



Chapter 4

Study Area Recommendations

4.1 Integrated, Comprehensive Approach to River and Watershed Management	33
4.2 Scope of Areawide Recommendations	33
4.3 Areawide Goals and Objectives	33
4.4 Relationship to Goals and Objectives	34
4.5 Areawide Recommendations	34
4.5.1 Recreation	34
4.5.1.1 Water Based Recreation	35
4.5.1.2 Upland Recreation Facilities	42
4.5.2 Habitat	57
4.5.3 Land Use	65
4.5.4 Land Management	69
4.5.5 Environment	80
4.5.6 Financial	86
4.5.7 Enforcement/Regulation/Permitting	87
4.5.8 Public Education	91
4.5.9 Planning and Research	92
4.5.10 Data Collection and Information Management	96

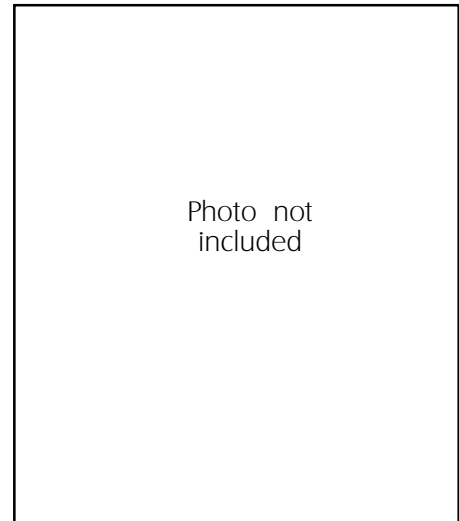
CHAPTER 4

STUDY AREA RECOMMENDATIONS

4.1 Integrated, Comprehensive Approach to River and Watershed Management

The protection and restoration of the fishery and habitat resources of the Kenai River, coupled with the use of nearly the length of the river for a variety of recreation pursuits, requires a comprehensive, integrated approach to river management. This, in turn, requires consideration of the river's entire watershed. Integration of the management practices of local, state, and federal agencies will be necessary, if there is to be any chance of achieving coordinated, effective river and watershed management.

Agreement on recommendations to accomplish these goals has been difficult because of the varying objectives and management authorities of individuals, agencies, and government units. Agreement has also been difficult because of the sometimes contentious nature of some recommendations. The recommendations in this Plan are the Advisory Board's and DNR's attempt to find the right mix of strategies that are effective, feasible and politically acceptable.



4.2 Scope of Areawide Recommendations

The subsequent recommendations were developed to implement the goals and objectives developed from the public meeting process. They are intended to resolve the main problems of recreation and habitat management that recent studies have identified or are known to the public and government agencies. They have been developed with the involvement of local, state, and federal agencies, but should not be viewed as final until this Plan is adopted by these entities.

Certain caveats about the following discussion on recommendations should be noted. In certain instances, the strategies suggest actions that must be further developed or refined. Some will require additional research; a subsequent, separate planning process; or implementation actions on the part of entities (usually governmental or agency) that only they can undertake. If this occurs, this is noted together with the responsible entity and the nature of the required action(s) on the part of that entity. Finally, recommendations relating to state land not within KRSMA will be implemented through other Department plans, particularly the Kenai Area Plan. Land classification and disposal recommendations will have to be made through the Kenai Area Plan.

4.3 Areawide Goals and Objectives

The goal and objectives⁴⁻¹ that are included with the areawide recommendations represent the desired future condition of human activities that may significantly affect the Kenai River, or the desired environmental quality or operating performance of the Kenai River ecosystem, particularly that part within the Plan Boundary. They were initially developed through a review and synthesis of the public comments received at the goal setting meetings held in Anchorage and Soldotna in 1996, and were subsequently reviewed and adopted by the Advisory Board in 1997.

⁴⁻¹ Goals are intended to describe desired end states. Objectives are meant to be more precise descriptions of that end state or of the means to achieve a goal. Both are to be distinguished from standards and policies. Standards are the thresholds (oftentimes quantitative) used to define objectives or are performance criteria used to measure success in achieving an objective. Policies are those statements (usually qualitative) that guide decision making in the management of some process — in this case, river management. The Management Plan includes the use of all of these components — goals, objectives, standards, and policies.

They are meant to give direction to the planning, development, management activities of the local, state, and federal agencies responsible for the stewardship of the Kenai River. They are also intended to affect the permitting processes of proposed actions of local, state, and federal agencies and responsible for the management of the river; its riverine area; and the adjacent, hydraulically connected upland areas, especially wetland areas critical for habitat or hydrologic reasons. Many of these objectives and goals can only be implemented through the actions of local, state, and federal agencies and governments in their review of permits and projects.

4.4 Relationship to Goals and Objectives

A statement of goals and objectives precedes the recommendations for each subject category. The recommendations are meant to implement one or more of the objectives associated with that category. The reader should consult the goals and objective statements that precede the recommendations, to get a sense of the relationship between the desired end state and the recommendations.

To provide a linkage between the planning issues, goals, and objectives that form the basis for plan revision, the Management Plan includes for each recommendation category the following:

- ❖ An overview of significant background information,
- ❖ A discussion of the problems surrounding an issue and rationale for the recommendation,
- ❖ A description of the recommendation and an indication of the agency(ies) responsible for its implementation.

4.5 Areawide Recommendations

The subsequent recommendations deal with subject areas that are areawide in context. That is, the recommendations are likely to affect several river reaches and often the entire Kenai River system and its associated watershed.

There are also specific management recommendations for specific segments of the Kenai River. The reader is referred to the next chapter (River Segment Recommendations) for an understanding of these recommendations. Both this chapter and Chapter 5 must be reviewed to get an overall sense of how the recommendations included in the Management Plan are to affect the future management of the Kenai River and its watershed.

4.5.1 Recreation

The Kenai River system has seen increasing recreation use from bank anglers, boat users, and other recreational users. This use has resulted in increased damage to riparian habitat, increased trespass incidence on private property, increased conflicts between recreational users, and a demand for more access areas and public facilities. The number of commercial operators, primarily fishing guides, is at the highest level ever. The quality of the recreational experience has been declining due to crowding and increased competition for space.

A critical element of recreation management along the Kenai River is the relationship between recreation use and the impact of that use on fragile habitats. Where the goals of recreation use and limited habitat degradation conflict, the recreation must be managed in ways that limit and reduce that impact to acceptable levels. This issue is especially severe where bank angling activities and its impact to the near shore area by trampling and the subsequent erosion and bank sloughing.

Goals and Objectives

Goal: To provide a quality recreational experience for users of the Kenai River, consistent with the statutory requirement to protect and perpetuate the fishery and wildlife resources and habitat in the unit and adjacent area, and with the need to minimize habitat and environmental impacts, and ensure public safety.

Objective: Management of Recreational Use

To manage recreational use by time, activity, and area designations in a manner which best provides for recreational enjoyment while minimizing conflicts among users and the impact of commercial activity on public use and enjoyment.

To establish a maximum level of adverse impacts from competing recreational users, and formulate management measures to reduce or maintain the level of impact to below adopted threshold levels.

Goal: To provide for a balance between commercial use and non-commercial use of the KRSMA and adjacent area.

Objective: Management of Commercial Use

To designate types and levels of commercial activities to be permitted on or adjacent to the river.

To develop a program that manages the impacts of commercial activity.

To develop screening criteria for evaluation and/or approving derbies.

Goal: To maximize enjoyment and access to recreational opportunities while maintaining the diversity of the recreational experience and minimizing environmental impacts from recreational activity.

Objective: Recreational Facilities and Development

To provide for adequate rest room facilities throughout the river corridor and investigate other waste management alternatives.

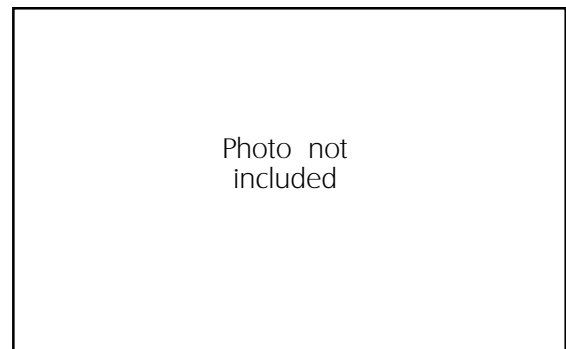
To manage upland recreational activities in such a manner so that resource degradation is limited and that important habitat areas are protected and maintained.

To ensure that there are adequate public lands adjacent to the river for access, fishing, camping, day use, and related activities.

To maintain scenic views of and from the Kenai River and retain areas for wildlife viewing.

4.5.1.1 Water Based Recreation

Water based recreation refers to the recreational activity that takes place on the Kenai River, Skilak Lake, and Kenai Lake. It usually refers to boat activity, typically involving fishing, but also includes other forms of motorized activity conducted on the river or Kenai Lake. Examples of the latter include the use of jet skis, hydroplanes, or aircraft on Kenai Lake, and canoeing and kayaking on Kenai River. This section is to be distinguished from upland recreation issues. The latter is a separate section in this Chapter focusing on upland recreational facilities and uses (campgrounds, sanitary facilities, boat launches, etc.).



The issues surrounding water based recreation were, arguably, the most complex, emotional, and divisive of those dealt with in this revision of the Management Plan. There were often divergent and competing views on what to do about rental boat use, enforcement, the management of sporting fishing guides, vessel overcrowding, and whether certain portions of the Kenai River should be made non-motorized (i.e., used by drift boats only for fishing). The public review process sometimes identified consensus about a particular issue and the means for dealing with the associated problems. At other times there was a widely divergent ideas about how to resolve certain issues. The latter included the management of guides and whether to make certain portions of the river drift only.

The recommendations that follow are the product of the public planning process, review of the results of this process by the Advisory Board, and intensive discussion on the relative merits of particular approaches to river management by the agencies and the Advisory Board. Not everything the public wanted to do could be achieved, and the Advisory Board play a pivotal role in deciding the most appropriate course of action. The recommendations included in the Management Plan have been reviewed and approved by the DNR Commissioner.

4.5.1.1.1 Scenic Operators (Implementing Agencies: DNR-DOPOR, USFS, and US FWS)

Issues pertaining to scenic operators (businesses providing non-fishing, drift only boats in the Upper River) centered on whether time limits should be placed on the use of put in and take out points and the staggering of raft trips.

The subject of scenic operators and of the proper type and intensity of recreation activities was addressed in the Upper River planning process. This analysis occurred throughout 1995 and 1996 by federal (US FWS and USFS) and state agencies (ADF&G and DNR-DOPOR).

Recommendation 4.5.1.1.1: The number of permits authorizing commercial operators to provide drift/float trips in the Upper River should be 'capped' to the current level.

4.5.1.1.2. Rental Boats (Implementing Agency: DNR-DOPOR)

A general public consensus emerged during the Management Plan update that the operation of rental boats is unsatisfactory and constitutes a significant problem. Much of the problem focuses on their use by members of the public that are unaccustomed to using small boats in the rapidly moving waters of the Kenai River and by illegal 'pirate' guides. The term 'illegal' guides refers to those individuals that function as a guide but do not have a permit to practice on the Kenai River issued by State Parks. Typically, an individual rents a boat, engages people to go with him on the river, and then provides services equivalent to those provided by permitted guides. The critical aspect of this activity is the payment for services to the illegal guide by passengers renting the boat.

Recommendation 4.5.1.1.2: DNR-DOPOR should undertake an aggressive enforcement program to mitigate the adverse effects of rental boat operations, including eliminating the practice of illegal guiding.

Components of this program may include but are not necessarily limited to the following:

- ❖ Require a competency test in order to rent or operate a rental boat. (This is occurring now on a volunteer basis; this recommendation will require all boat rental operators to provide instruction on the basics of boat operation to inexperienced operators.)
- ❖ Make it illegal to use an unpermitted guide and establish penalties for using an unlicensed guide.
- ❖ Should future conditions warrant the need to limit rental boat operations, restrictions to hours and/or days could be applied.
- ❖ Require a parks permit for all rental boats regardless of where rented; i.e., require boats rented in Anchorage to secure a parks permit.
- ❖ Require stronger enforcement of pirate guides in rental boats, which will require the allocation of enforcement resources to reduce the incidence of this problem. In addition, a set of violations and sanctions should be developed for the rental boat industry, similar to that proposed for the sport fishing guide industry. In this evaluation the need for liability insurance should also be assessed. (Note: the former will require the use of additional revenues, generated through new or augmented fees)

- ❖ Register all rental boats on the Kenai River. Identify such boats with a distinctive decal that allows easy identification of the rental firm.
- ❖ Institute a fee for each rental boat (rather than charging one fee for the rental operator) and increase rental boat fees paid to the State. The latter must be consistent with the recommendation to impose fees on each rental boat; i.e., the amount per boat would be less than the total fee paid to the State but the total fee would be greater than it is currently.

Note: See also recommendations on 'Enforcement' (4.5.7.1)

4.5.1.1.3. Derbies (Implementing Agency: DNR-DOPOR)

Recommendation 4.5.1.1.3. Derbies on the Kenai River should be limited to those which do not occur at the peak of a particular fishery and are not designed to attract large numbers of additional fishers to the river, which do not occur during periods of projected low fish stocks that have been identified by the ADF&G for protection, and which are conducted by a 501(c)(3) non-profit group that returns all of the funds generated to the Kenai River for conservation or education purposes, minus a reasonable deduction for event overhead and administrative costs.

Note: Implementation of these recommendations will require approval of the Department of Revenue (4.5.1.1.3.1) and Board of Fisheries (4.5.1.1.3.2).

Background The type of derbies that should be conducted on the Kenai River emerged as a significant issue during the public review process. Much of the public comment suggested that derbies be eliminated altogether or that they be limited in type and scope to those of a conservation or education theme. The Advisory Board recommended continuing the practice of derbies subject to certain conditions.

4.5.1.1.4. Enforcement (Implementing Agencies: DNR- DOPOR, ADF&G, USFS, US FWS)

Recommendation 4.5.1.1.4: Agencies with enforcement authority (ADEC, ADF&G, US FWS, KPB, and DNR - DOPOR) should undertake an aggressive, coordinated, multi-agency enforcement program focused on the fair and consistent enforcement of ordinances, regulations and laws .

Components of this program should include but are not necessarily limited to the following:

- ❖ Assertive, fair enforcement of current laws and regulations.
- ❖ Allocation of agency enforcement resources to deal with the 'pirate guide' problem.
- ❖ Increased Parks enforcement presence on the river (two additional rangers).
- ❖ Assignment of Park Rangers to enforcement duties (requires one technician to perform campground and related non-enforcement duties.)
- ❖ Restructuring of the timing of Ranger enforcement presence, to permit Park Ranger presence in the evening hours and each day of the week on each river section.
- ❖ Increased allocation of moneys to support a greater enforcement presence, deriving from either specific reallocations of state program receipts or allocation of user fee moneys.
- ❖ Increased penalties for violation of guide stipulations.
- ❖ Development of a list of suspension/revocation offenses for Kenai River Guide permits and codification of these in regulation.
- ❖ Signing/education programs (including use of fishing license or fishing regulation) to explain the consequences in the use of illegal guides to the general public. (This program complements the recently enacted 'John Law').

- ❖ Creation of a list of 'legal guides' to be available at probable user locations (chamber of commerce, Kenai River Center, hotels/motels).
- ❖ Establishment of a mandatory guide orientation program to precede the fishing season, which would include a component on Parks guide stipulations and consequences for violation.
- ❖ DOPOR should develop a coordinated enforcement program with other local law enforcement entities, such as Fish and Wildlife Protection and US FWS. The scope of the enforcement plan should be sufficiently broad to include enforcement of KRSMA regulations, fish and habitat protection statutes, and local ordinances related to the management of activities on and adjacent to the Kenai River. The enforcement program should concentrate on coordinating the schedules and assigned locations of law enforcement personnel to maximize the use of limited numbers of officers. During peak activity periods staff should meet regularly to coordinate information regarding suspected illegal guides or activity, concentrations of illegal fishing activity, etc. The development of an 'enforcement prioritization plan' should proceed the upcoming season. Law enforcement agencies, habitat biologists, and the public should participate in the development of this plan.
- ❖ The Kenai River Guide Association should be encouraged to meet established standards of vessel operation and police their own members.
- ❖ The existing "Stream Watch" program conducted by the US Forest Service and DOPOR should be expanded to additional areas along the river to educate anglers regarding rules and regulations and report to law enforcement staff on illegal activity observed.

Background The public review process indicated considerable support for an aggressive enforcement program by DNR-DOPOR and the other agencies charged with enforcement authority. The focus of this program should be the continued enforcement of parks and fishery regulations for both the public and the sport fishing guide industry, the elimination of 'pirate' guides, and increased management of the sport fishing guide industry. There was support for additional moneys to be allocated to enforcement, and the use of a user fee and guide fee increases for this purpose. The use of revenues derived from a user fee for the purpose of increased enforcement is recognized in the financial section.

4.5.1.1.5 Motorized/Non-Motorized Activities

This section deals with the principal motorized/non-motorized issues concerning the Kenai River and Kenai Lake. Included among these issues are the questions of whether it is appropriate to 1) expand the area of drift only boat use/fishing; 2) change the current horsepower limit requirement of 35 HP; 3) develop management techniques to control boat operation, to minimize boat induced waves that create erosive forces affecting erosion prone and sensitive habitat areas; and 4) impose prohibitions on other forms of motorized vehicles.

Much of the guidance as to how to proceed on these issues derived from the various public meetings. The results of this process, coupled with the absence of definitive information on the effects of horsepower and boat operating changes on habitat, suggested a conservative management approach.

Drift Areas (Implementing Agencies: DNR-DOPOR, USFS, US FWS)

Recommendation 4.5.1.1.5.1: Expand the drift only area in the Upper River between Fisherman's Bend RM 80.7) and the power line near RM 72.9 (near Sportsman's Landing).

Background The public did not indicate a strong interest in expanding the areas of drift only boat use in their review of water based recreation issues, except for the Upper River. A number of factors accounted for this: the absence of strong public sentiment favoring additional drift only areas, concerns over safety, the probable inability of large segments of the public to use drift boats, uncertain impacts to the commercial guide industry, and the absence of a clear need to proceed with additional drift-only areas. Other than the expansion of the drift only area in the Upper River, additional areas of drift only boat use in the Middle or Lower River are not recommended.

Changes to Horsepower Limits (Implementing Agencies: DNR-DOPOR, ADF&G)

Recommendation 4.5.1.1.5.2: The Advisory Board should assess the results of an updated USGS Boat Wake Erosion Study that evaluates varying levels of motor horsepower use and determine whether changes to the current 35 horsepower limit are appropriate. A variety of factors, including ease of enforcement, ability to minimize boat induced wakes, and convenience to boat user, should be considered when this analysis is evaluated by the Advisory Board.

Background Although the 1996 USGS Boat Wake Erosion Study found that the existing 35 horsepower boat and motor combinations were causing significant bank erosion in some areas of the river, change to the current 35 horsepower limit did not seem appropriate. Public sentiment on this issue varied from reducing horsepower, keeping the present power level, or increasing it — either to 40 HP, 50 HP, or to that level sufficient to get a boat ‘on step’. The USGS study did not evaluate the effect of erosion related changes produced by varying horsepower levels and, therefore, impacts to habitat from this factor could not be properly assessed. Without this information, the Advisory Board concluded that increases in motor horsepower would be imprudent at this time.

The ‘Planning and Research’ section of this Chapter identifies the need for the revision of the USGS study in 1997, to evaluate the ensuring erosion effects of horsepower changes. When this data becomes available, it would then be appropriate to reassess changes to vessel horsepower.

Boat Operating Requirements

Recommendation 4.5.1.1.5.3.1: Institute ‘bank protection zones’ on the Kenai River that are designed to manage vessel operations , to reduce the effects of boat wakes at locations with sensitive habitat and erosion prone soils. The latter occur between RM 9 and RM 18 in the Lower River and between RM 39 and RM 46 in the Middle River.

Recommendation 4.5.1.1.5.3.2: DNR-DOPOR should develop an interim vessel management program in the areas of the bank protection zones involving, potentially, relative location of boat in river, passenger load, hull configuration, vessel type, or other factors. This program should be coordinated through a working group involving the Kenai River Sport Fishing Guide Association, Kenai River Property Owners Association, and Kenai River Sport Fishing Association , and other groups as appropriate. Because of the limited data from the current USGS Boat Wake Erosion Study on certain factors (i.e., varying horsepower levels and type of vessel), emphasis should be placed on developing techniques to reduce erosion that are realistic and can be justified based on personal or professional experience — that is, identified without the availability of detailed scientific data.

Recommendation 4.5.1.1.5.3.3: The initial ‘bank protection zone program’ should be further refined or modified when the results of the of the Boat Wake Erosion Study (Planning and Research, Recommendation 4.5.9.8) are available. These refinements should be coordinated with the same working group.

Background There appeared to be a general public concern with vessel operations and their effects upon the river and with the need to manage vessel operations in a comprehensive fashion, to avoid deleterious effects. There also seemed to be a clear consensus that the State needs to manage boat operations in a more rigorous way and that this management should involve other techniques than limits upon horsepower. Techniques to manage boat operation could include changes in boat size, allowable gross weight, hull configuration, horsepower, or some combination of these factors. Active boat management in those areas of the river that are erosion prone or contain sensitive habitats were especially supported by the public.

Operation of Boats and Other Vehicles (Implementing Agencies: DNR-DOPOR, ADF&G)

Recommendation 4.5.1.1.5.5: Motorized operations on Kenai Lake and Kenai River need additional management, to include:

- ❖ Establishing a working group composed of affected stakeholders to define management strategies intended to minimize the effects of jet skis, airboats, and hovercraft operation on sensitive habitat, residential, and institutional areas on Kenai Lake. This group would consist of representatives from the Advisory Board, DNR-DOPOR, ADF&G, KPB, USFS, the Cooper Landing and Moose Pass Planning Advisory Commissions, Quartz Creek Property Owners Association, and the Resurrection Bay Snow Riders Association. It is intended that this group examine use of a wide range of management techniques, including but not limited to the prohibition of these types of motorized craft near sensitive areas, day and time restrictions, voluntary enforcement, and the use of signage and a public education program. This group should report its findings to the Kenai River Advisory Board by October, 1997. The Board, in turn, should consider and adopt implementation recommendations. (*Note: This recommendation has been implemented*).
- ❖ Prohibiting boat tie ups to state land, including easements and rights-of-way, in excess of 24 hours except through a permit issued by DOPOR. Issuance is to be discretionary, and the permit may identify time, area, or other restrictions.
- ❖ Prohibiting motor vehicles on riverbeds except at launches and locations approved by DOPOR, USFS, or US FWS.
- ❖ Prohibiting the unattended anchoring of vessels within Kenai Lake and Skilak Lake in excess of 72 hours, other than adjacent to private property and when authorized by DNR-DOPOR, USFS, and US FWS.
- ❖ Managing aircraft operations in the Middle River between Moose River and Naptowne Rapids.
- ❖ Managing ultra-light, rotary wing, and fixed wing aircraft operations within the Federal Aviation Administration 2000' aircraft minimum for purposes of safety, habitat, and noise reduction.

Background Public review of the operation of boats and other vehicles on the Kenai River and Kenai Lake suggested the need for additional management requirements. Many of these recommendations focused on inappropriate use of Kenai River riverbeds, motorized uses on Kenai Lake, and the need to develop some additional control over certain types of aircraft operations.

4.5.1.1.6. Sport Fishing Guides (Implementing Agencies: DNR-DOPOR, USFS, US FWS)

Recommendation 4.5.1.1.6.1: The Department shall pursue an enhanced guide management and enforcement program. Aspects of this program should include but are not limited to the following:

- ❖ Increase the current state guide fee, with the added revenue to support enforcement and public education programs on the Kenai River.
- ❖ Revise the registration deadline to May 1 (or some other early date).
- ❖ Institute a mandatory, start of season orientation program. This program would include discussion of guide stipulations, any changes in regulations from the previous season and an explanation of violations and civil penalties.
- ❖ Educate guides about the location of erosion prone/sensitive habitat areas, and create a vessel management program that will reduce the effects to these areas. (Note: this program should also apply to the public.)

- ❖ Institute an aggressive enforcement program, which includes the techniques identified under the 'enforcement' section. (Revise penalties, increase fines, identify fines in regulations, etc..)
- ❖ As part of the enforcement program, undertake an aggressive effort to reduce and eliminate the 'illegal guide' problem.
- ❖ Recommend that the guide association voluntarily undertake an education/training program that emphasizes vessel operations, safety, actions to minimize erosion/habitat impacts, and vessel etiquette. This association would also be used to voluntarily police its members.
- ❖ Revise State Park guide permit stipulations to emphasize safety, appropriate behavior (absence of stipulation violation), and require the passage of a competency examination, administered by State Parks.
- ❖ Revise the permit purchase requirement from one year to three years.
- ❖ Limit/preclude the use of section line easements for commercial operations.

Background Although a public consensus on the methods to manage guiding activity on the Kenai River did not emerge during the planning process, there is a general sense that something needs to be done to improve the situation and that the increased management of commercial guides is appropriate. The methods favored by the public to deal with the guide fishing issue fall into three general types: numeric limits, controls over the timing and location of vessel operation, or controls that affect the days/hours of guide activity on the river. The latter affect the presence of guides, but should not directly reduce the number of guides. (Although there may be economic impacts that might have the effect of doing so.)

The Management Plan recommends an incremental approach to the management of sport fishing guides. Involving a phasing of controls, these changes should provide relief from the crowding experienced by the public and minimize adverse impacts to the sport fishing guide industry. The methods that are identified below are recommended for immediate implementation, subject to the development and approval.

These recommendations are to be implemented immediately, with the results of these changes to be evaluated in order to determine their effect on vessel overcrowding. The results of this effort will help determine if additional controls are required and, if so, what type and intensity. It is believed that these changes will have a significant effect upon certain of the problems now associated with the commercial guide industry, as perceived by the public.

However, the draft Management Plan also recognizes the possible need to impose numeric limits upon commercial sporting guides in the future, subject to the results of an overcrowding study. The Advisory Board felt that the use of other types of restrictions affecting the activity of guiding (area, time, and trip restrictions) were not appropriate at this time because of the potentially adverse and uncertain effects upon the guide industry. Although it may be necessary to limit the number of guides in the future (either on a river basis or river segment basis), such limitations cannot now be imposed because of insufficient information on vessel overcrowding and uncertainty over the severity of the impact on the guide industry.

Numeric limits will be considered by the Advisory Board and DNR-DOPOR at the completion of this study. If numeric limits are recommended and if the regulation of guides is essential to proper river management, these limits should be imposed on a phased basis. Numeric limits should be imposed on sport fishing guides before restrictions are considered which may affect the general public.

In order to be in a position to impose numeric limits if the incremental measures proposed in the Management Plan are not sufficiently effective, the following is recommended:

Recommendation 4.5.1.1.6.2: Undertake a study to establish the attributes of the overcrowding and safety issues (and any other significant issues relevant to vessel use) associated with boat use on the Kenai River. The study is intended to suggest an appropriate numeric threshold (or a similar quantitative approach) for sport fishing guides, if appropriate. This analysis should be included within the vessel overcrowding study, to be described in the ' Vessel Overcrowding' section (4.5.1.1.7).

4.5.1.1.7 Vessel Overcrowding (Implementing Agency: DNR-DOPOR)

Vessel overcrowding was perceived by the public as a pervasive problem on the Kenai River. Most people believed that there is substantial overcrowding (confirming the 1992 Carrying Capacity Study), but that limits on the number of boats operated by the public are inappropriate at this time.

Nor was there a consensus on the nature of the overcrowding problem. However, most of the public perceived that it is associated with a limited time dimension (June and July), King salmon runs (especially the second run since it often coincides with the sockeye run), and occurs at certain of the more popular fishing sites on the Lower River. They also felt that the overcrowding problem is beginning to extend to similar sites on the Middle Segment.

A number of ways were identified by the public to deal with the problem, some of which are complementary:

- ❖ The need to provide adequate public facilities to deal with overcrowding and the recognition that additional facilities can also worsen the overcrowding problem.
- ❖ The central importance of vigorous and comprehensive enforcement.
- ❖ The need to increase fees to support public education and enforcement programs
- ❖ The need to advertise the Kenai River less, and to divert (or provide) moneys for infrastructure development.
- ❖ Resolution of the sport fishing 'guide problem' should go a long ways to reducing overcrowding and that other means be tried before limits on vessels (public and guide) are considered. Should vessel limits be required at some time in the future, limits should first be applied to commercial sporting guides before they are applied to the general public.

The Management Plan does not propose any specific recommendations to resolve the overcrowding problem directly (like vessel limits). Rather, it recommends the use of the full range of management techniques that are identified in the Water Recreation section. Taken together, they should help to reduce the overcrowding to some significant degree.

There is a need to get a better understanding of the dimensions of the vessel overcrowding problem and of the probable methods to resolve this issue, should it continue to worsen. The sport fishing guide issue analysis should be incorporated into a comprehensive study of this problem. A comprehensive analysis of vessel overcrowding, including guided and non-guided boats, will allow a better understanding of the problem and possible solutions.

Recommendation 4.5.1.1.7: Prepare a vessel crowding study, to identify the appropriate thresholds for vessel limits, the conditions that would have to exist to implement numeric limits, and the procedures to actually implement such a program. This analysis should be part of an overall assessment of overcrowding conditions on the Kenai River. (See also 'Planning and Research, Recommendation 4.5.9)

4.5.1.2 Upland Recreation Facilities

Upland recreation on the Kenai River is much less significant in terms of use than water based recreation. The overwhelming use of the river and its adjacent areas is related to water recreation, and recreation specific to sport fishing. The prevalence of this use is not surprising given that the Kenai River is easily accessed from the road system; use is derived from the populated areas of the Kenai peninsula and Anchorage; and there is the presence of one of the best sport fishing streams for salmon in the world.

The kinds of public facilities that have been provided are generally adjacent to the river and the two large lakes, and are related to water recreation use. They include campgrounds, boat launches, parking

areas, and road waysides. There is limited use of trail systems. Most of the latter originate from the road system and have destinations at the river or upland lakes. Those with destinations at the river are mostly sport fishing related, while those having upland destinations provide access to lakes within the Chugach National Forest or connect to other forest service trails.

In the context of this plan, the term 'upland recreation' refers to those facilities provided by local, state, or federal agencies that are intended to support the water recreation uses of the river and its connecting lakes. Table 4-1 on pages 44 and 45 lists the public facilities that currently exist, and the types of services available at each facility.

There are relatively few additional public recreation facilities recommended in the Management Plan. Instead, the focus is on upgrading current facilities and making sure that existing recreation sites are able to handle site impacts *and* habitat impacts. Facility upgrading generally involves the installation of walkways to access fishing areas and boardwalks/ladders/platforms to let people fish in areas that do not allow easy or safe in-stream fishing. The latter locations often have swift currents, deep undercut banks, and provide good habitat. The development of public sanitary and solid waste facilities is also of principal importance. The only planned additional campground is a 30 unit facility at Bing's Landing. Another campground may be developed at the 'Kenai Ranch' parcel in the Middle River Segment if the Funny River Bridge is constructed.

This focus on the upgrading of current facilities reflects two complementary management philosophies:

- ❖ The belief by public land managers that there are few additional locations suitable for intensive public recreation use. 'Suitable' implies that the site is adequate for expected public use, public access and parking facilities can be provided, and the riverine area can be protected from the expected public use. This will require focusing public use at the relatively few suitable locations and discouraging it in other areas. There are only two areas that meet the aforementioned criteria: the State's Bing's Landing project and, potentially, the Kenai River Ranch parcel).
- ❖ The sense by both public land managers and the public that the river is at capacity now in terms of boat use and that additional facilities would only worsen an already serious overcrowding problem.

The implication of these conclusions is that few additional facilities should be constructed. The increasing demand for new facilities has to be balanced against increasing habitat degradation and overuse of the river.

Table 4-1. Public Recreation Facility Inventory

Facility name		Parking	Campsite	Boat launches	Bank fishing	Foot/ski trails	Sanitary facilities	Drinking water	Day use	Information facilities	Dump site*
LOCAL	1 Cunningham Park	◆		◆	◆		◆	◆	◆		
	2 Centennial CG **	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	3 Swiftwater CG **	◆	◆	◆	◆		◆	◆	◆		
	4 Soldotna Airport **	◆			◆	◆			◆		
	5 Soldotna Creek ***	◆			◆	◆	◆	◆	◆	◆	
	6 Kenai Dunes	◆			◆		◆		◆		
	7 Kenai City Dock	◆		◆	◆		◆	◆			
AK DNR	8 Kenai River Flats SRS	◆			◆		◆		◆	◆	
	9 Ciechanski SRS ***	◆					◆		◆	◆	
	10 Pillars Boat Launch	◆		◆			◆	◆		◆	
	11 Big Eddy SRS	◆			◆		◆		◆	◆	
	12 Slikok Creek SRS	◆			◆	◆	◆		◆	◆	
	13 Funny River SRS	◆	◆		◆		◆	◆	◆	◆	
	14 Morgan's Landing SRA ***	◆	◆		◆	◆	◆	◆	◆	◆	
	15 Izaak Walton SRS **	◆	◆	◆	◆	◆	◆	◆	◆	◆	
	16 Bing's Landing SRS **	◆	◆	◆	◆	◆	◆	◆	◆	◆	
	17 Sportsman's Lodge	◆		◆			◆	◆		◆	
	18 Cooper Landing ***	◆		◆		◆	◆	◆		◆	

- * Dump site at Mile 11 of Skilak Road services all of these facilities.
- ** Accessible Parking.
- *** Accessible facilities

Table 4-1. Public Recreation Facility Inventory

	Facility name		Parking	Campsite	Boat launches	Bank fishing	Foot/ski trails	Sanitary facilities	Drinking water	Day use	Information facilities	Dump site*
USFS	19 Russian River CG	***	◆	◆		◆	◆	◆	◆	◆	◆	◆
	20 Cooper Creek CG			◆		◆		◆	◆			
	21 Quartz Creek CG	***	◆	◆	◆	◆	◆	◆	◆	◆		
	22 Porcupine Site (water access only)			◆				◆				
	23 Ship Creek Site (water access only)			◆				◆				
	24 Meadow Creek (water access only)			◆				◆				
	25 Trail River CG			◆		◆		◆	◆	◆		
	26 Ptarmigan Creek CG			◆		◆	◆	◆	◆	◆		
	27 Primrose CG		◆	◆	◆	◆	◆	◆	◆			
	28 K'beq Footprints Heritage Site		◆				◆			◆	◆	
29 Beginnings Heritage Site		◆				◆	◆		◆			
USFWS	30 Lower Skilak Lake	**	◆	◆	◆	◆		◆	◆	◆	◆	◆
	31 Upper Skilak Lake	***	◆	◆	◆	◆		◆	◆	◆	◆	◆
	32 Jim's Landing	**			◆			◆			◆	◆
	33 Skilak Loop Station	**				◆		◆	◆			◆
	34 Kenai - Russian River	**	◆	◆		◆		◆	◆	◆		◆

* Dump site at Mile 11 of Skilak Road services all of these facilities.

** Accessible Parking.

*** Accessible facilities

4.5.1.2.1 Upland Recreation Facilities (Implementing Agencies: Cities of Soldotna and Kenai, DNR-DOPOR, ADF&G, US FWS, and USFS)

Recommendation 4.5.1.2.1.1: Local, state, and federal agencies should primarily focus on upgrading current recreation facilities to ensure that they are capable of accommodating public impacts to the site and the riverine area.

Tables 4-2A through Table 4-2C on pages 47 and 48 list the proposed facilities of local, state, and federal government. These projects are to be undertaken by a variety of local (Kenai, Soldotna), state (DNR-DOPOR and ADF&G), and federal (USFS and US FWS) agencies. Most entail the installation of sanitary and solid waste facilities; expansion of parking sites; construction of grated walkways, trails, and dock platforms at areas of heavy public fishing use; installation or improvements to boat launches; or the building of road access to areas of heavy public use. The proposed projects are depicted on Maps 4-1 through 4-4. Appendix B provides a more detailed description of the state park unit recommendations to be developed by DNR-DOPOR.

Recommendation 4.5.1.2.1.2 : Upland recreation facilities proposed for development in the future and not contained in Table 4-2A through Table 4-2C should be evaluated against the following criteria:

- ❖ The ability of the proposed acquisition or facility to protect significant riverine habitat.
- ❖ The public need for the facility in terms of present and/or projected demand.
- ❖ The ability to mitigate impacts to riverine habitat if the facility is intended to be intensively used by the public.
- ❖ The provision of related facilities that are able to accommodate the associated demands generated by the proposed project, including but not limited to sanitary and solid waste facilities, trails, parking, and public access.
- ❖ The ability of the proposed project to contribute to the overall public interest and not substantially benefit a private landowner or a privately owned facility.
- ❖ The ability of the proposed project to avoid 'spill over' effects to private land.
- ❖ The capability of the proposed project to contribute to an overall plan for the provision of public recreation facilities that may be developed by local government, state agencies, and federal agencies.

Table 4-2a. Recreation Facilities - Lower River

RM	Organization	Project name	Description
Kenai River mouth LB	City of Kenai	South side Beach (Proposed)	Construction of sanitary facilities and access to the Kenai River for dipnetting.
Kenai River mouth RB	City of Kenai	Kenai Dunes (Expansion)	Expansion of parking area and re-definition of access routes to the beach for dipnetting. North side of river mouth.
RM 1.5 RB	City of Kenai	City Dock (Proposed expansion)	Expansion of parking areas and construction of one additional dock
RM 5 RB	City of Kenai	Kenai Flats Viewing Area (Proposed expansion)	Platforms and walkways to view wildlife and waterfowl.
RM 5	State (DNR)	Kenai River Flats (Proposed expansion)	Construction of elevated grate walkways to provide better day use access
RM 6.5 RB	City of Kenai	Cunningham Park (Proposed expansion)	Expansion of parking and fishing access.
RM 12.5 RB	State (DNR/ADF&G)	Pillars Boat Launch (Expansion)	Parking lot, boat ramp, sanitary facilities, elevated grate walkways and floating dock.
RM 15.5 LB	State (DNR)	Ciechanski (Expansion)	Construction of new floating dock and elevated gratewalk.
RM 16.5 RB	State (DNR)	Big Eddy (Expansion)	Construction of new floating dock and elevated gratewalk.
RM 19 LB	State (DNR)	Slikok Creek (Proposed expansion)	Construction of elevated gratewalks, new staircase, and trail upgrade.
RM 20 LB	City of Soldotna	Centennial Park (Expansion)	Walkways and river access stairways.

Note: Additional public toilets will be needed at any boat put-in or take out spots that are developed in the future.

Expansion: Facility is being expanded

Proposed Expansion: Facility expansion is being considered.

Table 4-2b. Recreation Facilities - Middle River

RM	Organization	Project name	Description
RM 25-28 RB and LB	USFWS	Moose Range Meadows (Proposed)	
RM 30.5 LB	DNR/ADF&G	Funny River (Expansion)	Elevated gatewalks, fishing platforms, and access stairs
RM 31 RB	DNR	Morgan's Landing (Expansion)	Fishing platforms and walkways
RM 34 RB	DNR and DOT/PF	Funny River Bridge Crossing (Proposed)	Installation of public toilets, boat ramp and parking.
RM 39.5 RB	DNR	Bing's Landing (Expansion)	Campground, elevated gatewalks, access stairs and boat tie ups.
RM 46 RB and LB	DNR/USFWS	Kenai Keys/ Stephanka (Proposed)	Installation of public toilets.

Table 4-2c. Recreation Facilities - Upper River

RM	Organization	Project name	Description
RM 73 LB	USFWS	South side Russian River (Proposed)	Installation of public toilets
RM 73.5 RB	ADF&G	Sportsman's Landing (Expansion)	Boat launch, parking and public toilets.
Russian River Campground	USFS	Russian River Angler's Trail (Expansion)	Walkways, grate platforms, & cultural trail.
RM 75.5 RB	USFS	Beginnings Heritage Site	Cultural trail, parking, interpretive displays.
RM 77.5	USFS	K'Beq Footprints Heritage Site	Parking, information and cultural trail.
RM 82	State (DNR/ADF&G)	Cooper Landing Boat launch	Boat Ramp, walkways, information, parking and public toilets
Kenai Lake	USFS	Quartz Creek	Re-construction of existing facility.

Note: Additional public toilets will be needed at any boat put-in or take-out spots that are developed in the future.

Proposed: No facility currently.

Expansion: Facility is being expanded

**Map 4-1
Lower River Segment**

Due to file size, this color map
is a separate pdf document.

To view, return to the
Kenai River Plan web page.

**Map 4-2
Middle River Segment**

Due to file size, this color map
is a separate pdf document.

To view, return to the
Kenai River Plan web page.

**Map 4-3
Upper River Segment**

Due to file size, this color map
is a separate pdf document.
To view, return to the
Kenai River Plan web page.

**Map 4-4
Kenai Lake**

Due to file size, this color map
is a separate pdf document.
To view, return to the
Kenai River Plan web page.

4.5.1.2.2 Integrated Trail Development (Implementing Agencies: DNR - DOPOR, US FWS, USFS)

Recommendation 4.5.1.2.2: Integrate trail location and design with campground design at new facilities and with habitat restoration projects at existing facilities. Trails should be considered as an integral part of campgrounds and other high use recreation facilities, functioning to direct the public to areas of appropriate use and away from areas where such use is inadvisable, either because of the presence of sensitive riverine habitats or areas impacted by bank angling which require protection or rehabilitation.

Background Recent studies have concluded that certain types of recreational facilities combined with heavy bank fishing pressure have exacerbated habitat impact. Dispersion of bank fishing from these locations to areas where fishing can safely occur within the river or where boardwalks/ladders/platforms can be provided will be required. It will also be necessary to discourage public use of areas of sensitive habitat that cannot be adequately protected. This may require the use of signing and flagging. It may also be necessary to provide multi-language signs because of the heavy foreign use of the river during peak periods. Boardwalks will also be required where soil conditions cannot support heavy public use over extended periods.

4.5.1.2.3. Habitat Restoration Projects Part of New Recreation Facilities (Implementing Agencies: DNR-DOPOR, ADF&G, US FWS, USFS)

Recommendation 4.5.1.2.3: Habitat protection/restoration projects shall accompany all new or upgraded recreation sites. They should be closely integrated with recreational use patterns and trail design.

Background The '309' Cumulative Impact study by ADF&G identified the presence of significant areas of the Kenai River where riverine areas important to salmonid rearing have been degraded. Areas of impact included public lands as well as private properties. Public entities have a responsibility to ensure that their projects do not contribute to further habitat loss or, more positively, that gains in habitat can be made on public lands. The intent of the restoration projects recommended herein are either to regain habitat (restoration) or ensure that additional habitat is not lost (protection).

4.5.2 Habitat

Essential components of this Plan are the recommendations for protecting, restoring, and perpetuating riverine habitat. ADF&G research has underscored the importance of riverine habitat, the fragility of the river ecosystem, and the significant impacts that human activities can have on river systems. This research indicated that some river sections providing important riverine habitat have been significantly degraded and will continue to deteriorate until steps are taken to manage human impact.

Goals and Objectives

Goal: To protect, perpetuate and effectively manage the fishery and wildlife resources, waters, and habitats of the Kenai River ecosystem.

Objective: Habitat

To maintain the diversity and quality of fish and wildlife habitat with no net loss, and to perpetuate the current stocks of fish and other wildlife species.

To establish and maintain preservation areas for riparian habitat, wetland protection, and wildlife resources.

To establish plans to protect habitat areas before expending moneys for facility development, and ensure that facility development is consistent with the recommendations of such plans.

To require that in-stream structures are designed, constructed, and managed to maintain fish habitat and ensure safe and efficient fish passage.

To evaluate the potential impacts of proposed new facilities and associated activities on fish and wildlife habitat before making a commitment to construct or authorize them.

Objective: Wetlands

To preserve and protect those wetlands providing critical habitat functions and essential hydrologic connections in the Kenai River drainage.

To rehabilitate impacted wetlands whose restoration is feasible.

To update and revise the FEMA study of the Kenai River floodplain, to include the correction of the floodplain boundary based on 1995 flood data and the results of improved hydrologic modeling.

To undertake an assessment of wetlands within the Kenai River watershed, to include the identification of wetland boundaries, types, and functions, and particularly to identify those wetlands that serve as critical habitat areas or provide significant hydrologic connections to the Kenai River or its tributaries.

Objective: Vegetation

To preserve and protect riverbank vegetation essential to habitat functions.

To re-vegetate areas damaged through bank trampling, construction, or other causes, for the purposes of habitat protection and erosion control.

To manage forests to maintain water quantity and fish and wildlife habitat by developing and applying forestry, construction, and facility design “best management practices” throughout the Kenai River ecosystem.

To assess the cumulative impact of wetland permitting decisions and attempt to achieve a ‘no net loss’ of all wetlands determined under the federal permitting process or the Wetlands Assessment Study to have significant and continuing habitat, hydrologic, and water retention/filtering functions of Kenai River wetlands within the Plan Boundary.

Goal: To protect, maintain, and manage public use in the Kenai River ecosystem while protecting riparian habitat.

Objective: Recreation

To require that the design and construction of public facilities, including recreation facilities, minimize impacts to the water column, fisheries habitat, riparian areas, and the adjacent uplands, and that structures are sited to similarly minimize these impacts.

To provide adequate, controlled public access that prevents habitat degradation.

To establish ‘carrying capacities’ for the river, campgrounds, bank fishing areas, and day use sites and apply these in recreation management and public facility development.

Recommendations

The following recommendations focus on specific measures related to fisheries and wildlife habitat, but are not the only recommendations in the Management Plan designed to manage the impact of human use. In a general sense, most of the recommendations of this Plan focus on protecting the Kenai River system in some manner. This is especially true of the recommendations related to land use, environment, financial, and public awareness. The recommendations relating directly to habitat should therefore be viewed within the context of the full range of recommendations proposed herein.

4.5.2.1 Public Access (Implementing Agencies: DNR-DOPOR, US FWS, USFS, ADF&G, KPB and cities of Kenai and Soldotna)

Recommendation 4.5.2.1: Public land managers should manage public access in areas where overuse has resulted in or is likely to cause habitat damage. Borough, state, and federal agencies should consider:

- ❖ Identifying and prioritizing public access sites subject to heavy use.
- ❖ Limiting the number of access points with intensive use.
- ❖ Closing and rehabilitating riverine areas damaged by public use.
- ❖ Establishing intensive use areas and restricting intensive use to these sites only.
- ❖ Actively managing areas that have been newly rehabilitated to ensure the recovery, integrity, and continued health of the restored area.
- ❖ Establishing capacity levels for campgrounds, day use areas, and bank fishing areas to ensure that overuse does not occur and habitat damage does not increase.

Problem Statement Consistent methods for managing public access to the river or the rehabilitation of impacted riparian areas do not exist. This has resulted in mixed messages being set to the public over how areas should or should not be used; the extent to which site overuse has occurred, resulting in the eventual loss of important upland and riverine areas; and the inappropriate use of public lands and facilities.

Background Undeveloped public land and some public facilities are overwhelmed by users during the peak fishery periods. This annual impact to the river's riparian vegetation has resulted in severe habitat damage and loss in many areas. Agencies need to manage their lands and public access to their lands more effectively and in a consistent manner.

4.5.2.2. Public Facilities (Implementing Agencies: DNR-DOPOR, ADF&G, US FWS, USFS, KPB, and Municipalities)

Recommendation: Public agency managers shall site and design new facilities to avoid or minimize habitat impacts, both from construction impacts and subsequent public use. The following policies and standards are to be followed in implementing this goal.

- ❖ Existing recreational areas that are affected by overuse are to be rehabilitated and protected before new recreation facilities are constructed.
- ❖ Establish new recreation use areas only at locations that can support heavy public use and construct these facilities before allowing the public to use the land. New recreational facilities shall be designed to withstand heavy public use. Access to the new areas is to be developed concurrent with the facility and is to be designed to support the design carrying capacity of the recreational site. (Note: certain recreation areas in wilderness areas are expected to receive limited public use. In contrast to most other types of recreational facilities proposed along the Kenai River, these types of facilities should be designed to support much more limited use levels.)
- ❖ As a general design standard, only water related, water dependent public facilities are to be located adjacent to near shore areas. Examples of such facilities include sanitary facilities, walkways, boardwalks/ladders/platforms, and boat launches. All other facilities are to be sited some distance away from the site. Although actual site conditions may dictate a different location campgrounds, sanitary facilities, solid waste collection sites, and other high intensity uses should be positioned at least 300' from near shore areas.
- ❖ Create development setbacks for all non-water dependent public facilities adjacent to the river, using a general setback standard of 300'.

- ❖ Public road construction projects in upland areas should be located away from the Kenai River and should employ standard best management practices to preclude siltation to the river and its adjacent wetlands and tributaries, both during and subsequent to construction. Construction activities should avoid or minimize damage or destruction to riverine areas, wetlands, and tributaries; the placing of structures or fill in the aforementioned areas, and direct runoff into these areas. River crossing structures should be minimized to the fewest number possible. The only recognized additional bridge crossing of the Kenai River in the Management Plan is the proposed Funny River Bridge, should this facility be approved for construction by the State and Federal Highway Administration.
- ❖ The Department of Transportation is studying a project to construct a 'by-pass' (Sterling Highway, MP 46-60) around the community of Cooper Landing and the Kenai River corridor. If the bypass route is selected, the current road should be made more enjoyable and safer. Following the completion of the by-pass route, it is recommended that a Trails and Recreation Access for Alaskans (TRAAK) project be initiated, in cooperation with the Kenai Peninsula Borough Trails Commission, to improve the access provided by the existing highway to the Kenai River. The study would identify better access points to the river, improved parking areas, new sanitary facilities, and the improvement of trails and fishing areas along the river, consistent with the recommendations of the Upper Kenai Management Plan.
- ❖ Evaluate and analyze new land additions to the KRSMA to determine the habitat and recreational values of the property. Parcels with high fish and wildlife values should be protected. Parcels that are suitable for public recreation are to be developed in a way that controls access and protects near shore riparian areas.
- ❖ The Advisory Board should be afforded the opportunity to review and comment on all proposed public facilities of local, state, and federal governments within the area of the Plan Boundary prior to final approval of the facilities by the sponsoring agencies. This review should occur at the early, conceptual stage of project development for those facilities that can be expected to have intense public use or affect the watershed significantly.
- ❖ The unintended and cumulative effects of proposed facilities to the Kenai River need to be examined during initial project reviews. This review can also occur during the period where project feasibility is under consideration.

Problem Statement Some of the most popular existing public use areas are located on lands that are extremely fragile or the number of users far exceeds site capacities. This has resulted in impacts to riparian areas and damaged public facilities. Agencies need to do a better job of protecting riparian resources and building new facilities.

Background Many of the existing public recreational facilities were constructed in the 1970's and 1980's before the expansion of the popular sockeye salmon fishery. Many construction practices of that era do not provide adequate protection for the riparian areas and are now considered to be resource damaging. At some sites, the campground and day use parking areas will be full but people are still allowed to park on the roads and walk into the site. This only exacerbates the resource damage and degrades the recreational experience.

4.5.2.3. Permitting of In-Stream Structures (Implementing Agencies: DNR-DOPOR, ADF&G)

Recommendation 4.5.2.3: Permit application for the construction and maintenance of instream structures must of necessity be considered on an individual basis by regulatory agencies consistent with statute, the public interest, and best professional judgment. However, it is the intent of the permitting agencies to follow these general guidelines:

1) New Structures:

New structures must comply with all current design and construction standards. New structures must not impede fish passage, result in an overall reduction of fish habitat, present a hazard to public safety, or diminish recreational opportunities.

2) Routine Maintenance and Minor Reconstruction of Existing Structures:

Permitting agencies will process permits for minor maintenance of existing structures, even if those structures do not strictly comply with current fish habitat standards, as long as a) the original construction of the structure was authorized by an ADF&G or DOPOR permit and the structure, as built, conforms to the conditions of the original permit authorizing construction; and b) the structure does not substantially impede juvenile fish movement, provides productive fish habitat and does not constitute a hazard to public safety and recreation.

3) Reconstruction of Existing Structures:

Reconstruction of existing projects which in the professional judgment of permitting agencies fully meet fish habitat and fish passage criteria and use sound construction techniques will be authorized. The reconstruction of projects which do not meet current criteria may be authorized if these projects do not present a hazard to public safety or diminish recreational opportunities, and incorporate sound construction techniques.

4) Financial Incentives:

Permitting agencies should continue to provide financial incentives to encourage landowners to incorporate habitat protection and improvements to fish passage into existing structures, or to remove these structures where appropriate. If permitting agencies mandate the inclusion of fish habitat or fish passage measures into a previously authorized project, financial assistance should be provided by the State, subject to funding availability and legislative approval to grant funds to private projects.

Note: Appendix D provides additional information on and requirements for the permitting of in-stream structures.

Problem Statement Many instream structures, specifically bulkheads, jetties and groins create water velocities that exceed 2 feet per second (fps). Juvenile salmon cannot sustain swimming speeds faster than 2 fps and these structures restrict fish passage to other areas of the river. The footprint of these structures also occupies areas that would be used for rearing by juvenile fish during low water periods.

Background Several decades ago many groins, jetties and bulkheads were installed in the Kenai River in an effort to slow bank erosion or to create still water areas for boat mooring or fishing. Recent research has shown that these types of structures accelerate water velocities and restrict the movement of juvenile fish. Currently, ADF&G and DOPOR use their existing permitting authority to preclude the construction of any structure that will accelerate water velocities or disrupt rearing habitat. But the habitat problems associated with existing jetties, groins and bulkheads still exist as these structures age and fail, and it is likely that permits for maintenance will be requested.

4.5.2.4. Habitat Restoration & Protection. (Implementing Agencies: ADF&G, DNR-DOPOR, US FWS, USFS, KPB, cities of Kenai and Soldotna)

Recommendation 4.5.2.4: Public land managers should develop rehabilitation and restoration plans for riparian and wetland areas that are heavily impacted by human use, to be accomplished by:

- ❖ Implementing restoration and protection projects currently in need of protection/ restoration which are identified in Table 4-3A through 4-3C on pages 62-64 and depicted in Maps 4-1 through 4-4 on pages 49-55.

Table 4-3a. Restoration Projects - Lower River

Agency	Project	Location	Description
KENAI-ADF&G	Dunes Project**	North River mouth beach	Walkways, stairs and parking, fenced closures
KENAI	Cunningham Park	R.M. 6.5 RB	Walkways, stairs, ramp improvements, parking and fenced closures
SOLDOTNA-ADF&G	Centennial Park+**	R.M. 20.0-21.0 LB	Stairs, walkways, trail improvements, restoration docks
	Soldotna Outfall	R.M. 20.8 RB	Walkway, trail, stairs, dock and restoration
STATE-DNR	Pipeline	R.M. 16.8 LB	Fenced closures, revegetation
STATE-DNR	Slikok Creek+**	R.M. 19.0 LB	Walkways, stairs, trails, fenced closures, fishing platforms and revegetation
STATE-DNR	Kenai Flats	R.M. 5.5 LB	Platforms, viewing area, stairs
STATE-DNR	Big Eddy+**	R.M. 16.8 RB	Walkway, dock, stairs, restoration, fenced closures
STATE-DNR	Ciechanski+**	R.M.15.5 LB	Cabled trees, dock, revegetation and fenced closures
STATE-ADF&G	Endicott Sonar Site+**	R.M. 19.5 LB	Walkway, ramp to dock that supports fish wheel
STATE-ADF&G & DNR	Pillars+	R.M. 12.5 LB	Walkways, docks, fenced closures and revegetation
STATE-DNR	Jetties & other structures	Throughout water column	Remove to establish natural flow regime and vegetation

** Project has received some level of funding from EVOS settlement.

+ Project site includes lands closed by ADF&G Emergency Order, DNR Director's Order or Refuge Manager's Closure.

Table 4-3b. Restoration Projects - Middle River

Agency	Project	Location	Description
STATE-ADF&G & DNR	Kenai Keys - + Torpedo Hole	R.M. 44.5- 44.5 RB	Fenced closures, stair, floating dock, toilet
STATE-ADF&G & DNR	Funny River+**	Funny River confluence LB	Walkways, revegetation, dock, stairs, plat- forms and fenced closures
STATE-DOT	Soldotna's Kenai River Bridge Site	R.M. 20.0 LB and RB	Revegetation
STATE-DOT	Kenai River Bridge Crossing (Sterling)	R.M. 34.0 LB and RB	Revegetation
FEDERAL - USFWS	Moose Range + Meadows	R.M. 25.0-28.0 RB and LB	Walkways and stairs
FEDERAL- USFWS	Refuge boundary to Jim's landing	R.M. 73.7-70.0 RB and LB	Revegetation, trails, fenced closures
FEDERAL - USFWS	Skilak Lake Outlet	R.M. 50.0	Definition of camping areas, revegetation
SOLDOTNA- ADF&G	Soldotna Creek Park	R.M. 22.0 RB	Stairs, walkways, trails, revegetation
SOLDOTNA	Swiftwater Park	R.M. 22.5 RB	Stairs, walkways, trails, revegetation
SOLDOTNA- ADF&G	Soldotna ** Visitor Center	R.M. 20.0 LB	Stairs, walkways, trails, revegetation
SOLDOTNA- ADF&G	Airport Rotary ** Park	R.M. 23.5 LB	Walkways, fishing, stairs, platforms, fenced closures and restoration
STATE-DNR	Bing's Landing+**	R.M. 39.5 RB	Walkways, stairs, trail improvements, fenced closures and revegetation
STATE-DNR	Morgan's +** Landing	R.M. 30.0- 31.0 RB	Walkways, stairs, trail improvements, fenced closures, fishing platforms and revegetation
STATE-DNR	Funny River+**	R.M. 30.0- 31.0 LB	Fenced closures, restoration
STATE-DNR	Izaak Walton+	R.M. 36.5 RB	Fenced closures, revegetation, stairs
STATE-DNR	Jetties & other structures	Throughout water column	Remove to establish natural flow regime and vegetation

**Project has received some level of funding from EVOS settlement.

+Project site includes lands closed by ADF&G Emergency Order, DNR Director's Order or Refuge Manager's Closure.

Table 4-3c. Restoration Projects - Upper River

Agency	Project	Location	Description
STATE-ADF&G	Sportsman's	RM 73.5 LB	Revegetation, jetty downsize, fenced closures
USFS	Russian River ** Angler trail	Russian River Corridor	Walkways, stairs, fishing platforms, revegetation, and fenced closures
USFS	Quartz Creek Campground	Quartz Creek Bridge to Kenai Lake	Revegetation, trails, walkways, and fenced closures
USFS	Cooper Creek Campground	Confluence of Cooper Creek and the Kenai	Fenced closures and revegetation
	Jetties and other structures	Throughout water column	Remove to establish natural flow regime and vegetation

**Project has received some level of funding from EVOS settlement.

+Project site includes lands closed by ADF&G Emergency Order, DNR Director's Order, or Refuge Manager's Closure.

- ❖ **Developing a coordinated management strategy for habitat rehabilitation by those local, state and federal agencies whose lands have been significantly impacted by bank trampling. This schedule should be developed biennially, cover a three-year period, and provide a multi-agency schedule for bank rehabilitation that identifies the areas of rehabilitation and type/level of required project(s). DOPOR would be responsible for coordinating the development of this strategy with local, other state, and federal agencies; it would be submitted for Advisory Board review.**
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Background There are a large number of riverbank restoration and protection projects, most of which involve the installation of walkways, stairs, fenced closures, revegetation, fishing platforms, and trail access. These facilities are to be constructed by local (Kenai, Soldotna, and Borough), state (DNR, ADOT/PF, and ADF&G) and federal (USFS and US FWS) agencies. Jetties, groins, and similar structures which impede effective fish passage or reduce habitat by significantly encroaching into the water column are identified for removal. The various restoration and protection projects are designed to promote a natural flow regime, protect existing habitat values, and re-vegetate damage sites.

In addition, extensive areas of significant habitat on public lands have been affected by public overuse. This overuse has primarily occurred in the last ten years as a result of the development of the sockeye salmon fishery. Restoration projects are essential to the repair of these areas and to the future protection of these areas from expected, heavy public use. The development of these projects must be coordinated with other recreation projects and with the development of public trail systems. See 'Upland Recreation Facilities' section.

4.5.3 Land Use

The term 'Land Use', refers to the methods that are used to manage upland areas and to the uses and densities of land uses found along the Kenai River. Without proper management of citing and development, land use patterns may contribute to habitat or environmental degradation. Both the immediate riverine area as well as the areas further inland are important to the river's health.

Adjacent upland areas may affect river functioning through the siting and construction of structures and from the activities associated with land uses. Development in these areas may change the quantity of water flow by the diversion and modification of natural drainage ways. Water quality can be affected through the erosion and sedimentation from the use of improper construction techniques, the operation of failed septic systems, and the discharge of untreated storm water. Development may also affect the absolute amount of surface and groundwater entering the river through the elimination of wetland areas and the diversion of drainage ways.

The areas of private land and native holdings together constitute about 70 percent of the river downstream of Skilak Lake. Development is possible within all of this area, potentially affecting extensive riverine areas as well as wetlands important to the river hydrologically.

Since land development and land use can fundamentally affect the river's functioning, management efforts tend to focus on the conversion of land to developed uses. These processes establish in large part the basic pattern of subsequent development. Typically, land use controls are used by local government. The authority to develop and use land use controls rests with the cities of Kenai and Soldotna and the Kenai Peninsula Borough.

Goals and Objectives

Goal: To formulate policies and specific guidelines for development activities in the Kenai River Special Management Area and adjacent lands.

Objective: Development Areas

To ensure that development occurring within the area of the Kenai River watershed is undertaken in a managed and coordinated fashion to ensure the continued integrity of the watershed, and under generally similar rules.

To focus people and facilities creating potential impacts to those areas of the Kenai River watershed that are best able to accommodate the impacts of heavy recreational use or rural/urban development.

To ensure that natural areas within the Kenai River watershed, if developed, are done so that neither the fishery or the habitats related to the fishery of the Kenai River are adversely effected.

To manage timber harvest, mining, oil and gas, and other development within the Kenai River watershed so as to avoid significant adverse impacts to the resources of the KRSMA, including but not limited to water, soils, fisheries, wildlife, visual quality, and recreation.

To ensure that development does not impair the functioning of wetlands important to the maintenance of habitat and hydrologic functions.

To identify and protect public areas of cultural and historic significance.

Objective: Development Requirements

To ensure that development within the Kenai River watershed is sited, constructed and managed to reduce the associated off-site impacts to the river ecosystem through the use of siting, project development and design, and land use controls.

To ensure that the costs of habitat restoration and other remediation are borne by those activities creating the impact.

To balance the rights of property owners with the protection and enhancement of the resource values of the Kenai River watershed.

To implement cooperative agreements between agencies with overlapping and/or similar management responsibilities.

NOTE: THE RECOMMENDATIONS THAT FOLLOW ARE, IF PERTAINING TO LOCAL GOVERNMENT, OF AN ADVISORY NATURE AND WILL REQUIRE SPECIFIC LEGISLATIVE OR ADMINISTRATIVE ACTION BY LOCAL GOVERNMENTS IN ORDER TO BE IMPLEMENTED.

Recommendations:

4.5.3.1. KPB 21.18 Kenai River Habitat Protection (Implementing Agency: Borough)

Recommendation 4.5.3.1: 1) Amend KPB 21.18 , Kenai River Habitat Protection (HPO), of the Kenai Peninsula Borough Code of Ordinances to include tributaries within the Kenai River drainage and 2) re-evaluate the effectiveness of this ordinance when the HPO undergoes its next scheduled review by the Borough. In this review the impact of increasing its width to improve habitat protection, and to reflect the difference in private and public lands and between urban and rural areas, should be considered.

Problem statement The application of KPB 21.18 Kenai River Habitat Protection is limited to the Kenai River.

Background KPB 21.18 requires structures be setback 50 feet from Ordinary High Water unless otherwise permitted by the Planning Commission. It precludes placement of fuel storage tanks, logging, prefabricated buildings, filling, construction, excavation, major clearing of vegetation, commercial rec-

recreation uses or activities which result in significant erosion, damage to riparian habitat, or increases in ground or water pollution. It should be an important tool in future river management.

4.5.3.2. Borough Comprehensive Plan (Implementing Agency: KPB)

Recommendation 4.5.3.2. In updating the Comprehensive Plan, consideration should be given to including recommendations from the Kenai River Management Plan which are applicable to the Borough.

Problem Statement The Borough's Comprehensive Plan does not include specific references to the Kenai River.

Background The Comprehensive Plan is the document used by the Borough to guide development, environmental, and other decisions related to the physical environment. It is consulted during the review of permits, coastal zone determinations, and other similar actions.

4.5.3.3 Kenai River Center (Implementing Agencies: KPB, ADF&G, DOPOR)

Recommendation 4.5.3.3. Utilize the Kenai River Center as the focus for land use, environmental, and recreation permitting programs pertaining to the river, excluding fish management. To the extent practicable, all future management programs should use the Center as the site where information may be accessed and permits issued. The Center should evolve as that place that contains all relevant information about the resources of the Kenai River and its hydrologic connections, and that serves as the place for local, state, and federal permitting on the Kenai River. The Kenai River Center should also be used to host education and public outreach programs, as appropriate to its mission.

Background The Kenai River Center is an inter-agency (KPB, ADF&G, DNR) office that was created to centralize information concerning the Kenai River watershed, coordinate agency permit functions, and assist the public with permit applications. It is an excellent example of governments cooperating to make the decision making process for permit applications faster and more efficient.

Problem Statement In the past, applicants would travel to Anchorage or call long distance to talk to the agencies that did not have local offices. This system was very frustrating and the need to have a local office was a high priority. The Kenai River Center was designed to provide applications, coordinate permit reviews, and provide Kenai River resource information.

Although the Center is fully functional now, lack of funding in the future could have serious consequences. Without the Center, the individual agencies would not have the benefit of increased coordination, and the cooperation between the public and the agencies could be lost.

4.5.3.4. Zoning of Area Adjacent to Kenai River. (Implementing Agency: KPB)

Recommendation 4.5.3.4 Institute zoning of the area adjacent to the Kenai River.

The Advisory Board recommended that the Borough consider adopting a program of areawide rezoning along the Kenai River from Kenai Lake to the eastern boundary of the City of Kenai. Only the area immediately adjacent to the Kenai River would be considered for zoning, corresponding generally to the first one-half mile measured from mean high tide mark (tidal areas) or the ordinary high water mark. Areas of the river within the corporate limits of the cities of Kenai and Soldotna would be excluded from the areawide rezoning. These areas are already zoned.

In general, the area wide zoning should provide for low density residential uses with a minimum lot size of 40,000 square feet to 1.5 acres per dwelling unit. Densities greater than this average might be appropriate at specific sites through the use of cluster design, but the total number of dwellings should

not exceed the number allowed by the underlying zoning on a per acre basis. Commercial uses would be treated as conditional uses and industrial uses as prohibited uses on Borough lands outside the cities of Kenai and Soldotna.

Problem Statement Future development of the vacant areas adjacent to the Kenai River will almost certainly have a major impact on the future health of the Kenai River. The citing and density of development affect runoff patterns, recreation use levels, and riverine areas. Current land use controls do not address the location but do address the density of future land uses through KPB 20.20.190 and KPB 20.14.

Background Current development controls (KPB 21.18 Kenai River Habitat Protection) affect the uplands adjacent to the river. However, these portions of the borough code do not control the type or intensity of land use adjacent to the river. The intensity of land development may cause a significant impact to the river if the siting of certain uses is not carefully controlled.

4.5.3.5. Public Access Guidelines (Implementing Agencies: KPB, DNR, ADF&G, ADOT/PF)

Recommendation 4.5.3.5.1: Develop a consistent public policy for the management of public easements and rights of way providing access to the Kenai River. The Borough and State agencies should:

- ◆ create an inventory of public easements and rights of way to identify which access points should be developed,
- ◆ develop recommendations to identify access points that should be retained and those that should be vacated or physically closed, and
- ◆ develop recommendations on which agencies will manage and respond to complaints.

Until this study is completed agencies should not open or permit new public easements and rights of way except as a component part of a public facility project on the Kenai River.

Recommendation 4.5.3.5.2: In general, public access to the Kenai River should/will be directed to areas that can be managed to avoid or minimize and mitigate impacts to habitat and private property, and maximize public safety.

Recommendation 4.5.3.5.3: Improvements to section line easements and rights-of-way, including clearing, paving, other hardening (boardwalks, etc.) should not be permitted unless it can be shown that the access can be managed consistent with recommendations 4.5.3.5.2. The following should be considered before permitting improvements to new access:

- ◆ Adequate parking facilities should be provided.
 - ◆ Adequate sanitary and solid waste facilities should be provided.
 - ◆ Increased access should cause minimal bank degradation.
 - ◆ Public safety concerns, including safe boat ramps and traffic problems, should be addressed.
 - ◆ New public access should have minimal impact to adjacent private property.
-

Background The control of public access easements is critical to the effective management of river use and the minimization of riverine impacts. Accesses include trespass roads, public use easements, utility easements, and section line easements. There are at least 100 dedicated public accesses (easements and rights-of-way), most of which are undeveloped but are used to some extent by the public, usually for access to good fishing spots during peak fishing periods. Some access points have some development but because of heavy use during peak periods, problems of overuse are prevalent. Trampling of

vegetation, trespass on private property, and improper parking are often associated with the upland portions of these access points. At the river itself the problem is manifested by bank trampling, bank sloughing, degradation of near shore vegetation, illegal camping, and improper disposal of trash and sanitary waste.

Problem Statement Management of these areas is now difficult. DNR does not have the authority to manage certain of these areas, and agency knowledge of access rights for particular ingress-egress point(s) is limited. Nor have the agencies developed a consistent policy for the management of public access sites. Additional unmanaged public access to the river will only worsen the already bad situation.

4.5.4 Land Management

'Land Management' is a collective phrase referring to the land management policies and practices of the local, state, and federal agencies that own or manage land units adjacent to the Kenai River. These agencies include the cities of Soldotna and Kenai, the Kenai Peninsula Borough, the Alaska Department of Natural Resources, the U.S. Forest Service, and the U.S. Fish and Wildlife Service. State and federal agencies are the principal agencies involved in the management of public lands, reflecting the extensive areas of the Chugach National Forest, National Wildlife Refuge, and, to a lesser extent, KRSMA. In addition to the administration of certain parcels of upland, DOPOR administers the water column to the Mean Ordinary High Water of the Kenai River. DOPOR is therefore responsible for the management of most of the recreational activity that takes place on the river itself, which concentrates in the Lower and Middle Segments.

Because of the size of the land inventory associated with state and federal holdings, what these agencies do (or do not do) has a significant effect on the river. Their actions affect land and water resources, and extends to private structures that use or are physically located within the river. Policies regarding the use or disposal of government lands and the management of the water column will therefore have a significant influence on the river.

Activities on the lands adjacent to the river and within the Kenai National Wildlife Refuge or Chugach National Forest are governed by the plans prepared and adopted by these agencies. The Forest Service is currently updating its Forest Land and Resource Plan, and the management plan for the Refuge is currently under agency review. The Management Plan and the DNR Kenai Area Plan govern how state land and water is to be used.

Although the Management Plan can make recommendations on the use of state land adjoining the Kenai River and its tributaries, these recommendations must be included in the DNR Kenai Area Plan (KAP) to be fully implemented. Area plans are used to make determinations on how state land is to be used, including those parcels of state land recommended for inclusion in KRSMA or for management by the Division of Land consistent with the objectives of KRSMA. Recommendations requiring final disposition in KAP are noted subsequently.

4.5.4.1. Classification of Borough Land as Preservation. (Implementing Agency: KPB)

Recommendation 4.5.4.1: The Borough should, on a case by case basis, consider designating its properties adjacent to the Kenai River and its tributaries as 'recreation' (or some equivalent designation) in its land classification system where the areas provide significant habitat values or are otherwise important to the functioning of the Kenai River. This recommendation applies to those Borough properties that are not intended to be integrated into KRSMA. A protective classification seems appropriate for habitat and erosion sensitive properties along the Kenai River and its principal tributaries, to afford a level of management consistent with the value of these areas.

Background The Borough organizes its properties into a number of classification levels. The 'preservation' classification provides the highest level of protection. 'Recreation' also provides a certain amount

of protection if bank fishing pressure can be successfully accommodated through active management of the effects of fishing use.

Problem Statement Bank fishing along certain portions of the Kenai River has increased over the last ten years. This has coincided with the increasing popularity of red salmon fishing. Without efforts to protect the riverbank from the effects of overuse, perhaps the most significant habitat component to the development of king salmon will be lost. The loss of prime habitat to development pressure can be reduced if parcels of publicly owned parcels with significant environmental value are actively managed.

4.5.4.2. Protection of Areas Acquired by Borough or State (Implementing Agencies: KPB and State).

Recommendation 4.5.4.2: The Borough and the cities of Kenai and Soldotna should, on a case by case basis, consider retention of properties that have been identified as having high habitat values and classify them in the manner described in Recommendation 4.5.4.1. The State should retain parcels identified in Tables 4-4 and 4-6 for inclusion in KRSMA, except for parcels under the ownership of the Mental Health Trust Authority. Until state parcels are legislatively added to KRSMA, these areas should be administered consistent with the objectives of KRSMA through a special land use designation by the Division of Land. The recommendations for the inclusion of parcels in KRSMA and use of the special land designation are required to be included in the Kenai Area Plan.

Problem Statement Development adjacent to the Kenai River, particularly the large areas of vacant land adjoining the Middle Segment, may adversely affect the functioning of the Kenai River. This can occur through modifications to surface and groundwater flows, disturbance of riverine vegetation, and movement of improperly treated effluent to the Kenai River. Protection of those properties acquired by government, especially those parcels of high habitat value, will help reduce the intensity of that effect.

Background Areas of previously private land, or land leased by the State, are oftentimes acquired by government as a result of administrative foreclosures, escheat, or tax foreclosures. The cities of Kenai and Soldotna, the State, and Borough occasionally acquire properties through these processes. Retaining parcels with specific high habitat value in government ownership rather than disposing of them to the public sector may be appropriate on a case by case basis. The retention of such properties in government ownership is desirable since in many instances this can provide a higher level of protection than can be achieved by disposing of the properties to the private sector or imposing development restrictions on the properties that are conveyed. This is especially important for those properties that have high habitat values.

4.5.4.3. Government Land Acquisition (Implementing Agencies: ADF&G and DNR)

Recommendation 4.5.4.3: The State should acquire undeveloped private properties with established high habitat or hydraulic values as they become available from private parties. Such acquisition should be pursued on a voluntary basis with private property owners. Acquisition priority shall be given to those parcels where the purchase would protect, preserve or enhance significant habitat resources, or allow for recreational uses which are compatible with and protect these resources.

Properties so acquired should be included in KRSMA unless the funding source used to acquire the parcel requires that it be managed under a different authority. In the event that the inclusion of a parcel within KRSMA is not likely in the immediate future, it is intended that these parcels will be managed by the Division of Land consistent with the intent of the Management Plan under a special land use designation or through an Interagency Land Management Agreement with DOPOR.

To implement this recommendation, the Division of Parks shall annually develop a list of potential acquisition parcels. This list should be reviewed by the Advisory Board, with the accepted list submitted to funding entities for consideration. Parcels should be considered valuable to the State for their habitat and/or recreation values. In developing this list, certain review criteria should be applied. Parcels should include one or more of the following attributes:

- ❖ Possess significant habitat or recreation values.
- ❖ Include wetland areas contiguous to the river, tributaries to the mainstem, or spring fed sloughs.
- ❖ Encompass large, vacant tracts.
- ❖ Include at least 600 feet of continuous river frontage.
- ❖ Retain significant habitat and recreation values (i.e., not be significantly degraded).
- ❖ Complement land management of state owned tracts (particularly parcels adjacent to existing state properties).
- ❖ Acquisition values should be established by appraisal which establishes fair market value using standard appraisal standards.
- ❖ Be in the overall State's best interest.

The annual acquisition list should also identify whether parcels are to be primarily used for recreational or for habitat purposes. The following standards should be followed:

Parcels identified as '*habitat*' are to be included within KRSMA but are not to be developed for general recreational purposes. State management policies (such as partial bank closures to fishing) for the protection and preservation of these '*habitat*' areas may also be applicable. Improvements that rehabilitate or protect a site are appropriate for installation. Facilities to utilize the natural resources of the parcel (boardwalks, fishing platforms, viewing platforms, or similar structures) *may* also be appropriate, if consistent with any restrictions imposed in the title conveyed to the state *and* subsequent to review and concurrence. Properties identified as '*recreation*' are designated for recreation purposes, subject to the protection of riverine and other habitat areas. Development of these sites should follow the standards described in the 'Public Facilities' section.

Problem Statement Development of the vacant areas of the Kenai River, particularly the Middle Segment, may adversely affect the functioning of the Kenai River. This can occur through modifications to surface and groundwater flows, disturbance of riverine vegetation, and movement of improperly treated effluent to the Kenai River. A systematic acquisition program of those parcels of high habitat value will help reduce the level of that threat.

Background Over the past several years the State has acquired parcels along the Kenai River. Some of these parcels were purchased with EVOS moneys. The purpose of these acquisitions has been to acquire properties with high habitat sensitivity in order to preclude potential development and thereby ensure the maintenance of high quality habitat. Acquisition of additional, high habitat parcels along the Kenai Mainstem and its principal tributaries should remain a priority since ownership and proper conservation management will constitute the most effective, long term method of protection. Parcels of significant interest include the Kenai Flats wetlands and parcels owned by native corporations.

4.5.4.4 Management of Proposed EVOS Acquisitions. (Implementing Agencies: ADF&G and DNR-DOPOR)

Recommendation 4.5.4.4: The EVOS acquisitions identified in Table 4-4 should be included within KRSMA, unless this action would be inconsistent with EVOS acquisition restrictions or title restrictions. The management of EVOS parcels should be consistent with the classification recommendations in Table 4-4. A similar management intent as that recommended for private parcels should be followed.

**Table 4-4. EVOS Acquisition
Lower River**

Unit name	Site	Location	Acres	Status	Recommendation
420	Cone Property (KEN 34)	RM 6.5 RB	100	Purchased	Habitat
423	Kobylarz Property (KEN 10)	RM 14.5 RB	20.46	Purchased	Habitat
433	Mansholt Property (KEN 1049)	RM 14.5 RB	1.6	Purchased	Habitat

Middle River

425	Girves Property (KEN 1006)	RM 20.5 RB	110	Purchased	Habitat
426	Schilling Property (KEN 1038)	RM 21 RB	3.3	Purchased	Recreation & Habitat
427	Patson Property (KEN 1034)	RM 24 LB	76.3	Offer under consideration	Habitat
428	Kenai River Ranch (KEN 148)	RM 32 LB	146	Purchased	Recreation

It is intended that properties identified as *'habitat'* in Table 4-4 are to be included in KRSMA but are not necessarily to be developed for general recreational purposes. State management policies (such as partial bank closures to fishing) for the protection and preservation of these *'habitat'* areas may also be applicable. Improvements that rehabilitate or protect a site are appropriate for installation. Facilities to utilize the natural resources of the parcel (boardwalks, fishing platforms, viewing platforms, or similar structures may also be appropriate for installation, if consistent with any restrictions imposed through title and subsequent to review and concurrence. Properties identified as *'recreation'* are intended to be used for general recreational purposes, subject to the protection of riverine and other habitats. Development of any of these sites shall follow the standards previously described in the *'public facilities'* section. It will be necessary to include these parcels in the Kenai Area Plan.

DNR should, in its submittal of potential future projects to the Trustee Council for funding consideration, include projects related to rehabilitation of the riverbank and adjoining uplands in addition to proposals to acquire private property for habitat protection purposes.

Problem Statement Development of the vacant areas of the Kenai River, particularly the Middle Reach, may adversely affect the functioning of the Kenai River. This can occur through modifications to surface and groundwater flows, disturbance of riverine vegetation, and movement of improperly treated effluent to the Kenai River. A systematic acquisition program of those parcels of high habitat value, such as that pursued under EVOS funding, can help reduce the level of that threat.

Background Over the past several years the State has acquired parcels along the Kenai River. Some of these parcels were purchased with EVOS moneys. The purpose of these acquisitions has been to acquire properties with high habitat sensitivity in order to preclude potential development and thereby ensure the maintenance of high quality habitat.

4.5.4.5. Disposal of Government Land Abutting Kenai River. (Implementing Agencies: State, KPB, US FWS, and USFS)

Recommendation 4.5.4.5.1: State, local, or federal agencies or governments should not dispose of their current holdings of land along the Kenai River to private ownership or create long term leases with private parties, except to accommodate a significant public interest or as stated in recommendations 4.5.4.5.2 through 4.5.4.5.4. This policy is intended to augment the Government Land Acquisition program. This recommendation is to be included in KAP.

Recommendation 4.5.4.5.2: When State or Borough land along the Kenai River or its anadromous tributaries must be conveyed out of State or Borough ownership, a buffer should be retained in State or Borough ownership or the land should be subject to a vegetated conservation easement of 200 feet for fish and wildlife purposes. This easement would apply to each side of the stream for tributaries listed in Table 4-5 and to those bodies of water identified in Recommendation 4.5.4.7. This recommendation is to be included in KAP.

Recommendation 4.5.4.5.3: When state or borough land is sold, the land should be subject to a minimum 50' building setback from the Kenai River and tributaries listed in Table 4-5 for all new, non-water dependent structures. The width of the buffer may be increased if there is a demonstrated need for the purposes of ensuring that riparian habitat can be adequately protected. To the extent practicable, vegetation within the setback and riverine areas should not be removed. Recommended to be included in the KAP.

Table 4-5. Selected Kenai River Tributaries

Name	Length in miles
Killey River	37.8
Funny River	30.3
Snow River	26.4
Trail River	23.0
Russian River	21.0
Moose River	19.6
Quartz Creek	16.5
Juneau Creek	14.5
Crescent Creek	13.6
Cooper Creek	13.5
Ptarmigan Creek	10.5
Beaver Creek	10.0
King County Creek	9.8
Skilak River	8.0
Soldotna Creek	7.4
Hidden Creek	7.0
Primrose Creek	7.0
Slikok Creek	6.8
Dave's Creek	6.8
Upper Killey River	6.4
Jean Creek	5.4
Victor Creek	4.5
Ship Creek	4.3
Surprise Creek	4.3
Cottonwood Creek	4.1
Pipe Creek	3.4
Shackleford Creek	2.8
Bean Creek	2.4
Fuller Creek	2.1
Slaughter Creek	
Olson Creek	
Indian Creek	

Recommendation 4.5.4.5.4: Leases or permits should be subject to a building setback of 200' for the Kenai River and the tributaries listed in Table 4- 5 for all non-water dependent will be adequately protected. In certain instances the width of the buffer may be decreased, but only if it can be shown that riparian habitat will be unaffected. To the extent practicable, vegetation within the setback and riverine areas should not be removed. Recommended to be included in the KAP.

Recommendation 4.5.4.5.5: Interagency Land Management Agreements (or similar management agreements issued by DNR) that are not for habitat or recreation purposes should generally be discouraged within 200' of the Kenai River and tributaries listed in Table 4- 5. In all cases the width of the buffer must be sufficient to ensure that riparian habitat can be adequately protected. If this is not practical, vegetated buffers should be retained to reduce impacts such as runoff, noise, and visibility, and to maintain the viability of riverine areas. Recommended to be included in the KAP.

Problem Statement Development of the vacant areas of the Kenai River, particularly the Middle Reach, may adversely affect the functioning of the Kenai River. To the degree that the State and other agencies retain their existing land holdings along the Kenai River, the level of developmental pressure can be proportionally reduced.

Background Many of the lands owned or managed by the local, state, and federal units of government are important to habitat or for recreation. Retaining these parcels in public ownership is, therefore, highly desirable and is an appropriate policy to pursue. In some instances it may be appropriate to transfer ownership from one unit of government to the State, for inclusion in KRSMA. However, there may be instances where, to fulfill statutory requirements or existing legal obligations, it may become necessary to dispose of state land. In these instances, the need to protect the Kenai River and its anadromous tributaries can be best achieved through the imposition of buffers or building setbacks.

4.5.4.6 Incorporate State Land within KRSMA. (Implementing Agency: DNR)

Recommendation 4.5.4.6: That DNR develop and submit to the Legislature amendments to the legal description that established KRSMA, to include the State properties identified in Table 4-6 and depicted on Maps 4-1 through 4-4. Borough properties intended for eventual inclusion in KRSMA are also identified in this Table.

Until these parcels are included within KRSMA, the Division of Land should establish a 'special use area' as provided under 11 AAC 96.010(b) to administer the tracts in state ownership. To the extent allowed under this regulatory authority, these lands will be administered by the Department to ensure consistency with the statutory objectives of the Special Management Area (since these parcels are intended for eventual inclusion within KRSMA). The Division of Land may enter into a management agreement to transfer the responsibilities for day to day administration to DOPOR.

Note: These recommendations are intended for inclusion within the Kenai Area Plan.

Problem Statement State land that is intended for inclusion within KRSMA is now administered by the DNR Division of Land. These lands are not classified and are not now included in an area plan. Except for lands withdrawn from the public domain for park purposes, all state land is to be treated as multiple-use land. Applications for uses and facilities that may be inconsistent with the objectives of KRSMA can therefore be considered, and the potential exists for these applications to be approved even though they may not be compatible with or allowed by the guidelines in the Management Plan. Inclusion of these parcels in KRSMA will provide for active management by DOPOR and a greater enforcement presence.

**Table 4-6a. KRSMA Additions: State Land
Lower River & Middle River**

Unit name	Township	Range	Section	Acreage	Notes
70	005N	010W	32	8.1	Lot 2-A ILMA to DOTPF ADL 35836
141B-N	005N	011W	12	20	N1/2SW1/4SE1/4 Wetland area in Kenai River Floodplain
142	005N	011W	1	18.68	ILMA Application to DOPOR ADL 220733 Eagle Rock, N. Bank of Kenai River
411-N	005N	011W	36	4.00	SE1/4; That strip of land between OHW of Kenai River and EPF 21-11, Block 1
412-N	005N	011W	24	6.6	That portion of Lot 11 within LSH 148 ILMA to DOPOR ADL 209638
413-N	005N	011W	25	7.62	Lot 3; Within SE1/4 College Hole

**Table 4-6b. KRSMA Additions: State Land
Middle River**

Parcel name	Township	Range	Section	RM	Acreage	Purpose
KPB -	005N	009W	22	31.5, RB	27.5	Habitat
KPB	005N	009W	32	29.5, LB	141.33	Habitat

**Table 4-6c. KRSMA Additions: State Land
Upper River
Cooper Landing/Quartz Creek**

Unit name	Township	Range	Section	Acreage	Notes
388	003N 003N 004N 004N	002W 003W 002W 003W	6 1 36 31,32	1,175	Cooper Lake
390	004N	002W		1,030.76	West Shore Kenai Lake
391A through 391E, 391G through 391N 391Q	005N	003W	28,29, 30,34	421	14 small parcels along Kenai River and north shore of Kenai Lake in the Cooper Landing vicinity.
392A through 392G 392H	005N 005N	002W 003W	19,20,29, 30,31 29,30,31, 34,36	160	All state owned shorelands and water, and the 200' riparian corridors on eight tributaries of Kenai River and Kenai Lake near Cooper Landing (Bean, Cooper, Crescent, Daves, Dry, Indian, Quartz, and Shackleford Creeks) ADL 226527.
393	005N	003W	30	260	Juneau Creek and Bean Creek
394A	005N	004W	35,36	220	N. bank of Kenai River
394C	005N	004W	36	200	Wetlands and eagle roosting area south of Sterling Highway
394D	005N	004W	35	80	Wetlands south of Sterling Highway
397	005N	002W	31	3.28	East Quartz Creek Tract A; parcel 1 mile SE of Quartz Creek, near Kenai Lake shore.
408B	005N	002W	10,11, 15,16	480	Quartz and Daves Creek lowlands, mile 38.5 to mile 40 Sterling Hwy.

**Table 4-6d. KRSMA Additions: State Land
Upper River - Trail River & Trail Lakes (Moose Pass)**

Unit name	Township	Range	Section	Acreage	Notes
378	003N	001E	7	15.13	Mouth of Victor Creek
380A	004N	001W	13	4.5	Tract B ASLS 86-6 South End Lower Trail Lake: boat/float plane launch
380D	005N	001W	36	37	Upper Trail Lake, South arm
380E	005N	001W	24,25, 36	83.89	Upper Trail Lake, South arm, east shore
380G	005N 004N 004N	001W 001E 001W	31 6,7,18 1,12,13	600	Lower Trail Lake shore
380J**	004N	001W	13,24,25	200	Trail River and Kenai Lake shore
380K	004N	001W	25	8.14	SW1/4SW1/4 Kenai Lake shore south of USFS work center
382A	005N	001W	24,25	20	Ball diamond; plus lake shore access to the north & south; 5 fragmented parcels
382D	005N	001W	25	3.17	Lake front, Moose Pass townsite
383A	004N	001W	26,27	730.96	Mouth of Schilter Creek and north shore of Kenai Lake
384	005N	001W	22,26,27	160	Upper Trail Lake Wayside areas; fish viewing; hatchery area & Johnson Pass trailhead
387	005N	001W	36	1	Lakefront parcel on Upper Trail Lake
405-N	005N 005N	001W 001E	13,22,23,24 5,7,8,18	700	Johnson Pass Trail, NW shore Upper Trail Lake, and John- son Creek mouth at the head of Trail Lake
407-N	005N	001E	7,18,19,30	20	Slivers of land between ARR & shore of Upper Trail Lake
608	004N 004N 005N 005N	001E 001W 001E 001W	6,7,18 1,12,13 7,18,19,31 13,22,23,24, 25,36		Trail River and Upper and Lower Trail Lakes

** Unit 380J would only be included in KRSMA if it is not conveyed to the borough. If Unit 380J is conveyed to the borough, the State would retain a 200' riparian corridor on either side of Trail River and only the corridor would be included in KRSMA.

Background There are lands owned by the Borough and State that are contiguous to or near the Kenai River. There have been instances of the illegal use of state land by the public that has affected important river and lake shore parcels. Enforcement of state land management requirements is now difficult because of the general lack of staffing within the Division of Land, the absence of a strong enforcement presence, and the lack of citation authority by the Division. These properties should be included in KRSMA, to provide an additional level of protection. Inclusion within KRSMA will extend the management and citation authority of the Parks Division to state land that now lack the protection afforded by citation authority.

4.5.4.7. Incorporate Additional State Waters within KRSMA (Implementing Agency: DNR)

Recommendation 4.5.4.7: Certain additional state waters should be included in the Kenai River Special Management Area: Trail River, Snow River, Lower and Upper Trail Lakes, and the following tributaries to the Kenai River: Bean, Crescent, Cooper, Juneau, Shackelford, Slaughter, Quartz, Dry, Indian, and Dave's Creek. This recommendation is to be included in the KAP.

Background Tributaries to the Kenai River are significant components of the Kenai River watershed and are of primary importance to the Kenai River mainstem. A number of tributaries are now included within KRSMA. It is appropriate to include other tributaries because of their importance, especially since many may be subject to development pressures, including mining activity. The tributaries listed above were intended for inclusion in the KRSMA in the 1986 Plan, but the legal description of the KRSMA boundary under AS 41.21 was never amended to include these parcels.

The principal lakes and rivers support significant runs of salmon and are the main hydrologic features in the upper drainage of the Kenai River. These units, including Trail and Snow rivers and Upper and Lower Trail lakes, are not included within the KRSMA boundary.

Problem Statement Without the inclusion of these additional waters, especially the tributaries to the Upper Kenai River and Kenai Lake, the potential exists for activities to take place in state waters that are incompatible with the level of protection needed to protect the Kenai River mainstem.

4.5.4.8. Mineral Closure of Land and Leasehold Location Order: Lands to be Included in KRSMA (Implementing Agency: DNR)

Recommendation 4.5.4.8: The mineral estate within KRSMA and the proposed additions to KRSMA should be closed to mineral entry subject to the provisions of AS 41.21.502 (c) except for the parcels described in Tables 4-6C and 4-6D and the State waters listed in Recommendation 4.5.4.7. This statute legislatively closes any additions to KRSMA to new mining locations as well as to new geothermal prospecting permits and leases. (Valid existing rights will not be affected.) Until the previous parcels and waters are incorporated by the Legislature into KRSMA, DNR should allow locatable mineral entry under lease (AS 38.05.205). It will necessary to amend the current statutory language of AS 41.21.502 (c) when the Legislature considers these additions; unless amended, all of the parcels would be closed to mineral entry.

For the lands and waters described above, DNR should immediately initiate a leasehold location order under AS 38.05.185 so as to allow mining under lease while minimizing potential use conflicts. The following stipulations should be included in all mining leases and be use in approving plans of operations within the described lands and waters:

- ❖ The Kenai River Advisory Board will have the opportunity to review mining plans of operation.
- ❖ The plans of operations must be consistent with the most recent version of the ADF&G Best Management Practices for Placer Mining.

- ◆ No surface entry will be allowed for mining operations or facilities within 200 feet or the ordinary high water mark of any tributary, except that water pipes and pumps will be allowed if necessary to supply water to the mining operation, and underground mining operations may be allowed if they do not cause subsidence or other surface disturbance.
 - ◆ No living accommodations, either temporary or permanent, will be authorized within the area subject to the leasehold location order.
 - ◆ DNR will approve a plan of operations only when it can be demonstrated that the proposed mining operation will result in minimum practicable disturbance to the existing vegetation, and minimum construction and use of access roads and operational structure.
 - ◆ DNR will not approve a plan of operations that adversely affects fish passage, spawning, or rearing; other fish habitat; wildlife resources; recreational use; or the owner's use of adjacent private or municipal parcels. The ADF&G must concur with all such approvals.
 - ◆ DNR will require reclamation to a higher standard than the minimum set by State reclamation law (AS 27.19 and 11 AAC 97), including revegetation by reseeding or replanting with appropriate species. Reclamation shall enhance fish passage and fish habitat and restore damaged riparian habitat.
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Note: These recommendations are intended for inclusion within the Kenai Area Plan. The Leasehold Location Order has been adopted (see Appendix).

Problem Statement Under State statute mineral location and entry for purposes of discovery is allowed unless an area has been closed to entry through a mineral closing order or mining lease. During the period prior to the imposition of a mineral closure or mineral lease, parcels identified for inclusion in KRSMA are open to mineral entry, location, and production. Unrestricted mineral location and mining is not considered to be compatible with the statutory objectives of KRSMA. Unless there is a means to regulate the operational aspects of mining activity, the potential therefore exists for valid, pre-existing rights to be established. Without careful controls in the area adjacent to the Kenai River or its tributaries, mining activities could adversely affect habitat and recreational use.

Background KRSMA consists of the land estate; it does not include the mineral estate. The mineral estate underlying the land estate of KRSMA is closed to mineral entry by statute (41.21.502) for all parcel identified in the KRSMA legal description (41.21.500). Thus any additions to KRSMA will automatically close the mineral estate associated with the parcel additions unless explicitly excepted in the enacting legislation. It is unlikely that the proposed additions will be added to KRSMA in the immediate future. These parcels are now open to mineral entry and location, and any mining claims established in the period before parcels are included within KRSMA will be treated as valid, pre-existing rights. The DNR Commissioner is allowed by statute to close areas of less than 640 acres to mineral entry and areas greater than that on an emergency basis. All mineral closures in excess of 640 acres require approval of the legislature.

Mining leases are also authorized by statute. The DNR Commissioner can designate such areas and all proposed mining operations must secure DNR approval of a plan of operations. The latter allow siting and operational aspects to be managed consistent, in this instance, this with the objectives of habitat protection and compatibility with the recreation activities that use the river.

4.5.5 Environment

Environmental degradation often occurs as part of general land use development. Environmental systems are both impacted at the same location as that associated with development as well as within the larger spatial areas where they operate. An example of the latter is the impact of improperly treated sewage. The impact may occur directly at the site through up welling or there may be transfer of the improperly treated effluent through the groundwater to the Kenai River. The latter is of particular concern since it is oftentimes difficult to determine the extent and magnitude of system impact once the contaminants enter the environmental system away from the point of origin.

Because this off-site impact is potentially significant and is usually associated with development, state and federal laws have evolved to deal with the land development process. The federal government exercises its authority through the wetlands permitting system of the Clean Water Act, and the State's authorities derive from AS 46.70, which focuses on the development review process undertaken by ADEC. Both regulatory processes have been adapted for use within the Kenai River corridor. The US Corps of Engineers (US COE), which administers the wetlands permitting process, does so through what are termed 'nation wide' and 'individual' permits. ADEC administers its authorities over domestic wastewater disposal through the review of proposed subdivisions and single, large developments. ADEC wastewater authorities focus on the management of on-site wastewater disposal systems but extend to the management of storm water runoff from the area of site development. Augmenting these regulatory systems is the 'water quality certification' that must be secured concurrent with the issuance of any federal permit. The federal Clean Water Act requires that any proposed activity meet federal water quality standards (and state standards if more restrictive than the federal standards) before a permit for wetlands fill can be issued by US COE. This Water Quality Certification is administered by ADEC as part of its review of developments.

Taken together, these regulatory systems are intended to ensure that development activities do not adversely affect critical environmental systems. However, these systems do not achieve their objectives when there is not staff to implement them nor when complex pollution control systems, such as sewage treatment plants, are not properly maintained or exceed their design capacity. It is probable that these environmental control systems need tightening in the Kenai River corridor and that more resources need to be devoted to enforcement.

Goals and Objectives:

Goal: To ensure that the environmental integrity of the Kenai River watershed is maintained or enhanced, managed on an ecosystem basis, and that developments within riverine areas and their adjacent uplands are constructed, sited, and operated in such a manner that the river's environmental integrity is ensured.

Objective: Water Quality

To monitor and minimize the amount of non-point source pollution, including untreated storm water derived from commercial and industrial activities, siltation from road construction and timber harvest activities, and hydrocarbon contamination from fuel storage tanks, roads and highways, and shoreline fueling facilities.

To minimize the amount of point source pollution entering the river, particularly from outfalls from industrial plants, storm drains, and municipal sewage treatment plants.

To restrict or preclude, as necessary, high intensity land uses abutting the Kenai River and its tributaries including but not limited to recreational vehicle and mobile home parks, parking lots of large size, and the like.

To develop an on-going water quality monitoring program.

Objective: Water Quantity

To establish in-stream flow reservations for the Kenai River and its tributaries for year round habitat and recreation use, and secure a water right appropriation for these reservations from the State.

To maintain the Kenai River in a free flowing state by restricting and removing where possible man-made obstructions and diversions to natural watershed flows (dams, jetties, etc.).

To ensure continued, adequate hydrologic flow from wetlands, tributary streams, and uplands to the Kenai River and its tributaries.

Objective: Hazardous Materials

To preclude the entrance of hazardous materials to the Kenai River through the aggressive use of local, state, and federal regulatory programs including subdivision, Coastal Zone, and Habitat Protection District reviews and oil and gas stipulations.

To protect against potential spills from transporting hazardous materials.

To ensure that there is expeditious clean-up of all hazardous material spills.

Recommendations:

Water Quantity

4.5.5.1. In-stream Reservation for the Kenai River (Implementing Agency: DNR)

Recommendation 4.5.5.1: In-stream flow reservations should be established for the entire Kenai River and its tributaries that are consistent with the purposes for which KRSMA was established. This recommendation is to be included in KAP.

Problem Statement Although unlikely, the appropriation of water from the Kenai River for purposes other than stream levels and habitat protection could result in inappropriately high levels of water use. These levels could be in excess of that required for habitat protection.

Background The early 1980 request by the ADF&G for an in-stream reservation of water in the Kenai River (Kenai Lake to Skilak Lake and Sterling to Cook Inlet) to support habitat and recreation has never been fully adjudicated. The ADF&G request did not include the Middle Segment because of inadequate flow data, and without this segment it may not be appropriate to adjudicate the two other reaches. Also, the request was only for habitat purposes. As soon as adequate data is available, the request should be modified to include the Middle Segment, to reserve adequate water for habitat and recreation.

4.5.5.2. Impoundment Structures. (Implementing Agency: DNR)

Recommendation 4.5.5.2: The construction of new dams or diversions on the Kenai River or its fish bearing tributaries, which block fish movements, or reduce essential stream flows for spawning, rearing, or migration, will be prohibited. This recommendation is to be included in KAP.

Problem Statement Additional impoundment structures are not considered appropriate because of their fundamental, usually irreversible affect upon the river's hydrology.

Background There are very few existing impoundment structures along the Kenai River — the exception being the Cooper Landing Hydroelectric Facility.

4.5.5.3 Drainage Facility Analysis. (Implementing Agency: Borough)

Recommendation 4.5.5.3: The KPB subdivision review process should consider the off-site drainage impacts of proposed plats. To accomplish this, it may be necessary to authorize the borough platting authority to require a drainage analysis of larger, high intensity commercial or high density residential developments proposed next to the Kenai River or its tributaries.

Problem Statement Development activities can have a profound impact upon the flow patterns of natural drainage ways. These patterns are usually complex, and the impacts of development upon the site's hydrology are not usually known at the time of subdivision review. It is particularly critical that developments within the same drainage be effectively integrated to ensure satisfactory surface and subsurface flows.

Background The KPB subdivision review process focuses on the design and arrangement of structures and roads. The impact of storm water outflow is not considered since the Borough Code does not identify storm drainage facilities as a required component of the platting review. Because of the potentially significant impact of high intensity developments to the Kenai River, it is suggested that the Borough consider off-site drainage impacts from these types of projects during the process of subdivision review. This may require the revision of the Borough's subdivision regulations, to allow the Planning Commission to consider drainage systems as part of the plat review and approval process for proposed developments along the Kenai River.

Water Quality

4.5.5.4. On-site Disposal System Review (Septic Tanks) (Implementing Agency: ADEC)

Recommendation 4.5.5.4: The ADEC should continue to perform its on-site disposal reviews of residential two-family and multi-family, commercial, and industrial structures.

Background ADEC has the authority to conduct reviews of individual on-site waste disposal systems and those subdivisions that require the use of on-site disposal systems. This review by the ADEC occurred as recently as 1996. ADEC continues to perform on-site disposal system review of residential two-family and multi-family, commercial, and industrial structures.

Problem Statement ADEC no longer performs on-site subdivision plan review; their policy is to encourage local governments to assume these reviews. ADEC recommends that local government review and incorporate best management practices into their on-site, subdivision, and other development plan reviews. They continue to perform on-site disposal system review of residential two-family and multi-family, commercial, and industrial structures. It is essential that these ADEC functions continue, given the potential impact of improperly treated sewage to the water quality of the Kenai River.

4.5.5.5. ADOT/PF Maintenance Yard and Salted Sand Pile (Implementing Agency: ADOT/PF)

Recommendation 4.5.5.5: The ADOT/PF maintenance yard adjacent to the Kenai River in Soldotna should be relocated and the site subsequently rehabilitated for eventual use as an active recreation area administered by the City of Soldotna (or incorporated into KRSMA if necessary). The salted sand pile adjacent to Soldotna Creek should be phased-out, with the material transferred to the new ADOT/PF maintenance yard near the Borough landfill.

Problem Statement There are two components to this issue: the ADOT/PF maintenance facility adjacent to the Kenai River and the gravel and sand pile near Soldotna Creek. People have objected to these facilities because of their location next to the Kenai River and Soldotna Creek. Many are concerned that runoff or groundwater flow from these facilities affect the Kenai River and Soldotna Creek.

Background Current plans call for the maintenance facility to be moved to a site near the Kenai Borough landfill, with material relocated to the new landfill site. The maintenance yard site would then be rehabilitated and developed into a recreational site capable of withstanding heavy public use. Material at the Soldotna Creek gravel pit should be removed and repositioned at the new landfill site.

4.5.5.6 Standards for Timber Harvest Activity (Implementing Agencies: DNR - DOF; ADEC, USFS)

Recommendation 4.5.5.6.1: State and National Forests within the watershed of the Kenai River shall be managed for fish, wildlife, recreation, and other values consistent with federal forest and state area plans. State and federal forestry harvest plans and operations shall meet state water quality standards and comply with the State's Forest Practices Act. In addition, harvest plans of the Forest Service shall comply with National Environmental Policy Act (NEPA)

requirements and Best Management Practices identified through the NEPA process. In all instances, those harvest plans and operations shall ensure that to the maximum extent practicable the water quality impacts of timber harvest and associated activities to the Kenai River and its tributaries are either precluded or reduced to levels designated in state water quality standards for the Kenai River or its tributaries. In addition, the visual, access, and recreational impacts, together with other factors that may be significant to the integrity of the Kenai River watershed, should be very carefully considered in the development of harvest and road construction plans by the State Division of Forestry (DOF) and USFS.

Recommendation 4.5.5.6.2: Timber harvest is to be prohibited on state land currently part of or proposed for inclusion in KRSMA in the Management Plan except as may be necessary to carry out the statutory purposes of KRSMA.

Recommendation 4.5.5.6.3: Timber harvest is to be prohibited on state land that is not intended for inclusion within KRSMA within 200 feet of mean ordinary high water on those tributaries listed in Table 4-5 except for forest health management measures and personal fire wood cutting determined by DOF to be necessary. ("Forest health is a condition of forest ecosystems that sustain their complexity while providing for human needs" Sampson, et. al., 1994). Logging may be an appropriate forest health measure to prevent or mitigate impacts from insects, disease, fire, windthrow, or other disturbances where they cause safety problems or reduce the ability of the forest to meet the objectives for the area identified by the state or federal land and resource plans.

Problem Statement Timber harvest operations can have a fundamental affect upon water quality, the maintenance of the habitat on which wildlife and fish populations depend, the ability to carry on desired recreation activities, and the quality of the view shed from prominent locations. Without careful consideration for these factors in the planning of harvest operations and in the subsequent harvest operations themselves, significant, undesired impacts could occur within the Kenai River watershed.

Background DOF and USFS conduct timber harvesting operations in the Kenai River watershed, primarily in the upper reaches of the watershed near Kenai Lake and Moose Pass. There may also be timber harvests in the Moose Pass area and within the Snow River drainage, depending on the results of forest planning processes being conducted by USFS. Both DOF and USFS have extensive planning and public review processes that provide the basis for decision making on timber management operations and the development of mitigation controls. In addition, the Borough has standards (21.18.050(D)) for logging within the floodplain of the Kenai River and its tributaries.

4.5.5.7 Regional Sewage Outfall. (Implementing Agencies: City of Soldotna, ADEC)

Recommendation 4.5.5.7: The City of Soldotna should conduct an engineering study that evaluates the severity of the perceived contamination problem from the city's sewage treatment plant and analyzes treatment and outfall options. In this analysis, viable short term alternatives should also be considered.

Background The City of Soldotna sewage treatment plant disposes of its secondary treated effluent through an outfall that discharges directly into the Kenai River.

Problem Statement Although this discharge is not seen as a problem to the U.S. Environment Protection Agency (US EPA), the federal agency responsible for issuing the city's discharge permit, breakdowns at the sewage treatment plant have caused discharge of both sewage and chlorine. Both may be harmful to the river, and segments of the public perceive this discharge as inappropriate.

Hazardous Materials

4.5.5.8 Fuel Storage Standards and Review (Implementing Agency: Borough)

Recommendation 4.5.5.8: Develop design requirements for the placement and construction of minor fuel storage facilities between 200 and 600 gallons in volume within the Habitat Protection and Floodplain Protection zones. Utilize these standards in the Borough's review of proposed development, required under the floodplain and habitat protection ordinances.

Problem Statement Fuel storage of small volume (less than 500 gallons) are regulated by Borough ordinance. The safety of these facilities could be improved by modifications to the way that these tanks are now installed.

Background The Borough's Habitat Protection Ordinance precludes the placement of such facilities within the Habitat Protection Zone (50' from MOHW). The Floodplain Protection District also contains requirements for the placement and design of fuel storage tanks within the floodplain. Relatively simple and straightforward design requirements can be developed for the placement and construction of these systems adjacent to the Kenai River and its floodplain. DNR, in cooperation with ADEC and the Borough, should jointly develop these requirements. These should then be used in KPB site plan reviews for fuel storage system placement under the Habitat Protection Ordinance and the Floodplain Protection standards, and in state coastal zone consistency reviews.

Wetlands

4.5.5.9 Wetlands Permitting. (Implementing Agencies: US FWS, US EPA, U.S. COE; DNR and ADEC; local governments)

Recommendation 4.5.5.9: Continue the Kenai River Wetlands Assessment under preparation by ADEC, to determine sensitive, high value wetlands critical to habitat and hydraulic functions and develop a general wetlands management strategy based on the results of this assessment.

Once completed, the Management Plan must be formally amended to include the results of the Wetlands Assessment. It is intended that the wetlands management strategy developed in this analysis be used as the basis for federal wetland permitting decisions within the area of the Plan Boundary. Nationwide permits issued in February, 1997, by the US COE excluded the Plan Boundary area of the Management Plan from their application, requiring individual permits to be obtained for projects involving the dredging and fill of wetlands within the boundaries of the Management Plan.

Problem Statement A detailed knowledge of the wetlands that adjoin and are hydrologically connected to the Kenai River does not now exist. Because of this, many agencies view wetland permitting as not based on a solid scientific foundation. Without adequate knowledge, it is difficult for the agencies responsible for the permitting of wetland development to ensure the protection of the more critical wetland areas.

Background Both individual and nationwide permits are used by U.S. COE as the basis for the permitting of fill within the general Kenai River corridor. There are a variety of the nation-wide permits, covering a wide range of possible development activities. Newly promulgated (1997) five-year nation-wide permits by the US Corps of Engineers exclude the area included in the Plan Boundary of the Management Plan. In these areas individual permits will have to be obtained for dredge and fill activity covered by the federal Clean Water Act. The review and approval process for individual permits can be improved by the pre-identification of significant wetlands and typical best management practices. Because specific standards for wetland development do not exist in this Plan, it is recommended that such standards be developed through a cooperative research process and that the recommendations of this research be incorporated as an amendment to the Management Plan.

No new wetland development restrictions are to be recommended for inclusion in the Management Plan until the Wetland Assessment study has been completed. Should the Wetlands Assessment develop resource or management recommendations germane to other land use activities, these should also be considered for inclusion in the plan amendment. See also Planning and Research (4.5.10). No specific standards will be added to the Management Plan until the assessment study is completed and a public review process involving proposed changes to the wetland section of the Management Plan have been completed.

4.5.6 Financial

The concept of a user fee to support the recommendations in this plan is both appropriate and, based upon the responses received during the public review process, supported by most river users. The critical components of such a fee (or other funding mechanism) is that it be fair and related to the management of the Kenai River. Components of fairness include the use of the moneys collected for (sole) use on the Kenai River and a fee level that is directly related to necessary river management needs. A user fee will only work under conditions of fairness.

Goals and Objectives:

Goal: To provide a stable source of continuing financial support for the protection, enhancement, and rehabilitation of the Kenai River and its tributaries and contiguous wetlands.

Objective: Habitat

To develop a stable, continuing funding assistance program able to voluntarily acquire parcels with significant habitat value as they become available for purchase for purposes of protecting and to restore and rehabilitate impacted habitats on private and public lands.

To establish a funding program that provides incentives to private landowners to maintain their properties abutting the Kenai River in a natural or functionally unimpaired condition, and to retain sensitive wetlands.

To allocate funds for habitat restoration to the most degraded areas on a priority basis based upon the significance of the affected habitat and amount of degradation.

Objective: Public Education and Agency Enforcement

To develop a stable, continuing financial program to fund planning and local/state enforcement programs, and support educational programs designed to acquaint the public with the unique values and resources of the Kenai River watershed.

Recommendations:

4.5.6. Institute River Use Fee. (Implementing Agencies: Advisory Board, DNR, and other agencies that might be affected by the user fee).

Recommendation 4.5.6: A user fee should be established by the State to fund necessary improvements on the Kenai River. The attributes of this fee should include the following:

- ❖ Revenues derived from this fee shall be allocated to the Kenai River Management agencies for the purposes defined in statute for use on the Kenai River.
- ❖ The moneys should be raised from all users of the river.
- ❖ The amount of this fee should be based on the level of resource use or impacts created by the various user groups, and the need to finance the programs identified below:
- ❖ Moneys raised from this source should be allocated for the protection and preservation of the Kenai's River fish and wildlife resources and habitats and to manage recreational

uses and development through public education, enforcement, habitat acquisition and protection/restoration, park facility development, and planning and research.

Problem Statement The effectiveness of habitat acquisition and remediation programs, public education, planning and research, and monitoring and enforcement, all hinge upon the ability to fund programs involving these activities in a adequate, stable, and continuing fashion. Development of a funding source is, arguably, one of the most critical aspects to the protection of the Kenai River and the implementation of the recommendations in the Management Plan. Without a satisfactory and reliable financing mechanism, it is questionable if the needs for effective river management and rehabilitation can be met effectively. The inclusion of additional parcels of state land or waters within the KRSMA will require an additional enforcement presence on the part of the State. Revenues derived from user fees or other funding sources will be required to support this additional management presence.

Background A new user fee related to park use will require statutory change to: 1) revise the listing of allowed fee uses and to allow the fee to be charged to 'normal' users of the park (AS 41.21.026(b), and 2) establish a separate state account that is subject to appropriation by the Legislature but is allocated specifically to a 'Kenai River Protection Fund'. Although different funding alternatives to the recommended approach exist (tourist tax, non-resident tax, sales tax, Red salmon stamp, etc.) they all have certain deficiencies that make their development and legislative passage problematic. A user fee seemed to have fairly widespread support in the public meeting/review process, but only if the moneys raised from such a source are returned to the river. Although the latter cannot be guaranteed since dedicated funds are constitutionally restricted in Alaska, there has to be a reasonable likelihood that moneys raised from a user fee will be allocated to the Kenai River through the annual state budgeting process. Other user fee approaches to the one that is recommended may exist, and may have an equal or even potentially greater chance of passage. Further review/development of this funding approach is required to establish the details of the user fee or some alternative method, if the latter is determined appropriate.

4.5.7 Enforcement/Regulation/Permitting

The ability to develop regulations and regulatory programs that are effective, fairly administered, and effectively enforced, is essential to the ultimate success of government programs that manage the river, its riverine area, and adjacent upland areas. These programs and regulations must be consistent and understandable to the public. Each of these themes emerged as a result of the public review process conducted during the plan revision process.

The general, underlying themes of the enforcement program administered by state and federal agencies having enforcement authority include:

- ♦ An enhanced and more aggressive, multi-agency enforcement program,
- ♦ Assertive, fair enforcement of current laws and regulations,
- ♦ Increased use of public education programs that target enforcement problems,
- ♦ Increased, multi-agency enforcement operations that target specific, significant fishery and park use problems,
- ♦ Creation of new, additional regulations that identify specific sanctions and penalties,
- ♦ Continued enforcement of parks and fishery regulations for both the general public and the guide industry,
- ♦ Elimination of the 'pirate' guide problem, and
- ♦ Increased management of the sport fishing guide industry.

A detailed discussion of enforcement issues is provided in the section 'water based recreation'. In addition to describing the components of an enforcement program related to sport fishing guides, it includes recommendations that deal with the rental boat industry; use of rental boats by unlicensed,

'pirate' guides; and other aspects of a beefed up state enforcement program. It should be emphasized that the problem of enforcement is larger than just that related to water based recreation and includes the effective enforcement of fishing, habitat protection, safety, and park use regulations.

Goals and Objectives:

Goal: To develop local and state regulations that are fair and equitable to the private and public sectors, are consistently and uniformly administered and enforced, and ensure the continued integrity of the Kenai River watershed ecosystem.

Objective: Regulations and Permitting

To require that the full range of regulatory controls of local, state, and federal government, used to permit development, are applied to protect and maintain the Kenai River ecosystem.

To support the Kenai River Center as a centralized permitting center and to extend its functions to incorporate existing or new regulatory programs as they may be required and instituted by government or agencies and to provide adequate staff and resources to meet public needs.

To ensure that public land managers are required to abide by at least the same development standards as applicable to private property owners.

To develop consistent and uniform policies, procedures, and regulations that treat the river as a unit and are used by local, state, and federal land managers, to simplify the requirements of river management to the public.

To increase the enforcement of Alaska Department of Environmental Conservation water quality regulations and Alaska Division of Parks guide regulations.

Objective: Enforcement

To provide consistent, understandable enforcement of regulations that protect fish, wildlife, water quality, wetlands, riparian areas, and upland habitats.

To ensure that the enforcement activities of local, state, and federal agencies and government are coordinated, that they are as streamlined as practicable for use by the public, and are developed and implemented consistent with the recommendations of the Kenai River Management Plan.

To ensure that adopted environmental and land use regulations, either implemented through this plan or by the cooperating agencies associated with its preparation, are effectively and fairly implemented and enforced by law enforcement officers and courts.

Enforcement Recommendations

4.5.7.1. Enforcement (Implementing Agencies: All Agencies)

Recommendation 4.5.7.1: All applicable regulatory authorities should be actively applied to maintain, protect, and enhance the integrity of the Kenai River ecosystem. All permits and project approvals should be designed to avoid the net loss of fisheries habitat, achieved either by design standards to avoid loss or if appropriate, mitigation to replace loss. Agencies should actively enforce the conditions and stipulations identified in issued permits. Agencies with regulatory authority or programs that should apply this standard in permitting and project approvals include:

❖ Kenai Peninsula Borough

Chapter 14: Road and Trail Rights-of-Way

Chapter 17: Borough Lands

Chapter 20: Subdivisions

Chapter 21: Zoning

- ❖ Coastal Zone Management Program
- ❖ ADF&G Title 16 Fish Habitat Protection and Fish Passage regulations
- ❖ Federal Wetland Certifications
- ❖ ADNR KRSMA Regulations
- ❖ ADEC Air, Water Quality, and Waste Water Certifications, Plan Reviews, and Permitting
USFS and US FWS Regulations
- ❖ City Zoning and Conditional Use Permits
- ❖ Alaska Coastal Management Program

Problem Statement Many state, federal and local agencies have regulatory jurisdiction in the Kenai River watershed. Although the program mandates of the major permitting agencies require the protection of fish and wildlife and wildlife habitat, these same mandates often require the consideration of other factors in permit decision making. This results in sometimes inconsistent or conflicting resource decisions. Varying mandates also make it difficult for agencies to develop a comprehensive program or “vision” for the Kenai River ecosystem. **To create consistency in river management, it is essential that the agencies cooperate through their permitting and development programs to implement complementary resource decisions.** Without agency cooperation and integrated management, the continued integrity of the river is at risk.

Background Recent research has underscored the critical interactions between contiguous wetlands, near shore riparian areas, and the river’s fish and wildlife populations. As communities continue to develop along the Kenai River, the river may become isolated from many of the natural systems that keep it healthy and productive. The regulatory systems of local, state, and federal agencies affect the development process and thereby have a fundamental ability to create conditions that support effective river management. Although there is an absence of a single, cohesive regulatory program addressing the river, the existing governmental regulatory systems focus on development and environmental considerations, and they can be coordinated. A coordinated, multi-agency enforcement strategy has the capability to produce results that are complementary to each other, that targets enforcement resources on priority issues, and is effective in protecting the fishery and riverine habitats.

Permitting Recommendations

4.5.7.2. Permitting (Implementing Agencies: All Agencies)

A related component focuses on the coordination of the activities of the various government agencies engaged in the permitting of commercial operations along the Kenai River, including the reciprocal enforcement of agency regulations. To improve and clarify the way that permits are now handled, the following recommendations are included:

4.5.7.2.1 ‘Other Commercial Activities’ (Implementing Agencies: ADEC and DNR-DOPOR)

Recommendation 4.5.7.2.1: Permits will not be issued by the Division of Parks for businesses that wish to sell food, coffee, fishing tackle, fish derby tickets and other wares on the Kenai River. ADEC may also participate in this permitting process, as necessary.

Problem Statement The Kenai River is seen by many as a very lucrative business location and the Division of Parks receives many inquiries regarding how to obtain permits to sell coffee, food, fishing tackle, etc. on the waters of the Kenai River Special Management Area. Current regulations do not prohibit permitting such uses.

Background The Division of Parks has traditionally denied these types of requests because the services are available in the local area. Unrestricted numbers of commercial operators selling goods on the Kenai River would contribute to the crowding and other troubles that are experienced on the river. ADEC is responsible for issuing permits and approvals for selling food and drink and for inspections and investigations.

4.5.7.2.2 Commercial (Recreation) Operations Review Process (Implementing Agencies: US FWS, USFS, and DNR-DOPOR)

Recommendation 4.5.7.2.2: Merge the USFS, US FWS, and DNR-DOPOR application deadline for commercial operators to April 1.

Problem Statement Many commercial operators provide services in more than one reach of the Kenai River and consequently need permits from DOPOR, USFS, and US FWS. The agencies have different permit deadlines, different permit requirements, and their jurisdictions overlap in many areas. The USFS and US FWS have an April 1 deadline for applications but DOPOR has no set deadline.

Background USFS accepts applications after April 1 deadline but states “that applications received after the deadline may take up to six months to process.” DOPOR should do the same.

4.5.7.2.3 End of Season Report Form (Implementing Agencies: USFS, DOPOR, US FWS)

Recommendation 4.5.7.2.3: Combine the end of season commercial recreation operators use reports into one form, consolidating information required for the USFS, US FWS, and DOPOR.

Problem Statement Commercial operators who provide services in the more than one reach of the Kenai River must provide end of season reports to three different agencies on three different forms. Because of the overlapping jurisdictions, it is often hard to determine how many clients to report to what agency.

Background Currently USFS, US FWS, and DOPOR all require end of season reports.

4.5.7.2.4. Efficient Permit Application Process (Implementing Agencies: KPB, ADF&G, DOPOR, ADEC, and US COE)

Recommendation 4.5.7.2.4.: The Kenai River Center should continue to consider options for consolidating permits in those activities that are authorized on the Kenai River and to explore other efficiencies whenever possible.

Problem Statement Project permitting under the various state and federal programs is a complicated and oftentimes time consuming process for the public. The State is attempting to develop a consolidated permit application, but this product is not expected within the next several years. The Kenai River Center should continue to explore and implement other options for making the project permitting process easier and quicker for the general public.

Background The Kenai River Center has recently developed and implemented a consolidated permit application packet, which includes the permits issued by ADF&G, KPB, and DOPOR. This has resulted in increased efficiencies in project review and has made the review process easier for the public.

4.5.7.2.5 Revised Permit Approval Requirements (Implementing Agencies: All Permitting Agencies)

Recommendation 4.5.7.2.5: The revised policies and standards in Appendix C should be followed in permit review by local, state, and federal agencies responsible for permit approval and issuance within the Plan Boundary of the Management Plan. The mitigation measures identified in the Table are to be applied as minimum permit stipulations.

Problem Statement KPB, ADF&G, USFS, US FWS, and DOPOR all have different mandates and regulations by which they review and issue permits for activities that effect the Kenai River. To ensure consistency in permitting operations and the continued health of the Kenai River, similar standards for permitting decisions should be applied, to the extent consistent with agency mission and statutory authorities.

Background The 1986 Management Plan contained a permitting matrix; its purpose was to identify the conditions that would apply to permit issuance and the approval standards for a wide variety of projects within the Plan Boundary area of the Management Plan. It was intended that prior identification of approval conditions and standards would result in greater predictability and consistency in agency permit decisions. Appendix C has been revised to include new requirements and to delete requirements that are no longer appropriate or have been succeeded by newer standards. Because of the length of the two tables, they have been included as an Appendix (C).

4.5.8 Public Education

All users of the Kenai of the Kenai River should be aware of the fragility of the resources supported by the river habitat and the impact that human actions can have on this unique, irreplaceable resource. Much has been done in the past, especially during the last ten years, to improve this awareness and to describe how people can use the river in less harmful ways. These efforts should continue and will probably have to be augmented as the complexity of river management increases. It is essential that public awareness be further improved and that it focus on what people can voluntarily do to retain the Kenai River as a public treasure for all generations. People, quite understandably, react more positively to educational efforts than to regulatory controls, although the latter are also appropriate at times. Should a user fee be instituted, funding for public awareness and education programs should be set as a priority.

Goals and Objectives:

Goal: To promote public awareness and appreciation of the resource values of the Kenai River ecosystem.

Objective: Public Awareness

To increase public awareness of the Kenai River ecosystem and create a general public understanding about how to use and protect the river and its resources.

Objective: Public Education

To develop a public education program that educates the public about the fragility of the Kenai River, the effects of continued unmanaged use, and the proper ways to fish, boat, and minimize user conflicts.

To provide written information on best management practices, critical habitats, and regulations to landowners, visitors, and commercial operators.

To develop and provide brochures that will direct people to the areas open for bank fishing and educate them about the appropriate way to fish or recreate, to take care of sanitary waste disposal, and to follow the rules for river bank use if bank fishing.

To develop an educational program for the public that targets water quality issues and pollution.

Recommendations:

4.5.8 Public Awareness and Education Program. (Implementing Agencies: KRAB, KPB, ADF&G, USFS, US FWS and DOPOR)

Recommendation 4.5.8.1: Establish a Kenai River Task Force composed of representatives of government and private (for-profit and not-for-profit) organizations whose purpose would be to improve the coordination of volunteer programs and activities. This group would

make recommendations on the best way to ensure future communication and coordination among the organizations and agencies that deliver the educational programs and approaches. It could also oversee the development of a public education/awareness plan, if delegated the responsibility by the Advisory Board. (See Recommendation 4.5.8.3).

Recommendation 4.5.8.2: Non-profit and government agencies should continue a vigorous public awareness and education program that creates an understanding as to how to use and protect the Kenai River and its resources. This program should strive at effort and event coordination. (This program may include the use of signs, multimedia presentations, school programs, stream watch programs, and other methods, as appropriate.)

Recommendation 4.5.8.3: Under the auspices of the Advisory Board, a public education and awareness plan should be prepared. The purpose of this plan would be to identify required education needs, inventory current education/awareness programs, and recommend a coordinated public education/awareness program. A Kenai River Task Force (See Recommendation 4.5.8.1) could be delegated the responsibility for the development of this plan.

Problem Statement In order for government initiated habitat protection and maintenance programs to work, the public must have a basic knowledge of why these programs are important and must be generally supportive of their implementation. Lacking this knowledge and support, it is questionable if effective river management can be attained.

Background Public education has been demonstrated to be a cost efficient and effective tool for protecting and increasing public awareness about the Kenai River. The public has reacted favorably to information on how public uses are affecting river habitats and agency sponsored measures developed to protect the riverine area. There are, however, a very large number of government and private, both for-profit and non-for-profit, entities engaged in various types of public education and awareness programs. The enthusiasm and commitment of these groups, especially public volunteer groups, needs to be continued. However, these resources need to be harnessed more effectively so that duplication of effort is avoided and the best results possible are obtained with the resources that are available.

This effectiveness could be increased by developing a type of 'volunteer coordinating committee' representing the principal government and private groups involved in public education and volunteer improvement projects (clean ups, derbies, etc.). This group should meet periodically. The purpose of these occasional meetings would be to identify activities, eliminate redundant or less effective programs, and coordinate the activities of the various groups.

It would also be useful to develop a 'public education and awareness' plan to provide the basis for the coordination of the various public activities. Such a plan would identify public education needs; identify alternative approaches and required resources to meet these demands; and recommend changes to current programs, if appropriate.

As a practical matter, it is unlikely that the Advisory Board can actually craft such a program. A more effective approach might be to provide funding for a group like The Nature Conservancy to develop such a program or to delegate this responsibility to a public task force, as described. An essential aspect of such a public education plan would be the coordination of the various agency and governmental programs that have been or may be involved in public education.

4.5.9. Planning and Research

Extensive research and some amount of planning have occurred over the last 10-15 years on various aspects of the Kenai River important to its management: habitats and the fishery, the impact of development, hydrology, and the like. Because the factors affecting the river vary in amount, intensity, and location, it will necessary to continue research and planning programs on the Kenai River and its

associated lakes and tributaries. This effort should focus on the analysis of the impacts of development on the fishery and its habitat, and on the identification of current and projected problems of recreation use. To the extent practicable, these analyses should be inclusive in scope. They should include as much of the watershed of the Kenai River as necessary for the effective assessment of the problem or issue under consideration. If a funding source to support river management is created, both planning and research activities are appropriate for consideration.

Goals and Objectives:

Goal: To use a planning process that recognizes the interdependence of environmental functions and human activities within the Kenai watershed; to develop plans consistent with this interdependence through use of an ecosystem and watershed approach, and to continue to collect and analyze basic data on fish and wildlife habitats, water quality and quantity, the effects of human activities, and related environmental factors that can help serve as the basis for river management and planning.

Objective: Planning

To develop plans that recognize the interdependence of activities and their impacts within the Kenai River watershed. Where practicable, these plans should be developed on a watershed basis.

To develop a plan for monitoring and protecting the water quality within the Kenai River watershed that establishes baseline conditions and standards for management.

To develop a plan that addresses public access using section line easements, roadways, and walkways. This plan would establish which accesses should remain open, and which to vacate.

Objective: Research

To continue riverwide biological and hydrological assessments that identify: the width of riparian buffers necessary to maintain water quality and riverine habitats, the effects of man-made structures and restoration projects; the impacts of boat wake effects and their relation to erosion and sedimentation; juvenile salmonid migration and resident and anadromous habitat requirements, carcass nutrient values, macro vertebrate predation; the potential effects of the hip boot fishery; and other emerging issues related to river management data essential to effective fishery management.

To update and revise the FEMA study of the Kenai River floodplain, to include the correction of the floodplain boundary based on 1995 flood data and the results of improved hydrologic modeling.

To undertake an assessment of wetlands within the Kenai River watershed in order to include the identification of wetland boundaries, types, and functions, and particularly to identify those wetlands that serve as critical habitat areas or provide significant hydrologic connections to the Kenai River or its tributaries.

Recommendations:

4.5.9 Undertake studies of the fishery, habitat, water quality and quantity, and recreation aspects of the Kenai River; public access requirements to the Kenai River; and of upland/wetlands hydrologically connected to the Kenai River. Specific study requirements are listed below. (Implementing Agencies: local - Borough; state - DNR, ADF&G, ADEC; federal - US GS)

Recommendation 4.5.9.1: Prepare a Water Quality Study. (Implementing Agencies: DNR, ADF&G, and ADEC)

Background A study to identify the extent and location of point source and non-point source pollution along the Kenai River mainstem should be pursued. This analysis would aid in determining the severity of the contamination associated with the City of Soldotna sewage treatment plant as well as that associated with the use of on-site waste disposal systems. The significance of untreated storm water discharges to the mainstem should also be evaluated as should the effectiveness of a 50' buffer in reducing the effect of non-point source runoff. (See also Data Collection, Recommendation 4.5.10.3)

Recommendation 4.5.9.2: Prepare a Public Access Study. (Implementing Agencies: DNR, ADF&G, ADOT/PF; US FWS, and Borough)

Background The State (DNR, ADF&G, and ADOT/PF) and the Borough should jointly conduct an inventory and evaluation of public access issues related to section line easements, roadways, and walkways. This analysis would determine which accesses to close, continue, or vacate. These decisions should be based upon the need to protect the river's habitat and fisheries, and provide safe and adequate angler access. Management and agency responsibilities for implementation should be specified in the study.

Recommendation 4.5.9.3: Prepare River Assessment Studies. (Implementing Agency: ADF&G)

Background Funding to ADF&G should be provided to analyze the following: riverine habitats, the effects of man-made structures and restoration projects; the impacts of boat wake effects and their relation to erosion and habitat impacts; juvenile salmonoid migration, carcass nutrient values, macro vertebrate predation; and the potential effects of the hip boot fishery and other data essential to effective fish and wildlife management. Other important research needs include a detailed study of habitat requirements of key fish species specific to the Kenai River, the role that the estuarine areas play in the life cycle of the various species, and a "future conditions study" which projects the future condition of the Kenai River taking into account population growth, land ownership, likely riparian development, and various zoning and regulatory scenarios.

Recommendation 4.5.9.4: Revise FEMA Floodplain Insurance Study. (Implementing Agencies: U.S. COE and Borough)

Background This analysis should be updated and revised, to include the correction of the floodplain boundary based on the 1995 flood data and the results of (improved) hydrologic modeling.

Recommendation 4.5.9.5: Prepare a Wetlands Assessment Study. (Implementing Agencies: state — ADEC, DNR, and ADF&G; local — Municipalities and Borough; federal — US FWS, USFS, US COE)

Background The current assessment of wetlands within the Kenai River watershed should be continued as a cooperative effort between those agencies and governments responsible for wetland resource management in the Kenai River corridor. A revised analysis would include the identification of wetland boundaries, types, and functions — particularly to identify those wetlands that serve as critical habitat areas or providing significant hydrologic connections to the Kenai River or its tributaries. This analysis will identify 'reference wetlands' that can be used as the basis for the evaluation of wetland development proposals. These results should also be incorporated as management strategies in the Management Plan and subsequently serve as the basis for the wetland regulatory program administered by the U.S. COE and the water quality certification program administered by ADEC, to the extent consistent with the Corps' regulatory authorities.

Recommendation 4.5.9.6: Update the '1992 Carrying Capacity Study' (Implementing Agency: DNR-DOPOR)

Background This study, conducted in 1992, assessed the perceptions of river users on various types and levels of recreational use on the Kenai River. This analysis would evaluate any changes in the impacts experienced during the 1992 study. It should generate on-site survey data documenting the actual impacts experienced by guided and non-guided anglers engaged in bank and boat fishing on the Kenai River, and their tolerances to those impacts. It should also help document the management alternatives the respondents think should be implemented to resolve identified deficiencies.

Recommendation 4.5.9.7: Prepare a Vessel Overcrowding Study (Implementing Agencies: DNR-DOPOR)

Background An analysis was conducted by the Attorney General's office in 1991 of the legal issues related to the imposition of numeric limits on sporting fishing guides by DNR. This analysis found that before such limits could be imposed, it would first be necessary to confirm that the alleged problems associated with vessel overcrowding are linked to guided angling and demonstrate that numeric limits are required to resolve overcrowding conditions.

A study to analyze vessel overcrowding should be immediately undertaken, to provide a factual basis for the imposition of numeric limits, if it is determined that the vessel overcrowding problems on the Kenai River are manifestly related to sport fishing guides. Its purpose would be to: 1) establish the attributes of the overcrowding and safety issues (and any other considerations significant to vessel use) associated with boat use on the Kenai River; 2) suggest an appropriate numeric threshold (or a similar quantitative approach) for sporting fishing guides; 3) identify the conditions that would have to exist to implement numeric limits; and 4) identify the procedures to implement such a program. In order to properly understand the dimensions of the overcrowding issue, this analysis should also include non-guided boat anglers. The study should also recommend management approaches for non-guided boat anglers, including the use of numeric limits, if appropriate.

Recommendation 4.5.9.8: Revise the USGS Boat Wake Erosion Study to assess the effects of varying types of motors and horsepower levels commonly in use on the Kenai River. (Implementing Agencies: ADF&G, DNR, USGS)

Background The US Geological Survey (USGS) completed a Boat Wake Erosion Study on the Kenai River in 1996. Its purpose was to identify erosion prone areas, the general effect of boat use on these areas, and the intensity of boat wakes measured at a common point on the shoreline produced by varying boat operating conditions (number of passengers, type of hull design, location of boat in river, and vessel size). This analysis did not, however, assess the effects of varying horsepower levels and specially designed hybrid outboard motors commonly in use on the Kenai River. Before a change in allowed horsepower level (35 HP) is authorized, the effects of potential horsepower and motor type designs on riverine habitats should be assessed. It may also be necessary to conduct additional, more definitive analyses of vessel design and operating characteristics that may affect wave height and therefore may have the potential to induce erosion. Information now contained in the study on the performance of semi-V-hull designs also needs to be improved.

The USGS study should be revised to deal with these issues in order to provide DNR with information necessary to design an effective boat operating program. Assessment of the effect of increasing outboard motor horsepower on a boat's wake size and sediment movement should be a primary component of this revision. This analysis should characterize the response by cohesive and non-cohesive bank material types with motors of varying horsepower. A second component should assess the effect of various size wakes on different soil types. The analysis should indicate which soils along the Kenai River are most vulnerable to wave erosion and boat wakes. A final component would provide more definitive information on the effect of semi-V-hull designs at 4 and 6 passenger levels in terms of boat wake effects.

4.5.10 Data Collection and Information Management

To properly manage the Kenai River, it is not enough to develop and implement specific recommendations. The dynamics of the river must be understood — how the river functions; the relationship between human induced change and the response to these changes by the river, and the impacts of these changes upon associated fishery resources and recreational activities. The studies that have been identified in the previous section are essential to the development of this understanding and to effective river management.

Many of these studies will require the collection of certain basic information over time on a systematic, periodic basis. It is also important that data be collected using a common spatial reference. In this context ‘spatial reference’ refers to the use of a specific geographic location identifier that is used to locate and record information.

Based upon our experience in developing this plan, it is apparent that a systematic program of data development needs to be undertaken in order to provide the foundation for the more specific recreational, habitat, and environment analyses. A parcel-specific database exists that uses such a common spatial reference. This database has the potential for application on a wider basis.

4.5.10.1 Data Management. (Implementing Agencies: all agencies)

Recommendation 4.5.10.1: The parcel specific database developed in the ‘309’ Cumulative Impact study by ADF&G should be used as the basis for future spatial data collection efforts. We recommend that a specific geographic identifier (tax parcel and tax parcel number) be used as the common data element in future data collection efforts conducted by local, state, and federal agencies. Note: this recommendation only applies to those areas of the Kenai River presently included within the current GIS database or to areas that may be added to the GIS database in the future.

Background The KPB has developed a geographic information system that uses tax parcel boundaries and tax identification number as the spatial data collection and recordation unit. The ADF&G ‘309’ study used the same spatial units in its analysis process, recording extensive structural, habitat, and other information against this same spatial unit. This data base exists within the Kenai River Center and is used jointly by KPB and ADF&G as an aid to permitting processes and to store the results of a variety of management actions.

Because this system exists, is extensively used by the Kenai River Center, and is to be the basis for future spatial data collection efforts by KPB and ADF&G, wider use of this system seems appropriate. If future data collection efforts by other agencies use the same parcel boundary and parcel number reference, an integrated database would be eventually developed. Analyses could then be conducted on a wide range of data collected by various agencies since data had been collected and recorded using standard rules.

4.5.10.2 Data Collection. (Implementing Agencies: All Agencies) G/O

Recommendation 4.5.10. 2.1: Boat use information should be collected on a systematic, periodic basis by State Parks and ADF&G. The information collected should include data on vessel count (number of guided and non-guided boats), vessel use and configuration, and vessel operation characteristics.

Background DOPOR now collects information on the number of vessels and whether the boat is private or used by guides for the three river Segments (Lower, Middle, and Upper). This information is not collected systematically and serious data gaps exist, making the information difficult to use.

This same type of information should continue to be collected on a statistically relevant basis. This would involve less effort, and it would meet the test of statistical accuracy. Consistency in times and locations of data recordation is also recommended, to ensure data uniformity. The ‘Boat Activity Form’ used in the USGS Boat wake study should be used as the basis for recording vessel data.

Recommendation 4.5.10.2.2: Water quality information should be collected on a systematic, long-term basis. Ambient monitoring is intended to identify trends over a long period of time and/or to establish baseline conditions. Sampling should include information on physical properties and chemical constituents of water and the health and integrity of resident biological communities at specific representative monitoring sites.

Background The State of Alaska does not operate a statewide ambient monitoring network due to the high operating costs to maintain such a system over large undeveloped areas. However, there have been several water quality analyses conducted by ADEC and ADF&G in the early 1990s. Although these studies indicated that measured water quality parameters were within state and federal compliance standards, impacts of development and use were also evident. ADF&G analyzed water quality at 17 sites distributed between the outlet of Kenai Lake and Cook Inlet. The ADF&G study recommended the intermittent sampling of critical water quality parameters (fecal coliform, hydrocarbon, metals, and nutrients) for the purpose of monitoring future impacts on the Kenai River. Representative sites were suggested to be surveyed at least twice each year. Intensive sampling in the Lower River where concentrations of water quality contaminants were the highest was also recommended.

It is necessary that a water quality monitoring program for the Kenai River assess the status and trends in the water quality of the river. The monitoring program should link the status and trends to an understanding of the natural and human factors that effect the water quality. This program must be integrated among many agencies that have differing objectives and must be of long-term duration. The unique hydrologic features of the Kenai River, such as its glacier origin, require an investigation that can be designed to assess this setting. However, the monitoring program must also be incorporated into a nationally consistent investigative design structure with standard sampling and analysis protocols.

The objective of an integrated water-quality monitoring program is to provide a consistent data set applicable to a wide range of needs. The monitoring program would include: 1) an initial characterization of the broad-scale geographic and seasonal distributions of water-quality conditions in relation to major contaminant sources and background conditions; 2) an assessment of trends and needs in water-quality conditions, and 3) specific case studies designed to determine the source, transport, fate, and spatial and temporal variability of specific contamination problems identified in the first two phases on the monitoring program. Such a water quality monitoring program should be designed to follow standard methods and protocols.

Alaska statute (AS 41.08) requires the Alaska Hydrologic Survey in DNR to “collect record, evaluate, and distribute data on the quantity, quality, and location of underground, surface, and coastal water of the State.” In the absence of any documented degradation of water quality, it is within the authority of DNR to be the lead agency of an ‘ambient monitoring network’ for the Kenai hydrologic basin. This work should be done in conjunction with ADEC and ADF&G.

Recommendation 4.5.10.2.4. The ADF&G ‘309’ Cumulative Impact Assessment should be updated on a periodic basis.

Background The ‘309’ study was the benchmark study that identified the extent of human induced impact on the habitat sensitive areas of the Kenai River. It inventoried the number of in-stream structures, upland land uses, and the extent of vegetation degradation on a parcel specific basis. The study applied the Habitat Evaluation Procedure (HEP) to establish the total quantity of HEP units throughout the Kenai River and to identify the extent of degradation at particular parcels. Because it uses a common data collection point and establishes a level of habitat degradation on a parcel specific basis, it provides a tool to measure the cumulative amount and location of habitat degradation. It, therefore, provides a working methodology to assess habitat impacts and change over time. A periodic update of this study and its associated database is strongly recommended, to gauge the on-going level and location of habitat degradation.

