SOUTHWEST ALASKA RAINBOW TROUT MANAGEMENT PLAN

REVIEW DRAFT DEVELOPED BY:
ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF SPORT FISH
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INTRODUCTION

The southwestern sport fish management area includes all waters and drainages flowing into Bristol Bay north of Cape Menshikof, Kuskokwim Bay and includes the Kuskokwim River and its tributaries from Aniak River downstream to Kuskokwim Bay (Figure 1). Within this 54,700 square mile area is some of the most productive salmon, rainbow trout, Arctic grayling, Arctic char, and Dolly Varden waters in the world.

Wild rainbow trout stocks of the area are world famous and are the cornerstone to a multimillion dollar sport fishing industry. Over 100 commercial guides and outfitters operate in southwest Alaska offering services that range from outfitted but unguided float trips, to luxurious wilderness lodge accommodations complete with daily fly-out fishing. Current prices for these services range from $1,500 to $4,000 per fishermen per week. In addition to lodges and outfitters, nearly 50 air taxis regularly fly fishermen throughout the area. Total economic value of the recreational fishery in Southwest Alaska is estimated at over $50 million per year. Anglers travel from many parts of the country and the world to enjoy the unique opportunity of fishing for wild rainbow trout in the undeveloped, scenic landscape of southwestern Alaska.

Sport fishery harvest and effort estimates for the years 1977 to 1987 are summarized from the Alaska Statewide Harvest Survey (Table 1). Currently, over 65,000 man-days of angling effort are expended annually in southwestern Alaska. Annual angling effort (all species) has nearly doubled since 1980 and estimated rainbow trout sport harvests have risen proportionally from 3,000-4,000 fish annually in the late 1970s to a recent average of 7,400 (1983-1987).

NEED FOR A MANAGEMENT POLICY

Since statehood in 1959, the Alaska Board of Fisheries and the Department of Fish and Game have recognized the unique quality of the wild rainbow trout resources in southwest Alaska by managing these fisheries with increasingly conservative regulations. The development of these regulations, however, has taken place on a stream by stream basis without the benefit of an areawide plan.

As the rainbow trout sport fisheries in southwest Alaska gain in popularity and the economic potential of the recreational industry in the area, and the state continues to grow, the need to develop and adopt a management policy becomes increasingly important. That policy must: 1) protect the biological integrity of the region's wild rainbow trout stocks, 2) provide recreational benefit to all users, and 3) maximize the economic potential of the area and state.

The Alaska Board of Fisheries sets management policy and adopts fisheries regulations for all of Alaska on a regional basis. Proposals for fisheries management policies, management plans or specific regulations are submitted by both the Alaska Department of Fish and Game and the public. During recent Board of Fisheries meetings, where southwest Alaskan sportfishing regulations have been discussed, there has been a dramatic increase in the number of proposals dealing with rainbow trout. The Board of Fisheries has struggled to address each proposal solely on its own merit with no overall policy to guide them or the public in shaping the regulations governing this valuable resource. The result has been a reactive patchwork of regulations with no clear management objective.

The purpose of this document is two-fold. First, it provides the members of the Board of Fisheries and the public with much of the background and data necessary to understand the character and the dynamics of rainbow trout fisheries in southwestern Alaska. Second, it presents a set of draft policies which, if adopted by the Board of Fisheries, will govern the future management of rainbow trout stocks in southwest Alaska. The policies are intended to give the Board and the public a clear understanding of the underlying principles by which rainbow stocks are to be managed and provide guidance for the Board in developing regulations.

Philosophy of the Policy

The overriding philosophy of the draft rainbow trout management policy is one of conservative wild stock management. The philosophy of conservative wild stock management is not new to fisheries management or to Alaska and, in fact, probably best describes the present approach to management of rainbow trout in southwestern Alaska. Conservative wild stock management does not necessarily preclude limited harvest of rainbow trout for food or trophies. However, maximum yield principles which emphasize harvest are ruled out. Additionally, under a philosophy that emphasizes wild stock management, mitigating losses of wild trout through stocking would be precluded.
Conservative wild stock management is predicated on both biological considerations and social concerns. Growth in the region's rainbow trout sport fisheries is inevitable and by managing the areas wild rainbow trout stocks conservatively, the potential for serious long term resource problems are minimized. From a social perspective conservative wild stock management is consistent with the wishes and desires of most of the angling public presently utilizing the resource.

**Public Review Process**

One of the most important aspects of developing a management policy for any resource is that of public involvement. It is the intent of the Department of Fish and Game and the Board of Fisheries that members of the public have several opportunities to comment. An extensive mailing list has been developed which includes, but is not limited to, all sport fishermen who purchased licenses in the management area in the past year, all members of the Fish and Game Advisory committees, members of the guiding and outfitting industry, local village leaders both city and tribal, government agencies operating within the area, and various Native corporations who are landholders in the area. Over four thousand individuals and groups will receive a copy of the draft policy for comment. Copies of the policy will also be made available to anyone who desires one but was not included on the mailing list. A questionnaire with a pre-paid return envelope will be provided with each draft soliciting opinions concerning certain aspects of the policy.

The Department will present the draft policy at Fish and Game Advisory Committee meetings and the various fisheries meetings held throughout the area during the spring and fall. Every effort will be made to make interested parties aware of the draft policy. In addition, the Department is participating in a formal national review of management of exceptional trout stream systems being conducted by the University of Wisconsin.

It is expected that the review process will take most of the winter of 1988-89. Following public review and prior to the 1989 Board of Fisheries meetings, a second draft will be completed incorporating public comment. The policy will then go through a second review during the Board of Fisheries meeting prior to being acted upon by the Board. Throughout the process the public will have an opportunity to comment and participate in the development of the final policy.

Specific regulation proposals will be offered to the Board at the 1989 winter meeting. Although proposals can be made by any member of the public and Advisory Committees, the Department intends to work with interested groups and develop a regulatory package that meets the biological considerations and desires of the angling public.

**REGULATORY HISTORY and STOCK STATUS**

The southwestern sport fish management area is approximately 54,700 square miles, or roughly equivalent in size to the state of Washington. As one might expect in an area that large, distinct differences in geology, climate, vegetation, and landscapes result in a variety of river, stream, and lake ecosystems. From a biological perspective it is ideal to develop management policies and necessary regulations on a stock specific basis. However, due to the geographic size of the management area and the limited information available on specific stocks, background information has been developed on a watershed basis.

The area can logically be broken into four distinct sections; eastern, central, western, and northwestern. These sections correspond with differences in both the character of the present day rainbow trout fisheries and the biological differences between stocks (abundance levels, growth, and size characteristics). The following is a brief area description, regulatory summary, and stock status report for each of the major watersheds within the four sections.

**Eastern**

The eastern section includes the Kvichak, Naknek, Egegik, and Ugashik drainages (Figure 2). Rainbow trout are found in abundance throughout the section with the exception of Lake Clark and its tributaries and the Ugashik system. Rainbow trout stocks in the eastern section are characterized as large, relatively fast growing fish whose life history is typified by riverine growth up through age two or three and then lake growth broken only by seasonal migrations to tributary streams to spawn in the spring and to feed on salmon eggs and carcasses in the late summer. These are the trophy rainbow trout for which southwestern Alaska is known. Fish in excess of ten pounds are not uncommon in these waters.

The Kvichak River drains an extensive portion of the eastern section with Lake Clark and its tributaries forming the northern
part of the drainage. Lake Iliamna and its tributary streams, Lower Talarik and Belinda Creeks, the Newhalen, Copper, Gibraltar, Iliamna, and Kakhonak Rivers, have been famous for their large rainbow trout since before statehood.

The Alagnak River enters the lower portion of the Kvichak and is locally known as the Branch River. The Alagnak is a 74-mile long clearwater river originating in Kukaklek Lake. Its major tributary, the Nonvianuk River, is 11 miles long and is a popular clearwater river used by rafters. The Alagnak River has been designated a wild and scenic river and forms the northern boundary to Katmai National Park and Preserve.

In the heart of the Kvichak River drainage is the Bristol Bay Wild Trout Zone (Figure 2) which was first established in 1968 as the Bristol Bay Trophy Fish Area, and was later renamed the Bristol Bay Wild Trout Zone in 1978 in an effort to deemphasize the killing of large rainbow trout. The Bristol Bay Wild Trout Zone includes the Kvichak River and its tributaries and all drainages flowing into Lake Iliamna and Six-Mile Lake, as well as the waters of Lake Iliamna within a one-half mile radius of the Kvichak River’s outlet from Lake Iliamna. The intent of the Board of Fisheries was to recognize the area’s unique stocks of wild rainbow trout and establish special regulations designed to preserve them. Currently, rainbow trout sport fishing regulations in the Wild Trout Zone are conservative. Only single hook, unbaited artificial lures may be used in the summer and fall, summer bag limits are minimal, and, the entire area is closed to sport fishing during the spring spawning season. Three of the four fly-fishing-only areas (Lower Talarik Creek, Copper River, and Gibraltar River) in southwestern Alaska are located within the Wild Trout Zone.

The Naknek River drains four lakes: Naknek, Coville, Grosvenor, and Brooks. American, Idavain, and Gertrude Creeks and Brooks River are other popular waters in the drainage. Although not within the Wild Trout Zone the Naknek River drainage has long been famous for its production of trophy class rainbow trout with the first significant fisheries occurring in the mid-1950s. At that time Lake and Rapids Camps, both on the Naknek River, were established to provide military personnel access to the waters of the Naknek for the purpose of sport fishing. During their operation until 1974 significant harvests of rainbow trout from the Naknek River occurred. The rainbow trout fishery on the Naknek River occurs almost exclusively above Rapids Camp in a 12-mile stretch downstream from Naknek Lake. The Naknek River is the most heavily fished water in the area supporting over one-third of the angling pressure in southwestern Alaska.

Most of the Naknek River drainage is within the Katmai National Park and Preserve. Of particular note is the Brooks River which connects Brooks Lake to Naknek Lake and is the site of a significant rainbow trout sport fishery. Anglers find the clear, fast-flowing Brooks river very attractive as it offers them an opportunity to fish for abundant rainbow trout in an undeveloped, pristine setting. Most anglers practice catch and release for rainbow trout even though the regulations still allow a conservative bag limit.

In the Egegik drainage only the King Salmon River and its tributaries are known to support rainbow trout. Probably the most popular fishery in the drainage occurs on Gertrude Creek, a small tributary to the King Salmon River. Little data exist on the rainbow trout stocks in this drainage.

**Regulation History:**

- **1950s** Katmai National Monument:
  1. A daily bag or in possession limit of two red salmon and ten fish or 10 pounds and one fish of any other species in the waters within the Katmai National Monument.
  2. Sport fishing in the Katmai National Monument is permitted only with artificial lures. Each such artificial lure may consist of not more than two flies or not more than one plug, spoon or spinner, to which may be attached not more than one treble hook; except that in the Brooks River, other than in the area from the mouth of the river to a point approximately 880 feet upstream (as designated by posted signs), the lures shall be restricted to not more than two flies. In said posted area, from the mouth of the Brooks River to a point approximately 880 feet upstream, plugs, spoons and spinners with not more than one barbless treble hook and not more than one attraction blade may be used.

- **1960** Spawning season closure on portions of Naknek and Kvichak rivers.

- **1965** Spawning season closure extended to include Lower Talarik Creek.
1968 Creation of Bristol Bay Trophy Fish Area. Special regulations included single-hook only, reduction in bag and possession limit from ten fish to two per day and sport fishermen were prohibited from using helicopters for transportation.

1970 Spawning closure extended to include the Gibraltar system. Naknek River drainage above Big Creek designated single-hook area.

1972 Daily bag and possession limit reduced from 10 fish to five. Use of bait banned in Lower Talarik Creek, Gibraltar drainage and Copper River.

1973 Use of bait banned in all the Bristol Bay Trophy Fish area during summer months. Area designated single-hook only except for portions of Naknek River.

1975 Copper River was made fly-fishing only from June 10 to October 31.

1976 Single-hook restriction on the Naknek River dropped.

1977 Gibraltar drainage designated fly-fishing only and daily bag and possession limits reduced to one rainbow trout during summer months.

1978 Bristol Bay Trophy Fish Area renamed the Wild Trout Zone.

1981 Talarik Creek added to fly-fishing-only waters.

1985 1. All streams are closed to fishing from April 10 through June 7. This closure includes the waters of Lake Iliamna within a one-half mile radius of the mouth of the Kvichak River.

2. Only unbaited, single-hook, artificial lures may be used in all streams and within a one-half mile radius of the stream mouth from June 8 to October 31. Bait is legal during the winter.

3. Helicopters are prohibited from transporting sport fishermen or sport fish.

4. Copper River downstream from Lower Copper Lake, excluding all tributary streams into Copper River, only single-hook, artificial flies may be used from June 8 through October 31.

5. Gibraltar drainage—That portion of the Gibraltar drainage consisting of the Gibraltar River and its tributaries upstream of the its confluence with Little Gibraltar Creek, that portion of Gibraltar Lake within one-half mile radius of the Gibraltar River and all inlets to Gibraltar Lake. Only single-hook, artificial flies may be used from June 8 through October 31.

6. Lower Talarik Creek—Only single-hook artificial flies may be used from June 8 to October 31.

7. The daily bag and possession limit is five rainbow trout of which only one may be over 20 inches in length from November 1 through April 19 and one rainbow trout from June 8 through October 31.

8. A portion of the Naknek River and all of the Brooks River are closed to fishing from April 10 to June 7.

9. Fish eggs may not be used as bait in the Naknek River upstream from a department marker located at the old Katmai National Monument boundary.

10. Brooks River—Only single-hook, artificial flies may be used from June 8 to October 31.

11. The daily bag and possession limit is five rainbow trout of which only one may be over 20 inches in length from November 1 through June 7 and two rainbow trout of which only one may be over 20 inches in length from June 7 through October 31.

1987 Only unbaited, artificial lures may be used in the Naknek River Drainage from March 1 through November 14. In this section, unbaited means free of any fish bait or bait material including natural or a artificial essence of fish eggs or other scents.

Stock Status:
Rainbow trout stocks in the eastern section are generally believed to be in good condition. Although fishing effort in this section has increased dramatically since 1977, harvest of rainbow trout has demonstrated a more moderate rate of increase and currently averages approximately 4,200 fish annually since 1983 (Table 2). Rainbow trout harvest per angler-day appears relatively stable and ranges from 0.09 to 0.16 fish per day since 1977. Harvests on the Kvichak, Newhalen, Naknek River, and Naknek Lake appear stable while the harvests at Lower Talarik Creek and the Brooks River have declined significantly.
There has been a clear shift in the attitude of anglers toward harvest of rainbow trout over the last 10 years. Retention rates of rainbow trout caught in Lower Talarik Creek, Naknek River, and Brooks River have dropped significantly over the years for which creel survey data exists. Retention rates on the Naknek River for example have fallen from 61% in 1980 to 10% in 1987 (Table 3). A more dramatic example is Lower Talarik Creek where retention rates have dropped from 20% in 1970 to virtually zero in 1987. Reduction in the harvest rate is evidence of growing acceptance by the angling public of voluntary catch and release fishing and not changes in regulations or declines in stock abundance.

Age and size composition data for rainbow trout stocks in this area are extensive. Data are currently being analyzed to detect changes in size and age composition of indicator stocks to further assess stock status. Although data analysis is still underway preliminary indications are that there have been few measurable changes in the past ten years.

Central

The central section of the southwestern management area includes the Nushagak and Mulchatna Rivers and the Wood River and Tichik Lake drainages (Figure 3). The only federal land in this area is a small portion on the Nushagak River managed by the Bureau of Land Management. Increased recreational use of the Nushagak and the Mulchatna Rivers was the catalyst for work on a recreational management plan coordinated by the Alaska Department of Natural Resources. The plan is scheduled for completion in spring of 1989.

Rainbow trout are found throughout the area and are characterized by a smaller size at age than those found in the eastern section. In this area rainbow trout are almost exclusively of riverine origin which results in slower growth rates and smaller size at age. Approximately 75% of the angling pressure in this area comes from nonresident, guided fishermen that utilize the numerous fishing lodges and outfitters who operate within the area. A very conservative philosophy toward rainbow trout harvest has prevailed in this area on the part of the commercial sport fishing industry. Most of the harvest of rainbow trout is by local residents and nonguided float trip fishermen.

The Mulchatna drainage including the Mulchatna, Chilikadrotna, Stuyahok, and Koktuli Rivers, flows into the Nushagak river below the village of Koliganek. The majority of sport fishing pressure in this drainage comes from anglers flying into the drainage from Anchorage or Iliamna. The Stuyahok and Koktuli Rivers are the most popular float rivers within the Mulchatna drainage and use has increased significantly on them in recent years.

The Nushagak River drains south from Nushagak Hills into Nushagak Bay at Dillingham. Rainbow trout fishing in the Nushagak occurs primarily upstream of its confluence with the Nuyakuk River. Access is by float plane or jet boat. The upper Nushagak River has been the site of significant increases in angling pressure in the last two years as evidenced by the increase in the number of land use permits granted to outfitters and guides who operate commercially in the drainage.

The Tichik Lake system is a series of seven lakes which are drained by the Nuyakuk River. The lakes and the Nuyakuk River downstream to the falls are included in the Wood Tichik State Park which was established in 1978. Special sport fishing regulations were first applied to this area 1961. The Nuyakuk River from the outlet of Tichik Lake to a point 500 feet below the Nuyakuk falls was included in the Bristol Bay Trophy Trout Area in 1968. That status was subsequently dropped in 1976 when local lodge owners and guides objected to the publicity created by the designation.

Wood River, Wood River Lakes, and the Agulowak and Agulukpak Rivers, also within the Wood Tichik State Park, are used extensively by residents of Dillingham and Aleknegik and by most of the sport fishing guides in the Nushagak Drainage. The most popular rainbow trout water in the Central section is the Agulukpak River which connects Lake Beverly to Lake Nerka. The Agulukpak River has the distinction of being the only mandatory catch and release water in southwest Alaska and was established by regulation in 1984. Sport fishing occurs in the upper two-thirds of this 2.5 mile long river where catch rates in excess of one fish per hour are common in August and September. The Agulowak River, which connects Lake Nerka and Lake Aleknegik, also receives substantial fishing pressure by both guided and nonguided anglers. The fishery on the Agulowak is typically more consumptive in nature.

Regulatory History:

1961: Tichik Lakes-Nuyakuk River drainage declared barbless single hook area.
1962: Barbless designation dropped.

1968: Nuyakuk River from the outlet of Tikhich Lake to a point 500 feet below the falls designated part of Bristol Bay Trophy Fish Area. Daily bag and possession limit reduced from 10 fish to 5.

1972: Area daily bag and possession limit reduced from 10 fish to 5.

1973: Use of bait prohibited in all Bristol Bay Trophy Fish Areas and all Nushagak drainage designated single-hook only.

1976: Trophy Fish Area and single-hook designations dropped.

1984: Daily bag and possession limit reduced from 5 fish to 2. Portion of Agulukpak River became Bristol Bay's first catch and release rainbow fishery.

1985: 1. Rainbow trout fishing is open year round.

2. The Agulukpak River upstream from an island located 2 miles downstream from the outlet of Beverly Lake is designated a catch and release rainbow trout stream.

3. The daily bag and possession limit is 5 rainbow trout of which only one may be over 20 inches in length from November 1 through June 7 and two rainbow trout of which only one may be over 20 inches in length from June 8 through October 31.

Stock Status:
Rainbow trout stocks are harvested in relatively low numbers in the Central section when compared to stocks to the east. Harvest is increasing in isolated locations where easy access allows concentration of angling pressure. Harvests have ranged from 500 to 4,488 rainbow trout in this area since 1977 and vary with annual fluctuation in effort (Table 4). The Wood River Lake system, primarily the Agulowak and Agulukpak Rivers, provides most of the rainbow trout harvested in this section. Creel survey data and biological sampling of the rainbow trout fisheries on the Agulowak and Agulukpak Rivers suggest that both are in relatively good condition. Comments received from anglers indicate that catch rates are acceptable. Age and size composition of the Agulowak River stocks suggest that older fish may have been cropped and that regulatory changes may be warranted to reestablish the historical age and size composition. Data are being examined to determine the extent of this problem. Little data exist for the remainder of the area as these fisheries have only recently been exploited by sport fishermen.

Western
The western section of the management area includes all drainages from the Nushagak Peninsula westward to Cape Newenham and all coastal systems flowing into Kuskokwim Bay south of the Kuskokwim River (Figure 4). The most notable rainbow trout waters in this area include the Kanektok, Goodnews, Arolik and Togiak Rivers. These rivers are all within the bounds of the Togiak National Wildlife Refuge. The Kanektok, Goodnews and Togiak Rivers have been determined navigable by the Bureau of Land Management up to the Wilderness Boundary of the Refuge and are currently "status undetermined" upstream from this point. The Arolik River is currently considered nonnavigable. Refuge lands within the refuge are administered by the U.S. Fish and Wildlife Service, while the lands below mean high water in those sections determined navigable are jointly managed by the State Department of Natural Resources and the U.S. Fish and Wildlife Service. The U.S. Fish and Wildlife Service regulates commercial activities which include guided sportfishing on National Wildlife Refuges through Special Use Permits.

Within the western section rainbow trout are found in most waters and are of moderate size, brightly colored, and are primarily of riverine origin. Isolated pockets of large rainbow trout have been found in this area but for the most part these fish are not of trophy size.

The most popular rainbow trout fishery in the western section probably occurs on the Kanektok River. The Kanektok River originates at Kagati Lake and flows westerly 93 miles to Kuskokwim Bay at the village of Quinhagak. Anglers target all five species of Pacific salmon in addition to rainbow trout, grayling, and Dolly Varden/char. The recreational fishery on the Kanektok has developed rapidly since 1980 and has been the focus of statewide attention because of the conflicts between commercial and sport fishermen in the past. Although most of the sport fishing effort occurs on the lower 20 miles of the river and targets salmon, significant pressure is directed toward the resident stocks in the middle and upper reaches. Access to
the rainbow trout waters of the Kanektok is primarily by raft however some jet boat access does occur. Guided effort constitutes the majority of the fishing pressure on this river and has been regulated by the U.S. Fish and Wildlife Service since 1984.

The Goodnews River, flowing out of the Ahklun Mountains to Goodnews Bay at the village of Goodnews has gained popularity in recent years but remains the least developed of the major fisheries within the western section. The Goodnews River has three branchesthe mainstem Goodnews River which is the northernmost branch, the Middle Fork and the South Fork. Most angling pressure takes place on the mainstem and Middle Fork.

The Togiak River supports the greatest amount of angling pressure of any water in the Western section. Although best known for its chinook and coho salmon, the Togiak drainage holds rainbow trout resources as well. The Togiak River itself is boatable from Togiak Bay to Togiak Lake but contains only limited numbers of rainbow trout compared to the stocks found in the tributary streams. Most of the tributary waters are deemed non-navigable and pass through Native lands and as a consequence access to these waters is limited.

**Regulation History:**

1975: Daily bag and possession limit on the Togiak River reduced from 10 rainbow trout to 5.

1984:
1. Daily bag and possession limit on the Togiak River reduced from 5 rainbow trout to 2.
2. Daily bag and possession limit on the Kanektok River reduced from 15 rainbow trout to 10.
3. Daily bag and possession limit on the Goodnews River reduced from 30 rainbow trout to 10.

1985: Togiak River
1. Rainbow trout fishing is open year round.
2. Daily bag and possession limit is five rainbow trout of which only one may exceed 20 inches in length from November 1 through June 7, and two rainbow trout of which only one may exceed 20 inches in length from June 8 through October 31.

Kanektok and Goodnews Rivers
1. Rainbow trout fishing open year round.
2. Daily bag and possession limits reduced from 10 rainbow trout to 2.

1987: Ungaliklthuk and Neglukthik Rivers closed to sport fishing from April 10 through June 7.

**Stock Status:**

From 1977 to 1983 the western section of the management area received relatively little sport fishing pressure and averaged less than 3,000 angler-days annually. By 1984 the effort had more than tripled (Table 5). Currently the western section supports approximately 12,000 angler-days or 18% of the area’s annual sport fishing effort. Rainbow trout harvests have not demonstrated the dramatic increases observed in effort levels. Harvest estimates of rainbow trout in these waters are not precise but for the major streams average less than 600 fish annually and have been declining since 1983 (Table 5).

Little biological data are available to assess trends in harvest and average size or age compositions. Rainbow trout in these waters are first available in the fishery at age 3 and are fully recruited by age 4. Maturity is reached at age 5. Studies on Kanektok River rainbow trout stocks by the U.S. Fish and Wildlife Service concluded that those stocks are stable and samples from the other major fisheries suggest size and age distributions are normal. Comprehensive creel surveys of the Kanektok and Togiak Rivers suggest harvests of rainbow trout by sport fishermen are relatively small and that most anglers fishing these waters subscribe to self imposed catch and release practices.

**Northwestern**

The northwestern section includes the Lower Kuskokwim River and its tributaries from of the Aniak River downstream to Kuskokwim Bay (Figure 5). Rainbow trout waters include the Aniak, Kisaralik, and Kwethluk Rivers which all flow northwesterly from the Kluk Buk Mountains. Bethel, Lower Kalskag, Kalskag, Aniak, and Chauthbaluk are Kuskokwim River communities whose residents, until a short time ago, accounted for most of the sport fishing pressure in this area.

The Aniak River supports runs of chinook, chum, sockeye, pink and coho salmon. Additionally, the Aniak hosts a variety of...
resident game fish including rainbow trout, sheefish, grayling and burbot. Rainbow trout in this area are at the extreme end of their distribution in North America, are characterized as slow growing, small size at age, and not particularly abundant. Rainbow trout stocks in these waters are likely to be very sensitive to small changes in climate and food availability.

Sport fishing effort on the of Aniak River has been increasing in recent years and is expected to continue as guides and outfitters from Bristol Bay and within the Kuskokwim drainage offer more services on the Aniak. Presently there are at least seven commercial operations offering guiding services on the Aniak River. The Aniak River was included in the Kuskokwim Area Plan which was finalized in May 1988.

The Kisaralik and Kwethluk Rivers are within the Yukon Kuskokwim National Wildlife Refuge administered by the U.S. Fish and Wildlife Service. Commercial guiding operations have not been permitted on these rivers and sport fishing effort has remained low.

Regulatory History:
1984: Daily bag and possession limits reduced from 15 and 30 rainbow trout to 10.
       2. Daily bag and possession limits reduced from 10 to 2

Stock Status:
Data describing the rainbow trout fisheries in the northwest section are imprecise at best. Sport fishing effort appears to have been quite low for the years 1977-1982 ranging from 200-1,000 angler-days annually. Similar to the sport fisheries of the western section, effort increased in 1983 and 1984 to 2,100 angler-days and has averaged 1,200 angler-days per year since 1983 (Table 6).

Biological data from the rainbow trout stocks are limited to 160 samples collected from the Aniak River and a similarly small sample from the Kisaralik River. Combined sport harvests from the three major rivers combined range from 50 to 800 fish per year (Table 6). Because of the recent development of the Aniak River sport fishery, rainbow trout stocks in these waters are probably the most likely to be exposed to a conservation problem. Spring harvests from prespawning concentrations of rainbow trout have been reported and could pose a threat to the stocks of the Aniak River.
PROPOSED RAINBOW TROUT MANAGEMENT POLICIES

The Southwestern Alaska Rainbow Trout Management Policies are intended to protect the biological integrity of the area’s wild trout stocks and maximize their recreational benefit and economic potential. They will provide management biologists within the Department of Fish and Game, Board of Fisheries members, and the public with clear policies to govern management of rainbow trout fisheries in southwestern Alaska and will guide the development of sport fishing regulations designed to implement these policies.

Policy I

Native rainbow trout populations will be managed to maintain historic size and age composition and at stock levels sufficient such that stocking is not needed to enhance or supplement the wild population.

This policy addresses the Department’s primary responsibility to ensure that resources are being managed on a sustained yield basis. It will ensure that management practices do not alter the historic size and age composition of rainbow trout stocks within the management area. Additionally, this policy addresses the desire to maintain wild rainbow trout throughout the area and that mitigating loss of wild stocks through stocking is not a desirable management alternative.

Policy I will be realized by managing rainbow trout stocks in a biologically sound manner under a conservative yield philosophy. Conservative yield is defined as a sustainable level of harvest below the maximum sustainable level. Consistent with this philosophy, the general bag and possession limits for rainbow trout within the area will not exceed two per day of which only one may be greater than 20 inches in length. More restrictive limits may be applied to satisfy the goals associated with waters designated for special management or to address a biological problem.

In the event that a biological problem with a rainbow trout stock becomes evident, Alaska Department of Fish and Game Sport Fish Division management will react through its Emergency Order Authority with time and area closures designed to reduce angling mortality. In addition, the Department can recommend that the Board of Fisheries take action to reduce bag and possession limits, designate size limits of harvestable fish, close areas and/or times to the taking of trout and adopt methods and means restrictions to complement such regulations.

Policy II

A diversity of sport fishing opportunities for wild rainbow trout should be provided through establishment of special management areas by regulation. Selection of areas for special management will be based on criteria to be adopted by the Board of Fisheries.

Under this policy special management areas would be established to provide the sportfishing public with a variety of angling opportunities. Selection of waters for special management will be based on criteria established by the Board of Fisheries designed to ensure the most suitable waters are selected.

Policy II will be implemented by establishing special management areas that provide the sport fishing public with a range of desired angling opportunities. In southwest Alaska, special management may be designated as either Catch and Release or Trophy. In waters designated for catch and release fishing rainbow trout may not be retained or possessed and all rainbow trout caught must be released immediately. Trophy waters are managed to provide the opportunity to harvest a large rainbow trout. Bag and possession limits will not exceed one fish and a suitable minimum size limit would be established for all designated trophy trout waters. To complement these harvest strategies, in waters designated as Catch and Release or Trophy areas, only unbaited, single hook artificial lures may be used. Catch and Release or Trophy areas may further be designated as fly fishing only. In waters not designated for special trout management, but during times when directed wild trout fisheries occur, the use of artificial lures (no single-hook restriction) will be considered depending on current harvest and effort levels.

Waters designated through regulation for special management will be selected according to a process that addresses stock status, location, historical use patterns, accessibility, aesthetics, geographical distribution of angling opportunities and the economic return in terms of commerce generated and jobs created. Each candidate water (water being considered for special management) will be ranked according to ten criteria to determine its suitability for special management.
1. **Stock Status.** To be considered for Catch and Release or Trophy designation, a candidate water must meet the biological objectives of conservative yield, which call for the maintenance of the historical size and age composition and stock levels of the rainbow trout population(s). Historical fisheries statistics will be used to make this determination. Any candidate water that meets the conservative yield objectives will be considered by the Board against criteria 210.

2. **History Of Special Management.** This is a subjective category that considers the public’s perception of the history of rainbow trout fishing in the candidate water. It is assumed that a water which people associate with having provided "quality" trout fishing can more easily be managed for that purpose than a water with no history of fine trout fishing.

3. **Proximity To Local Community.** A stream is preferred if it is not located near enough to a permanent community to be commonly used and/or visited by local residents. The intent of this criteria is to avoid conflict with traditional consumptive use patterns of local residents.

4. **Legal Access.** This refers to public ownership of the adjacent lands or the water being classified as navigable. A water with over 50% of its banks publicly owned, or a navigable designation, would be preferred.

5. **Overlap With Freshwater Net Fisheries.** Special management areas should be seasonally and/or specially segregated from subsistence and freshwater commercial net fisheries.

6. **Abundance And Size Of Rainbow Trout.** This refers to the number and average size of the catchable rainbow trout seasonally present in a candidate water. Waters with relatively high numbers of rainbow trout and waters with uniquely large rainbow trout would be favored for special management.

7. **Water Characteristics.** This refers to the habitat characteristics and appearances of a water. A stream with clear water and riffle-pool configuration with a gravel bottom would be preferred.

8. **Clear Geographical Boundaries.** This refers to the angling public’s ability to clearly distinguish the legal regulatory boundary of a candidate special management area.

9. **Relative Importance Of Rainbow Fishery To Sport Fishing Industry.** A candidate water of high economic value to the sport fishing industry would be favored as an area for special management.

10. **Geographical Distribution Of Special Management Waters.** The designation of a candidate water for special trout management should take into consideration its proximity to other special management waters and the availability of alternative locations not designated for special management.

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**Policy III**

Management strategies should be consistent with the prudent economic development of the state’s recreational sport fishing industry while at the same time acknowledging the intrinsic value of this fishery resource to the people of the State.

This policy acknowledges that southwest Alaska’s wild rainbow trout are of vital importance to the state’s growing recreational industry and that wise development of commercial recreation is to the economic benefit of the region and the state. Management practices that maintain or enhance the marketability of high quality recreation would be favored under this policy.

Consideration of the economic impact to the recreational industry, of both the local area and the state in general, should be given in all regulatory actions regarding rainbow trout within the management area. Whenever possible, emergency orders and regulations should be structured to foster the prudent economic development of the industry.

To implement Policy III, department managers will recognize that due to the remoteness, cost and logistical difficulty of travel in southwest Alaska, that fishery closures may severely impact angling opportunity and the related recreational industry.

The ADF&G currently has Emergency Order Authority to implement time and area closures when addressing a biological crisis in season. Only the Board of Fisheries, during noticed meetings, can implement changes in bag limits, size limits or in legal methods and means, that if employed in-season, could avoid disruptive closures. The Board of Fisheries could facilitate the implementation of Policy III by supporting legislation that would delegate to the ADF&G Emergency Order Authority beyond the normal time and area closures and furnish the Department with criteria for its use.
### Table 1. Bristol Bay/southwest Alaska rainbow trout harvest and effort*, 1977-1987

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Rainbow Trout Harvest</td>
<td>3,200</td>
<td>3,800</td>
<td>4,200</td>
<td>5,600</td>
<td>6,000</td>
<td>6,000</td>
<td>10,600</td>
<td>7,600</td>
<td>6,200</td>
<td>6,000</td>
<td>7,830</td>
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<tr>
<td>Effort (Total Man-Days)</td>
<td>27,600</td>
<td>26,100</td>
<td>29,800</td>
<td>40,000</td>
<td>36,000</td>
<td>44,500</td>
<td>64,800</td>
<td>59,300</td>
<td>55,100</td>
<td>76,400</td>
<td>78,802</td>
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<tr>
<td>No. RBT./ Man-Day</td>
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<td>0.15</td>
<td>0.14</td>
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<td>0.11</td>
<td>0.08</td>
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</table>

* Data from Statewide Harvest Survey rounded

### Table 2. Rainbow trout harvest from the eastern section of the southwest Alaska sportfish management area, 1977-1987

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<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
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<tr>
<td>Kvichak River</td>
<td>672</td>
<td>226</td>
<td>355</td>
<td>637</td>
<td>421</td>
<td>398</td>
<td>283</td>
<td>175</td>
<td>578</td>
<td>136</td>
<td>275</td>
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<tr>
<td>Newhalen River</td>
<td>122</td>
<td>190</td>
<td>255</td>
<td>629</td>
<td>250</td>
<td>430</td>
<td>283</td>
<td>187</td>
<td>459</td>
<td>10</td>
<td>92</td>
</tr>
<tr>
<td>Lower Talarik Creek</td>
<td>57</td>
<td>81</td>
<td>91</td>
<td>69</td>
<td>97</td>
<td>84</td>
<td>63</td>
<td>74</td>
<td>17</td>
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<tr>
<td>Alagnak River</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>76</td>
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<td>178</td>
<td>187</td>
<td>518</td>
<td>340</td>
<td>824</td>
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<td>Naknek River &amp; tributaries</td>
<td>37</td>
<td>63</td>
<td>109</td>
<td>198</td>
<td>216</td>
<td>555</td>
<td>231</td>
<td>387</td>
<td>312</td>
<td>381</td>
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<td>173</td>
<td>181</td>
<td>227</td>
<td>224</td>
<td>227</td>
<td>42</td>
<td>136</td>
<td>50</td>
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<td>79</td>
<td>86</td>
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<td>241</td>
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<td>392</td>
<td>85</td>
<td>832</td>
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<td>691</td>
<td>697</td>
<td>651</td>
<td>731</td>
<td>964</td>
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<td>Other</td>
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<td>1,672</td>
<td>2,383</td>
<td>3,547</td>
<td>4,303</td>
<td>3,648</td>
<td>4,263</td>
<td>4,564</td>
<td>4,222</td>
<td>4,211</td>
<td>3,747</td>
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<tr>
<td>Total Harvest</td>
<td>19,300</td>
<td>17,500</td>
<td>20,900</td>
<td>28,400</td>
<td>27,000</td>
<td>27,000</td>
<td>42,500</td>
<td>36,600</td>
<td>31,250</td>
<td>47,757</td>
<td>39,138</td>
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<tr>
<td>Total Effort (Man-days)</td>
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<td>0.10</td>
<td>0.11</td>
<td>0.12</td>
<td>0.16</td>
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<td>0.10</td>
<td>0.12</td>
<td>0.14</td>
<td>0.09</td>
<td>0.09</td>
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</tbody>
</table>

* Included in other

### Table 3. Rainbow trout catch, harvest and retention rate from selected waters in the eastern section of southwest Alaska sportfish management area

<table>
<thead>
<tr>
<th>Year</th>
<th>No. Caught</th>
<th>No. Kept</th>
<th>Percent Kept</th>
<th>Data Source</th>
<th>Date</th>
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<tr>
<td>Lower Talarik Creek</td>
<td>1970</td>
<td>600</td>
<td>119</td>
<td>20%</td>
<td>Creel Census</td>
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<tr>
<td>Lower Talarik Creek</td>
<td>1971</td>
<td>2,300</td>
<td>433</td>
<td>19%</td>
<td>Creel Census</td>
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<tr>
<td>Lower Talarik Creek</td>
<td>1972</td>
<td>834</td>
<td>141</td>
<td>17%</td>
<td>Creel Census</td>
</tr>
<tr>
<td>Lower Talarik Creek</td>
<td>1973</td>
<td>760</td>
<td>113</td>
<td>14%</td>
<td>Creel Census</td>
</tr>
<tr>
<td>Lower Talarik Creek</td>
<td>1974</td>
<td>498</td>
<td>73</td>
<td>15%</td>
<td>Creel Census</td>
</tr>
<tr>
<td>Lower Talarik Creek</td>
<td>1975</td>
<td>1,648</td>
<td>127</td>
<td>8%</td>
<td>Creel Census</td>
</tr>
<tr>
<td>Lower Talarik Creek</td>
<td>1976</td>
<td>843</td>
<td>92</td>
<td>11%</td>
<td>Creel Census</td>
</tr>
<tr>
<td>Lower Talarik Creek</td>
<td>1979</td>
<td>1,185</td>
<td>55</td>
<td>5%</td>
<td>Creel Census</td>
</tr>
<tr>
<td>Lower Talarik Creek</td>
<td>1986</td>
<td>4,159</td>
<td>20</td>
<td>0.6%</td>
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<tr>
<td>Lower Talarik Creek</td>
<td>1987</td>
<td>1,046</td>
<td>2</td>
<td>0.2%</td>
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</tr>
<tr>
<td>Naknek River</td>
<td>1978</td>
<td>847</td>
<td>284</td>
<td>34%</td>
<td>Creel Census</td>
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<tr>
<td>Naknek River</td>
<td>1980</td>
<td>1,494</td>
<td>913</td>
<td>61%</td>
<td>Creel Census</td>
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<tr>
<td>Naknek River</td>
<td>1981</td>
<td>9,070</td>
<td>2184</td>
<td>24%</td>
<td>Creel Census</td>
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<tr>
<td>Naknek River</td>
<td>1982</td>
<td>1,558</td>
<td>488</td>
<td>31%</td>
<td>Creel Census</td>
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<tr>
<td>Naknek River</td>
<td>1983</td>
<td>6,768</td>
<td>2398</td>
<td>35%</td>
<td>Creel Census</td>
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<tr>
<td>Naknek River</td>
<td>1984</td>
<td>3,092</td>
<td>570</td>
<td>18%</td>
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<tr>
<td>Naknek River</td>
<td>1985</td>
<td>6,780</td>
<td>630</td>
<td>10%</td>
<td>Creel Census</td>
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<tr>
<td>Brooks River</td>
<td>1954</td>
<td>694</td>
<td>139</td>
<td>20%</td>
<td>Creel Census</td>
</tr>
<tr>
<td>Brooks River</td>
<td>1975</td>
<td>831</td>
<td>134</td>
<td>16%</td>
<td>Creel Census</td>
</tr>
<tr>
<td>Brooks River</td>
<td>1976</td>
<td>710</td>
<td>140</td>
<td>20%</td>
<td>Creel Census</td>
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<tr>
<td>Brooks River</td>
<td>1982</td>
<td>636</td>
<td>8</td>
<td>1%</td>
<td>Creel Census</td>
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<tr>
<td>Brooks River</td>
<td>1983</td>
<td>10,058</td>
<td>136</td>
<td>1%</td>
<td>Creel Census</td>
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</table>
### Table 4. Rainbow trout harvest from the central section of the southwestern Alaska sportfish management area, 1977-1987

<table>
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<tbody>
<tr>
<td>Nushagak River</td>
<td>31</td>
<td>108</td>
<td>191</td>
<td>387</td>
<td>670</td>
<td>252</td>
<td>346</td>
<td>599</td>
<td>87</td>
<td>263</td>
<td>92</td>
</tr>
<tr>
<td>King Salmon River</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>187</td>
<td>*</td>
<td>0</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Mulchatna River</td>
<td>116</td>
<td>497</td>
<td>236</td>
<td>189</td>
<td>281</td>
<td>409</td>
<td>1,018</td>
<td>611</td>
<td>607</td>
<td>496</td>
<td>412</td>
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<tr>
<td>Chilikadrotna River</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>105</td>
<td>157</td>
<td>75</td>
<td>29</td>
<td>88</td>
<td>229</td>
</tr>
<tr>
<td>Koktuli River</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>1,678</td>
<td>0</td>
<td>*</td>
<td>146</td>
<td>137</td>
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<td>Stuyahok River</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>157</td>
<td>*</td>
<td>*</td>
<td>157</td>
<td>275</td>
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<tr>
<td>Wood River Lakes System</td>
<td>252</td>
<td>217</td>
<td>409</td>
<td>258</td>
<td>475</td>
<td>944</td>
<td>944</td>
<td>2,060</td>
<td>304</td>
<td>262</td>
<td>595</td>
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<td>Other</td>
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<td>371</td>
<td>91</td>
<td>77</td>
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<td>10</td>
<td>10</td>
<td>137</td>
<td>217</td>
<td>0</td>
<td>183</td>
</tr>
<tr>
<td><strong>Total Harvest</strong></td>
<td>492</td>
<td>1,338</td>
<td>1,063</td>
<td>1,143</td>
<td>1,642</td>
<td>1,520</td>
<td>4,488</td>
<td>2,507</td>
<td>1,302</td>
<td>1,255</td>
<td>2,060</td>
</tr>
<tr>
<td><strong>Total Angler Effort (Man-days)</strong></td>
<td>7,600</td>
<td>8,100</td>
<td>7,200</td>
<td>10,400</td>
<td>8,100</td>
<td>10,700</td>
<td>16,900</td>
<td>11,100</td>
<td>13,450</td>
<td>11,988</td>
<td>13,722</td>
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<tr>
<td><strong>Harvest per angler day</strong></td>
<td>0.06</td>
<td>0.17</td>
<td>0.15</td>
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<td>0.2</td>
<td>0.14</td>
<td>0.27</td>
<td>0.23</td>
<td>0.10</td>
<td>0.10</td>
<td>0.15</td>
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* Included in other.

### Table 5. Sportfishing effort and rainbow trout harvests in the western section of southwestern Alaska, 1983-1987

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</tr>
</thead>
<tbody>
<tr>
<td>Togiak River</td>
<td>336</td>
<td>75</td>
<td>0</td>
<td>58</td>
<td>46</td>
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<tr>
<td>Goodnews River</td>
<td>52</td>
<td>104</td>
<td>451</td>
<td>0</td>
<td>111</td>
</tr>
<tr>
<td>Kaneetok River</td>
<td>640</td>
<td>312</td>
<td>156</td>
<td>259</td>
<td>132</td>
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<tr>
<td><strong>Total Harvest</strong></td>
<td>1,028</td>
<td>491</td>
<td>607</td>
<td>317</td>
<td>289</td>
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<tr>
<td><strong>Total Effort (Man-days)</strong></td>
<td>3,231</td>
<td>11,388</td>
<td>10,134</td>
<td>10,262</td>
<td>12,879</td>
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<tr>
<td><strong>Harvest per Angler-day</strong></td>
<td>0.32</td>
<td>0.04</td>
<td>0.06</td>
<td>0.03</td>
<td>0.02</td>
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</table>

### Table 6. Sportfishing effort and rainbow trout harvests in the northwestern section of southwestern Alaska, 1983-1987

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</thead>
<tbody>
<tr>
<td>Aniak River</td>
<td>336</td>
<td>52</td>
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<td>Kisaralik River</td>
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<td>---</td>
<td>---</td>
<td>77</td>
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<td>Kwethluk River</td>
<td>105</td>
<td>0</td>
<td>52</td>
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<td><strong>Total Harvest</strong></td>
<td>808</td>
<td>52</td>
<td>52</td>
<td>221</td>
<td>342</td>
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<td><strong>Total Effort (Man-days)</strong></td>
<td>2,125</td>
<td>766</td>
<td>302</td>
<td>1,299</td>
<td>1,666</td>
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<tr>
<td><strong>Harvest per Angler-day</strong></td>
<td>0.38</td>
<td>0.07</td>
<td>0.17</td>
<td>0.17</td>
<td>0.21</td>
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</table>
Figure 1. The southwest Alaska sport fish management area.
Figure 1. The Bristol Bay Wild Trout Zone.
Figure 3. The central section of the southwest Alaska sport fish management area.
Figure 5. The northwestern section of the southwest Alaska sport fish management area.