

## INCONNU MIGRATION STUDY SUMMARY

A total of 34 radio transmitters (tags) were mounted on inconnu over four areas.

Fourteen inconnu were radio tagged at Shingle Point (includes Escape Reef), along the Beaufort Sea coast. Five inconnu were tagged in the outer delta (West and Peel Channels) and another five in the Peel River, upstream of Fort McPherson. The remaining 10 radio tags were mounted on inconnu approximately 7 miles up the Arctic Red River (Figure 1). Radio transmitters were all mounted externally, and battery life of the transmitters were approximately one year.

Inconnu were tagged at Shingle Point between June 27 and June 30, 1996. The mean fork length of those tagged with radio transmitters was 868 mm (n=14), the mean age (pectoral fin) was 17 years (n=13) (Table 1).

Inconnu from the outer delta were tagged between July 3 and July 7, 1996. The mean fork length of inconnu radio tagged in the outer delta was 733 mm (n=5), and the mean age was 12 years (n=5) (Table 1).

Ten inconnu were tagged at Arctic Red River between July 11 and July 24. The mean fork length of tagged Arctic Red River inconnu was 820 mm (n=10) while mean age was 14 years (n=9). Peel River inconnu were tagged between July 25 - 29, 1996. Their mean fork length was 734 mm (n=4) with a mean age of 14 years (n=5) (Table 1).

A total of 89 inconnu were tagged with anchor (floy) tags, eighty of which were tagged at Shingle Point. Five inconnu were tagged in the Arctic Red River and four in the outer delta.

At Shingle Point the mean fork length was 730 mm and the mean age 15 years. Forty-three inconnu were biologically sampled; of these 23 were male and 20 were female.

Sexual maturity for all inconnu sampled were either immature or resting. In the outer delta 23 inconnu were dead sampled of which 15 were females and 8 were males.

Thirteen inconnu were mature (current year spawners) and of the remaining 10, nine were immature and one was resting. Nine inconnu were sampled at Arctic Red River (5 males and 4 females) and all were mature. One inconnu was captured on the Mackenzie River at Tsiigehthic and it was a mature female. No inconnu were dead sampled in the Peel River.

Inconnu tracking results are provided in Table 2.

In 1996 nine of the fourteen inconnu radio tagged were located along the coast (Figures 2 - 10). No radio tagged inconnu from Shingle Point were located within the Mackenzie River system. In late August three inconnu were located near the Olivier Islands (Figures 2 - 4), three around Tent Island (Figures 6, 7, and 10) and one in Ministoog Channel (Figure 5). Although some tracking occurred during the ice on period through the winter, no fish were located. In 1997, eight of the fourteen radio tagged inconnu were located. Two of these fish (Figures 11 and 12) were ones which were not located the previous

year. Seven of the eight fish were found along the coast suggesting that not all inconnu are alternate year spawners (Figures 3 - 5, 6, 10 - 12). One inconnu (49.550) was located in the Peel River below the Peel River ferry crossing (Figure 2). This signal was picked up between July 16 and August 21, 1997 at the same location on three separate occasions, suggesting that this fish may either have lost its tag or died at this location. However this does provide evidence that some inconnu utilizing the western coastal area also use the Peel River.

Only one (49.470) of the five inconnu fitted with radio tags in the outer delta was located (Figure 13). Two days after being tagged it was located downstream of the original tagging site. It was located again on September 24th up the Peel River in an area which appears as a potential spawning habitat. Around September 30th it was captured by a local fisherman adjacent to the Peel River ferry crossing.

Of the five inconnu fitted with radio transmitters in the Peel River one (49.650) was captured shortly after tagging close to the community of Fort McPherson (Figure 14), a second inconnu (49.770) was located only once up the Peel River in an area that appeared as a potential spawning area (Figure 15). In 1997 a third inconnu (48.950) was located on September 4th in Phillips Channel (Figure 16). Also in 1997, one inconnu signal (48.930) was located in a small pond on the inland side of the golf driving range (old municipal airport) (Figure 17). There is no creek connecting the pond to the East Channel, however in the spring the area was flooded, which could have allowed fish to enter the pond and become trapped there. During the spring high water period (same year) an unidentified

whitefish was observed swimming across a flooded road from East Channel to a pond on the other side of the road (Neil Robinson, pers. comm.).

All ten of the radio tagged inconnu from Arctic Red River were located in 1996 (Figures 18 - 27). Four of these inconnu were later located up the Arctic Red River, presumably to spawn. Kim Howland (University of Alberta) while conducting a study on the reproductive biology of inconnu verified on the ground that the area the inconnu had been tracked too was a spawning location. Five of the radio tagged inconnu were found up the Mackenzie River as far as the Ramparts Rapids. The Ramparts Rapids is a probable spawning area for inconnu. One inconnu was not located through radio tracking but was captured in the Mackenzie River at Tsiigehtchic in October 1996. No tagged inconnu were located upstream of the Ramparts Rapids, however only one flight was made past the Ramparts rapids to the confluence of the Mountain and Mackenzie Rivers on August 29, 1996.

There was only two floy tag returns. One inconnu tagged at Shingle Point was captured about two weeks later at Shingle Point. The second inconnu which was also tagged at Shingle Point (July 1, 1996) was later captured on July 29, 1996 on the Peel Channel near the mouth of Husky Channel.

To summarize:

1. No current year spawners of inconnu were captured along the coast (Shingle Point area) in June and early July. This result is similar to that of past studies in the region.
2. Both current year and non current year spawners were captured in the outer delta area in early July.
3. Only current year spawners were captured in the Arctic Red River in July, and personal observations of subsistent catches in the Peel River showed similar maturities.
4. No radio tagged inconnu from Shingle Point were found entering the Mackenzie River during the year of tagging (1996) while some were still located along the coast in late August.
5. One radio tagged inconnu from Shingle Point was located in the Peel River (near ferry landing) in 1997.
6. Seven inconnu which were radio tagged at Shingle Point were located along the coast in 1997, suggesting that some inconnu may not be alternate year spawners.
7. One potential spawning area on the Peel River was located.
8. Tracking results suggest that the Ramparts rapids on the Mackenzie River is a potential spawning site.
9. One confirmed spawning location was determined using tracking information and then ground truthed by Kim Howland of the University of Alberta in a separate study.
10. Tracking data suggests that spawning inconnu leave the Arctic Red River and Peel Rivers after spawning.

11. Tracking data suggests that spawning inconnu migrate downstream from the Ramparts after spawning. My conversation's with local fishermen from Ft. Good Hope also suggest that there is a downstream migration of spent inconnu past Ft. Good Hope.

12. Inconnu captured in the lower Arctic Red River appear to be two separate populations one which continues up the Arctic Red River to spawn and another which move back down to the Mackenzie River and then migrate up to the Ramparts area.

13. No radio tagged inconnu were located past the Ramparts.

This information will be included in a report titled:

Chiperzak, D.B., K.L. Howland and I. McCleod. 1998. Results from the 1996-1997 inconnu migration study, in the western half of the lower Mackenzie River area and Beaufort Sea coast. Report prepared for the FJMC, GRRB and SRRB. (or something to that effect).

Table 1 Radio tagged inconnu

Radio Frequency	Sample Number	Area	Date	Fork Length (mm)	Pectoral Age
49.79	99	Shingle	27-Jun	1208	
49.55	102	Shingle	27-Jun	875	16
49.71	114	Shingle	27-Jun	854	20
49.59	146	Shingle	28-Jun	853	18
49.67	154	Shingle	28-Jun	755	17
49.63	530	Shingle	29-Jun	925	19
49.37	531	Shingle	29-Jun	950	20
49.52	565	Shingle	30-Jun	882	17
49.43	566	Shingle	30-Jun	809	17
49.31	567	Shingle	30-Jun	817	17
49.81	568	Shingle	30-Jun	778	15
49.33	569	Shingle	30-Jun	806	17
49.53	570	Shingle	30-Jun	850	18
40.82	571	Shingle	30-Jun	786	16
49.89	683	Outer Delta	3-Jul	665	9
48.85	737	Outer Delta	6-Jul	768	11
49.47	738	Outer Delta	6-Jul	743	13
48.43	754	Outer Delta	6-Jul	742	13
49.85	767	Outer Delta	7-Jul	746	12
49.35	769	Arctic Red R.	7-Jul	774	13
49.39	778	Arctic Red R.	11-Jul	827	13
49.51	780	Arctic Red R.	11-Jul	855	16
49.73	785	Arctic Red R.	12-Jul	755	
49.75	787	Arctic Red R.	23-Jul	882	17
49.49	788	Arctic Red R.	23-Jul	714	13
49.61	789	Arctic Red R.	23-Jul	895	17
49.87	790	Arctic Red R.	24-Jul	936	14
49.69	791	Arctic Red R.	24-Jul	793	13
48.87	793	Arctic Red R.	24-Jul	768	9
49.41	796	Peel River	25-Jul	549	7
49.47	797	Peel River	25-Jul	866	15
48.95	798	Peel River	25-Jul	761	12
48.93	799	Peel River	29-Jul	762	13
49.65	800	Peel River	29-Jul		21





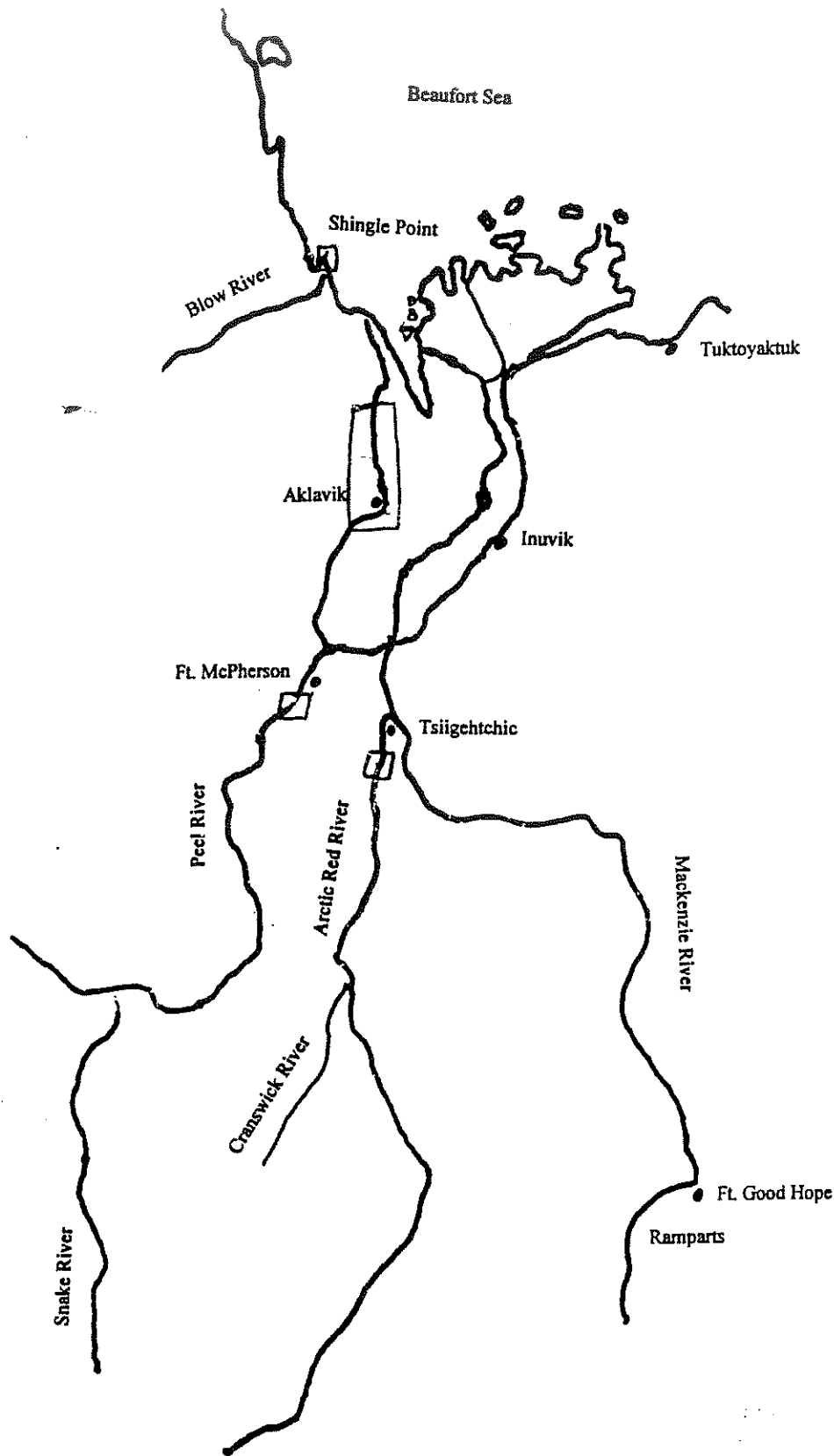


Figure 1. Inconnu radio tagging sites

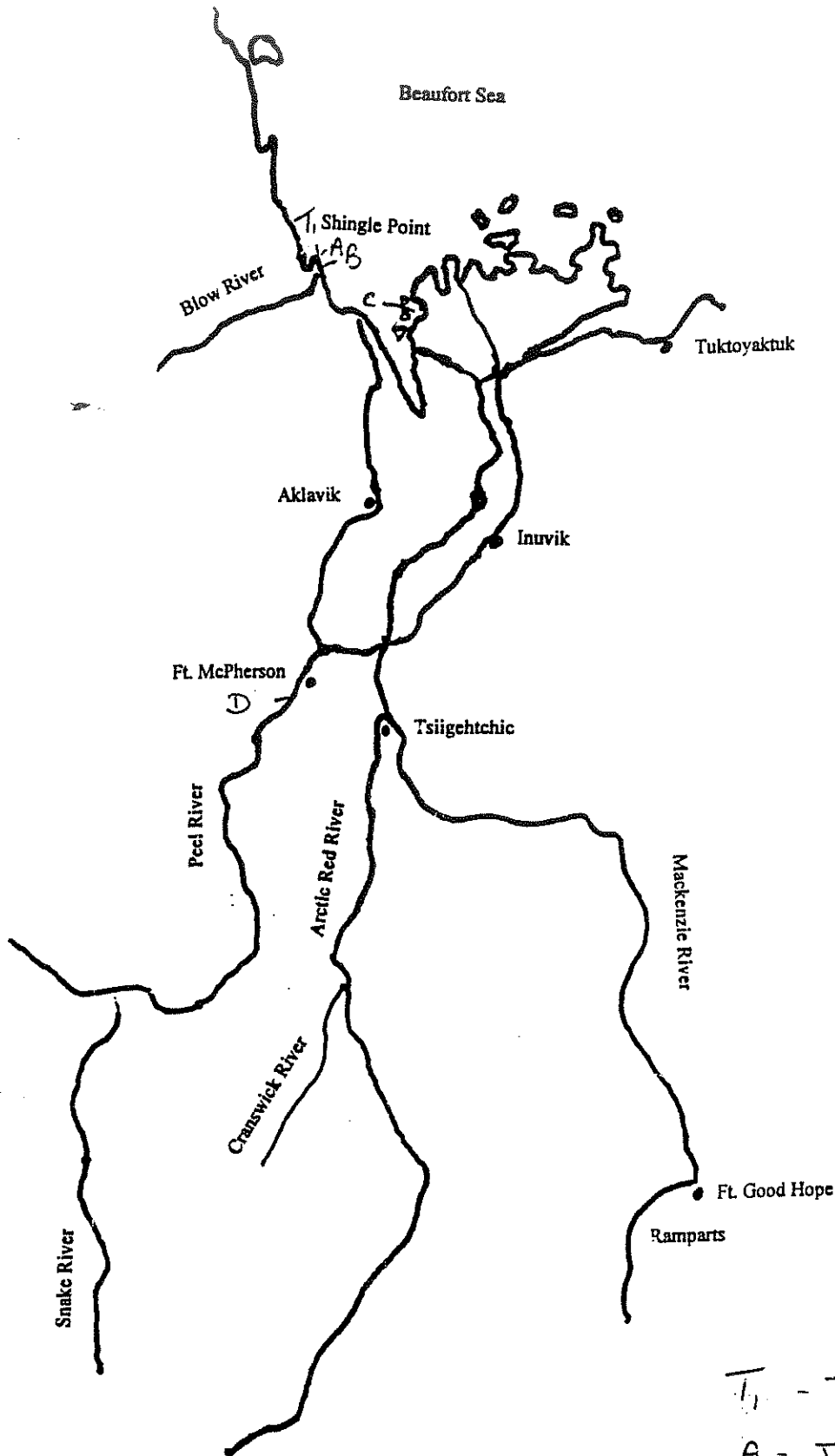


Figure 2. Inconnu 49.550

T<sub>1</sub> - Tagged June 27/96  
 A - June 29/96  
 B - July 8/96  
 C - August 28/96  
 D - July 16, 1997

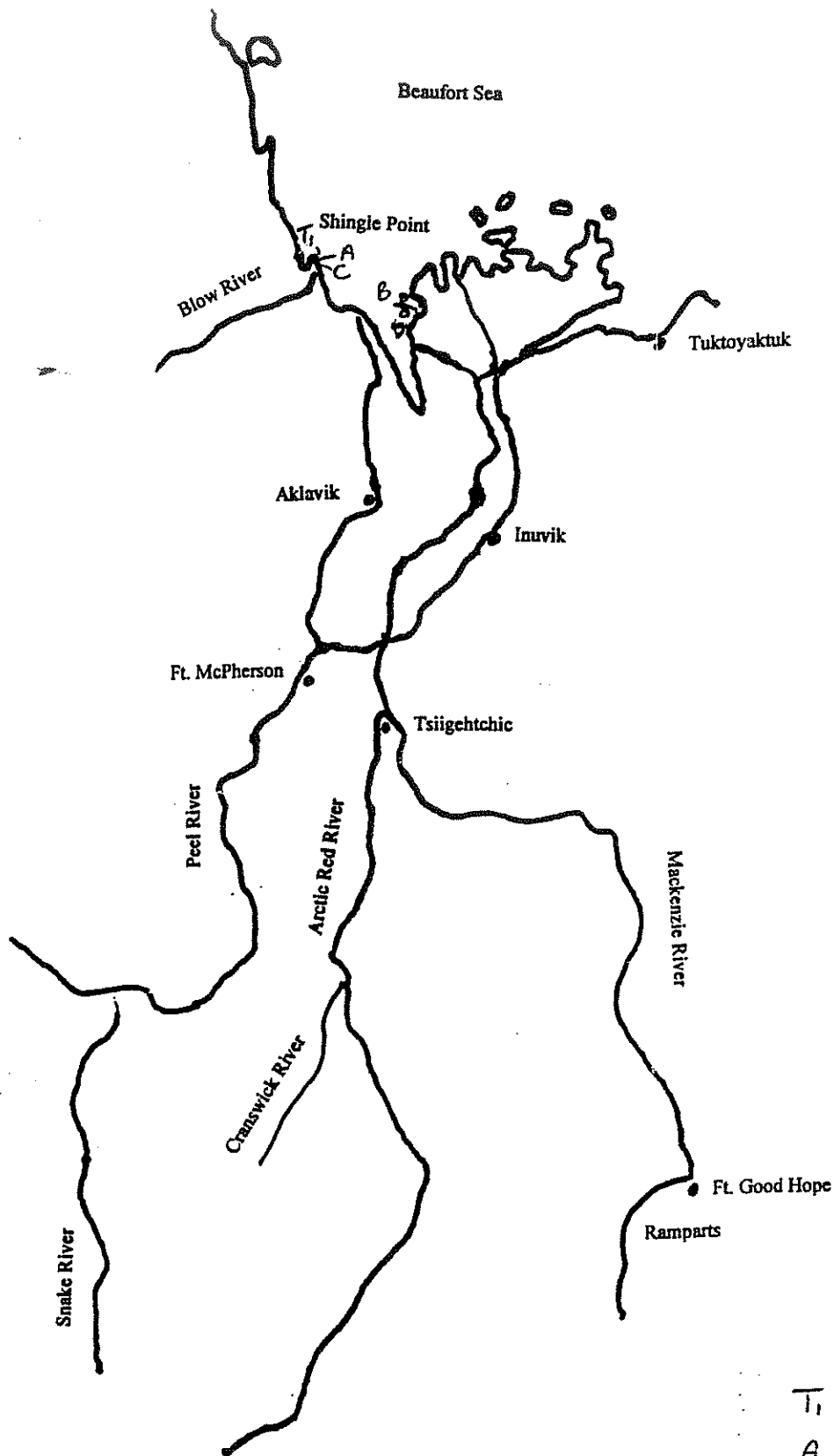


Figure 3. Inconnu 49.590

T<sub>1</sub> Tagged June 28/96  
 A June 29/96  
 B August 28/96  
 C June 27/97

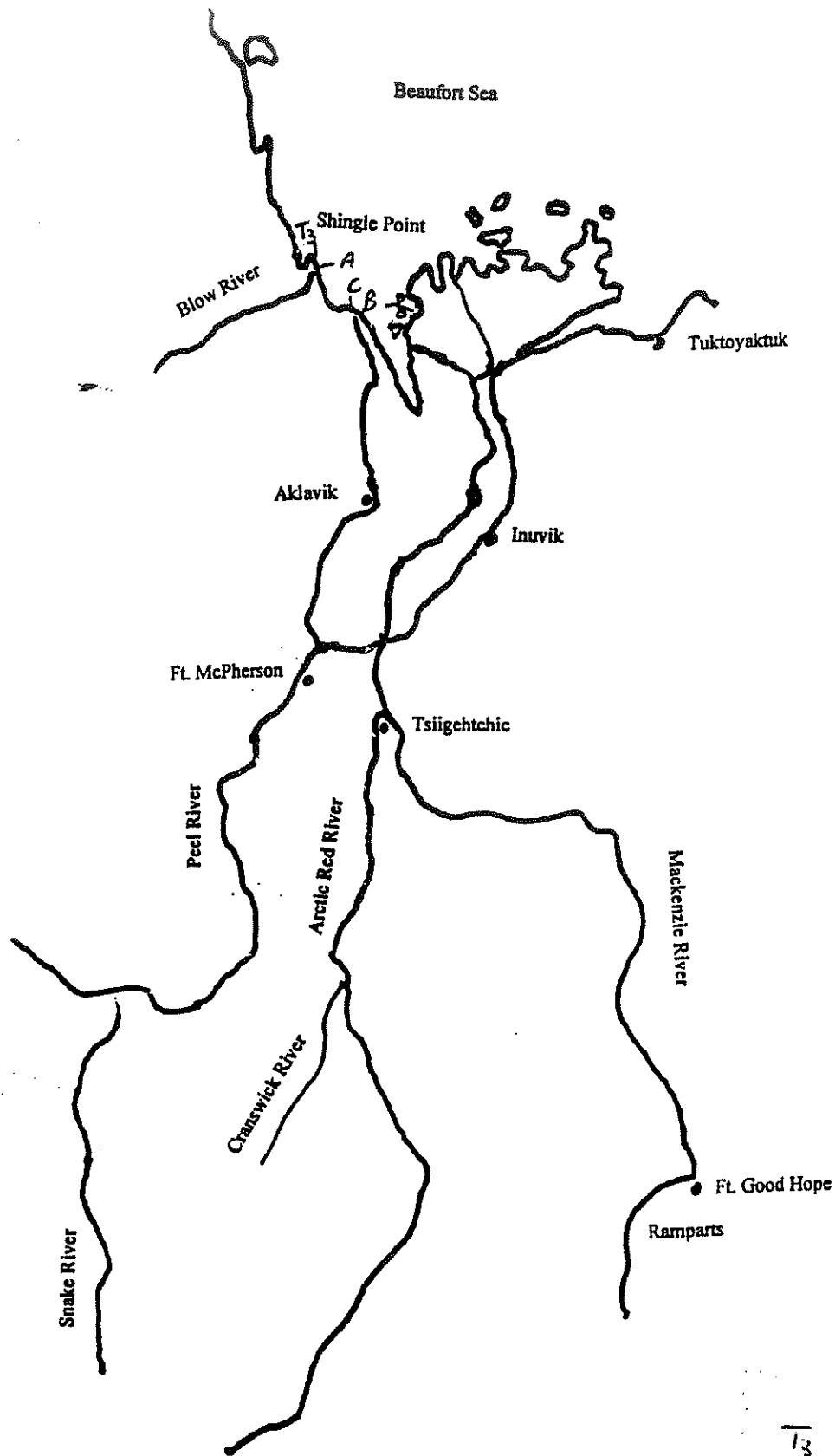


Figure 4. Inconnu 49.430

T<sub>3</sub> - Tagged June 29/96  
 A July 1/96  
 B August 28/96  
 C July 13/97

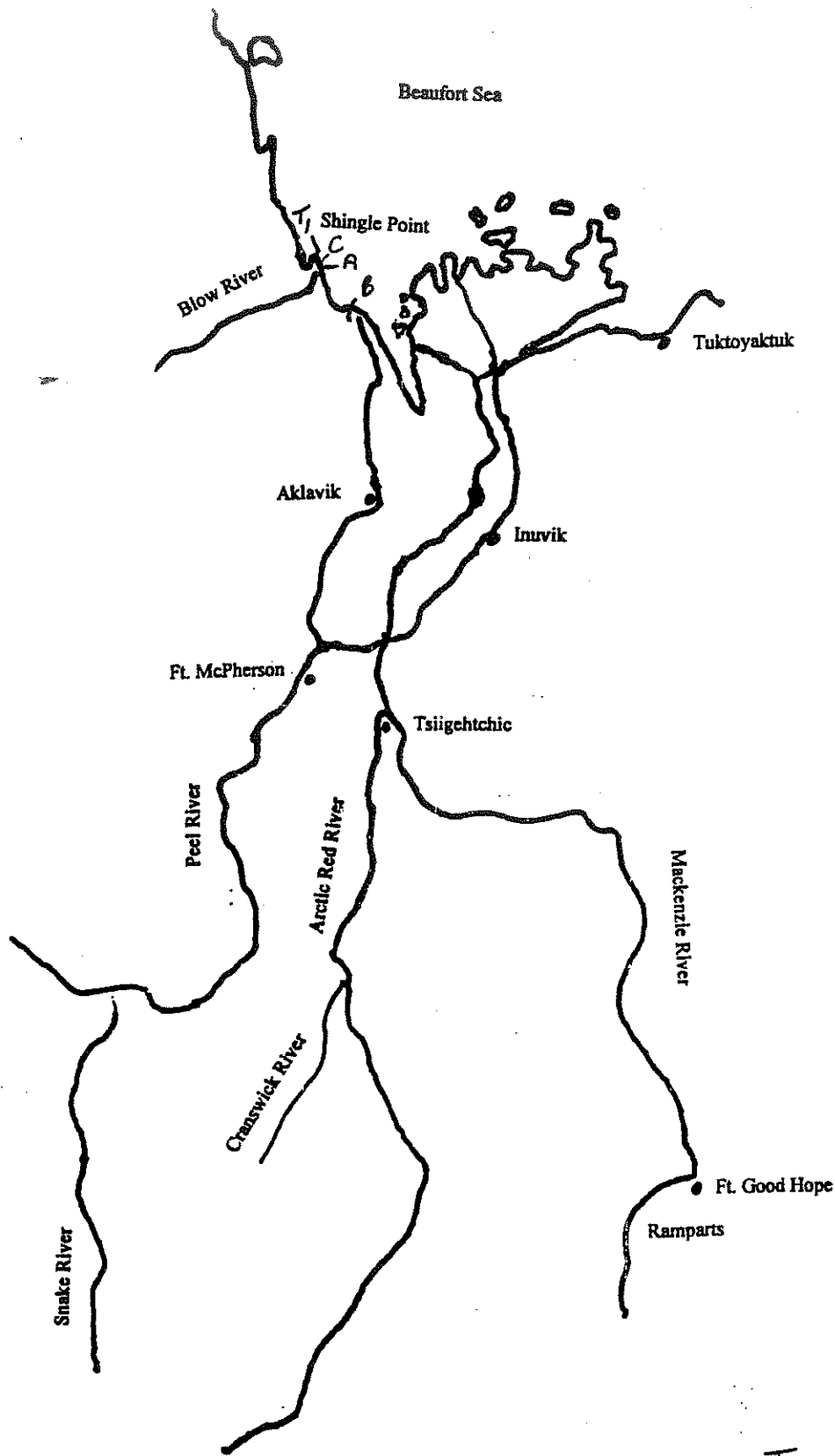


Figure 5. Inconnu 49.710

T<sub>1</sub> Tagged June 27/96  
 A July 1/96  
 B August 28/96  
 C June 27/97

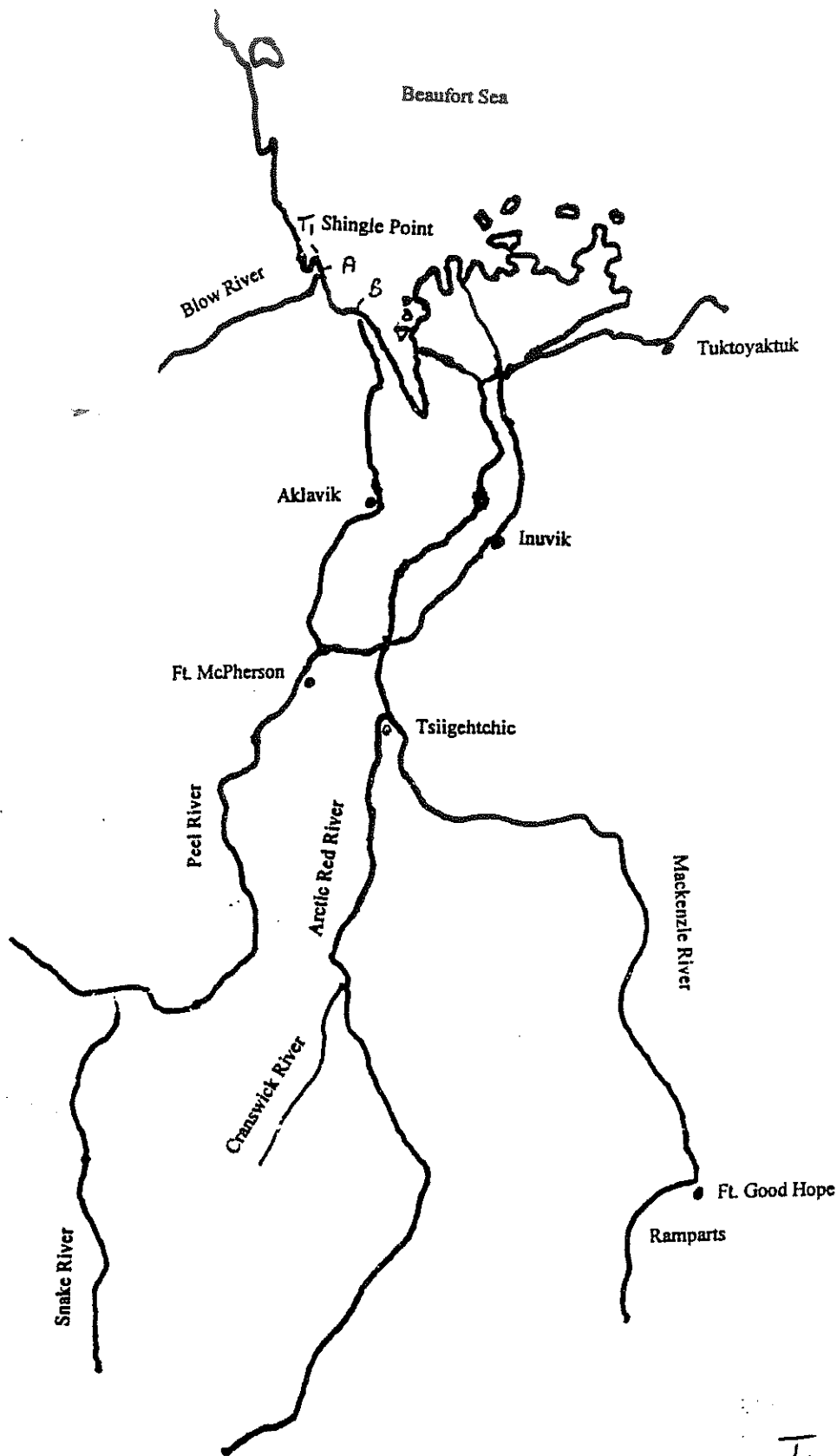


Figure 6. Inconnu 49.670

T<sub>1</sub> Tagged June 28/96  
 A July 8/96  
 B August 21/96

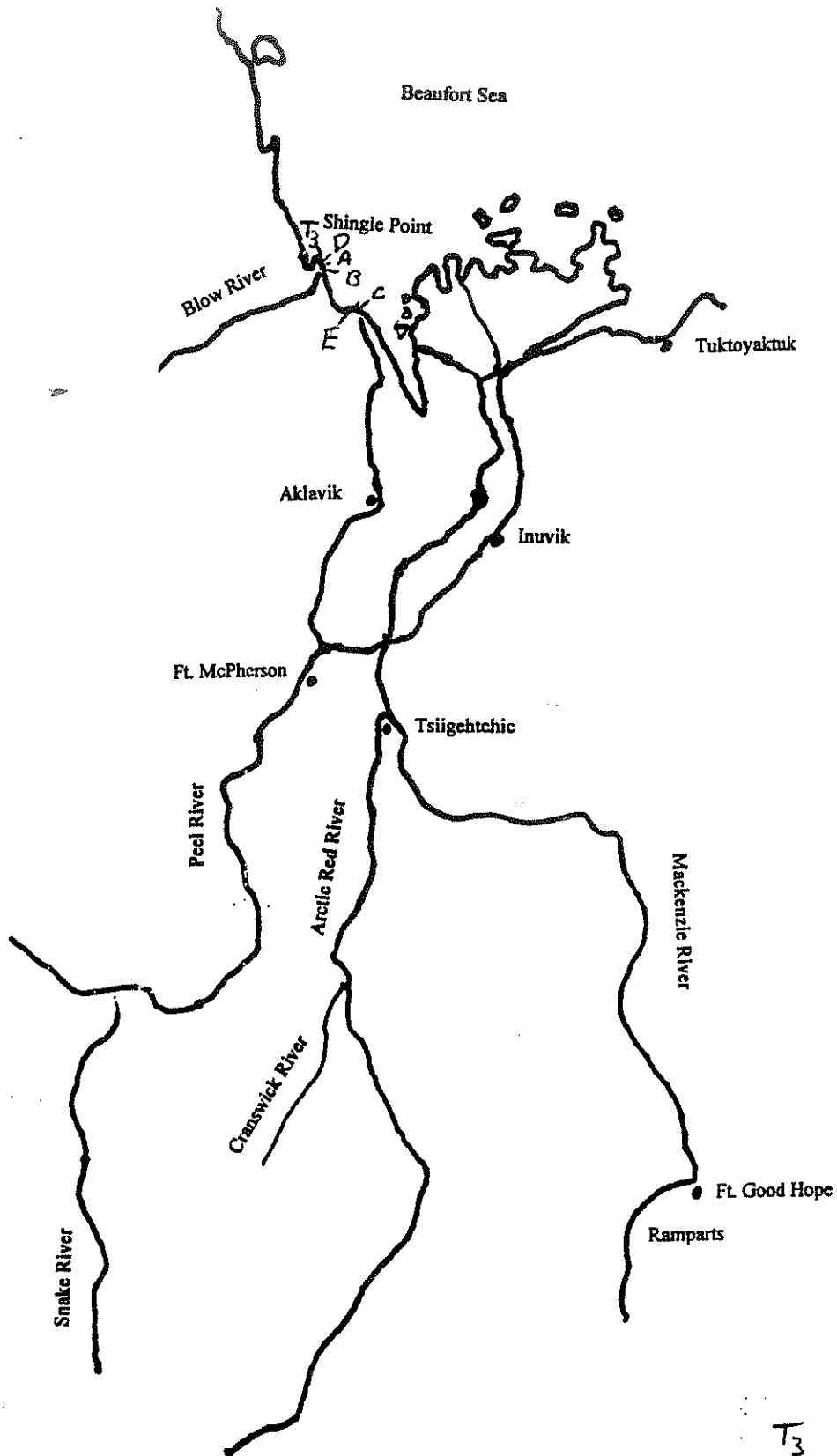
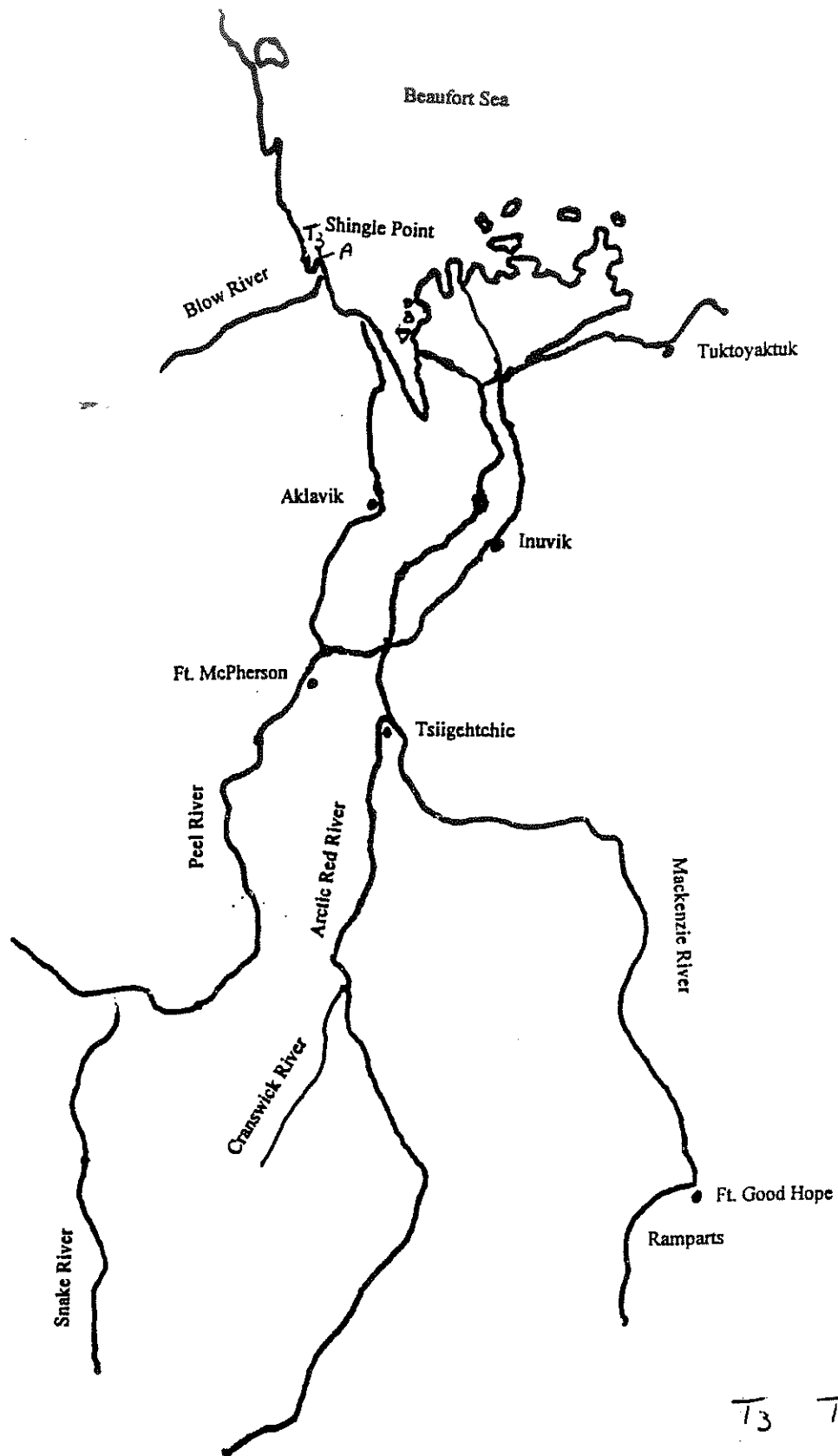


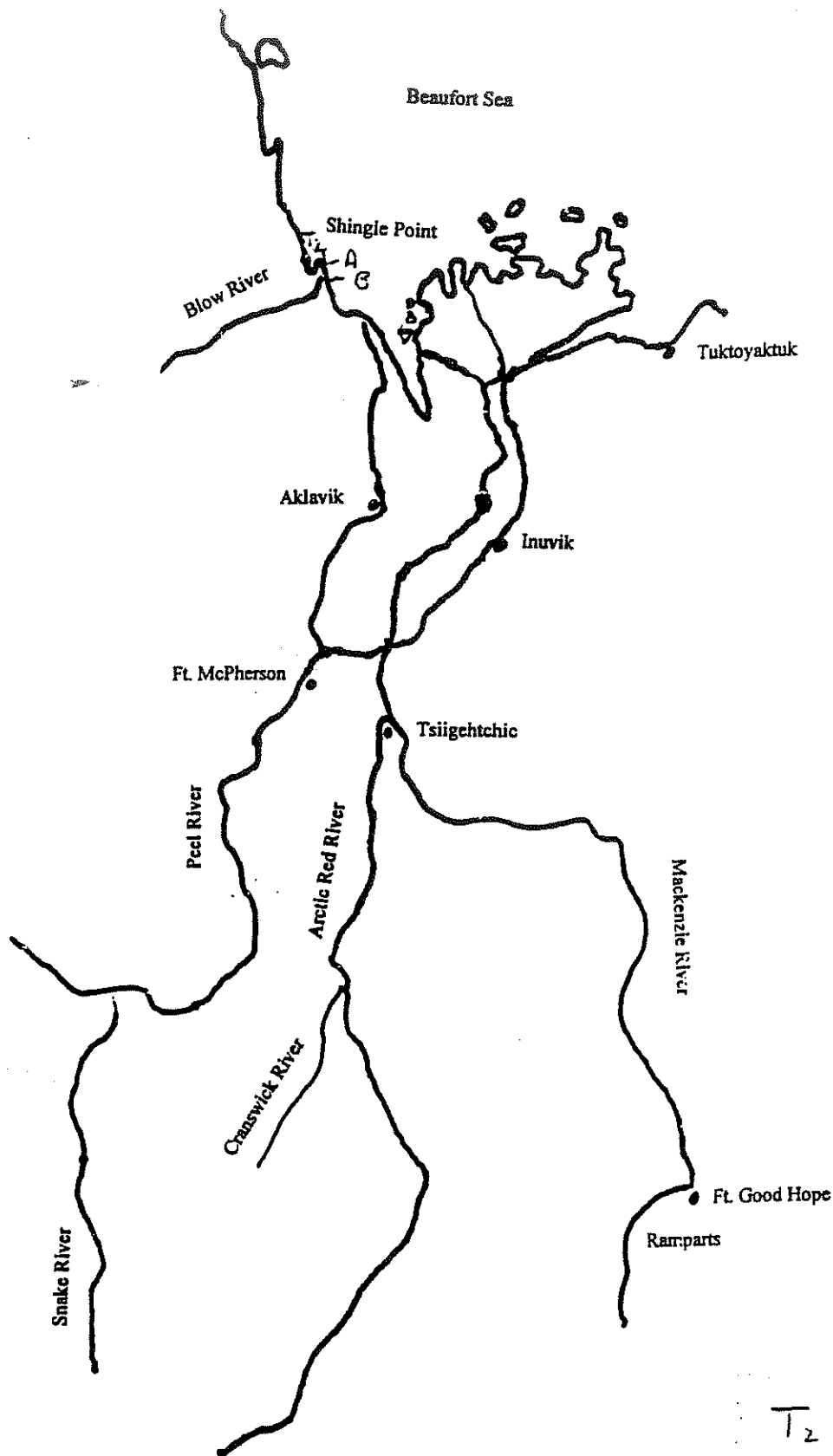
Figure 7. Inconnu 49.330

- T<sub>3</sub> Tagged June 29/96
- A July 1/96
- B July 8/96
- C August 28/96
- D June 27/97
- E August 22/97



T3 Tagged June 29/96  
 A July 1/96

Figure 8. Inconnu 49.310



T<sub>2</sub> June 29 / 96  
 A July 1 / 96  
 B July 3 / 96

Figure 9. Inconnu 49.630

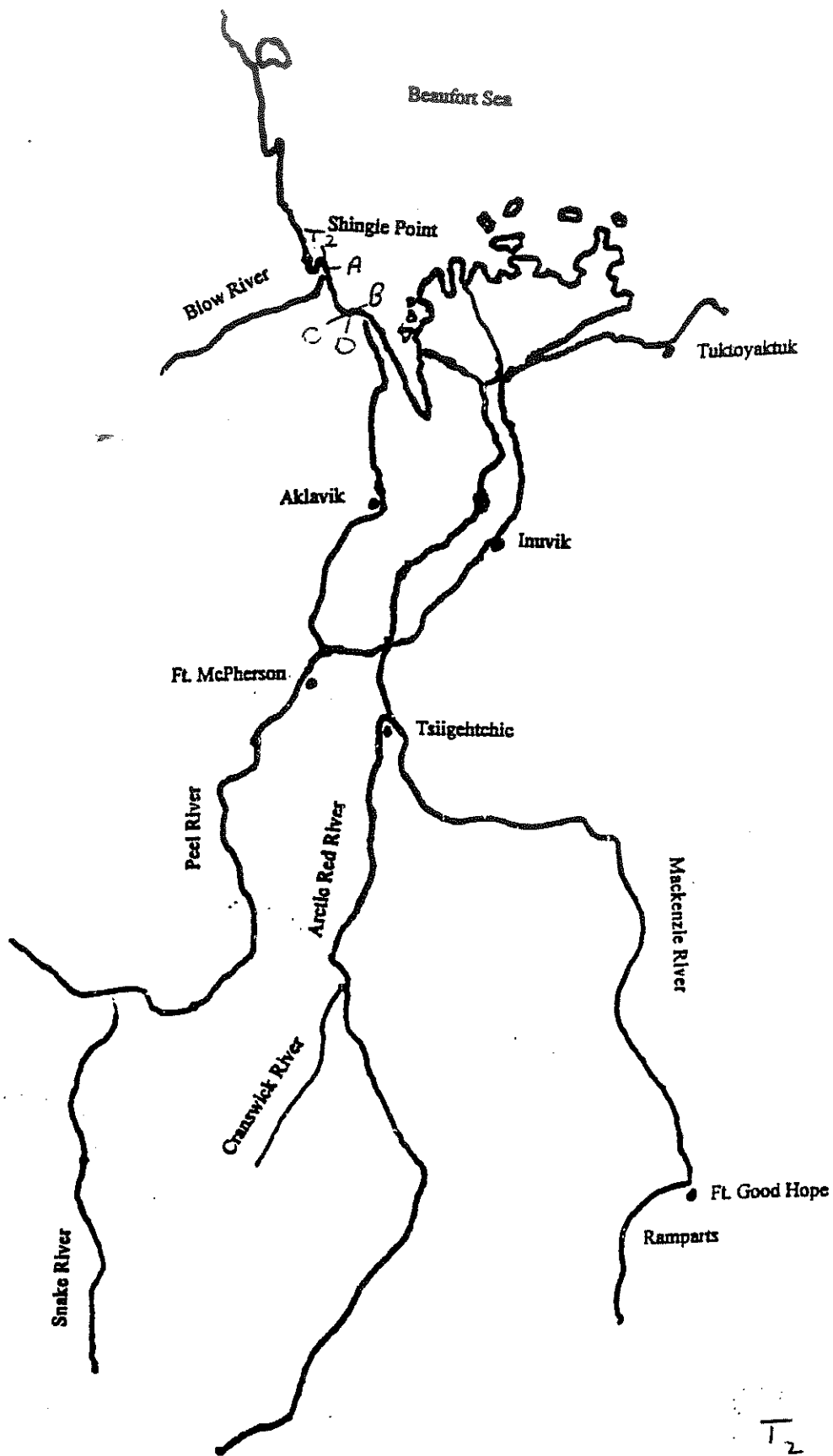


Figure 10. Inconnu 49.370

T<sub>2</sub> Tagged June 29/96  
 A July 1/96  
 B August 28/96  
 C August 22/97  
 D August 25/97

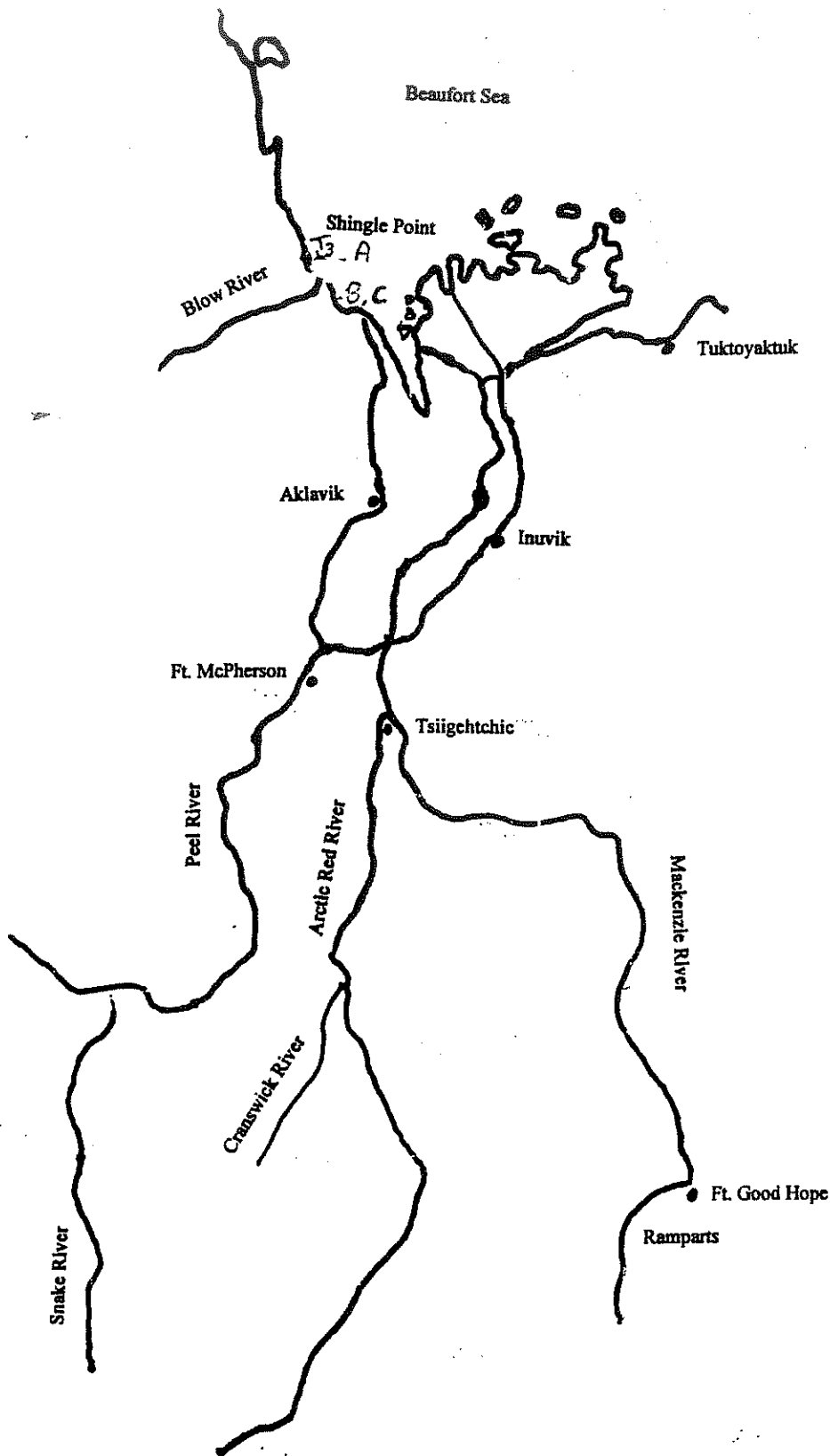
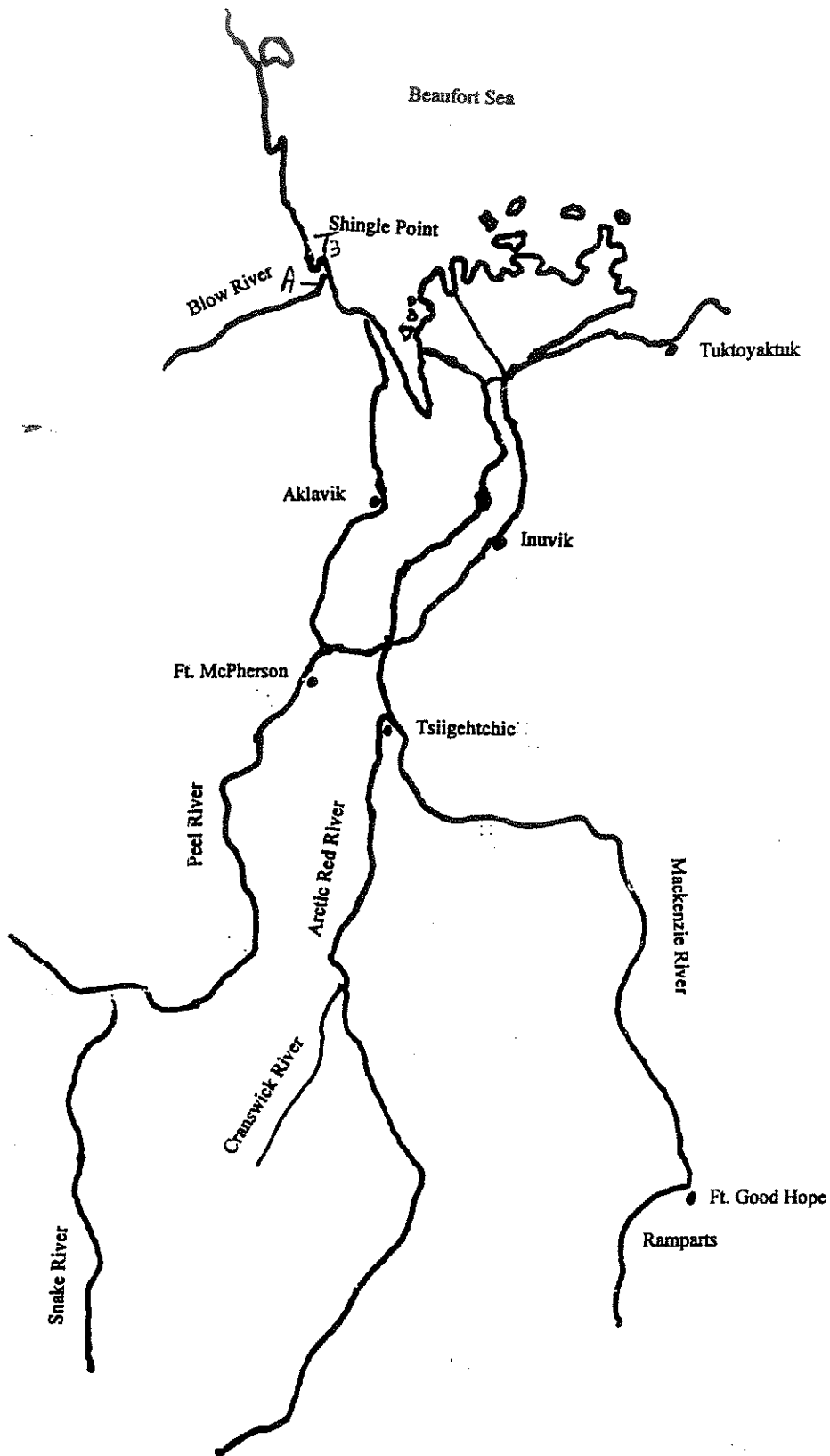


Figure 11. Inconnu 49.810

T3 Tagged June 30 /96  
 A June 27 /97  
 B July 13 /97  
 C July 15 /97



T<sub>3</sub> Tagged June 30/96  
 A June 27/97

Figure 12. Inconnu 49.530

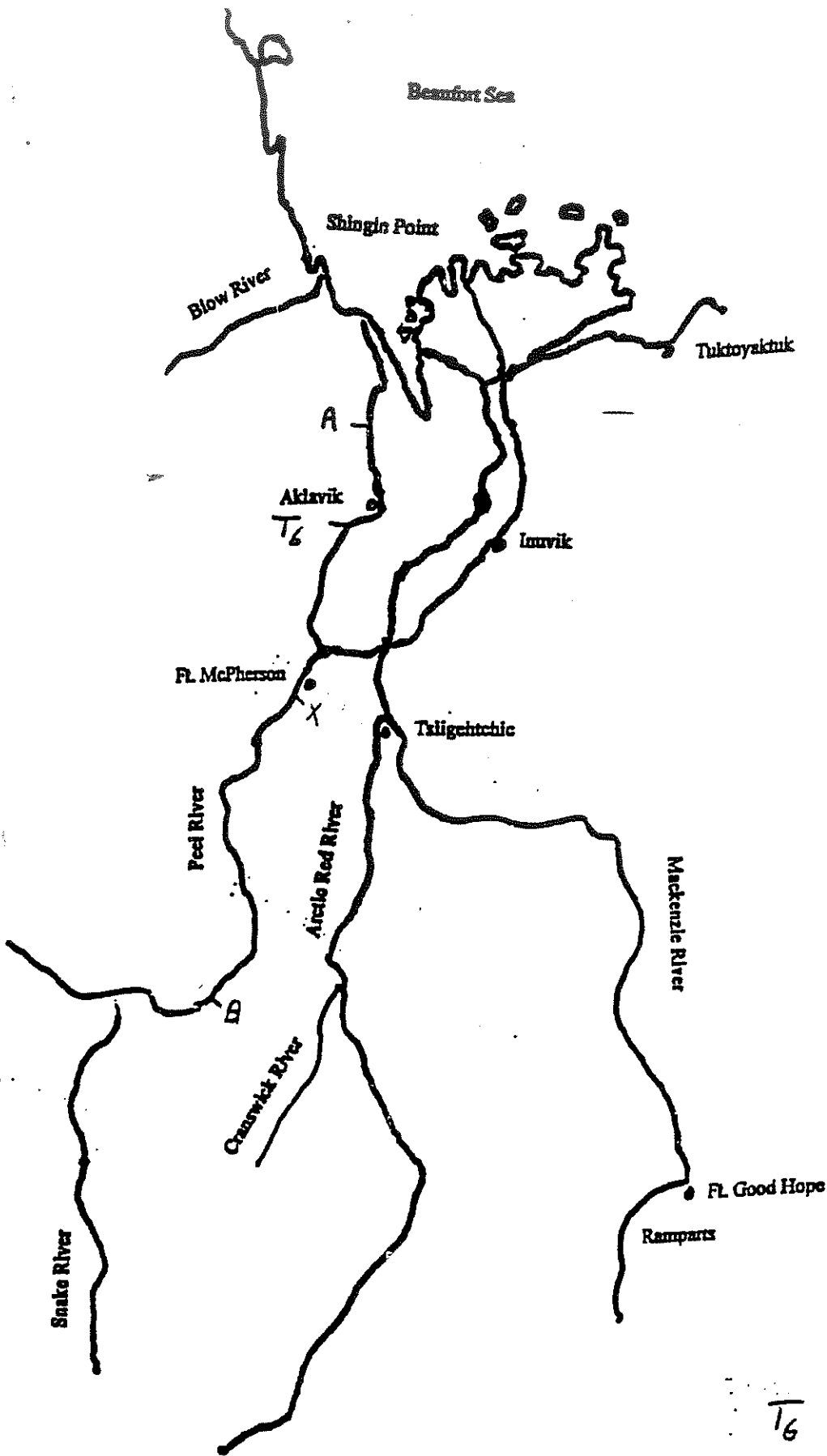


Figure 13. Inconnu 49.470

- T6 Tagged July 6/96
- A July 8/96
- B September 24 /96
- X Captured September/96

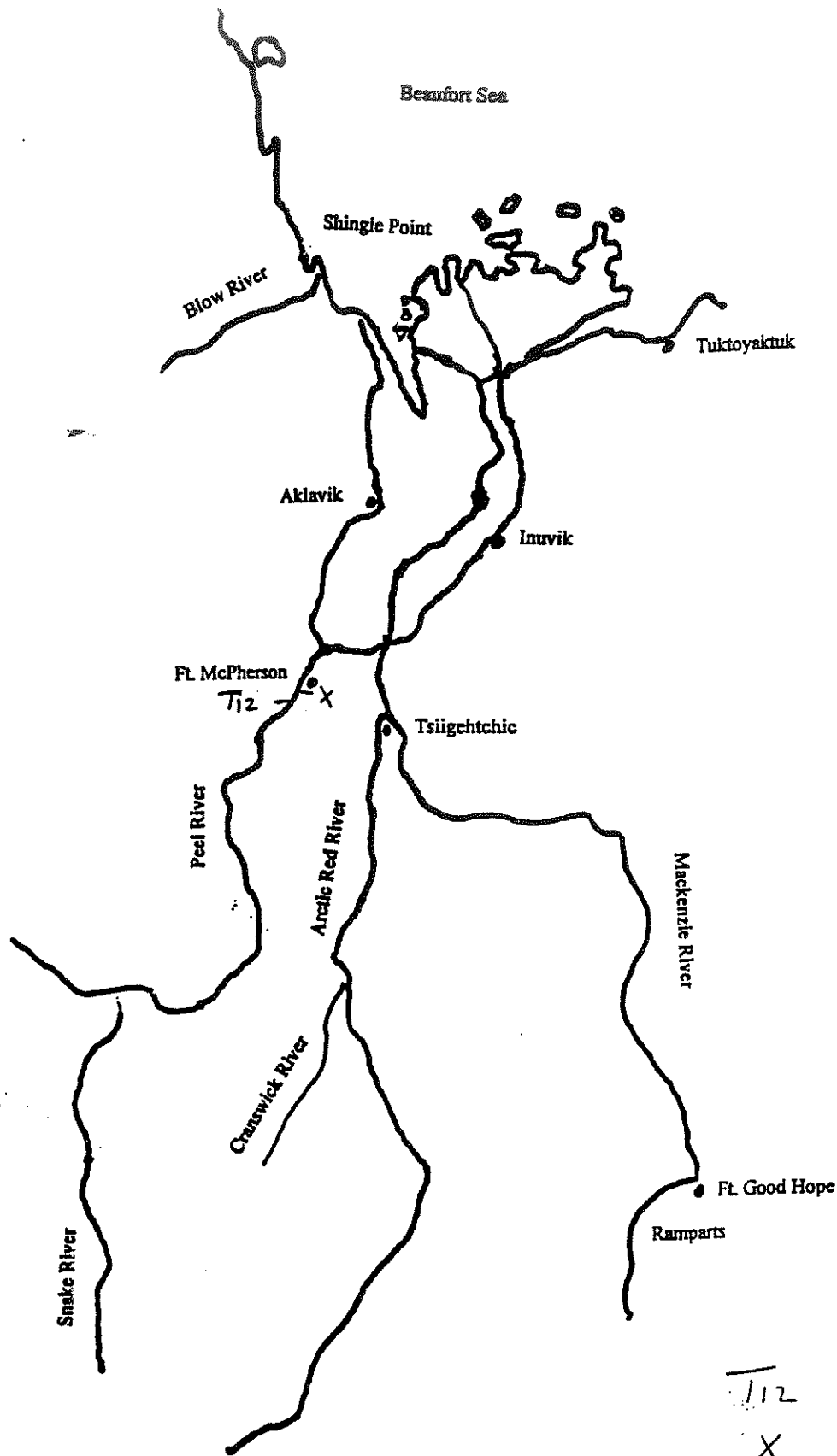
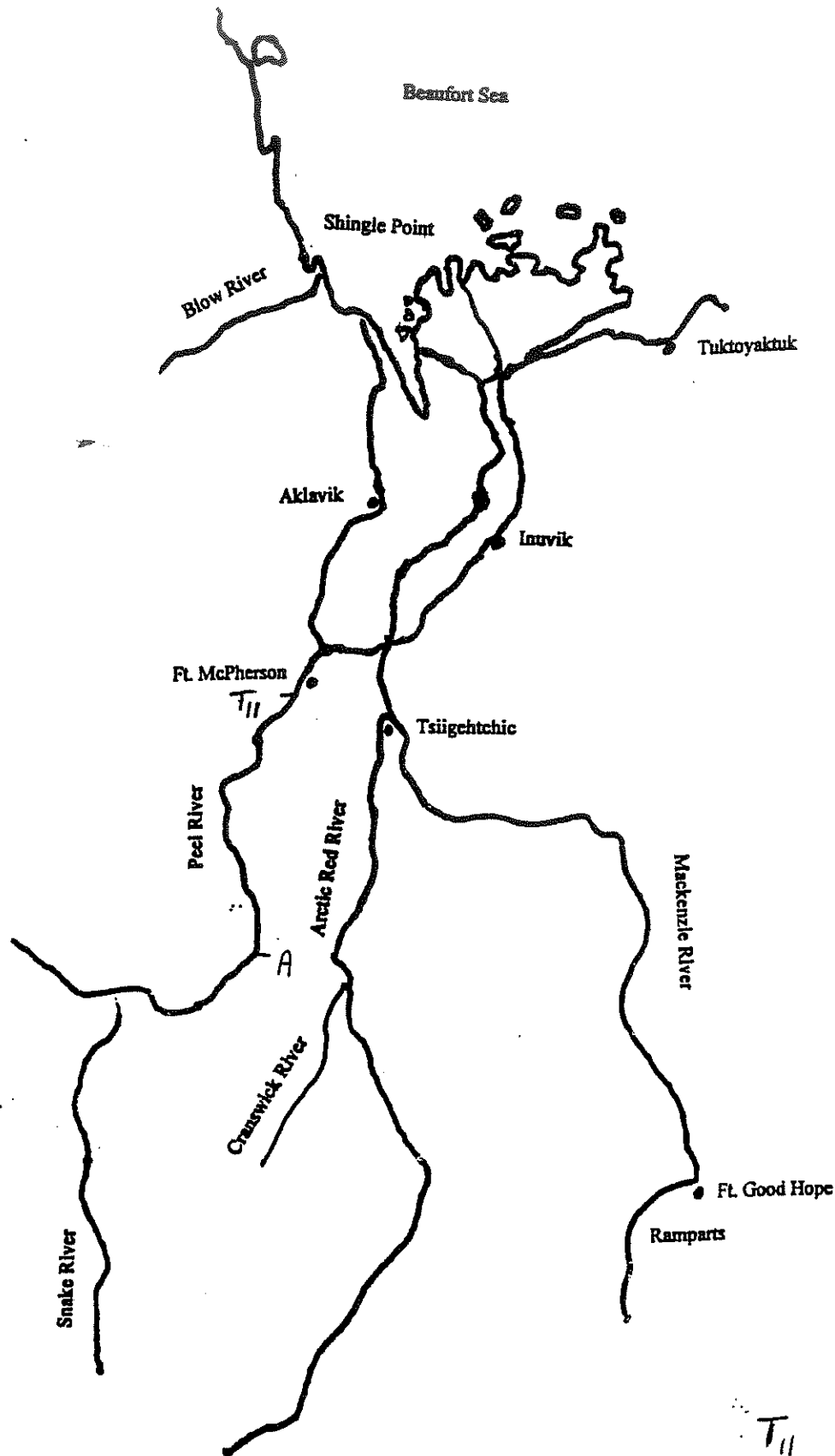
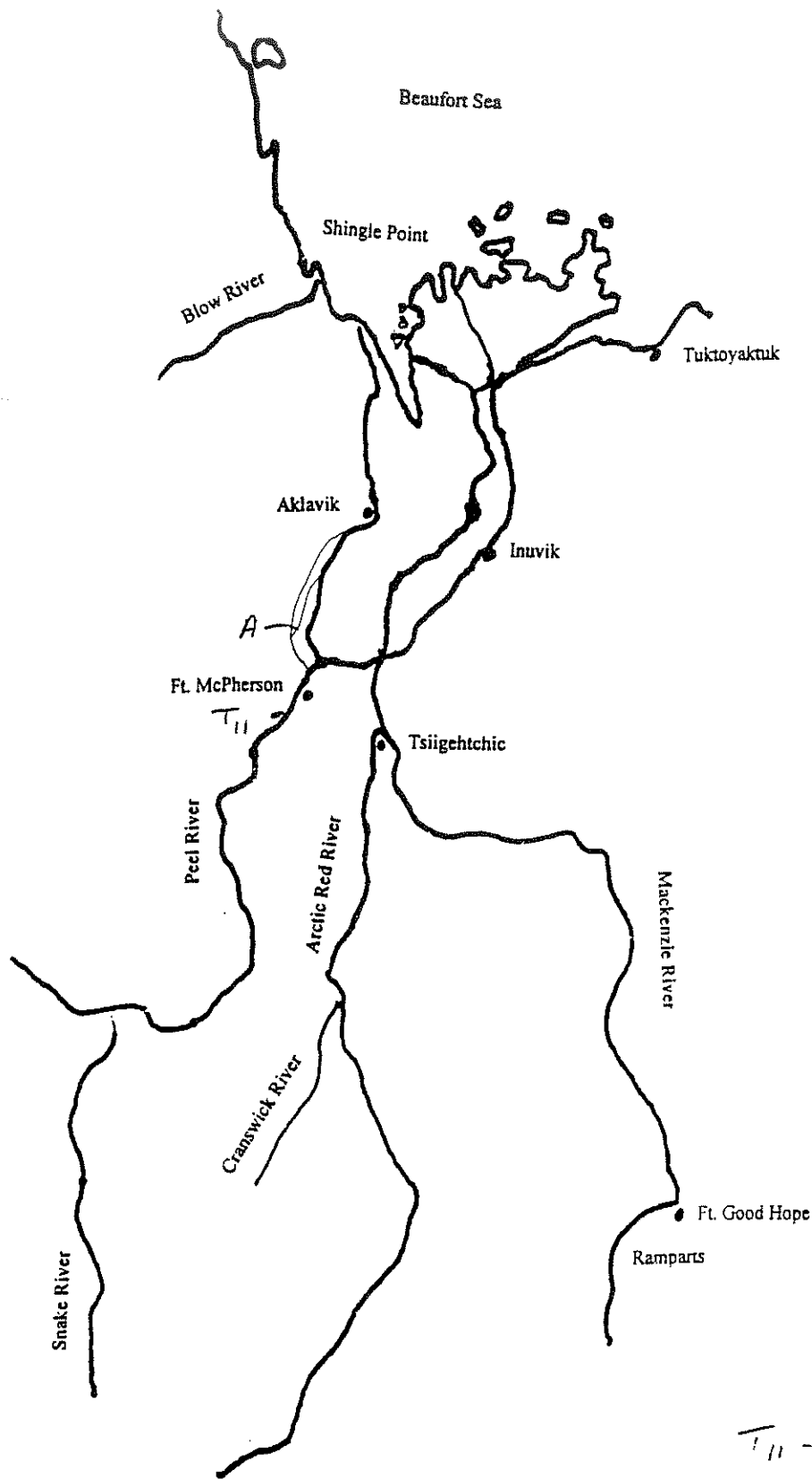


Figure 4. Inconnu 49.650



T<sub>11</sub> Tagged July 25  
 A September 24

Figure 15. Inconnu 49.770



T11 - Tagged July 25/96  
 A - Sept 4/97

Figure 16. Inconnu 48.950

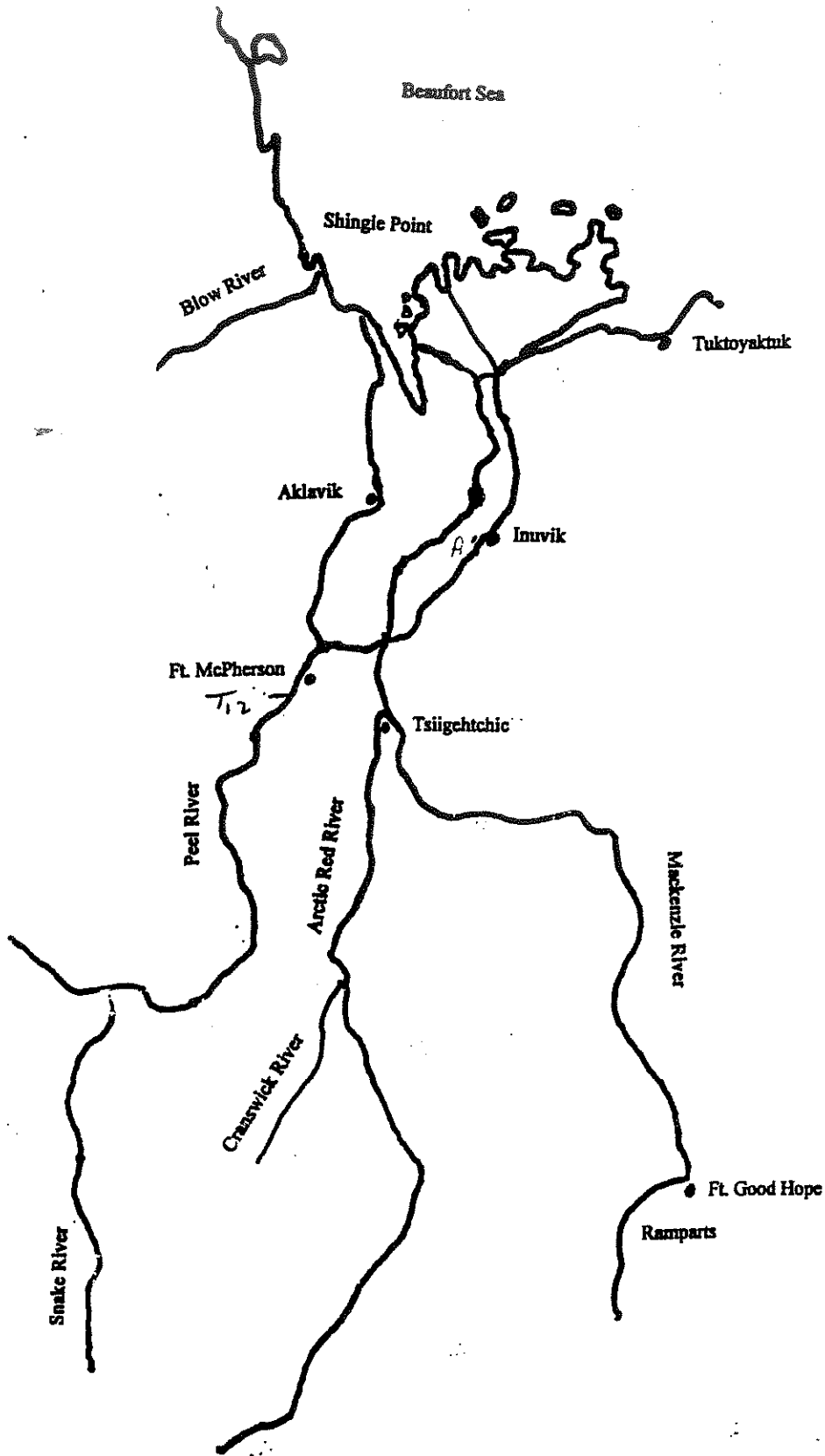


Figure 17. Inconnu 48.930

T<sub>12</sub> Tagged July 29/  
 A July 1997

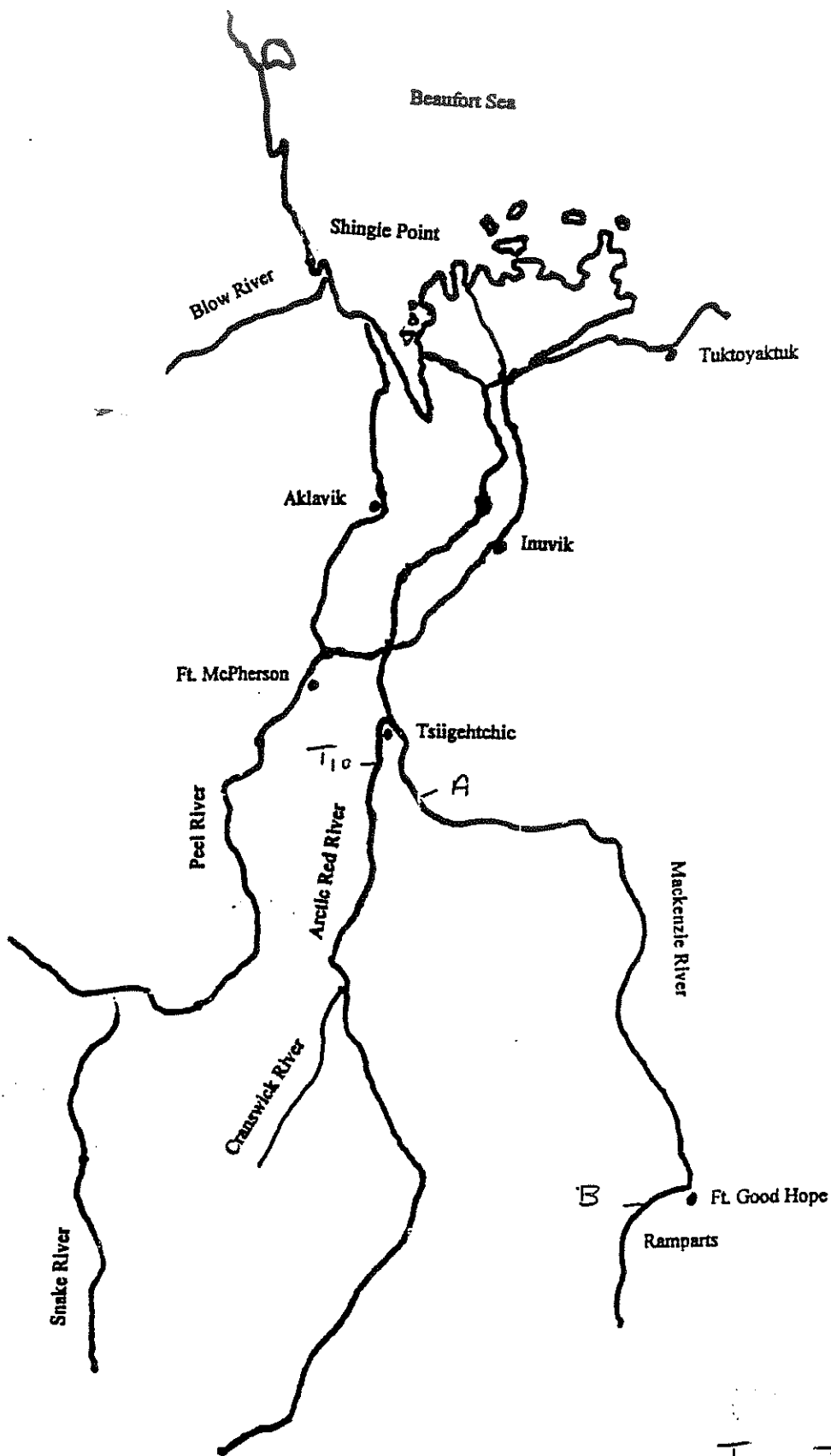


Figure 18. Inconnu 49.610

T10 Tagged July 23  
 A August 20  
 B August 29

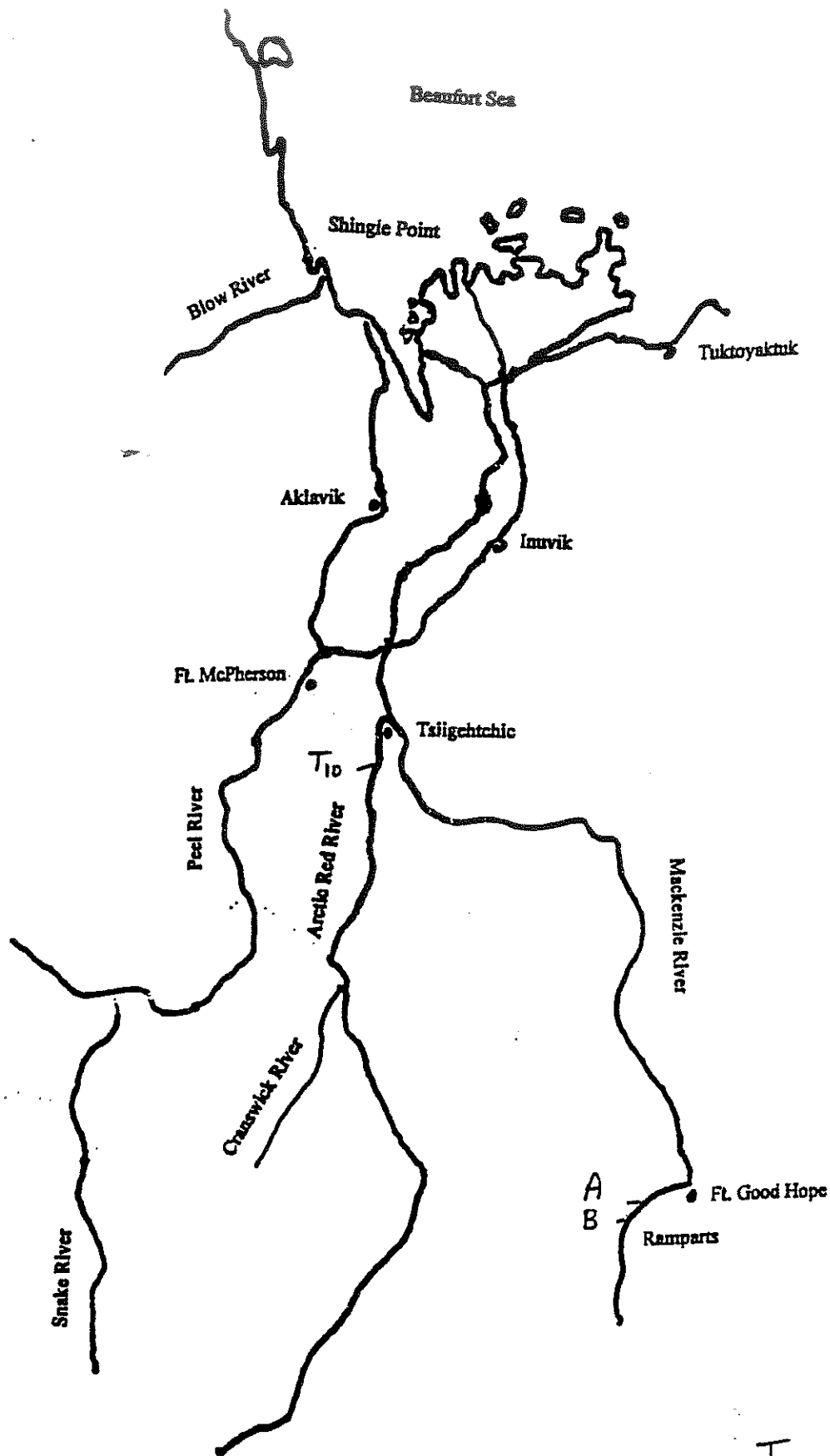


Figure 19. Inconnu 49.870

T<sub>10</sub> Tagged July 23  
 A August 20  
 B September 5

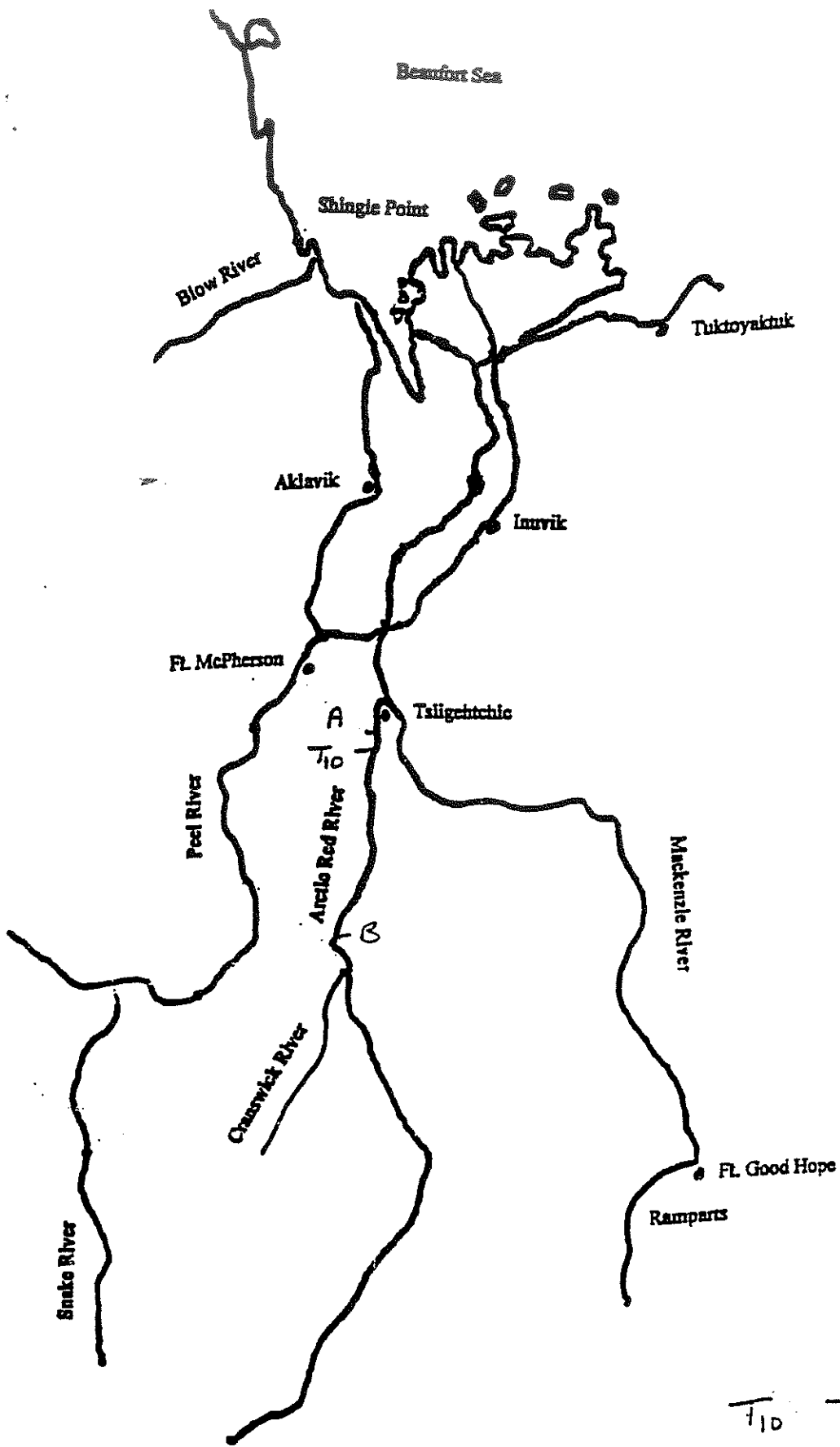
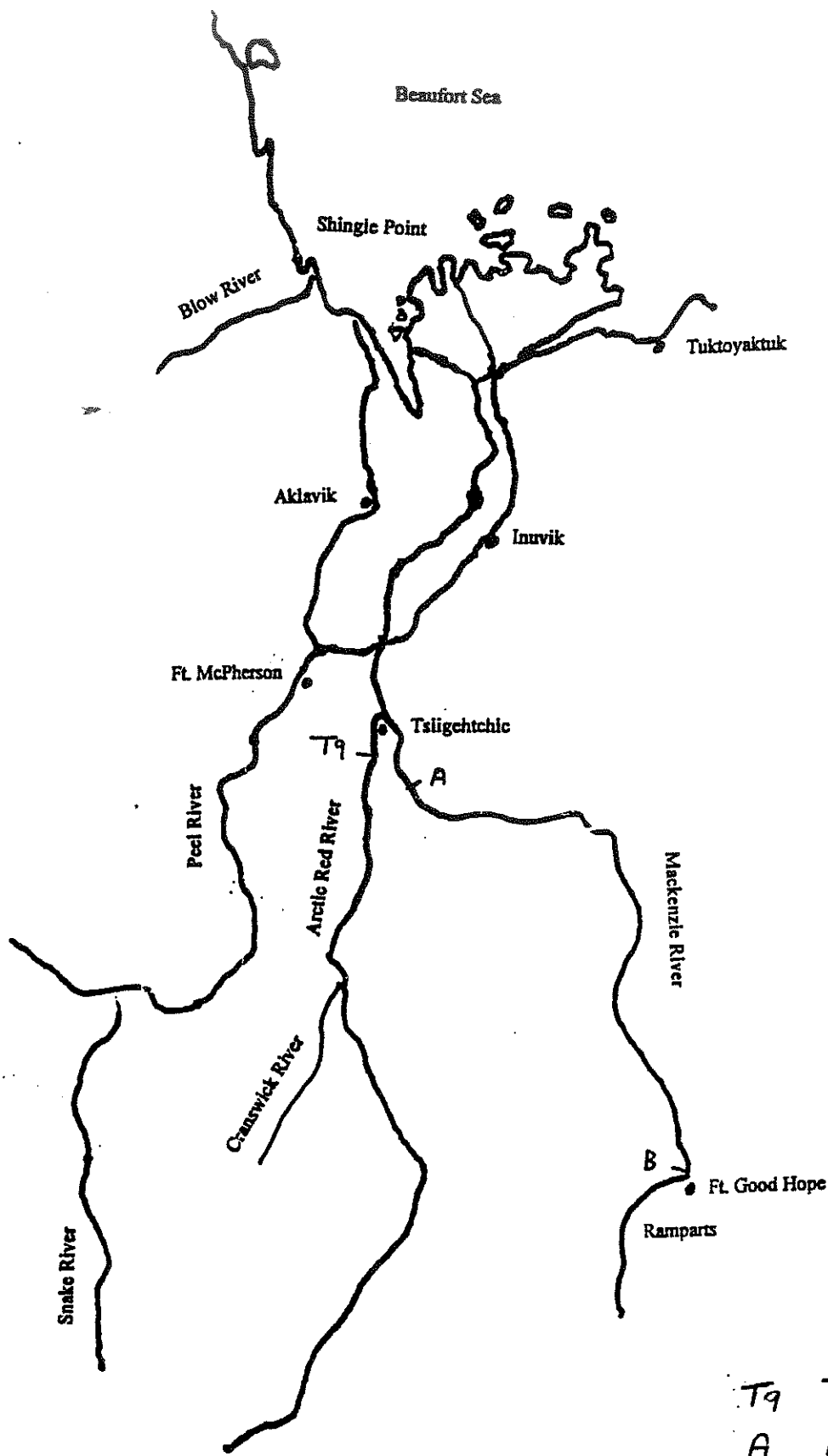


Figure 20. Inconnu 49.490

T10 Tagged July 23  
 A July 26  
 B September 16



T9 Tagged July 11  
 A August 20  
 B August 29

Figure 21. Inconnu 49.390

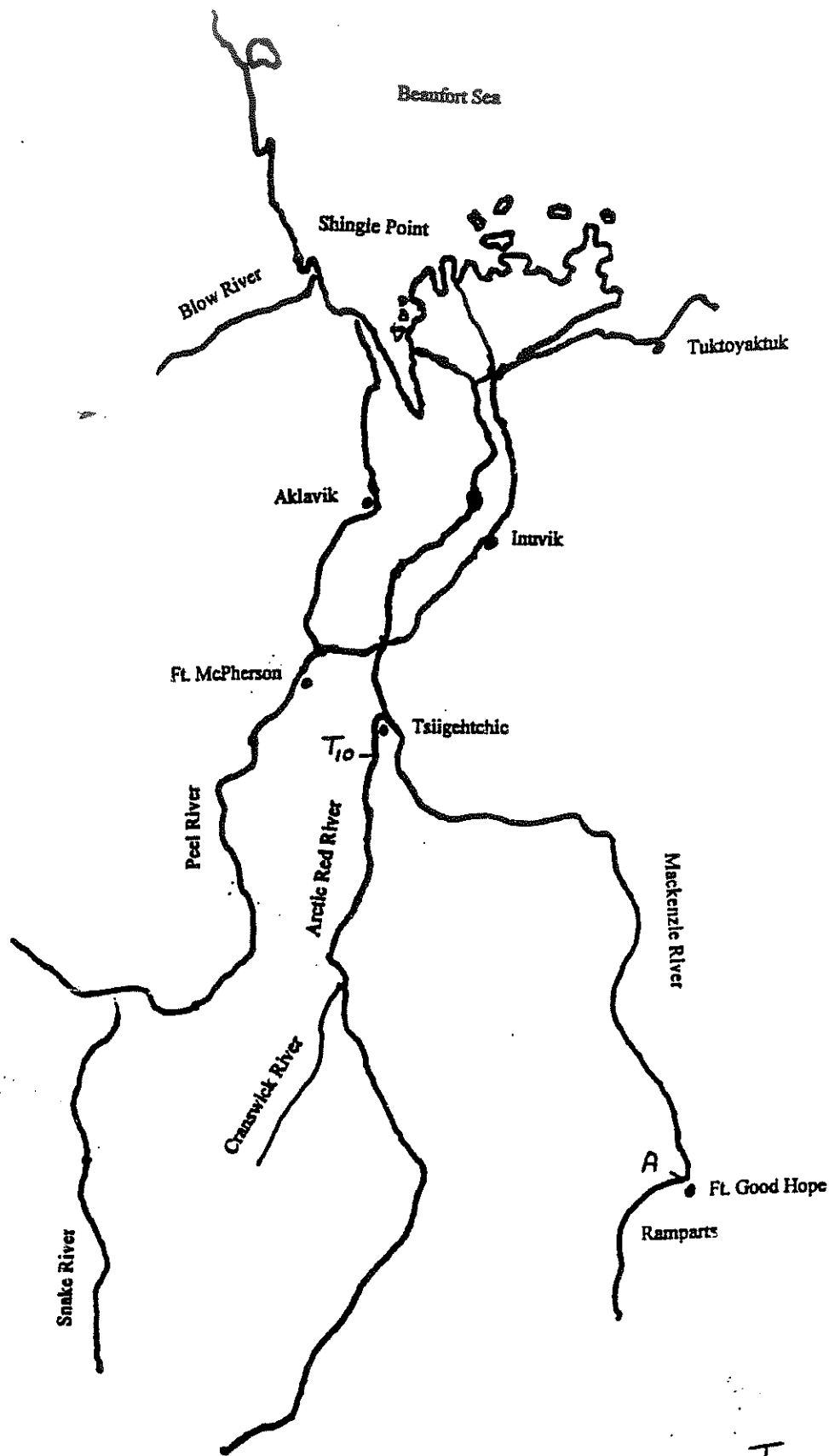


Figure 2. Inconnu 48.870

T10 Tagged July 24  
 A September 5

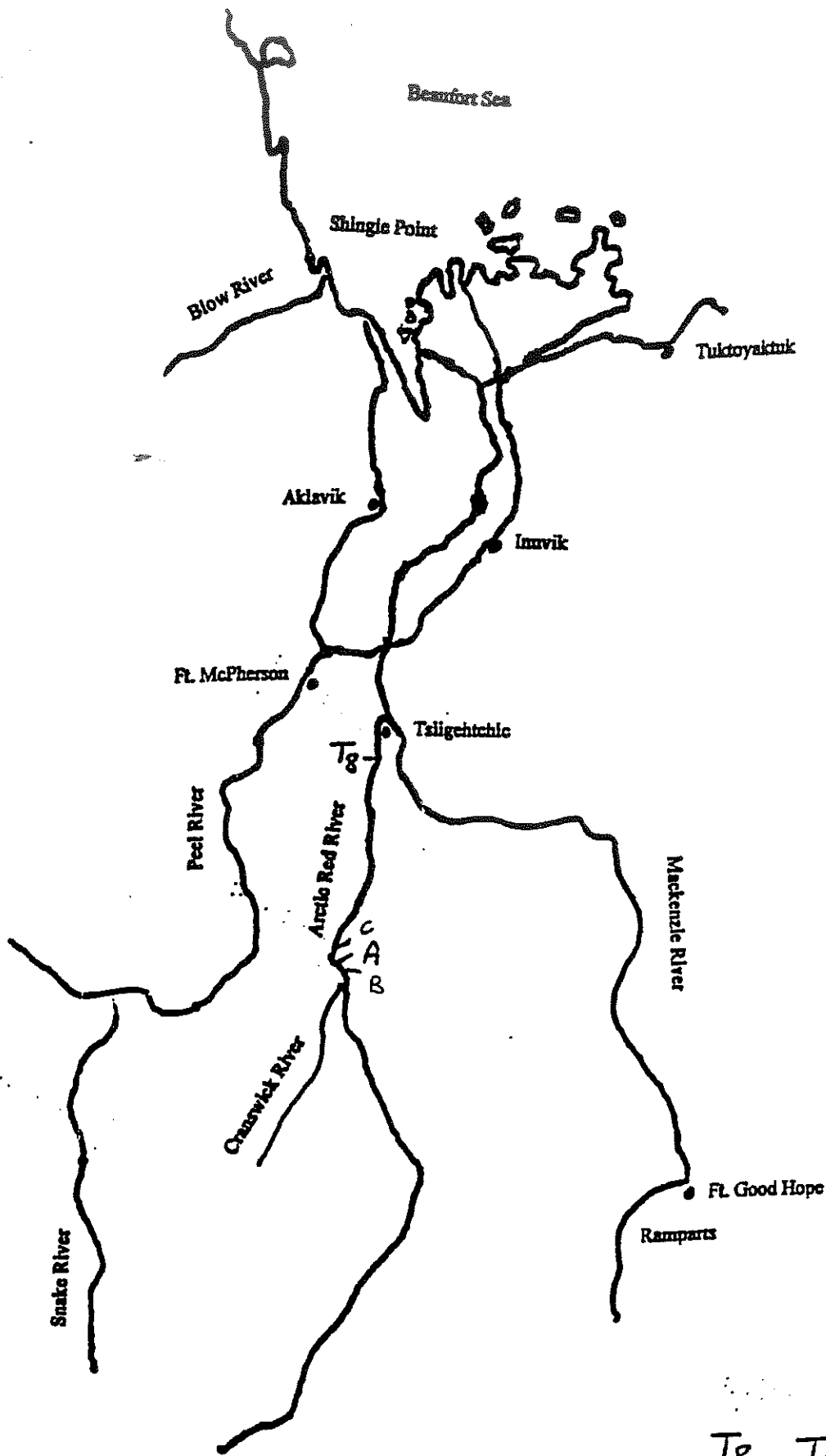


Figure 23. Inconnu 49.350

T8 Tagged July 11  
 A September 4  
 B September 16  
 C September 30

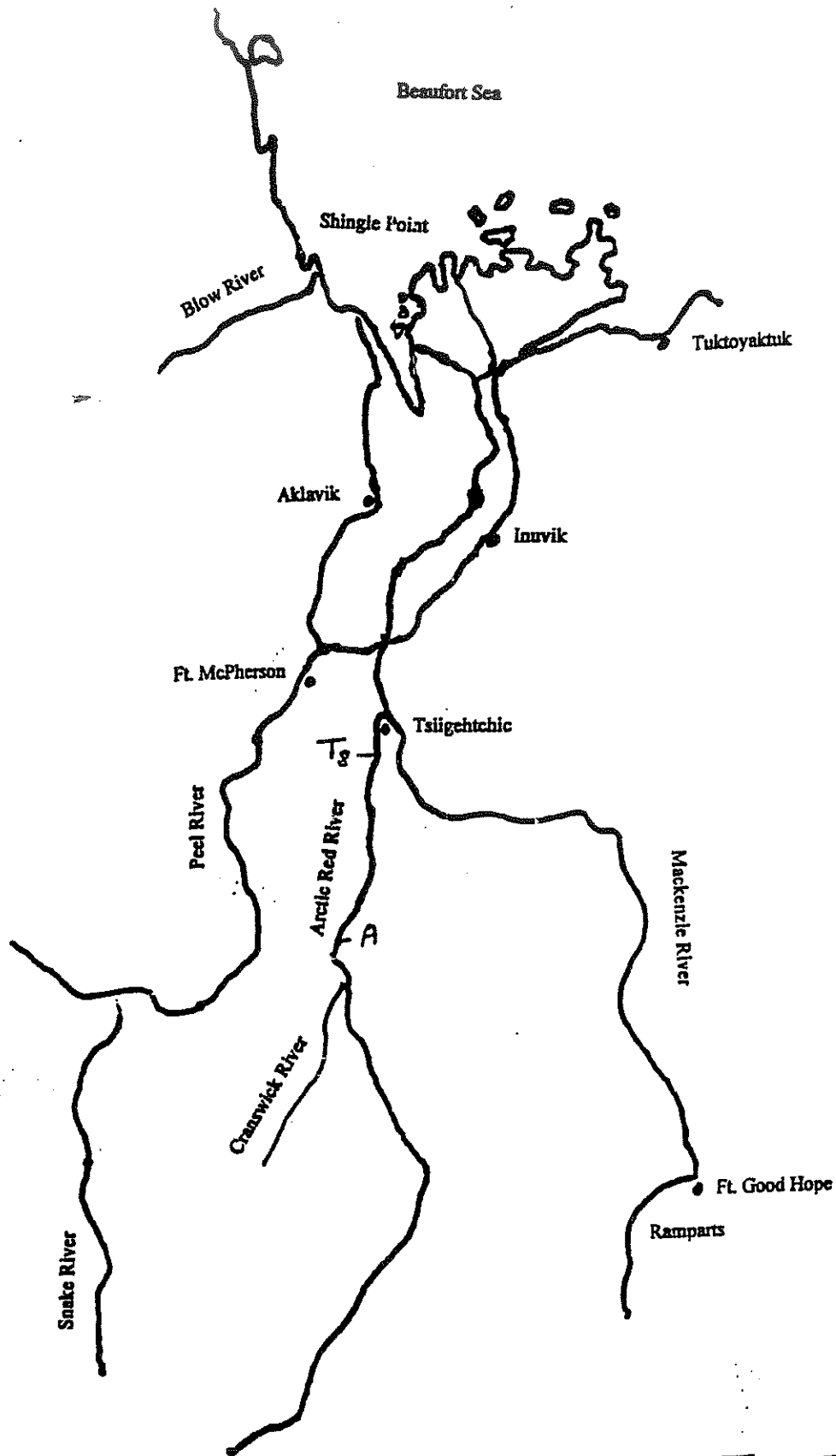


Figure 24. Inconnu 49.510

T<sub>8</sub> Tagged July 12  
 A September 4

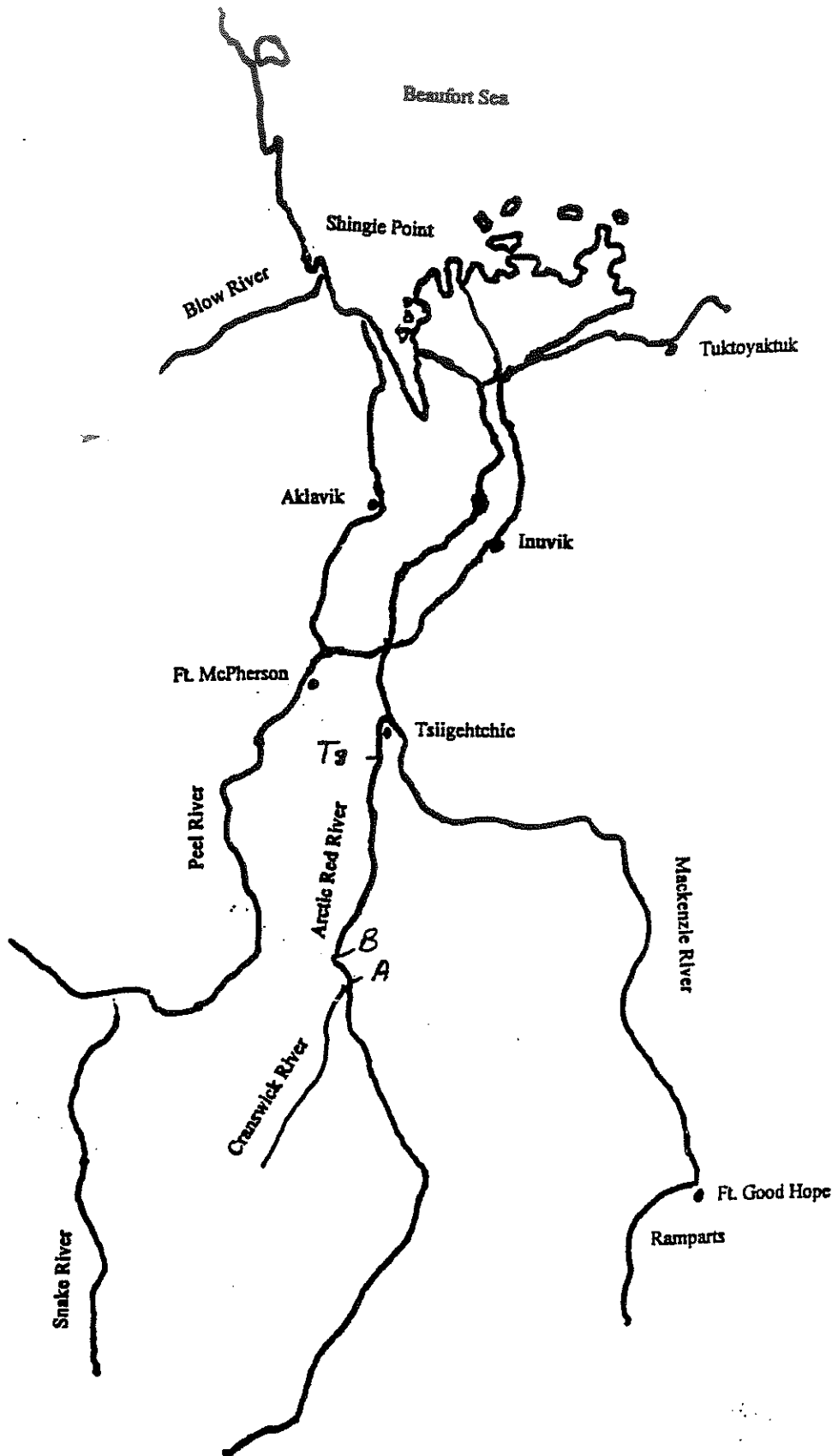


Figure 25. Inconnu 49.730

T<sub>8</sub> Tagged July 11  
 A September 16  
 B September 30

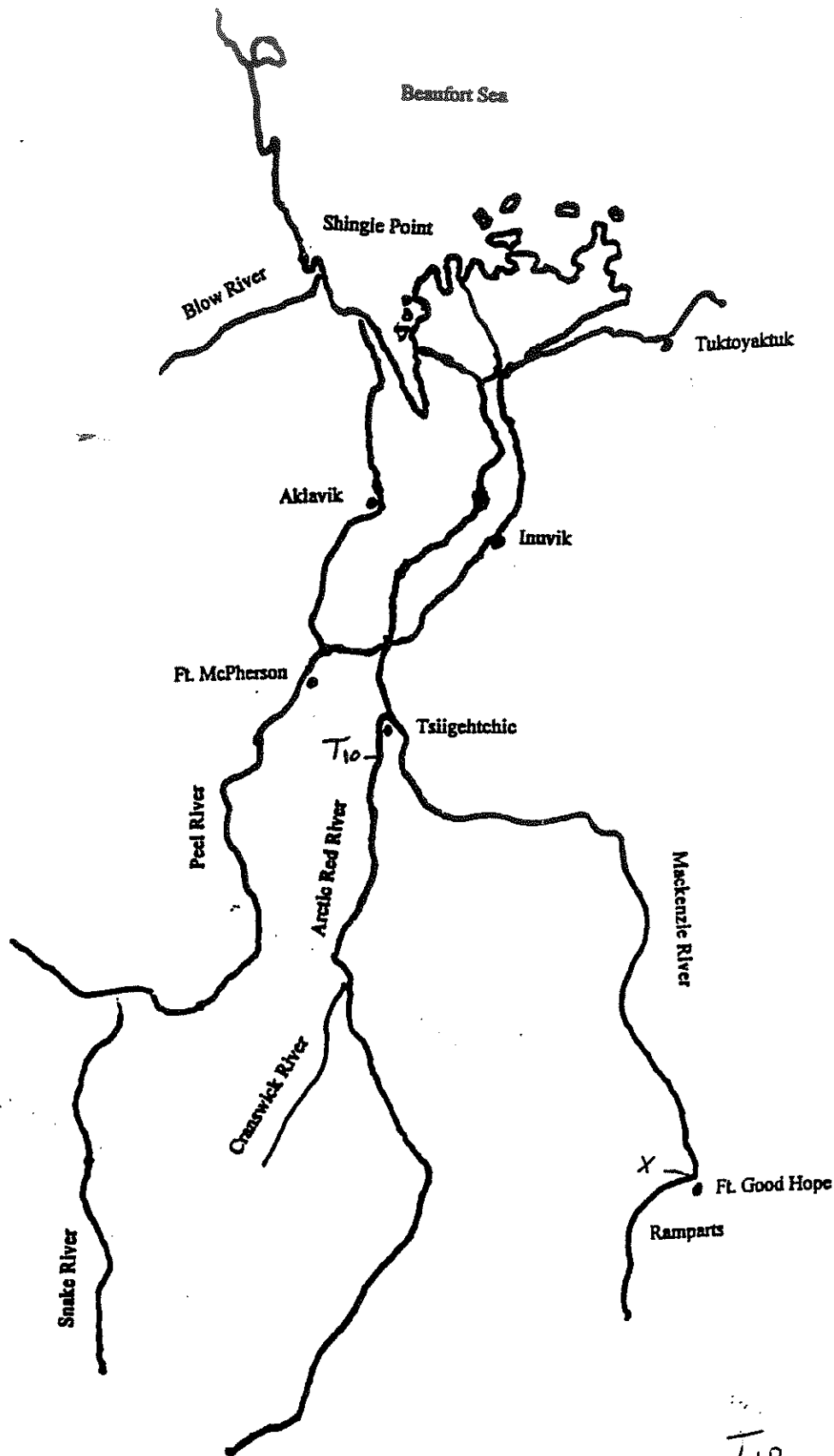


Figure 26. Inconnu 49.690

T<sub>10</sub> Tagged July 24  
 X Captured September 8

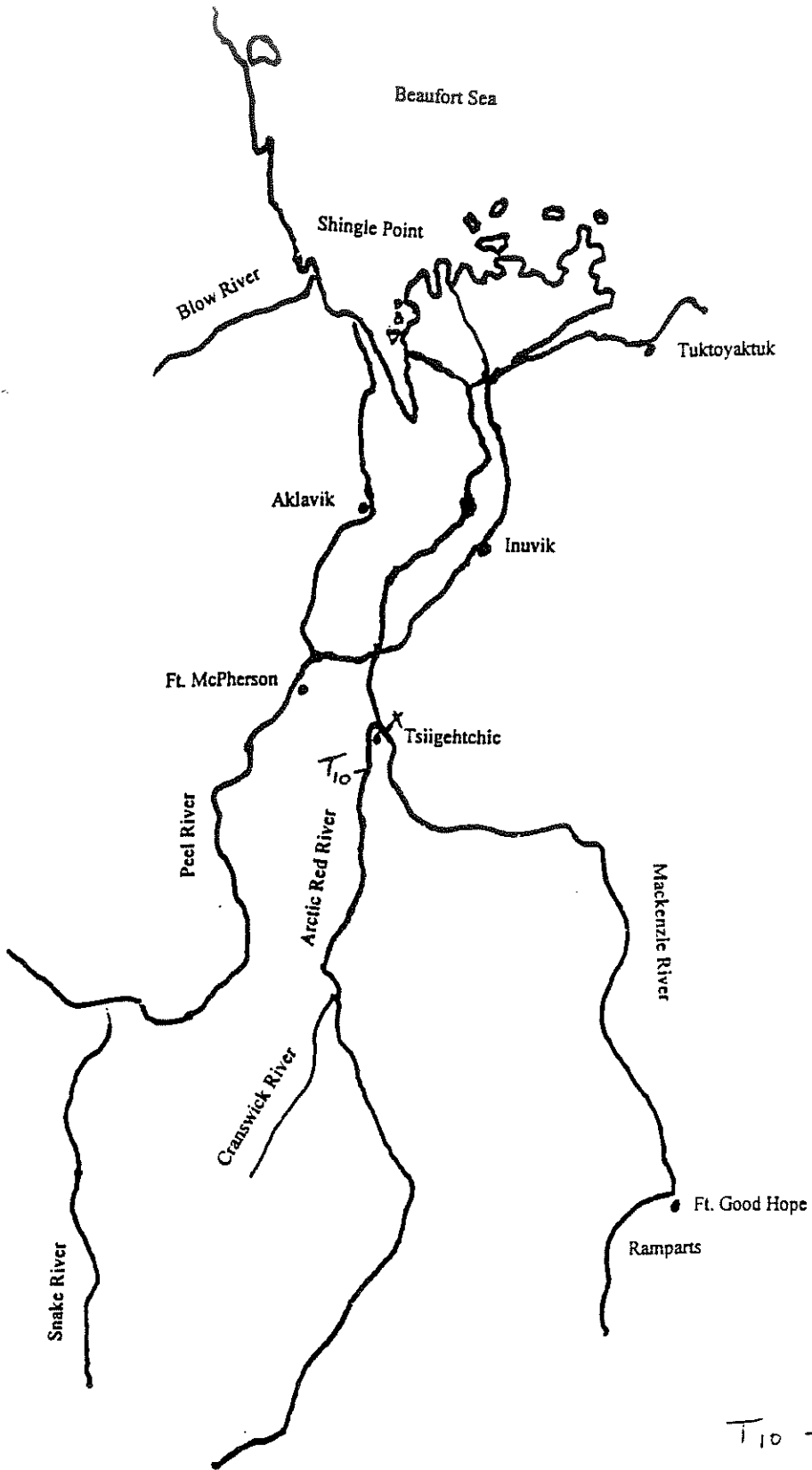


Figure 27. Inconnu 49.750