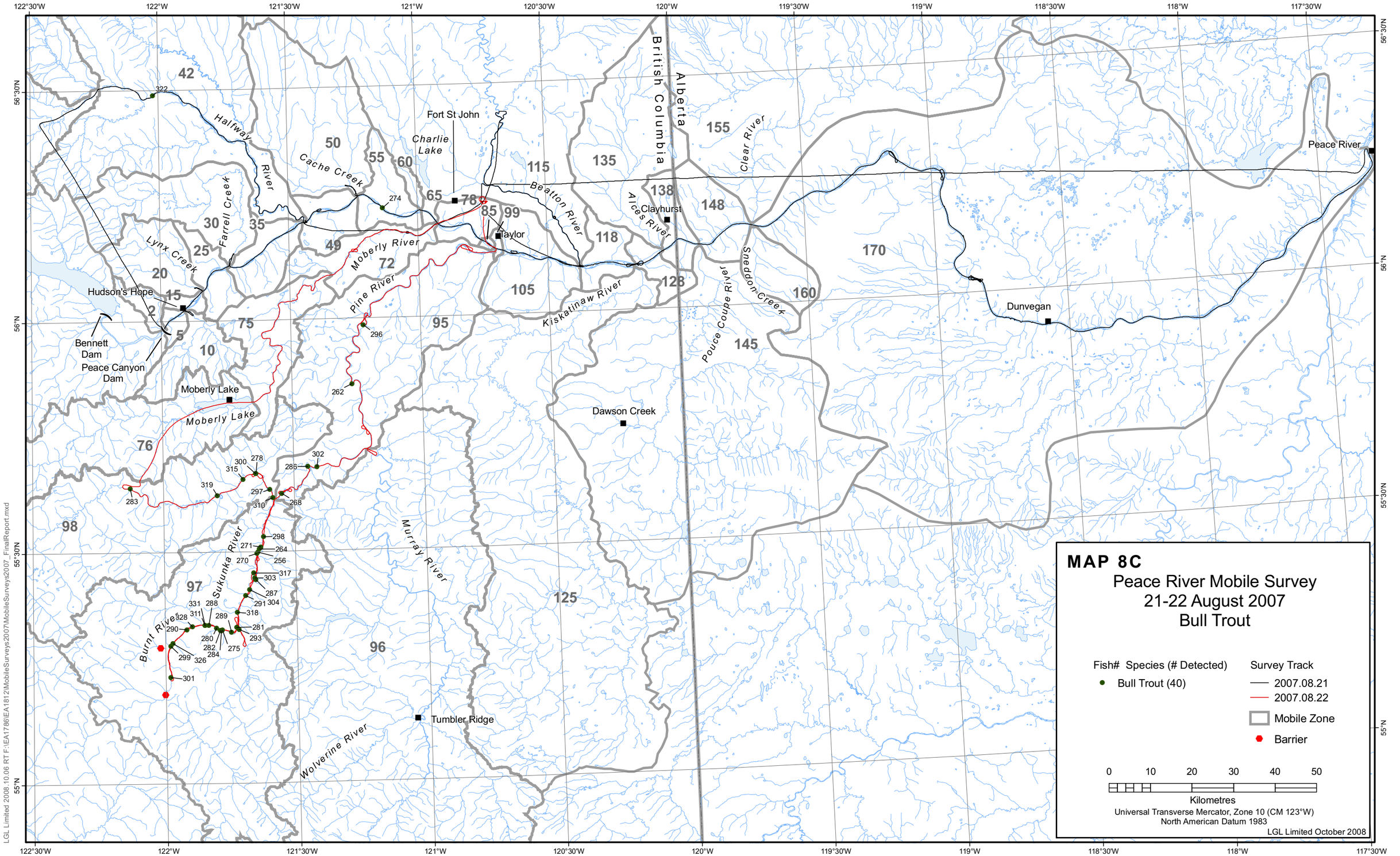
Map 8a: Mobile survey for Arctic grayling, rainbow trout and walleye (August 21-22, 2007).



Map 8b: Mobile survey for mountain whitefish (August 21-22, 2007).



MAP 8C

Peace River Mobile Survey
21-22 August 2007
Bull Trout

Fish# Species (# Detected)
- Bull Trout (40)

Survey Track
- 2007.08.21
- 2007.08.22
- Mobile Zone
- Barrier

0 10 20 30 40 50
Kilometres

Universal Transverse Mercator, Zone 10 (CM 123°W)
North American Datum 1983

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Map 8c: Mobile survey for bull trout (August 21-22, 2007).

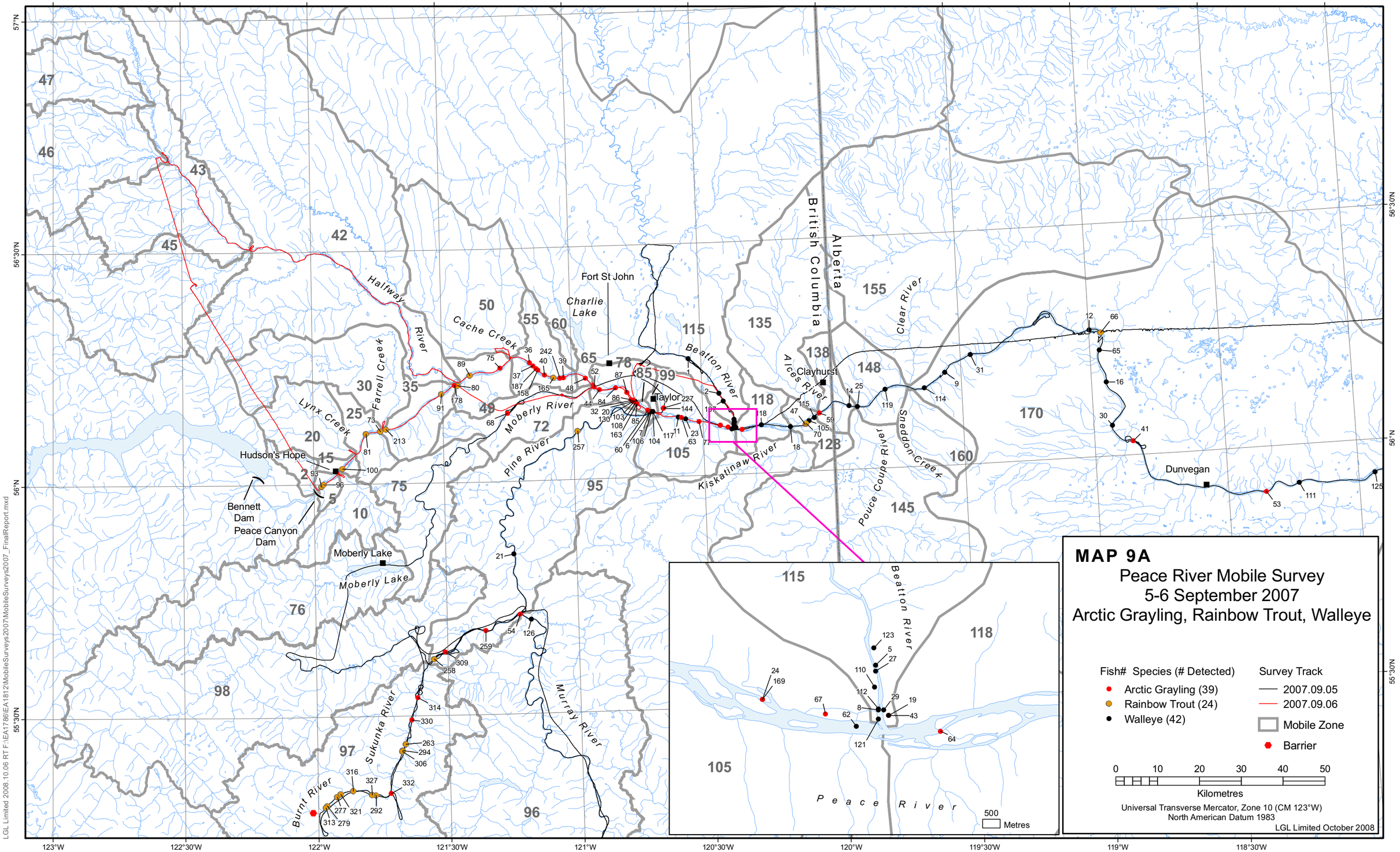
September Tracks (Maps 9 & 10)

First Track, 5-6 September (Map 9)

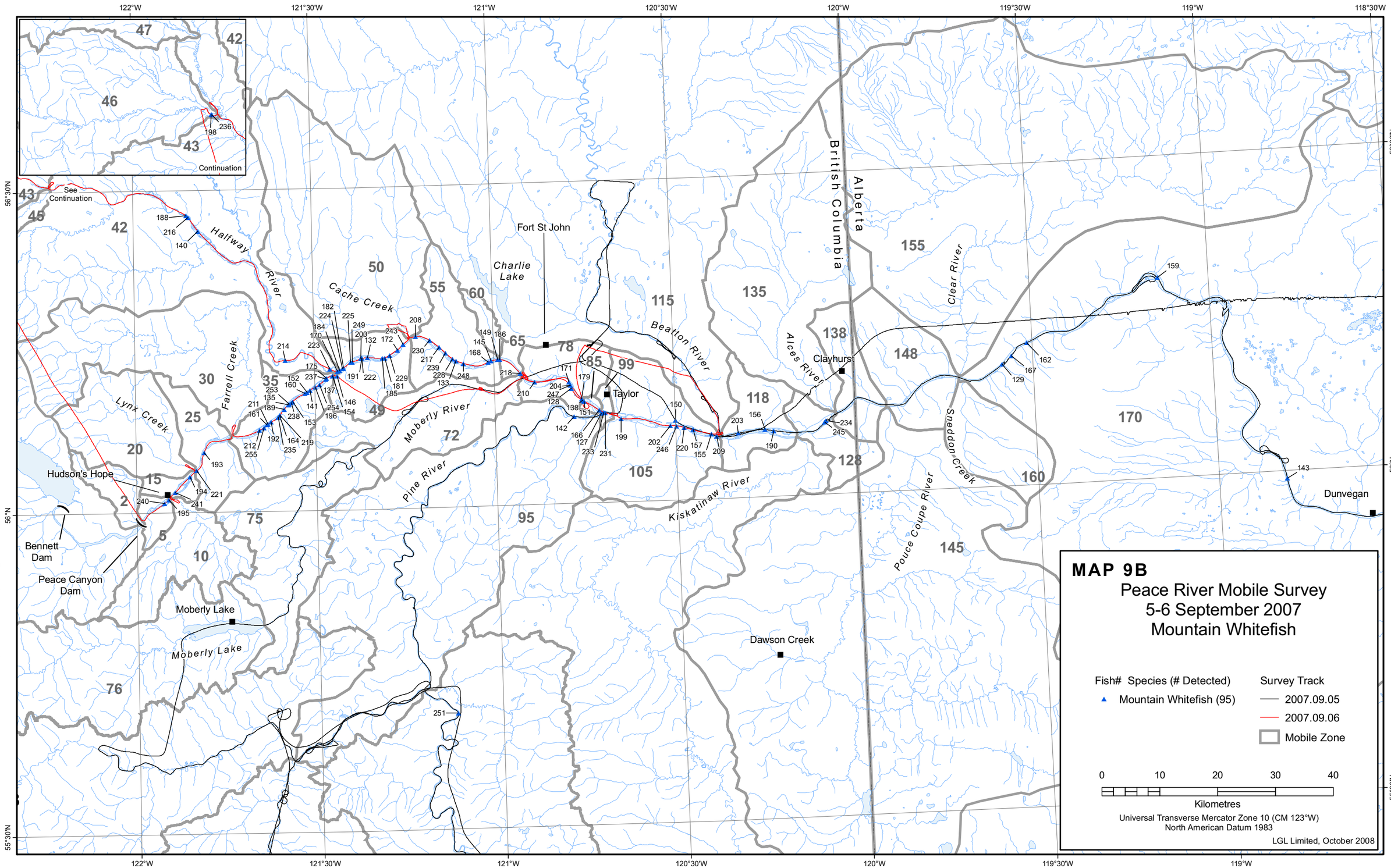
Some notable movement was detected for bull trout in the first track in September, including that of a few fish that moved from the Burnt River into the Sukunka River and Pine River mainstem. The greatest movement recorded was that of a fish (*Tag # 262*) that exited the Pine River and moved into the Peace River mainstem between Taylor and Cache Creek, a distance of some 60 km from where it was detected previously. Of the 40 bull trout detected in this survey, 2%,5%, 28%, 30% and 35%, respectively, were in the Wolverine River, Peace River mainstem upstream of the Pine River, Burnt River, Sukunka River, and Pine River mainstem from headwaters to lower reach. The single detection in the Wolverine River is from the small batch of bull trout released in the river by MOE in late August 2007. The bull trout (*Tag # 322*) previously detected in the headwaters of the Halfway River was not detected in this survey, possibly because it had moved into a tributary that was not surveyed in this track.

Overall, the distribution of Walleye detections was fairly similar to that of the previous track, other than that some fish had exited the Pine River and moved into the Peace River mainstem. The detections (42 fish in total) were distributed as follows: 5%, 24%, 33% and 38% in the Pine/Murray River system, Peace River mainstem upstream of the Beatton River, Beatton River and mouth, and Peace River mainstem downstream of the Beatton River, respectively.

The distribution of Arctic grayling, rainbow trout and mountain whitefish detections was similar to that of the previous track. However, the proportion of mountain whitefish detected in the Halfway and Pine rivers was slightly lower than observed in the previous track.



Map 9a: Mobile survey for Arctic grayling, rainbow trout and walleye (September 5-6, 2007).



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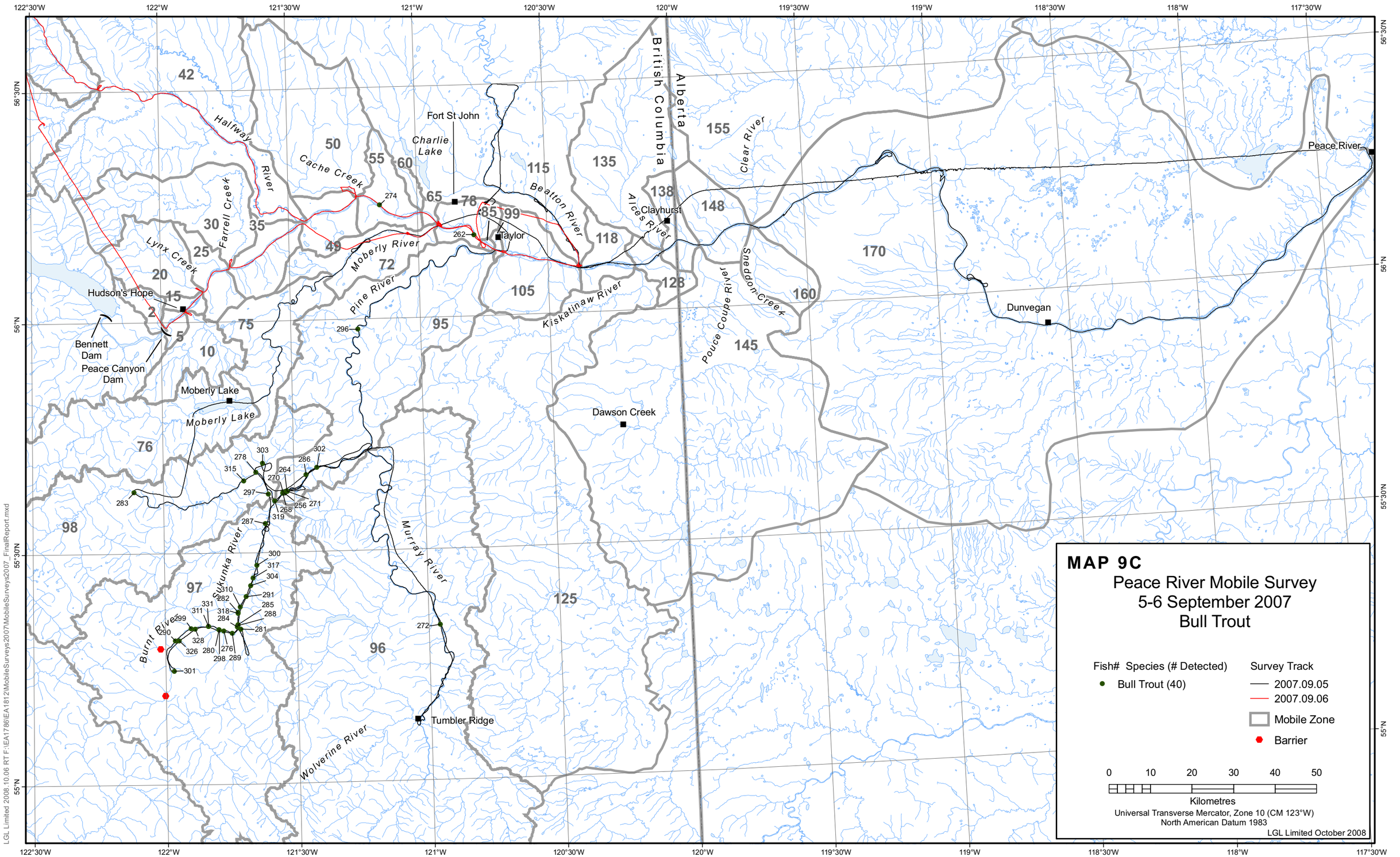
Map 9b: Mobile survey for mountain whitefish (September 5-6, 2007).



MAP 9C

Peace River Mobile Survey
5-6 September 2007
Bull Trout

Fish# Species (# Detected)
- Bull Trout (40)

Survey Track
- 2007.09.05
- 2007.09.06
- Mobile Zone
- Barrier

0 10 20 30 40 50
Kilometres

Universal Transverse Mercator, Zone 10 (CM 123°W)
North American Datum 1983

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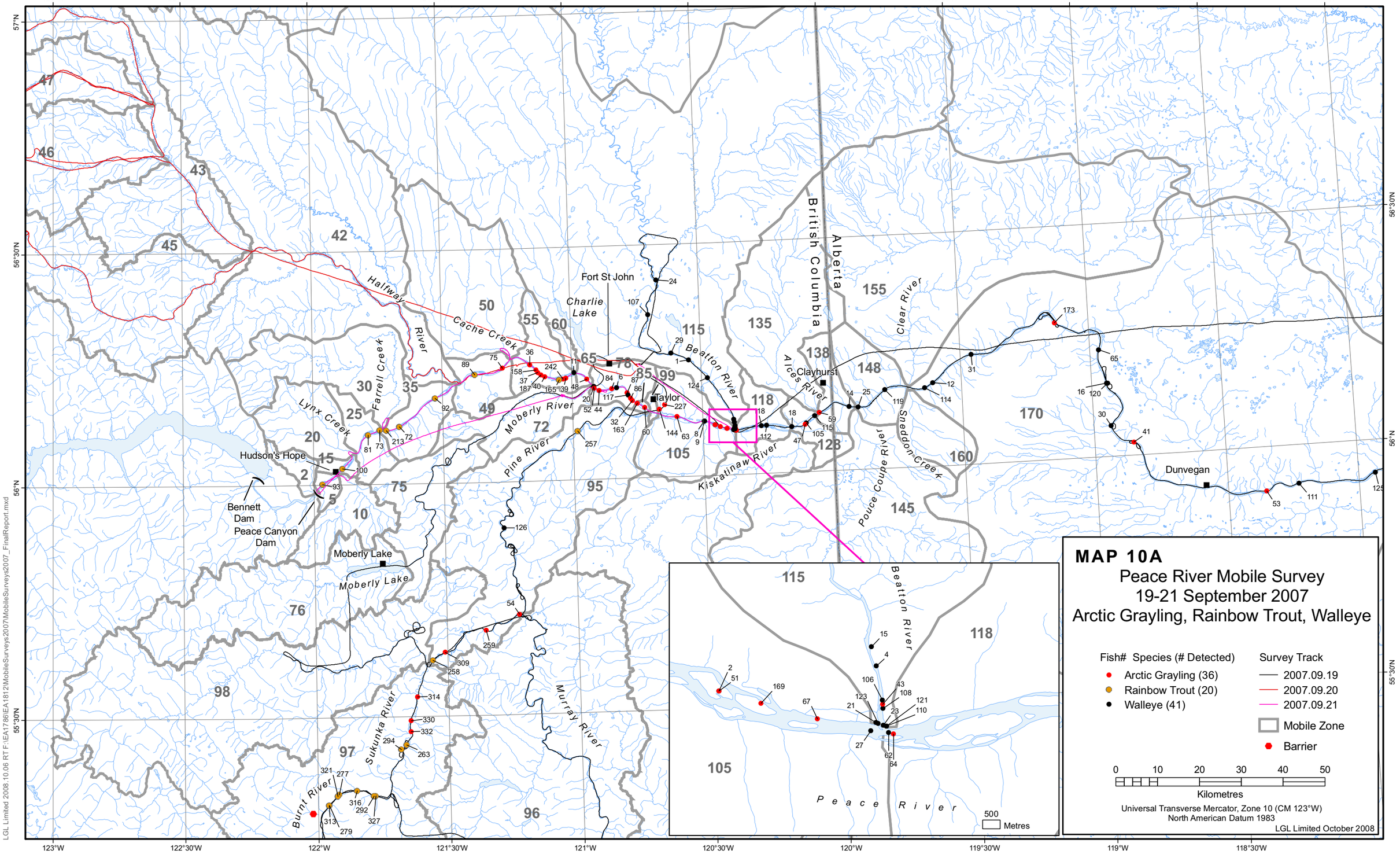
Map 9c: Mobile survey for bull trout (September 5-6, 2007).

Second Track, 19-21 September (Map 10)

In general, the distribution of bull trout in this track was similar to that of the previous track, although some notable movement occurred. One fish (*Tag # 262*), previously detected in the Peace River mainstem below Cache Creek, moved back into the Pine River and was detected some 50 km from the mouth in virtually the same location that it was detected in the *Second Track* in August. The fish (*Tag # 274*) previously detected in the Peace River mainstem had moved approximately 5 km upstream from its previous sighting. Also, several bull trout released in the Wolverine River were detected in the river during this survey. In total, 40 fish were detected in this survey distributed, as follows: 2%, 5%, 13%, and 30%, respectively, in the Peace River mainstem, headwaters of Halfway River drainage, Murray River/Wolverine River drainage, and Pine River mainstem with the remaining 50% in the Burnt and Sukunka (25% in each) rivers. The two bull trout (*Tag #'s 273 & 322)* detected in the headwaters of the Halfway River during this survey were previously detected in this area, although both were missed in the *First Track* in September, possibly because they had moved out of range of the area routinely tracked.

By late September, most walleye had moved out of the Pine River (only 1 fish remaining) and into the Peace River mainstem, and were starting to congregate at the Beatton River mouth. Of the 41 fish detected in all, 2%, 17%, 39% and 42% respectively were in the Pine River, Peace River mainstem upstream of the Beatton River, Beatton River and mouth, and Peace River mainstem downstream of the Beatton River. The single walleye detected upstream of the Moberly River was approximately 7 km from the river mouth.

Once again, there was no appreciable change in the distribution of Arctic grayling, rainbow trout and mountain whitefish from that of the previous survey.



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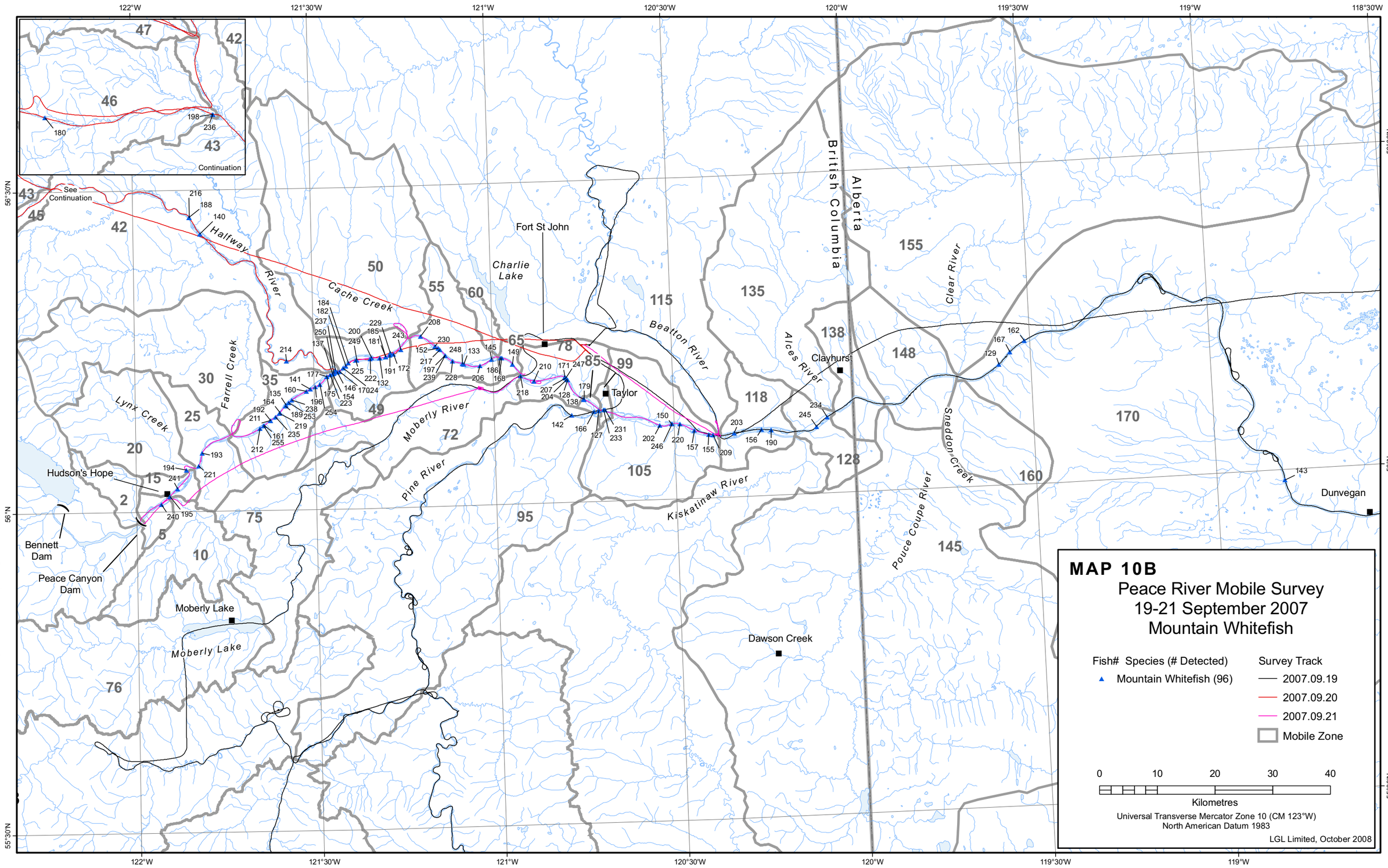
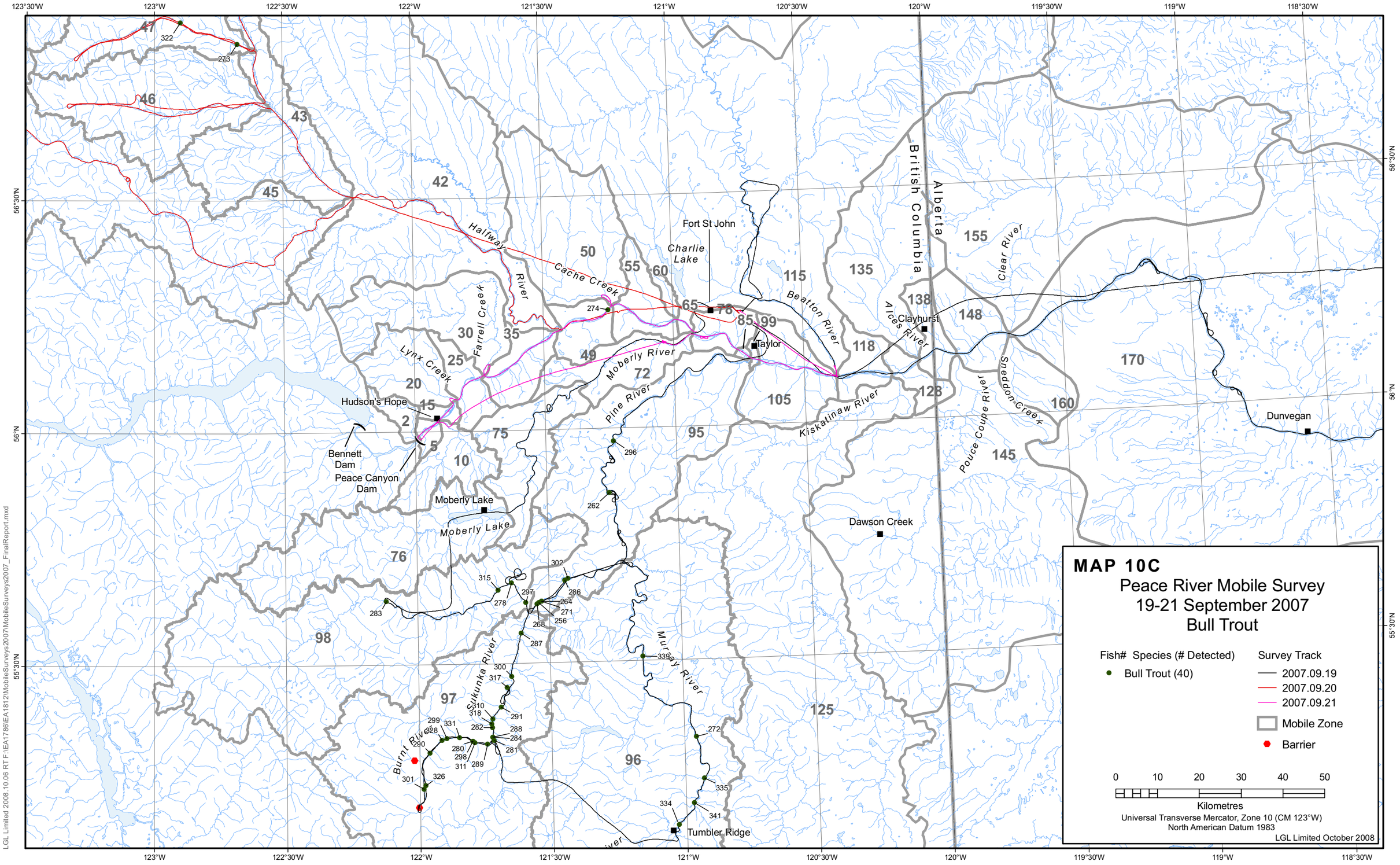
Map 10a: Mobile survey for Arctic grayling, rainbow trout and walleye (September 19-21, 2007).



Map 10b: Mobile survey for mountain whitefish (September 19-21, 2007).



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Map 10c: Mobile survey for bull trout (September 19-21, 2007).

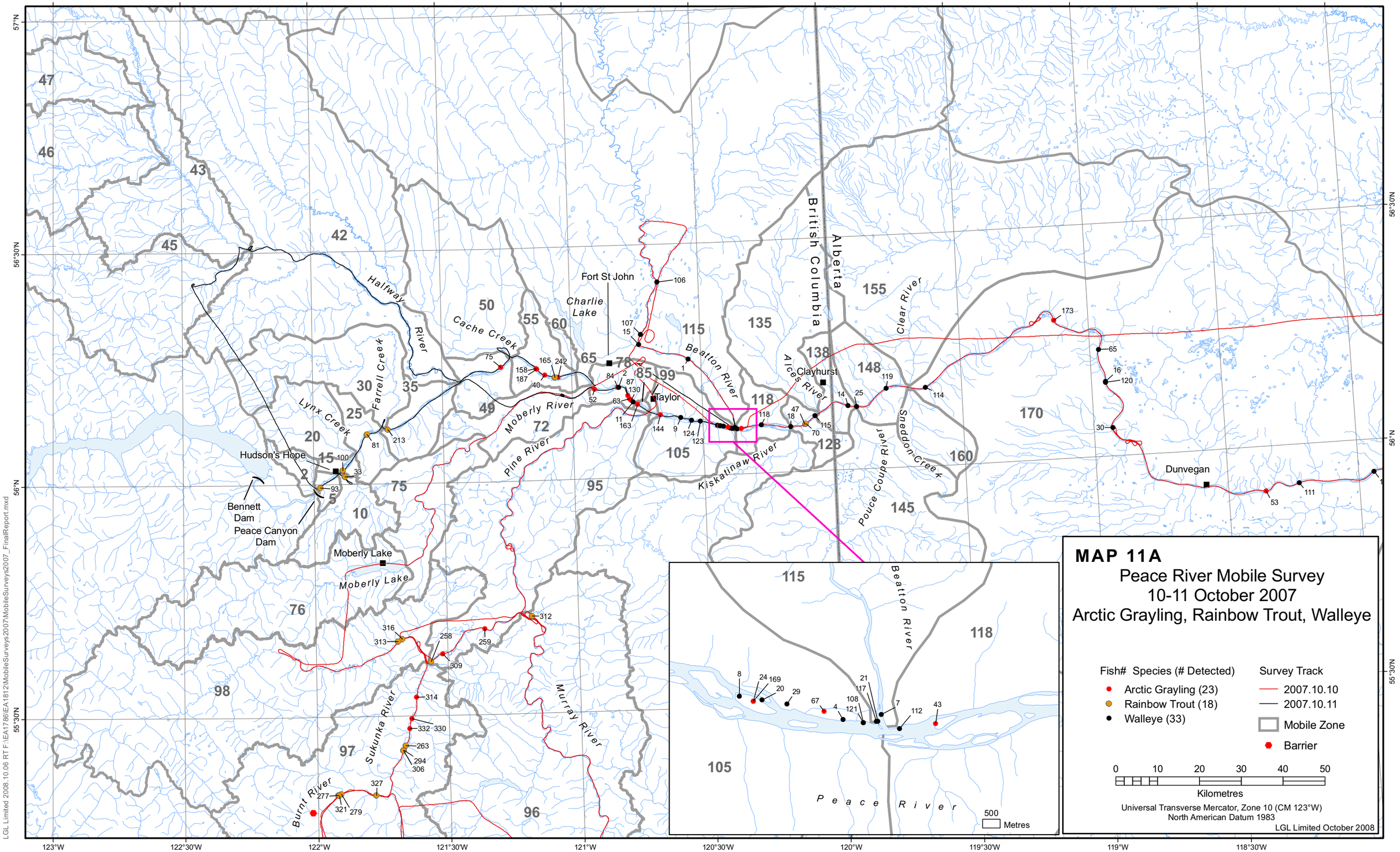
October Tracks (Maps 11 & 12)

First Track, 10-11 October (Map 11)

Two bull trout performed long-distance movements, between September and early October. Bull trout, *Tag #'s 273* and 322, emigrated from the headwaters of the Halfway River drainage and returned to the Pine River, with both of them detected in the lower reach between 10 and 40 km from the mouth. In addition, one of the bull trout released in the Wolverine River (*Tag # 340*) had moved extensively downstream to the mouth of the Pine River; and several others had moved from the Wolverine River into the Murray River. Also, there was a marked reduction in the number of bull trout remaining in the Burnt River, with several fish having moved into the Sukunka River and Pine River mainstem. On the other hand, the bull trout (*Tag # 274*) previously detected in the Peace River mainstem was still in the same location. Of the 40 fish detected, only 2% were in the Peace River mainstem, the rest were in the Pine River watershed with 12%, 17%, 25% and 44%, respectively, being in the Murray River, Burnt River, Sukunka River and Pine River mainstem (headwaters to mouth).

The number of walleye detected in this track (33 fish) was down considerably from that of the previous track, almost certainly due to exhaustion of several radio transmitters. Of those detected, several fish had moved from the Beatton River drainage to sites further upstream in the Peace River mainstem, with the net result being that 12%, 18%, 30% and 40% of the fish were respectively in the Beatton River, Beatton River mouth, Peace River mainstem between the Beatton and Moberly rivers, and Peace River mainstem downstream of the Beatton River. No walleye were detected in the Pine River drainage.

The distribution of Arctic grayling, rainbow trout and mountain whitefish was similar to that of the previous survey, with the exception of a reduction in the proportion of rainbow trout present in the Burnt River due to some fish moving into the Sukunka River and upper Pine River mainstem.



MAP 11A

Peace River Mobile Survey
10-11 October 2007
Arctic Grayling, Rainbow Trout, Walleye

Fish# Species (# Detected)
- Arctic Grayling (23)
- Rainbow Trout (18)
- Walleye (33)

Survey Track
- 2007.10.10
- 2007.10.11
- Mobile Zone
- Barrier

0 10 20 30 40 50
Kilometres

Universal Transverse Mercator, Zone 10 (CM 123°W)
North American Datum 1983

LGL Limited October 2008

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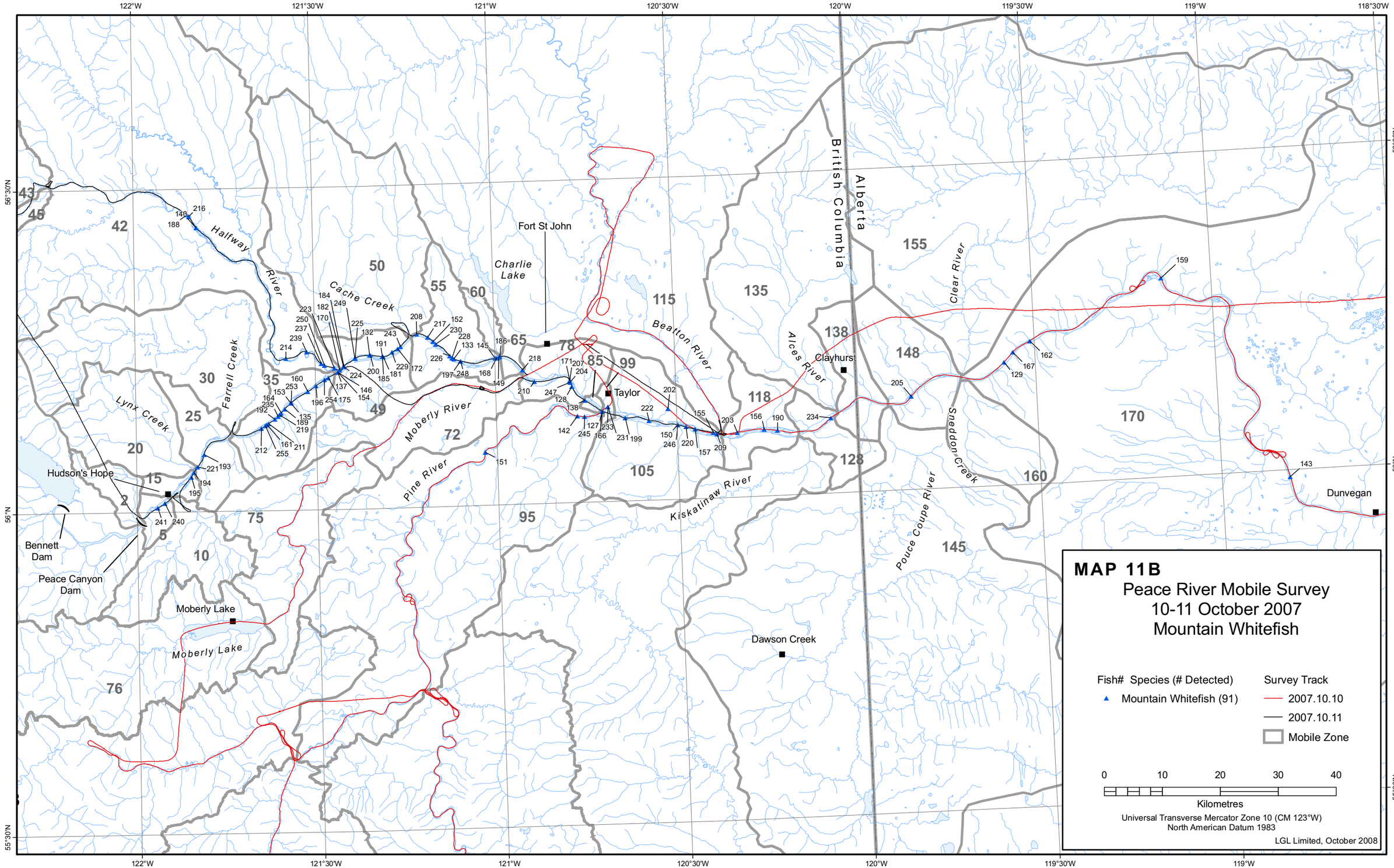
Map 11a: Mobile survey for Arctic grayling, rainbow trout and walleye (October 10-11, 2007).



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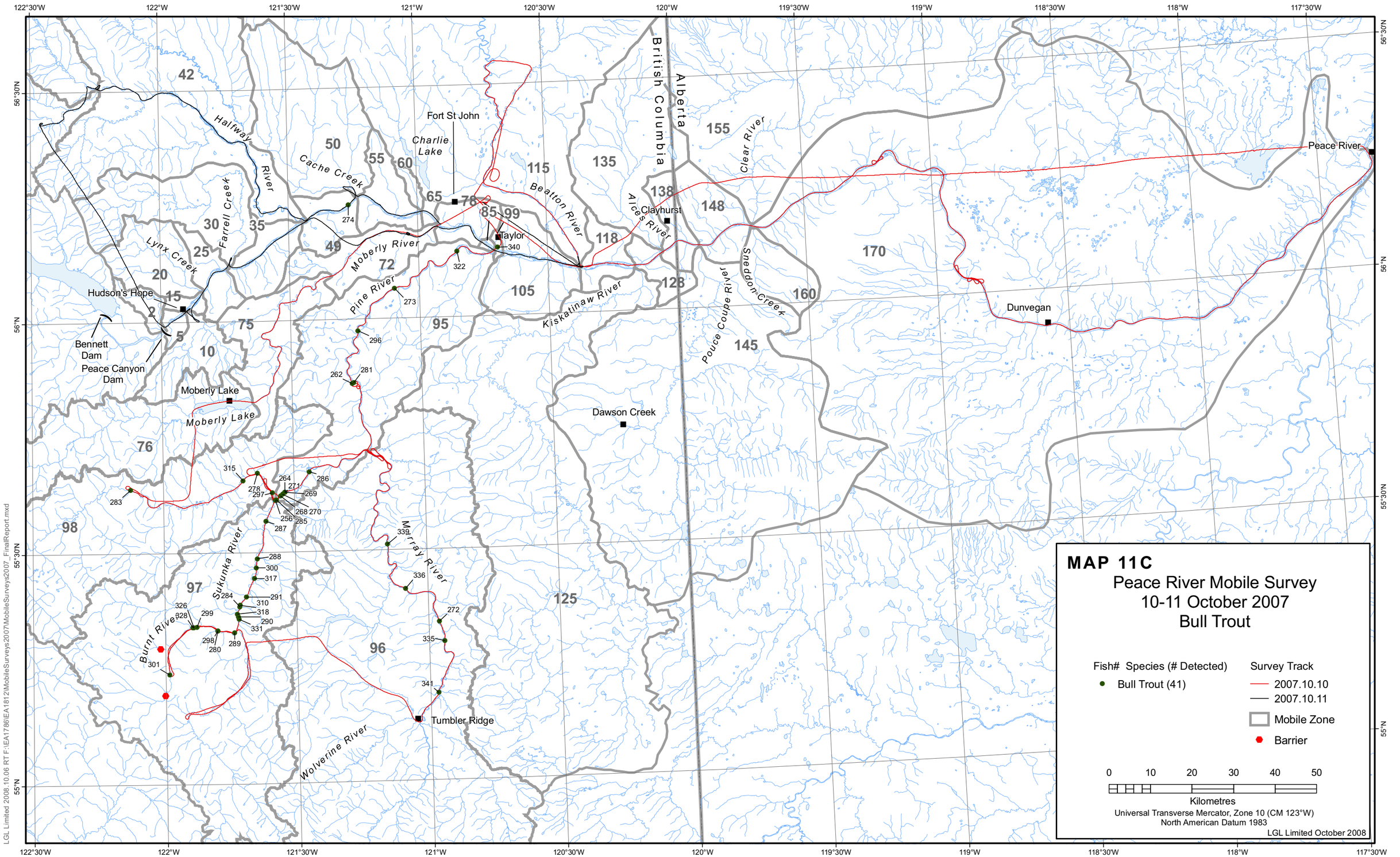
Map 11b: Mobile survey for mountain whitefish (October 10-11, 2007).



MAP 11C

Peace River Mobile Survey
10-11 October 2007
Bull Trout

Fish# Species (# Detected)
- Bull Trout (41)

Survey Track
- 2007.10.10
- 2007.10.11
- Mobile Zone
- Barrier

0 10 20 30 40 50
Kilometres

Universal Transverse Mercator, Zone 10 (CM 123°W)
North American Datum 1983

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Map 11c: Mobile survey for bull trout (October 10-11, 2007).