MEMORANDUM State of Alaska

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FROM: Ronald O. Skoog, Commissioner
Department of Fish and Game

SUBJECT: Mitigation Policy

There is a need to develop a Department policy addressing methods of dealing with adverse impacts upon fish, game and their habitat which may result from poorly planned or improper development activities. To this end, I have enclosed for your review a proposed Department policy on mitigation of fish and game habitat disruptions. I have directed the Habitat Protection Section to coordinate the collection of comments from throughout the Department, and to finalize the draft policy or revise it for further review as appropriate. Please give careful consideration to this provisional policy and submit any comments to the Habitat Protection Section by August 11.

Enclosure

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ALASKA DEPARTMENT OF FISH AND GAME

STATEMENT OF POLICY
ON MITIGATION
OF FISH AND GAME HABITAT DISRUPTIONS

Prepared March 1982

ALASKA DEPARTMENT OF FISH AND GAME

Statement of Policy
on
Mitigation of Fish and Game Habitat Disruptions

I. The Need for Policy

Logging, construction, mining, agriculture, and other developmental industries which use land or water are of great importance to many Alaskans. When properly pursued, these undertakings can be compatible with proper management and use of Alaska's valuable fish and game resources. However, improper practices can lead to significant degradation of the State's fisheries and game resources through alteration or destruction of important habitat components.

Development includes a multitude of practices such as road building, bridge construction, culvert placing, excavation, dredging, clearing, dragging, dumping, and other activities. At issue is land and water, the very bases of all development and all fish and wildlife habitat. Each development action requires space, and thereby alters fish and game habitat and compromises other types of uses. Development activities, when disruptive to fish or wildlife resources, may, for example, increase erosion or sedimentation, divert, obstruct, alter, or pollute water flow, aggravate temperature extremes, alter and destroy populations of animals and vegetation, reduce food supplies, restrict movement of fish and game, disturb or destroy spawning, nesting and breeding areas, change adjacent or downstream habitats, or change the capacity of a stream or wetland to store and use storm or flood waters.

Often, such habitat losses are inevitable and little can be done to prevent or control them, but often they can, in the public interest, be abated or

"mitigated." The overall mitigative goal of the Department of Fish and Game is to maintain or establish an ecosystem with the project in place that is as nearly desirable as the ecosystem that would have been there in the absence of that project. The decision levels through which a project is reviewed - preventing, minimizing, and replacing ecosystems - is outlined and discussed in this policy.

The magnitude of developmental influences on fish and game habitat is to a large extent dependent on the degree to which development operations and facilities and land or water use projects are properly planned and upon the conscientious adherence to practices designed to protect fisheries and wildlife values. Therefore, it is the primary objective of the Department of Fish and Game that fish, game and habitat values be prominently considered by developers and regulatory agencies prior to development or issuance of regulatory approvals. Consideration should take place during the planning and implementation of land or water associated development to avoid or minimize foreseeable or potential adverse environmental effects before the fact of damage, and early enough to consider beneficial alternatives. Similarly, it is imperative to provide for repair, restoration, or rehabilitation of habitat damage after it occurs, should it occur at all, as well as maintenance of the reconstructed habitat over time. However, it is appropriate that this option of after-the-fact redress assume a second priority status to mitigation planning before the fact of damage.

These concepts--preventing, minimizing, replacing--when molded into a working definition of mitigation, will contribute to the sustained functioning of aquatic and terrestrial systems, and the continued viability of common

property fish and game resources, while providing for the other needs of Alaskans arising from beneficial public land and water use programs. A mitigation policy, therefore, is essential to guide, not stop, development actions by insuring considerations of alternatives to or in land and water conversions and to fulfill the sustained yield management precepts of Alaska law.

II. Authority

The Department's basic responsibility as a conservation agency derives from the Commissioner's authority to manage, protect, maintain, improve, and extend fish, game, and aquatic plant resources of the State (AS 16.05.020). This Statute, in combination with constitutional directives, provides implicit direction for the Department to offset losses to fish, wildlife, and their habitat.

The Department's responsibility to impose mitigation measures also derives from the same laws which authorize it to issue written approvals (permits) for land or water use programs. In each instance the developer must obtain the Department's approval as the sufficiency of the developer's plans to provide for free passage of fish (AS 16.05.840), or provide proper protection to fish and game when conducting projects in anadromous fish streams (AS 16.05.870), State game refuges (AS 16.20.060), State game sanctuaries (AS 16.20.120), the natural habitat of endangered species (AS 16.20.185), fish and game critical habitat areas (AS 16.20.260), and State range areas (AS 16.20.300-320).

Simultaneously, a strong basis for prescribing mitigation lies in the public trust doctrine. In simple terms, this doctrine, founded in common law, asserts the public's right to unimpaired use of public lands and waters for fish and wildlife production. The Department, as trustee for the public, is obligated to protect that right. The public trust doctrine thus provides additional ability as well as an obligation to be rigorous in mitigating disruptions to public fish and wildlife resources, including their habitat.

III. Statement of Policy

A. Definition

The directive to mitigate is clear. The nature of and extent to which mitigation is carried out is left to the Department's discretion. In considering mitigatory options it is essential to recognize the differing degrees of stress that may be placed on natural fish and wildlife habitat. Lightly-stressed aquatic or terrestrial systems adjust to change, and recovery takes place through natural processes when the stress is removed. In contrast, a heavily or overstressed natural system cannot restore itself to original conditions through natural processes alone. In this case, the system's capacity for maintenance and repair has been impeded, and at this point man must provide assistance for the system to be restored. These differences in recovery potentials dictate different priority approaches to implementing mitigation measures.

Accordingly, the Department of Fish and Game, when administering mitigation measures pursuant to its permit authority under AS 16, embraces

the definition of mitigation promulgated in the Federal regulations (40 CFR 1508.20) which effectuate the National Environmental Policy Act (42 U.S.C. 4321 et seq.). Mitigation includes, in priority order of implementation:

(1) avoiding the impact altogether by not taking a certain action or parts of an action;

(2) minimizing impacts by limiting the degree or magnitude of the action or its implementation;

(3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

(4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;

(5) compensating for the impact by replacing or providing substitute resources or environments.

B. Implementation

The Department will implement the five forms of mitigation pursuant to its statutory authority in the following manner:

1. Mitigation to Avoid or Minimize Habitat Damage

a. Avoidance

The Department's primary approach to mitigation is one of preventive conservation designed to avoid an evershrinking base of natural habitats and costly man-assisted restoration efforts. It is founded on preventing adverse, predictable, and irreversible trends or changes in natural aquatic or terrestrial systems. The objective is to maintain as much existing natural habitat as possible, even if the relative importance or interrelationships of living organisms are not fully known. Apart from denying outright the issuance of a permit, this can be accomplished by attaching stipulations or conditions to permits for proposed developments. Discretion at the field level is required to allow tailoring of various developmental activities to sites and times for maintenance of individual or groups of fish and game species and various habitats used annually or seasonally. Mitigation by permit stipulation can be employed to avoid activities in areas with a high risk of adverse impact, such as nest sites, winter ranges, or critical habitat. Development consistent with the objectives for designated areas can proceed according to the stipulations or conditions. This fundamental approach provides for beneficial land and water use programs in natural systems.

b. Minimization

This concept differs from avoidance in that it is acknowledged that some habitat damage will occur. The Department recognizes that land

and water development projects are mandated by public need, legislative or constitutional prioritization or land use, or pervading economic considerations. It is recognized that industrial, agricultural and residential development in Alaska will cause some amount of habitat destruction, and that this damage has been accepted by developers and policy makers as the price of economic benefit. The second priority mitigative approach to habitat management is to make that loss less severe, or to minimize foreseeable disruptions to aquatic and terrestrial systems. The focus of this approach is to maintain habitat diversity and the capacity of each system to restore itself naturally from stress or damage, while accommodating preemptive uses of land and waters frequented by fish and wildlife - uses which may reduce species abundance to some degree or cause some disturbance to natural species behavior.

Minimal adverse habitat disruption may be achieved by permit stipulations which limit development actions when and where necessary and to the extent needed to maximize conservation of fish and wildlife values. For example, temporal mitigation measures, which involve adjusting the timing of project activities to reduce impacts in areas of high risk, can be used to restrict development to the seasons when the impact is least, or to reduce the amount of time spent in a sensitive area. Habitat may be stressed temporarily, but recovery can take place through no-cost natural processes.

2. Mitigation In Lieu of Habitat Damage

3. a. Rectification

The third priority mitigative approach is to repair, rehabilitate, or restore abused aquatic or terrestrial systems. This requires onsite or post-construction evaluations of water and land developments after the fact of damage, or estimation, during the planning stage, of likely environmental damage. Rectification is less desirable than avoidance or minimization because, even if restoration is complete, there is a net loss of fish and wildlife resource and habitat resulting from the time lag between the impact and full replacement. Such time lags may vary from days to decades. Thus, gains or benefits to be realized from this form of mitigation are somewhat less than those of full prevention.

The objective is to restore the same functions as those that were lost, or, to restore the habitat to pre-disturbance conditions. However, if the factor restricting the number of a species using an area is also limited further by the development, it makes little sense to devise and implement factors which cannot alleviate that situation. Additionally, the simplistic view of maximizing one kind of habitat at the expense of another should be avoided. The Department recognizes that there will be situations where no rehabilitation of the loss incurred is possible.

If proper planning occurred and rectification was not considered necessary, rectification should only be necessary when the developer has not complied with his plan, applicable laws, permit stipulations. Rectification of disruptions to habitat may be implemented through permit stipulations and amendments or imposed as a court ordered penalty. It is likely that many completed or partially completed projects can be retrofitted with feasible restoration requirements that could result in the recovery of substantial amounts of project-caused fish and wildlife losses.

b. Preservation and Maintenance Actions

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Mitigation should be recognized as a continuing obligation, inextricably tied to a project and carried out during the entire life of the project. The Department recognizes that if mitigation measures are approved but not operated and maintained during the life of the project, little or no mitigation, which may have helped justify the project in the first place, will be realized. The Department holds to the principle that costs of mitigation are all normal costs of any land or water development project and must be borne by the developers and beneficiaries of the project.

Preservation and maintenance operations may be imposed through permit stipulations or amendments to permits. For example, drainage structures installed in fish streams should be required to be maintained properly, and erosion must be corrected when it occurs. Revegetated areas which are not successful, for whatever reason;

must be revegetated until they have become established. In these ways, adverse impacts will be reduced or eliminated over time.

A requirement (or permit stipulation) that developers continue to mitigate by maintenance operations during the life of the project will ensure that conservation objectives are met and litigation is avoided.

c. Compensation

5. Whenever a project will cause a reduction or loss of values to the public--losses in terms of fish and wildlife populations or habitat, recreation opportunities, access, and other foregone resource use opportunities--the project sponsor must create or restore an equivalent part of the aquatic or terrestrial ecosystem to compensate for the loss. The most difficult problem encountered with this approach is determining what kind of action is appropriate and how much mitigation is adequate. The problem can be resolved qualitatively, through negotiation and quantitatively through the establishment of evaluation procedures.

It is the Department's position that compensation should not involve a simple payment of dollars, but instead should involve replacement of lost habitat, populations or recreational opportunities.

Compensation by replacing or providing substitute resources or environments is the least desirable form of mitigation because it

accepts loss of habitat at the outset and and often cannot result in total reparation for those losses. When it must be implemented, however, the preferred form of compensation is onsite mitigation; that is, all damage caused by a project should be replaced within the development site or project area where damage occurs. The same functions as are lost should be directly restored, replaced, or compensated. Only secondarily should compensation by substitution, or trade-off of an unavoidable ecological loss for an ecological improvement elsewhere, be used. Trade-offs or conversions only change one kind of environment for another, and may be desirable or not, depending upon the viewpoint considered. There are divergent views and interests between local and more distant users regarding the value of the ecological "improvement" to the natural system that was already in place.

Any type of compensation will be costly, and the values of lost resources cannot be measured solely through economic cost/benefit ratios or man-day evaluations. This sort of analysis must be accompanied by evaluations which measure factors other than human uses of land, water, and the resources within. The value of the interdependent biological relationships within an entire ecosystem is too often ignored. Since some ecosystems, such as wetlands, may never be successfully replaced or substituted, it is important that the land owner, developer, and the various government agencies work together to salvage such lands to rectify the loss of the resource values of those areas. The Department recognizes, however, that in

some rare cases, the only compensation negotiable may be prevention of future losses in another or adjacent area.

C. The Role of Planning

Proper mitigation of fish and game habitat losses requires that land and water use projects be properly designed and planned. This requires basic decisions by field personnel at the earliest project conceptualization or design state, before permits are issued.

Proper planning, particularly at the area or regional level, will assist in abating a common cause of fish and wildlife habitat decline, that of piecemeal habitat losses which cumulate from sequential projects. Regional or area planning, when it precedes significant land or water use programs, will allow reduction of the cumulative effects resulting from a variety of projects.

Prior to permit issuance there should be a realistic assessment of the specific losses which likely will be incurred. The losses should be identified first in terms of lost resources and secondly in terms of the uses which may be foregone. This is because human use and resource productivity do not always correlate. The Department cannot accept analyses which equate low human use figures to low estimates of losses. Low human use has no bearing on how much fish, wildlife, or their habitat may have been lost; or how much productivity, biological diversity or critical processes were impaired. However, the loss of human use should be a factor that will need to be mitigated.

Losses of fish and wildlife habitat that cannot be mitigated will affect the people who utilize those resources. Wherever the carrying capacity of the land or water is reduced, harvest of species by subsistence, commercial, and recreational users may have to be reduced. Recreational opportunities to view resources may also decline. As the population of the State of Alaska increases, competition for fish and game resources will surely increase. Decreased abundance of these resources will mean that some resource users will get less of the resource than they may have had in the past. As more and more habitat is damaged or lost, the problem of a growing population base and its pressure on fish and wildlife, will be aggravated.

The impacts of a proposed project and alternatives to it on all the natural resources affected, therefore, should be assessed early in the project planning process. The effects of a project on other resources, such as timber or water, and human use should be assessed, as well as the direct effect on fish and wildlife. Nonstructural alternatives, e.g., providing minimum stream flows rather than a hatchery to maintain a population of fish, for achieving the project objective should be required and considered first since these could be expected to have the least negative impact on the ability of the project area to provide natural resource values.

Including consideration of all natural resources early in the planning process should lead to development of ways to minimize effects on these resources in all phases of project development and reduce the need to later add on the more costly, conspicuous, and less desirable remedies

after the fact of damage. The specific properties and characteristics of the natural system which must remain after development should be defined prior to initial permit issuance. The developer is then allowed to proceed with the project under pre-established mitigation measures, which will guarantee functioning of a natural system and not cause permanent or costly public harm.

D. Assessment of Damages

The combination of population pressures, diminishing space, energy needs, and the necessity of considering economic variables in most decisions have all culminated in questions regarding the intrinsic values of man's surroundings. Attempting to place price tags on an area's worth, whether in terms of its retention as a natural system or its value in an altered condition, is inherently difficult.

The state of the art in habitat valuation will lag behind the need to make permit decisions. The Department holds that fish and wildlife habitat should be preserved unless the expected benefits of the development is demonstrably "large" relative to loss of fish and wildlife values. Of course, what is deemed acceptable must be a broad social decision which necessarily requires assessment of the resource damage likely to be incurred as a result of the development.

In theory, it would seem a simple matter to observe the impact of a construction project, determine if fish or wildlife are killed, and then assess damage. In practice, it is anything but. Damage may be

incremental, and not identifiable without extensive baseline and post-project data. Mortality may affect juveniles as well as adults. Damage to habitat or to populations of juveniles may not impact resource users or be measurable for several years hence when particular species should have reached adulthood. Other damages, such as those affecting migratory species or the lower elements of a marine food chain, may be visible but not amenable to market place valuation. Less tangible aspects of resource damage include decreased aesthetic worth and decreased ability to provide a specific wildlife habitat. Finally, in an environment possessing many, often only partially understood, natural interrelationships - and impacted by any number of man-related activities - definitive assessment of precise cause and effect relationships between development impacts and fish or wildlife mortalities will be difficult and often impossible.

This problem is intensified by the absence of even rudimentary data at a large number of site-specific locations. It follows that assessment of damage will, at best, be a combination of assessment of the partial data base available concerning stock levels, seasonal and cyclical abundance and location, together with a scientific judgement of the "most likely" result of environmental damage, based on a general understanding of fish and wildlife habitat dependencies and tolerances.

These types of judgements put extreme pressure on fish and wildlife scientists and pose unknown risks for the resource. In such cases, and where the only other alternative is to stand mute and observe a steady

erosion of fish and wildlife values - uncorrected and uncompensated for - a judgement decision is necessary.

The Department holds that the appropriate standard for measuring damages to natural resources is the cost which would be reasonably incurred by the State to restore or rehabilitate the environment in the affected area to its pre-existing condition, or as close thereto as is feasible without grossly disproportionate expenditures.

The question is prompted: at what point do indirect or cumulative effects become so remote that mitigation should not be required? The Department recognizes the "without-the-project" baseline assumption for resource evaluation purposes when imposing mitigation measures. It is from this baseline that the degree of project impact, and hence the degree of mitigation required, may be measured.

Because damage estimates will be based upon scanty or incomplete knowledge, and will often be probabilistic in nature, it is possible that estimates of "most likely" level of damage may, from time to time, vary. It is this Department's belief that in such cases of difference, the onus of proof to explain any lower estimates must lie with the developer. This position is based upon the recognition that the developer is the potential beneficiary of both an early start (relative to time required for adequate environmental inventory) and of any lower damage estimate that is put forth.

IV. Summary

(1) Mitigation is necessary to guide development in order to preclude, abate, repair, or indemnify the adverse effects upon fish, game, and their habitat resulting from development projects in fish streams and in refuges, sanctuaries, critical habitats, and the natural habitat of endangered species.

(2) Department's authority to approve development plans in streams and special areas, as well as the public trust doctrine asserting the public's right to unimpaired fish and game production on public lands, provide the means and the obligation to compel mitigation measures.

(3) Differences in recovery potentials due to differing degrees of stress placed upon fish, game, and their habitat dictate that mitigation measures be selected accordingly.

(4) Mitigation before the fact of damage is the preferred means, with avoidance of damage as the primary objective, and minimization rectification, maintenance, and compensation following in that order. Each may be implemented through permit stipulations.

(5) Mitigation measures imposed after the fact of damage or in lieu of expected damage, may require rectification of damage, maintenance of corrections over time, or compensation by replacing or substituting resources or environments.

(6) Rectification, necessary only when the permittee has not fulfilled his obligation, may be imposed by permit stipulation or by court ordered

penalty. Projects may be retrofitted with feasible restoration requirements to recover fish, game, and habitat losses.

(7) Maintenance mitigation actions are project related. The Department holds that maintenance mitigation costs are normal development costs to be borne by the developer and project beneficiaries. This form of mitigation may be imposed by permit stipulations or later amendment.

(8) Compensation by providing substitute resources or environments is the least desirable form of mitigation. When imposed it preferably should be implemented onsite rather than by "improving" an existing ecosystem elsewhere. Compensatory mitigation will only be implemented by negotiating a written agreement with the developer.

(9) Mitigation should be considered at the earliest project conceptualization or design stage. All impacts should be assessed early in the project planning process with first consideration given to nonstructural alternatives to the project objective.

(10) Fish and wildlife habitat should be preserved unless the public benefit of the project is demonstrably large. Assessment of damages will be a Department decision based in part on existing data bases and in part on "most" likely judgements.

(11) The burden of proof to justify lower estimates of damage to fish and wildlife habitat lies with the developer.