Memorandum

To: Chief, Management & Operations; Superintendent, KATM
Through: Deputy Regional Chief Scientist

From: Staff Fishery Biologist

Subject: Alagnak River Trip Report

On June 14 through 18, 1979 I floated the Alagnak River with Will Troyer and Dick Hsu from this office, Bruce Kaye from Katmai National Monument, and Richard Russell and Bill Aiden from the Alaska Department of Fish and Game in King Salmon. The purpose of the trip was to conduct an interdisciplinary/interagency resource evaluation of the drainage with particular emphasis upon analysing river running problems or potentials and gaining a field familiarity with the river's fishery, wildlife, and archeological/cultural/historic values.

Will, Dick, and I flew from Anchorage to King Salmon via O.A.S. goose on the morning of June 14 and were met there by Bruce, Richard, and Bill at the Monument headquarters. After some discussions with Roy Sanborn, the Monument superintendent, we finalized specific plans and made ready to depart. Dick Hsu and Bruce Kaye elected to float the Nonvianuk Lake branch of the river, both because that branch has known archeological sites as well as the fact that it currently receives a much higher degree of float-boat use. Will Troyer, Richard Russell, Bill Aiden, and I decided, instead, to float the Kukaklek Lake branch. This branch has more severe topographic relief, a moderately incised canyon with a short falls and two sets of rapids, and consequently experiences a much lesser degree of visitor use. In fact, it probably has been floated less than 10 times and we were only aware of 3 other trips plus a single riverboat trip by Sonny Peterson of King Salmon who somehow managed to scale the short falls during low water conditions in midsummer.

Dick Hsu and Bruce Kaye were flown via Goose to the Nonvianuk Lake outlet with their Avon "Redshank" raft and a few hours later our group departed for Kukaklek Lake. Will Troyer and I had the larger Avon "Adventurer" raft while Richard Russell and Bill Aiden, his assistant, used another smaller ADF&G "Redshank" raft. Richard and Bill were simultaneously working under a two year contract to NFS to conduct a fishery resource inventory of Lake Clark National Monument; however,
their second summer's field season had enough built in flexibility so that they were able to squeeze in our short trip. Furthermore, Richard had his own agency-related reasons for wanting to float the Kukaklek Lake branch as ADF&G continually receives questions about it each summer.

On our trip into the Kukaklek Lake outlet we overflow the rapid/falls area which lies in a canyon approximately 10 miles downstream from Kukaklek Lake. We took photographs of the canyon area from an altitude of about 1200 feet and I mentally judged that though the whitewater seemed a little violent, there were only two very short stretches of it lying relatively close together separated and surrounded by slick water, and I did not anticipate any real problems in our being able to beach the rafts, scout each of the rapids on the ground, and then elect whether to run them, line them, or portage them. As later events fortold, this judgement (from a relatively high altitude) was probably our first and biggest mistake. Because what we couldn't see from that relatively high altitude was the tremendous velocity, depth, and volume of that slick water flowing through the canyon, the steep banks lying immediately adjacent to the river, and the actual height of the back- curling rollers lying at the foot of the short ledge or falls. A circling overflight at a maximum altitude of 300-400 feet would probably have revealed a great many more details to us and we might even have elected to change plans and float the other branch with Dick and Bruce. So much for hindsight.

Upon arrival at Kukaklek Lake we inflated our rafts and then spent a few hours walking the immediate vicinity of the lake outlet. Will Troyer had observed an eagle nest from the air and so he and Bill Alden walked down the beach about 1/3 mile to see if the nest was still active.

Richard Russell and I walked up a small knoll on the southern bank of the lake, about one-quarter mile from the outlet. There we found 14-15 large house pits or barabaras overlooking the lake. Many of the barabaras were quite large with well defined fire pits and appeared to be very well preserved. Later discussions with Dick Hau revealed that because of the size, number, and condition of the pits, the site could very well represent a major archeological find, at least in terms of the number of people the village could have supported. Several days later, after rejoining Dick and Bruce on the main stream Alagnak, we all discovered a second site about a mile below the confluence of the two river branches, on a grassy bluff overlooking the river. Despite being less than one-half the size of the first site Richard and I had observed, Dick characterized it as being a major find - so I feel fairly confident that the Kukaklek Lake site could be very important indeed. I believe Dick will be making efforts to personally examine this first site later on this summer. It can be easily reached by float plane from either King Salmon or Brooks Camp.
Returning to our float trip, the first night we spent camped in a sheltered area about a mile below the outlet of Kukaklek Lake. Several of us fished for an hour or two to provide a little fare for our evening meal. I hooked five fish and managed to land two of them in the swift current, a 12 inch grayling and a 14 inch rainbow trout. Dick Russell landed and returned a 6 pound lake trout from a back water slough area adjacent to our camp. We speculated that the lake trout was feeding on juvenile king salmon as we noticed quite a few of the juveniles lying in quiet areas next to the current. It is apparently quite common to catch lake trout in the main-stream Alagnak River. Even at low water levels the Alagnak is still a substantial river with many backwater areas lying adjacent to the current. The river was very high, nearly at flood stage, with both banks submerged in places. However, the water was still very clear so near to the lake outlet.

The next morning we broke camp and were on the river about 10 a.m. The upper reaches of the Kukaklek Lake branch of the Alagnak River is known from aerial surveys to be one of the most important king salmon spawning areas in the drainage. However, we were too early to observe any adult fish on the branch and in fact, they were just beginning to enter the lower Alagnak River.

As we floated along the river began almost imperceptively to flow faster and faster and become more and more confined within it's banks. We were aware of the canyon ahead, of course, but none of us were particularly worried by it as there were, as yet, no rocks to dodge. And even as we realized that we were now within the canyon, we still did not become too concerned because we felt that we would surely be able to see or sense the rapids/falls coming up ahead and be able to make our way ashore in order to reconnoiter them.

This sense of complacency was at least partially generated by the fact that I had floated 13 (sic) Alaskan rivers all over the state, some of them moderately difficult, and Richard Russell had floated an additional 15-20 rivers throughout the Bristol Bay-Lake Clark area - and neither one of us had encountered situations that couldn't easily be handled with a little quick paddling and maneuvering or, if necessary, portaging. But then, again, neither of us had floated a river with a flow as large as the Alagnak River.

In short, we were floating merrily along within confined banks when the river suddenly made an abrupt right angle turn, simultaneously doubled in velocity, and then and only then could we see the rapid/falls immediately in front of us. There was no time or opportunity to make for shore or even to try to pick the best entry point into them. With little or no warning we were committed to running them.
Richard Russell and Bill Aiden went over the short falls first in their Avon "Redshank." The wall of water that met them in the form of a back-curling wave at the foot of the falls sent both of them flying like jackstraws. They simply couldn't begin to hold on to their raft. Just as we approached the lip of the falls Will Troyer and I saw Bill Aiden being miraculously swept up on the shore by a back wash from the falls, so we knew at least that he was all right. But neither of us could see Dick Russell at that time. What we didn't know was that he had been driven down to near the bottom of the plunge pool at the base of the falls and he found himself looking upward at the bottom of his raft far above him. He could still be down there if it weren't for the fact that the raft bow rope also extended down into the depths, Richard saw it, and managed to climb hand over hand up it to regain the surface and climb into his raft - and through all this he was still clinging (luckily) to his paddle.

So then it was time for Will and I to go over the falls. I yelled at Will to hang on, took a deep breath of air, and immediately sat down in the very bottom front portion of the raft, gripping the rope on each side very tightly. I expected to take a wall of water over my head and didn't want to be thrown out of the raft as I'd just seen happen to Richard and Bill. But unexpectedly, instead of plunging into the backcurling wave that Richard and Bill had met we rode right up on it at a crazy attitude. A second or two later we were looking at the sky, and then we fell backward right on to our backs. That wave was a real killer. I estimate it was from 8-10 feet high from crest to trough and curling wickedly backward for at least two-thirds the width of the stream. It would be very difficult to escape going through it during high water conditions.

There are few things sorrerly to deal with than an up-side-down raft in the middle of rapids! When the raft came down Will, at least, was thrown to one side while still hanging on. But the raft came down right on top of me and I found myself fighting for my life trying to get out from underneath it. In fact, I never did see any of the two sets of rapids that we apparently went through. I was under that raft, hanging on to it, looking up through green water and trying to shift from handhold to hand-hold to get to one side of it. But every time I thought I was getting somewhere either the current would spin me around or the raft would be spun around and I was no nearer to my goal. The strange thing about it was that my mind was very calm and clear and I was actually counting off the seconds while under water. I knew that I could hold my breath for over a minute (if I had to) and it somehow seemed to me to be important to determine just how many seconds I had left. I estimate I was under that raft between 15-20 seconds.. Finally I popped out at the upstream end of the raft.
We seemed to be out of the main rapids now though we were still meeting quite a few swells that would break over the front of the raft. Though I couldn't see Will, I could hear him coughing and sputtering each time we took a wave. And then I couldn't hear him anymore and began to think the worst. Actually, he finally decided he had to kick off from the raft and try to make shore before he drowned. He was hardly able to breath in his position and at that time we were still fairly close to shore, though still in water over our heads. Will never could find the emergency pulls to inflate his life vest, because he had a jacket and raincoat over it. He was very lucky to make it to shore in that condition and I understand he bounced off and rolled over quite a few rocks before he was finally able to crawl up on shore. For an hour or two later he was still coughing up blood mixed with his sputum.

In the meantime I concentrated on trying to kick sideways each time my feet would momentarily touch the bottom. But manhandling a 90 pound up-side-down raft full of 200 pounds of equipment is not an easy job. The raft pretty much went where it wanted to go. By this time I had been in 40°F water for 7 or 8 minutes and was beginning to feel the effects. My arms and shoulders were still in pretty good shape because they were out of the water at least one-half of the time. But I could feel the strength leaving my legs and it began to scare me because I knew I would need them to get the raft into shore when the river finally shallowed out.

After another minute or two I was at the point of deciding that I was going to have to abandon the raft while I still had enough strength to get into shore. But just then the river began to shallow out a bit and I was touching bottom more than one-half of the time. A big beautiful rock appeared right in front of me in thigh deep water and the raft wrapped itself partially around it with me holding it in place. That gave me the opportunity to stamp some life back into my legs and to figure out my next move. After a few minutes I shoved off and began working the raft into shore, fighting the current in the waist deep water. Finally I got the raft into shore and began grabbing for willows and alders as I was being dragged along. I finally was able to catch a substantial one, pull myself up on to the steep bank, plant my heels, and pull the raft up to my chest by the stern D-ring.

For the next ten minutes I sat there on the bank in that position, alternately pulling the raft into my chest as the current tried to rip it away from me. Again, I was just at the point of deciding that I would have to let the raft go due to the onset of leg and hand cramps and the threat of being pulled back in when I heard some distant yelling. I hollered back and got an answer from Will who was working his way downstream on the opposite bank. Soon he was abreast of me, could see my predicament, and began shouting upstream at Richard Russell who was working his way downstream with the Avon "Redshank" and the single paddle.
(I had held on to my paddle too for some time but had finally discarded it when it began to get in my way.) Richard worked his way over to me, landed below me, tied off his raft, and there fought his way through the brush upstream, grabbed my bow rope, and then tied it off. Was I ever glad to let go of that D-ring! Shortly afterwards I began shaking uncontrollably but felt a lot better after I began walking around. Within a few minutes Richard had crossed the stream again with the raft to pick up Will Troyer and Bill Aiden finally caught up with us after fighting his way through ½ mile of brush on our side of the river.

Over the next 45 minutes, while Will and I rested, Richard and Bill used my folding saw and their knives to cut down three small spruce trees and fashion them into makeshift paddles. Richard also turned our raft right-side-up and straightened out our gear.

An hour and one-half later we reached the confluence of both branches of the Alagnak River where we knew lay an old trapper's cabin. The day was cold, wet and windy and we knew that drying out under shelter in front of a pot-belly stove was preferable to the hassle of getting a fire started in the rain. As luck would have it, Bruce Kaye and Dick Hsu had already reached the cabin at the confluence, had a fire going in the stove, and were able to get hot liquids into us almost from the moment we arrived there.

The major reason I have gone into such detail to describe our experience is to illustrate just how very lucky we all were. Several of us should have drowned and very probably would have drowned if it had not been for some fortuitous circumstances. And even then, some of us were still prime candidates for hypothermia. We were very, very lucky and all of us, I think, are now firm believers in the power of a large river.

Considering the circumstances, both NPS and personal equipment losses were minimal. Most of our equipment was well tied down and in completely waterproof bags. However we did experience the loss of the following NPS equipment items which are now in the process of being replaced through procurement:

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<thead>
<tr>
<th>Number</th>
<th>Item</th>
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<tbody>
<tr>
<td>3</td>
<td>Long shaft paddles, aluminum, plastic</td>
</tr>
<tr>
<td>1</td>
<td>Nylon carrying bag for Avon &quot;Adventurer&quot; raft</td>
</tr>
<tr>
<td>1</td>
<td>Foot pump for Avon &quot;Adventurer&quot; raft</td>
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<tr>
<td>1</td>
<td>Avon raft repair/patch kit</td>
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The retail value of the above NPS equipment is approximately $250. In addition, Will Troyer lost his fishing rod and reel and managed to get his camera and two lenses wet enough so that he will have a repair bill of at least $300.
The rest of the trip was relatively uneventful. The O.A.S. goose picked us up on the lower Alagnak River on the afternoon of June 18, returned Bruce, Richard, and Bill to King Salmon, and then flew Will, Dick, and I back to Anchorage. I am sorry, however, that I wasn't to take better field notes during the last few days of the trip. But I wasn't feeling too well until we got back to Anchorage.

PERSONAL LESSONS LEARNED

1. Do not consider floating a wilderness Alaskan river without a very personal and critical examination of all potential trouble spots, using all of the means available to you including low level aerial surveys, thorough field examinations of rapids where possible, and an examination of all of the reports of prior river users during various water conditions. (Had I read Dave Dapkus's 1973 BOR report I would have known that the rapids could potentially present problems during exceptional conditions because of the canyon's confined banks). We were lulled into a false sense of security by our prior experience, recent reports that the rapids were "a piece of cake" (during mid and late summer water conditions), and the fact that John Denver had gone through the short rapids/falls 4 times in 1975 (and anything John Denver can do on a river should present us with very few problems! Again, his trip was in midsummer).

2. Be especially wary of dramatically different water conditions that can occur during any open water period of the year, but which are especially prevalent during May and June on Alaskan rivers.

3. Be especially wary of medium to high volume streams, regardless of water conditions. Our prior experience was almost exclusively with smaller streams (which present their own unique problems); but at least if you get into trouble on them you are seldom in water much deeper than your waist or chest and are usually able to salvage bad situations.

4. There is virtually no way for an average person to climb back on board an Avon raft (or any other raft that I'm aware of) after it has been turned up-side-down. This condition is probably pretty rare, but if and when it happens there is really very little that one can do. There are no hand holds above the water and I am considering writing the Avon company and reminding them of this salient fact. Even a couple of strategically placed, recessed hand holds on the bottom of the tubes would be a great help and might even allow one to climb back on board again.

SPECIFIC MANAGEMENT RECOMMENDATIONS

At the earliest available opportunity at least two and maybe even three warning signs should be positioned on the Kukaklek Lake branch of the Alagnak River.
The first sign should be at the lake outlet and should be strongly worded to warn people of the dangers of floating this branch during high water conditions in May and June. I would recommend using a raft not less than 16 feet long during this period and even then I wouldn't want to guarantee success with that backcurling wave. (Our rafts were 13 feet and 12 feet, respectively) Once in that canyon you are committed and are going to have to negotiate the falls, at least during high water conditions.

A second sign (intended mainly for intermediate water conditions) could be placed at the "point of no return." That is, that last point where it is still possible to conveniently beach your raft or other watercraft and hike to the falls to see just what the precise water conditions are. This point might be difficult to determine; but nevertheless, an effort should be made to define a convenient, safe take-out during most water conditions.

The third sign should be placed immediately before the right angle bend that precedes the falls. The river flows rather straight for quite some distance before this bend and the sign should be large enough to attract your attention for the entire line of sight, giving you an opportunity to set up for the falls.

As for negotiating the falls themselves, I seem to remember that the water immediately adjacent to the right bank (looking downstream) was a little less turbulent. And that's where I would try to be the next time around.

I don't quite know what to say about the potential for kayaking this river during high water conditions. A definite prerequisite would be the ability to "eskimo roll", or one could end up in just as much trouble as we did.

I would definitely not recommend the use of an open canoe during May or June or during any period other than the very lowest water conditions.

And I would recommend that anyone floating this branch of the river during May or June, whether by raft or kyak, should seriously consider the use of a wet suit. It could give one an extra margin of safety, just when one most needs it.

As a final comment, I note that the HCRS (formerly BOR) has very recently printed a 28 page brochure describing a number of potential float trips in Southwestern Alaska. The section on the Alagnak River should probably be revised in the next edition to reflect the dangers in floating the Kukaklek branch during May and June.

Ross Kavanagh

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