ALASKA LEGISLATURE COMMITTEE FILES 1991-1992 8672
7627 SENATE RESOURCES

ACTA THERIOLOGICA
Vol. 32, 10: 129—133 1987

Fragmenta Theriologica

The Composition of Moose Milk Following Late Parturition

SKŁAD MLEKA ŁOSIA PO POZNYCH WYCIELENIACH

Lyle A. RENECKER

Renecker L. A., 1987: The composition of moose milk following late parturition. Acta theriol., 32, 10: 129—133 [With 1 Table].

Two hand-reared moose cows conceived and gave birth to calves in captivity. Parturition in one cow occurred during mid-August with the calf dying as a result of dystocia. Both cows were hand-milked for the first week of lactation to determine yield and % lactose, protein, fat and total solids content in the milk. Although milk yields were low from these moose, milk was extremely concentrated with respect to protein and fat content, while milk lactose remained low in comparison to that of a Holstein cow. Production of concentrated milk may be beneficial for the survival of cervids such as moose which inhabit ephemeral environments with a short growing season.

[Dept. of Animal Science, University of Alberta, Edmonton, Alberta, Canada T6G 2P5].

1. INTRODUCTION

Like other northern wild *Cervidae*, reproduction in moose (*Alces alces*) is strongly seasonal. Rut generally occurs between late September and mid October (Murie, 1934; Lent, 1973) synchronizing the time of parturition for mid May to early June (Murie, 1934; Hauge & Keith, 1981) with the pulse of new vegetative growth. Although moose are seasonally polyestrus, the peak of the breeding period falls within one estrus cycle. Few cases of late breeding have been documented for moose.

With parturition, the moose cow must produce milk to nourish new offspring. Knorre (1961) determined the chemical composition of milk from hand-reared moose in the Soviet Union. Several authors in North America have reported the composition of moose milk collected from cows either trapped and immobilized (Franzmann *et al.*, 1975) or sacrificed (Cook *et al.*, 1970). However, there are no studies in North America which determined the chemical composition of moose milk obtained from animals milked regularly by hand during the first week of lactation.

In this paper I document the occurrence of a late parturition in habituated moose and report on the chemical composition of moose milk obtained from hand milkings during the first week of lactation.

2. METHODS

Two hand-reared moose cows were maintained in a 2 ha pasture on a pelleted aspen-concentrate ration (Schwartz *et al.*, 1985) and supplemented with hand-cut browse at the Ministik Wildlife Research Station, approximately 48 km southeast of Edmonton, Alberta, Canada. The moose were 5 years old at the time of conception and were firmly habituated to human presence.

The two moose cows were milked by hand for 5 days subsequent to parturition with samples taken for analysis on selected days. Animals were milked either in the pasture or a staunchion. Initially, a 1.5 ml dose of oxytoccin (Dominion Veterinary Laboratories, Winnipeg, Manitoba R2W 3R4) was administered intramuscularly to initiate the release of milk from one cow, whereas bunting and massaging the udder of the other cow stimulated milk release.

Samples of milk were placed in a 50 ml sample bottle containing an iodine tablet to preserve samples. Milk was analyzed for percent protein, fat, lactose and total solids by the Alberta Milk Testing Laboratory, Edmonton, Alberta, Canada. Milk samples were also collected from a Holstein cow following parturition as a comparative standard. Energy content of milk samples were calculated using a formula which was determined by Perrin (1958).

3. RESULTS AND DISCUSSION

3.1. Reproduction

A hand-reared moose cow gave birth on August 21, 1983. The calf weighed 17 kg and was dead at birth as a result of dystocia. The gestation period for moose is approximately 240—260 days (Peterson, 1955) which would imply that conception in this cow would have occurred between December 18 and 24, 1982. Other cases of late breeding have been documented for moose on December 15 (Moisan, 1955) and mid-December (Coady, 1974) and for wapiti (*Cervus elaphus nelsoni*) during mid-January (Wishart, 1981).

Female moose commonly breed as yearlings (*i.e.* 16—18 months of age) and maintain high reproductive rates until they are at least 12 years old. Duration of estrus during the rut is less than 24 hr, however, the cow may be receptive for 7—12 days (Knorre, 1961). Although the peak breeding season falls within one estrus period, wild *Cervidae* such as the moose, may have up to six periods of heat as indicated by Wishart (1981) for wapiti. The duration of each estrus cycle in moose has been estimated between 18—26 days (Stewart *et al.*, 1985). Extension of the breeding season in wild ungulates into December and January may relate

to plane of nutrition and body weight as reproductive success has been shown to be considerably higher in yearling wapiti receiving high quality diets (Flook, 1970).

3.2. Milk Composition

The samples of moose milk were thick, pale yellow to beige in color and very concentrated when compared to that of a Holstein cow (Table 1). During the first week of lactation, concentration of protein, fat and total solids was high in milk from moose and similar to reports by Knorre (1961), Cook *et al.* (1970) and Franzmann *et al.* (1975). Robbins *et al.*

Table 1
The composition of milk from two moose and one Holstein cow.

Days after parturition	Fat (%)	Protein (%)	Lactose (%)	Total solids (%)	Energy MJ/kg
		Moose cow 1			
4	4.7	17.5	2.6	31.0	6.3
5	6.0	18.8	2.6	31.2	7.1
		Moose cow 2			
2	4.0	9.2	2.5	24.5	4.1
3	7.5	9.5	2.0	27.4	5.4
5	11.7	12.0	1.3	32.4	7.4
		Holstein cow			
5	2.5	3.1	4.3	11.3	2.4
		Holstein — Alberta Provincial Average			
	3.6	3.2	5.0		3.0 [1]

[1] Kim Whitehead, pers. commun. Alberta Milk Testing Laboratory, Government of Alberta, Edmonton.

(1981) suggested that the higher protein content of milk from wild *Cervidae* may reflect greater tissue demands for this nutrient. This is shown by a higher body protein content than that of domestic ruminants (Gardner *et al.* 1964, Robbins 1973). Unlike the pattern commonly observed in members of the family *Bovidae* (Jenness & Sloan, 1970), moose milk has relatively low lactose content similar to concentrations observed for barren-ground caribou (*Rangifer tarandus groenlandicus)* (Hatcher *et al.*, 1967), however, the energy content of this milk is relatively high and similar to that of red deer (*Cervus elaphus*) (Arman *et al.*, 1974) and wapiti (Kozak, 1986). Although the sample size is limited, the results suggest that the characteristics of moose milk may reflect a survival mechanism. Like caribou, moose inhabit environments in which the summer growth pulse of forage are very brief and food resources are of high quality and clumped. White and Luick (1984) have

suggested that low levels of lactose production may actually reflect the status of body tissue stores of the cows and the primary need for weight gains. A strong feedback mechanism to replenish body condition during the short growing season, before the onset of the autumn rut, may indeed pre-empt high lactose production.

Moose cows produce about 150 kg of milk per lactation in the wild, but domesticated individuals have produced up to 430 kg (Yazan & Knorre, 1964). Nevertheless, this is considerably less than milk yields/lactation of domestic cattle breeds which produce over 1700 kg (Arman, 1979).

The yield of milk from the moose varied between 1920 and 2160 ml/d (320 and 360 ml/4 hr milking). This value is similar to milk production of hand-milked wapiti hinds during the early stages of lactation (values range between 1495 and 2900 ml/d) which received either no feed supplement or a pelleted concentrate ration (Kozak, 1986). When combined with the milk composition data, an understanding of maternal investment and anti-predator strategy is revealed. Although there is a need to maximize body condition of the dam to ensure high conception rates, the moose must also provide adequate milk energy to successfully rear her offspring. White and Luick (1984) hypothesized that while a need to replenish body stores may be responsible for the low content of lactose in milk, low lactose production may in turn be the mechanism which controls low milk production. Clearly, the benefit to the dam would be conservation of energy which could be redirected towards weight gain. Because moose generally live in closed forest habitats, their young depend on cryptic colour and secretive behavior to avoid predators. Arman (1979) alternatively suggested that the purpose of concentrated milk in wild ungulates that hide their calves may be to reduce suckling time and thereby minimize the threat of predation. Thus, two schools of thought can be applied to the adaptive significance of concentrated milk. Its role may be associated with either maximizing maternal body condition before the autumn breeding season or predator avoidance as observed in moose calves.

Acknowledgements: I wish to thank C. D. Olsen, D. M. Renecker, M. L. Watson and D. A. Welch for their assistance during sample collection and to Dr. R. J. Hudson, D. M. Renecker and H. M. Kozak for reviewing the manuscript.

REFERENCES

Arman P., Kay R. N. B., Goodall E. D. & Sharman G. A. M., 1974: The composition and yield of milk from captive red deer (*Cervus elaphus L.*). J. Reprod. Fertil., *37:* 67—84. — Arman P., 1979: Milk from semi-domesticated ruminants. Wld. Rev. Nutr. Diet., *33:* 198—227. — Coady J. W., 1974: Late pregnancy of a moose in Alaska. J. Wildl. Manage., *38:* 571—572. — Cook H. W., Rausch R. A. & Ba-

ker B. E., 1970: Moose milk. 1. Gross composition, fatty acid and mineral constitution. Can. J Zool., *48:* 213—215. — Flook D. R., 1970: Causes and implications of an observed sex differential in the survival of wapiti. CWS Rept. Series No. 11, Dept. of Indian Affairs and Northern Development, Ottawa, 71 pp. — Franzmann A. W., Arneson P. D. & Ullrey D. E., 1975: Composition of milk from Alaskan moose in relation to other North American ruminants. J. Zool. Anim. Med., *6:* 12—14. — Gardner R. W., Hogue D. E. & Bensadoun A., 1964: Body composition and efficiency of growth of suckling lambs as affected by level of feed intake. J. Anim. Sci., *23:* 943—952. — Hatcher V. B., McEwan E. H. & Baker B. E., 1967: Caribou milk. 1. Barren-ground caribou (*Rangifer tarandus groenlandicus*): gross composition, fat and protein constitution. Can. J. Zool., *45:* 1101—1106. — Hauge T. M., & Keith L. B., 1981: Dynamics of moose populations in Northeastern Alberta. J. Wildl. Manage., *45:* 573—597. — Jenness R. & Sloan R. E., 1970: The composition of milks of various species, a review. Dairy Sci. Abstr., *32:* 599—612. — Knorre E. P., 1961: The results and perspectives of domestication of moose: in Norilkov, European moose and reindeer: a Symposium. Papers of the Pechora. Ilych State Reservation *9:* 5. A translation: Publ. No. TR-RUS-107, Can Int. for Sci. and Tech. Information, NRC., Ottawa., p. 5—177. — Kozak H. M., 1986: Nutrition in relation to productivity and management of farmed wapiti in Alberta. M. Sc. Thesis, Univ. of Alberta 1—150. — Lent P. C., 1973: A review of the rutting behavior of moose. Nat. can., *101:* 307—323. — Moisan G., 1955: Late breeding in moose, *Alces alces*. J. Mammal., *37:* 300. — Murie A., 1934: The moose of Isle Royale. Miscellaneous Pub. No. 25: 1—56. Univ. of Michigan Press, Ann Arber. — Perrin D. R., 1958: The calorific value of milk of different species. J. Dairy Res., *25:* 215—220. — Peterson R. L., 1955: North American Moose. Univ. of Toronto Press: 1—280. Toronto.

Robbins C. T., 1973: The biological basis for the determination of carrying capacity. Ph. D. Thesis, Cornell Univ.: 1—239. Ithaca, New York. — Robbins C. T., Podbielancik-Norman, R. S., Wilson D. L. & Mould E. D., 1981: Growth and nutrient consumption of elk calves compared to other ungulate species. J. Wildl. Manage., *45:* 172—186. — Schwartz C. C., Regelin W. L. & Franzmann A. W., 1985: Suitability of a formulated ration for moose. J. Wildl. Manage., *50:* 143—147. — Stewart R. R., Comishen-Stewart L. M., & Haigh J. C., 1985: Levels of some reproductive hormones in relation to pregnancy in moose. Alces, *21:* 393—402. — White R. G. & Luick J. R., 1984: Plasticity and constraints in the lactational strategy of reindeer and caribou. Symp. zool. Soc. Lond., *51:* 215—232. — Wishart W. D., 1981: January conception in an elk in Alberta. J. Wildl. Manage., *45:* 544. — Yazan Y. & Knorre E. P., 1964: Domesticating elk in a Russian national park. Oryx, *7:* 301—304.

Received, September 10, 1986. Accepted, November 25, 1986.

Dr Wood

WILD GAME ENHANCEMENT/GAME RANCHING/GAME FARMING

INTRODUCTION

Alaska has a diversity of fish and wildlife, much of which is found in relatively low densities, generally in remote situations and/or seasonally. One of the attractions for non-Alaskans, as well as many Alaskans, is the opportunity to view, photograph, catch and shoot one or many individuals from within this renewable resource group. The above provides an economic opportunity which to date has only received limited attention through guiding operations for both consumptive and non-consumptive purposes, and the limited fur industry which includes wild harvest and some fur farming.

The economic opportunities for rural Alaska, particularly with the establishment of large parcels of private land, warrant consideration by private enterprise as well as state government. It is probable that existing state policies will require modification before Alaska will realize the benefits enjoyed by other areas of the world.

To date, Alaska has primarily managed hunters, trappers and fisherman as they practiced wild harvest of fish and game populations. Limited attempts have occurred in the areas of habitat modifications, transplanting and stocking. World-wide experience suggests that habitat enhancement and intensive management of the animals themselves results in increased populations of fish and wildlife. These efforts can range from relatively simple habitat manipulations, through game ranching and aquaculture to intensive game, fish or fur farming. Such efforts in Alaska are likely to benefit Alaskans and a wider diversity of society than is currently enjoyed.

At present, enjoyment and use of much of Alaska's wildlife resource is limited by poor access and undeveloped marketing schemes. In many areas, wildlife is the only renewable resource present. Timber production is marginal or non-existent in most of the state, and farming of agronomic crops is feasible only in selected areas of favorable climate and soils. However, wildlife is present in most of the state in forms which can potentially be used on a sustained basis to provide meat, hunting and viewing pleasure, hides, fiber and other materials for crafts. Considering the renewable nature of this resource in the absence of other such resources, it becomes apparent that ways of more fully utilizing wildlife should be investigated.

Game and fish ranching should not be viewed as a means of greatly increasing wildlife populations. This is particularly true in northern latitudes, such as Alaska, where primary production of plant life in rangelands, streams and lakes is relati ely low. However, it is reasonable to expect that more intensive management of wildlife populations and habitat can provide increased opportunities for wildlife viewing, improved conditions or facilities for harvest and/or hunting and fishing, reduced waste, better preservation of game products, culling and manipulation of population structure to better match demand, and control of predatory losses. Habitat improvements resulting in increased carrying capacity and species diversity may also be possible in some situations, particularly where profit taking is possible. These activities will also generate meaningful employment.

Any type of game production system must be based on ecological principles. The first step in its development should be the inventory of available lands in terms of acreages and distributions of habitats for specific animal species. Seasonal availability of food and cover within each habitat must be estimated and possibilities for improvements evaluated. Common use grazing relationships, fire, predation, disease, insect disturbance, snow and other weather conditions all affect the carrying capacity of different habitats. Consequently, considerable understanding of year-round animal requirements and tolerances is essential in the successful management of a game production enterprise. One of the earliest lessons learned in game ranching or farming activities in Africa was that these activities require more, not less, knowledgeable management than do common livestock. Mismanagement of vegetation, soil and water resources can result in disastrous reduction of carrying capacity and catastrophic decreases in animal populations. Losses of this type can be particularly serious when they involve overutilization of vegetation, since recovery may require decades of reduced use.

With increased biological and legal control of animal populations, greater inputs in habitat management are justified. In situations where the game rancher can control the size and structure of populations using his land and be entitled to the profits generated with the animals, inputs to habitat can become practical. Generally, the most cost-

effective inputs are those which manipulate plant succession to produce vegetation more suitable as habitat for a particular species. Removal of spruce by cutting, burning or crushing to enchance production of willow or aspen is an example of the above. Production of supplemental feeds or mechanical manipulation of physical features of the habitat are more costly and change the nature of the ranch more to that of a farm, but are alternatives that may have a place under some goals of ownership.

Game ranching and farming operations in other regions of the world have demonstrated a number of values to society. Increased sustained-yield harvest of animal products has been achieved through professional hunting, use of corrals and fences, salting, spotlighting, and use of portable abattoirs. Simultaneously, significant income has been generated through allowance of fee hunting for trophy animals. Additional income has also been generated by providing accommodating conditions and facilities for tourists and other recreationists.

In some areas, wild species have actually been demonstrated to have the ecological advantage over common stock, providing for more complete use of the vegetation resources. In brushland situations, browsing herbivores (e.g., giraffe, white-tailed deer and moose) are more productive than true grazers. Similarly, reindeer or caribou have a distinct advantage over other species in utilizing snow covered tundra. For centuries, reindeer herding was a main stay of the Lap society, and is a major occupation in the U.S.S.R. today, just as white-tailed deer ranching has become a major income-generating activity in west Texas. Horse and yak production as well as reindeer herding represents a major economic base in nearby northeastern Siberia. Moose farming has also been undertaken in that region. Closer to home, western Alaska once had a thriving reindeer ranching industry of over 600,000 animals, where in fact, little, if any other opportunity for a land-based economy has been developed. Mining may change this picture temporarily, but mines are not renewable.

As stewards of the land we must be careful not to limit our agricultural perspective to those species typically considered in ranching or farming systems. This is particularly true in our state traditional agriculture is relatively limited in potential. Conversely, we must also avoid sentimentality and select game production schemes which are ecologically sound. Our vision and wise action in these matters will tap a huge, relatively untouched, renewable resource which will benefit generations to come.

ISSUES

In order for Alaska to optimize the opportunities available to the broadest segments of society, which is mandated under Alaska's constitution, a number of issues must be explored in depth with regard to existing state policy, laws, and in some cases, as these relate to the federal government. The following is a list of some of these issues, although it is not exhaustive.

Alaska Fish and Game Laws and Regulations:

-Establishment of seasons and bag limits.
-Methods of take.
-Sale of fish and game products.
-Subsistence versus other consumptive and non-consumptive uses.
-Management, including utilization of fish and animals, on private lands.
-Importation of fish and animals which has implication to both existing and imported fish and wildlife as well as to domestic animals from a predator, disease and pest stand point.
-Predator control.
-Baiting.

Land management and regulation:

-Access and trespass.
-Burning or other vegetation manipulation.
-Construction of ponds, fish ladders or other structures on private lands.
-Fencing or the use of natural barriers.
-Determination of carrying capacities.
-Water quality standards and wetland regulations.
-Leases of state or federal land.

Health and inspection standards

-Pre and post slaughter inspections.

-Processing plant standards and inspection.

-Field slaughter opportunities.

-Mobile slaughter facilities.

-By-product processing.

-Meat grading.

-Antler grading.

-Carcass disposal.

-Other waste product disposal.

-Raw product export.

Public and/or private economics

-Capital availability.

-Projected returns to individuals, regions, the state.

-Types of operations.

-Projected demand by type.

-Enhancement of existing tourist industry.

-Regulation and enforcement costs.

CONCLUSION

Existing worldwide experience suggests that Alaska is not optimizing its opportunities relative to fish and wildlife. Presence of large blocks of private land in rural Alaska have altered the status quo of how the state manages and/or regulates this renewable resource. Is the State of Alaska going to play a positive role in optimizing its fish and wildlife resources?

In order to begin to answer the above question, it is suggested that the legislature establish and fund a broad based task force, charged with bringing recommendations back to the legislature within one year.

BIBLIOGRAPHY

Berry, M.P.S., "Game Ranching in Napal." J. South Afr, Wildl. Mgmt. Assn. 5:33-37, 1975.

Blankenship, L.H. and S.A. Qvortrup, "Resource Management on a Kenya Ranch," J. South Afr. Wildl. Mgmt. Assn. 4:185-190, 1974.

Blood, D.A., "Variation in Reproduction and Productivity of an Enclosed Herd of Moose (Alces alces)," paper presented at XI Int. Congr. Game Biologists, Stockholm, Sweden, September 3-7, 1973.

Cole, R.S., "Elk and Bison Management on the Oglala Sioux Game Range," J. Range Mgmt., 27:484-485, 1974.

Conroy, A., "Venison Aquaculture and Ostrich Meat Production," South Afr. J. Anim. Sci., (in press) 1982.

Corner, A.H. and R. Connell, "Brucellosis in Bison, Elk and Moose in Elk Island National Park, Alberta, Canada," Can. J. Comp. Med. 22:9-21, 1958.

Dasmann, R.F., "African Game Ranching," Pergamon Press, Oxford, England, 1964, 75 p.

de Vos, A., "Is a More Rational Use of the Meat of Wild Mammals Possible in Canada?" Paper presented at the Northeast Fish and Wildlife Conference, Quebec City, 1967, 4 p.

Dill, T.O., J. Menghini, S.S. Waller and R. Case, "Fee Hunting for Nebraska Big Game: A Possibility," Rangelands 5(1):24-27, 1983.

Fairall, N., "Growth and Development of the Impala Aepyceros Melampus," KOEDOE 19:83-87, 1976.

Flook, D.R., "Preliminary Plan for Managing Plains Bison in Elk Island National Park, Edmonton, Alberta," unpublished, Canadian Wildlife Service Rep. No. CWS-43-68, 1968, 11 p.

Foster, J.B. and M.J. Coe, "The Biomass of Game Animals in Nairobi National Park, 1960-66," J. Zool Res. 155:413-425, 1968.

Goede, E., R. Schadd and H. Hemmer, "Fallow Deer Dama dama Domestication -a Programme in Progress," Acta Zool. Fennica 000:000-000, 1982.

Heinichen, T.G., "Mass and Body Measurements of Impala Aepyceros Melampus from a Game Ranch," S. Afr. J. Wildl. Res. 12:76-78, 1982.

Hemmer, H., "The Aptitude and Selection of Large Mammals for Game Farming and Domestication," Act Zool., Fenica 000:000-000, 1982.

Hirst, S.M., "Ungulate-Habitat Relationships in South African Woodland Savanna Ecosystems," Wildlife Monographs 44:1-60, 1975.

Holsworth, W.N., "Interactions Between Moose, Elk and Buffalo in Elk Island National Park, Alberta," MSc Thesis, Univ. British Columbia, 1960, 92 p.

Howell, P.G., "Foot and Mouth Disease as a Limiting Factor in Game Farming," Acta Zool., Fennica 000:000-000, 1982.

Hudson, R.J., J.B. Stelfox and D. Hopcroft, "Wildlife Production Systems and Programmes in Kenya," Acta. Zool., Fennica 000:000-000, 1982.

Johnstone, P.A., "Evaluation of a Rhodesian Game Ranch," J. South Afr. Wildl. Mgmt Assn. 5:43-51, 1975.

Knorre, E.P., "The Results and Perspectives of Domestication of Moose," In: G.A. Novikov (ed.), papers of the Pechora-Hych State Reservation, Vol. IX (Can. Wildl. Serv. typed transl. TR-RUS-107), 1961.

Lambrecht, F.L., "Game Animals: A Substitute for Cattle?" Rangelands 5(1):22-24, 1983.Luick, J.R., "Reindeer, Horse and Yak Production in Yakutia, U.S.S.R. (Northern Siberia)," Reindeer Herders Newsletter 3(5):1-53, 1978.

Mentis, M.T. and R.R. Duke, "Carrying Capacities of Natural Veld in Napal for Large Wild Herbivores," South Afr. J. Wildl. Res. 6:65-74, 1976.

Mentis, M.T., "Stocking Rates and Carrying Capacities for Ungulates on African Rangelands," South Afr. J. Wildl. Res. 7:89-98, 1977.

Parker, I.S.C. and A.D. Graham, "The Ecological and Economic Basis for Game Ranching in Africa," in E. Duffer and A. S. Watt (eds.) The Scientific Management of Animal and Plant Communities for Conservation, Blackwell Sci. Publ., Oxford, 1971, p. 393-404.

------, "Commercial Use of Thompson's Gazelle Gazella thompsoni and Impala Aepyceros melampus on a Kenya Beef Ranch," Proc III World Conf. Anim. Prod., Reid, H. (ed.), Sydney University Press, 1975, pp. 109-118.

Penzhorn, B.L., "Body Growth of the Springbok Antidorcas marsupialis in the Mountain Zebra National Park," St. Afr. J. Wildl. Res. 8:171-172, 1978.

Ruth, C., "Preserves and Ranges Maintained for Buffalo and Other Big Game," Bur. Biol. Soil Conserv. Serv. Sur. Leaflet BS-95, 1939, (mimeo) 24 p.

Savory, C.R., "Game Utilization in Rhodesia," Zool. Afr. 1:321-337, 1965.

Sinclair, A.R.E., "The Natural Regulation of Buffalo Populations in East Africa. II. Reproduction, Recruitment and Growth", E. Afr. Wildl. J. 12:169-183, 1974.

Skinner, J.D., "Productivity of the Eland: An Appraisal of the Last Five Years' Research," S. Afr. J. Sci. 67:534-539, 1971.

------, "An Appraisal of the Status of Certain Antelope for Game Farming in South Africa," Z. Tierzucht. Zuchtgsbiol. 90:263-277, 1973.

------, "Selected Species for Game Farming in Southern Africa," Acta Zool. Fennica 000:000-000, 1982.

Stoddart, L.A. and A.D. Smith, Range Management, 2nd edition, McGraw-Hill Book Co., New York, 1955, 433 p.

Talbot, L.M., W.J.A. Payne, H.P. Ledger, L.D. Verdcourt and M.H. Talbot, "The Meat Production Potential of Wild Animals in Africa," Tech. Comm. 16 Commonwealth Bureau Animal Breeding and Genetics, 1965.

Talbot, L.M. and M.H. Talbot, "The High Biomass of Wold Ungulates on East African Savanna," Trans. N. Amer. Wildl. Nat. Res. Conf. 28:465-476, 1963.

Taylor, R.D. and B.H. Walker, "A Comparison of Vegetation Use and Condition in Relation to Herbivore Biomass on a Rhodesian Game and Cattle Ranch," J. Appl. Ecol. 15:565-581, 1978.

Telfer, E.S., "Report on the Establishment of Range Trend Transects at Elk Island National Park," unpublished, Can. Wildl. Serv. Rep. 15 p. + app.

Visosky, C. and H. Hemmer, "Barbary Sheep Ammotragus lervia, a Candidate for Intense Game Farming or Domestication," Acta Zool. Fennica 000:000-000, 1982.

Von la Chevallerie, M., "Meat Production from Wild Ungulates," Proc. S. Afr. Soc. Anim. Prod. 9:73-87, 1970.

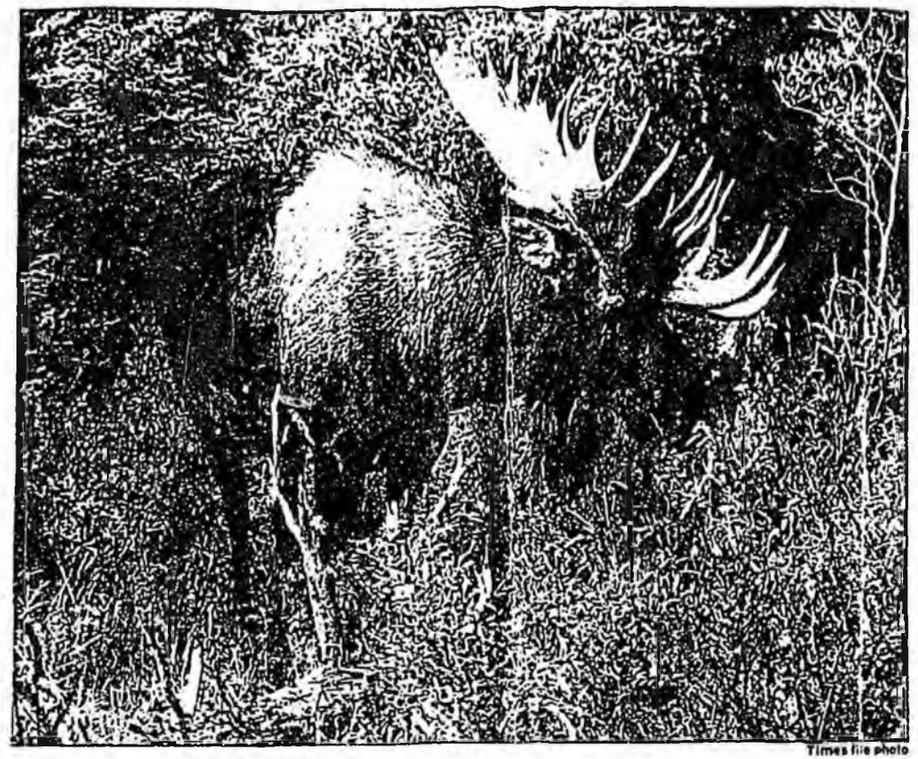
Walker, B.H., "Game Ranching in Africa," in B.H. Walker (ed.) Management of Semi-Arid Ecosystems, Elsevier, Amsterdam, 1979.

Yazan, Y. and Y. Knorre, "Domesticating Elk in a Russian National Park," Oryx 7:301-304, 1964.

Young, E., "Technological and Economic Aspects of Game Management and Utilization in Africa," Proc. III World Conf. Anim. Prod., H. Reid (ed.), Sydney University Press, pp. 132-141, 1975.

Moose Alert

Soviet farmers learning to harness power of the moose



Times file photo

Soviet farmers are perfecting methods to milk moose. They also raise the ungulate for food.

Anchorage Times
July 18, 1991

Ed Cooper

OUTDOORS
COLUMNIST

Not only do hunters kill far more moose in Russia each year than in Alaska, the Soviets have pioneered moose husbandry for meat and milk production as well as for riding and farm work.

Three experimental moose farms exist in the Soviet Union, according to H.R. Timmerman, one of Ontario's top moose biologists. Timmerman attended the third International Moose Symposium held in Syktyvkar, U.S.S.R., during the summer of 1990.

Timmerman, in an article published in the May edition of Angler & Hunter magazine, said he visited the oldest such farm, established in 1949 by K. P. Knorre near Yaska. During the past 40 years this farm has raised and domesticated 450 moose, some of which represent the sixth generation of original stock.

Operation of the moose farms, as Timmerman describes it, is similar to dairy and beef production with domestic cattle, but with some notable differences.

The Russians have found that the key to domestication of moose requires that each newborn calf imprint to a human milkmaid four to five hours after birth.

Consequently, as moose cows approach the time to give birth, they are taken to an enclosure and attended by milkmaids until birth occurs, usually from early May through mid-June each year.

After its first suckling, each calf is removed from the cow and fed from a bottle by the same milkmaid up to five times a day. Each cow is milked by hand at the birth site. They quickly substitute their milkmaids for their offspring and are released from the enclosures to the surrounding forest, but return twice a day for milking at 6 a.m. and 6 p.m.

That should sound familiar to anyone who has ever been associated with a dairy farm. And incidentally, I'm not being chauvinistic in saying that the moose cows and calves are taken care of by milkmaids. I assume men could handle those chores as well as women, but Timmerman doesn't indicate that he saw any men involved in that phase of the operation, and his pictures with the article show women doing the milking and handling of the calves.

As they grow older, the calves are fed milk substitutes or diluted sheep milk, taught to drink from a pail and are weaned by mid-September. About 95 percent survive to six months of age, when they are usually moved to an active logging area so they can feed on remaining tree tops and limbs.

Moose cows are bred for milk production by selecting the best individuals, Timmerman says. Those who give the most milk generally give birth to calves that also have high milk yields. A moose cow produces about a gallon of milk a day, but this can be increased by more frequent milkings.

Eventually, I suppose by selective breeding, you could have some Jersey- and Holstein-type moose and even some Hereford and Black Angus types for meat.

Moose milk is richer than domestic cow's milk, containing up to 11 percent fat, 9 percent protein and a host of vitamins and micro-elements. Timmerman says the milk has been touted as having unique medical properties, particularly for the treatment of stomach ulcers and radian lesions. However, this hasn't yet been scientifically proven.

The moose milking must not be an economically viable operation. In fact, it appears the farms are more on the line of a socialist experiment, and Timmerman speculates they may soon disappear.

At present, all the milk produced at the farm Timmerman visited is fed back to calves. This is partially due to the lack of facilities to sterilize, store and distribute it, he says.

Bull calves and cows that don't produce much milk, as well as calves, are butchered for meat, which is two to five times cheaper than cattle, he says. This would seem to indicate that raising moose for meat could possibly be an economically rewarding enterprise.

The bull calves, like beef cattle, are castrated. Timmerman says they are quiet and calm and retain their excellent meat qualities even to old age.

In the past, some castrated bulls were trained to carry humans on saddles, cargo or haul sleighs in winter. Training the moose, however, was a labor-intensive process. Men were involved here, and apparently a bit of wild east rodeo was part of the exercise.

The training also tended to cause the animals to lose their fear of man or dogs, making them vulnerable to poachers and predators.

Yes, poachers are a significant factor in annual moose harvests in the Soviet Union, as they are in Alaska and other parts of the world.

Alaska's game regulations, incidentally, do not allow private ownership of moose, as they do buffalo and musk ox. Bills have been introduced in the legislature to allow moose ranching, but none have passed.

Officials in the Soviet Union estimate about 1 million moose roam the wilds in eight of its 15 federated republics, with the highest densities in the Baltic republics, the western and northern regions of the Russian Federated Republic, including the Komi A.S.S.R., and northern areas of Byelorussia and portions of the Ukraine.

In 1988, some 70,000 moose were reportedly taken by 20,000 to 30,000 hunters, a major percentage of whom are professionals. That compares with less than 10,000 moose taken by hunters in Alaska during the same year.

Now Russia is opening up its hunting, not only for moose, but also for bear, wolves and other species, to hunters from other parts of the world. They are likely to provide formidable competition to Alaska's guides and outfitters starting as early as next year.

Incidentally, Alaska isn't the only place in the world where officials worry about wild moose roaming streets, highways and railroad tracks. Timmerman said that up to 70 moose are captured in and around Moscow each year.

They just take them out to the moose farms. But then, I suppose to a moose, that could be the equivalent of being banished to Siberia.

REGULATIONS

A. *FOR ALL ANIMALS*

As with all types of livestock farming it is necessary that regulations be established to protect all animals in our country from disease and to assure the purchasers of our products that what they are buying from us is safe to eat. Agriculture Canada has an entire branch staffed by highly qualified veterinarians, scientists and inspectors. This branch supervises the import of all animals of any kind into Canada, monitors all diseases of animals within Canada, and inspects all food products as necessary before sale. They work closely with provincial departments of agriculture to maintain a reputation that is respected the world over. For example almost any country will accept live animals or food products that are exported from Canada. Many other nations would like to have our reputation.

Every regulation of Agriculture Canada that applies to similar domestic animals is also applied to game farm species in the same way. This is why most animals on game farms (which were imported from game farms in U.S.A.) have papers to show they have been tested for a wide scope of possible diseases and been inspected by veterinarians at least two separate times.

Most regulations which apply to other forms of livestock regarding care, transportation, feeding, stray animals etc. also apply to game farm animals.

B. *NATIVE SPECIES*

In game farming another type of regulation is also necessary. Since the public owns all animals which range freely across the province it is necessary that precautions be taken to be sure that the animals owned by the public are not mixed up with those that are owned privately. As the owner of the private animals it is the responsibility of the game farmer to identify his animals and keep them on his side of the fence. The Fish and Wildlife Division of the Alberta Government has been given the responsibility of protecting and managing our wild animals for the benefit and enjoyment of all of us. As with any situation between neighbors who own a similar kind of livestock the key to good relations is a good fence and an attitude of cooperation on both sides.

Fish and Wildlife have administered regulations since the early 1950s pertaining to the operation of game farms in Alberta. These first game farms were mainly "viewing farms" and there were very few of them established until the sudden growth of game farming in the mid 1980s. At that time concerns were expressed that game farming (or ranching) might present a great risk to our native wildlife. Since the industry was new there was no evidence to suggest these fears were justified but rather than take any chance a new set of regulations was established in 1987.

Some facts about the present regulations might help us understand that there is a sincere effort first to protect the free ranging animals that belong to all of us and second to allow the existence of game farms.

1. All big game farms are licensed by the Alberta Government.
2. Game farms must be located entirely on private land. No part of a game farm may be on crown land.
3. Game farms must be fenced in an approved manner and must have a facility suitable for holding animals (to do blood tests or inspect eartags) and facilities are inspected before a permit is issued.
4. Every animal on a game farm must be identified (registered) with a metal tamperproof eartag in each ear. These tags are arranged through the government and no two animals have the same number.
5. Game farmers must record daily every change in their inventory such as sales, purchases, births, deaths, imports and exports. This record is sent in monthly.
6. Game farmers must record on a manifest the transfer of any animal from one farm to another.
7. The government has each game farm animal recorded on a computer so they know exactly where each animal is and what animals are on each farm.
8. Any animals imported to Alberta from outside Canada must pass all health test required by Agriculture Canada. They must have a health certificate from the country of origin, an export permit from the wildlife officials in the jurisdiction of origin, blood tests to prove that they are pure elk, and be identified by tamperproof metal tags. They must pass inspections by Canada Customs, Agriculture Canada and inspectors in the country of origin. The animals may also be inspected by Alberta Fish & Wildlife who must give the game farmer an import permit before the animals can come into Alberta.
9. Game farm products must all be identified by a metal seal provided by Fish & Wildlife. The farmer's inventory record must show what animal the product (e.g. antlers) came from and to whom the product was sold for export. These products can only be sold to licensed product buyers or other licensed farmers.

After reading the above summary of regulations it becomes obvious that it would be very difficult for any game farmer to obtain an animal or animal product which came from the wild. Moreover game farmers have made great investments in fences and facilities and would not want to risk having their permit renewal refused. The opposition to game farming from people who genuinely care about the welfare of wild animals is subsiding as people understand and appreciate the controls under which these farms operate.

All game farm animals must be identified by two tamperproof metal tags.

GAME FARMING IS OPEN TO ANYONE

As long as you meet the requirements to obtain a permit anyone with some ability to handle livestock and at least 60 acres of privately owned land can be a game farmer. To learn more about this interesting industry, fill out the attached membership form or call the Alberta Game Growers Association Office at (403) 962-6212 in Spruce Grove, Alberta.

HISTORY

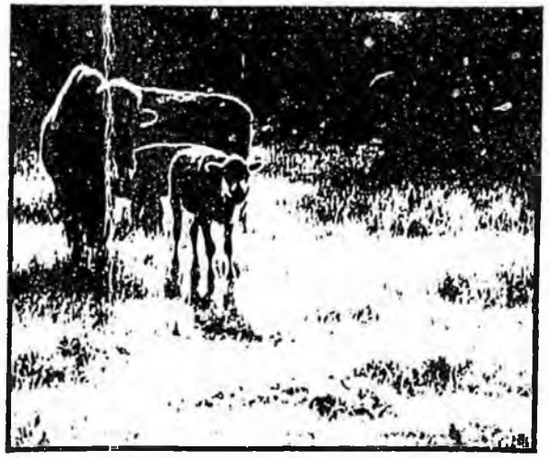
Game ranching is not a new frontier. Agriculture Canada conducted research on bison and bison hybrids between 1915 and 1965. Research on bison, moose, and wapiti (elk) has been conducted by the Wildlife Productivity and Management Programme at the University of Alberta since 1974. Elk and bison have been raised in Elk Island National Park for over 70 years.

Regulations were established in the 1950s to control the development of game farms in Alberta. The first game farms were mainly for viewing of animals and only a few were established. The sudden success of game farms which were started in New Zealand in the mid 1970s coupled with the depressed agricultural prices and concerns about soil and water conservation prompted many Albertans who were knowledgable livestock people to go into game farming in greater numbers.

The number of big game farms (not counting bison farms) in Alberta has grown from just a handful in 1986 to over 100 in 1990. There are now over 3000 elk on Alberta farms. Some are also raising white tail and mule deer and a few raise moose.

Although Alberta Fish and Wildlife will occasionally allow the capture of deer in areas where they are overpopulated for game farms (a maximum of 6 of a species in the lifetime of the farm) nearly all animals now in captivity were raised on game farms.

Since the law recognizes bison (buffalo) as being "domestic" it is not necessary to have a license to raise them. Most of the information in this pamphlet pertains to raising elk (wapiti) although many of the same benefits also apply to bison and other species of animals native to Alberta.

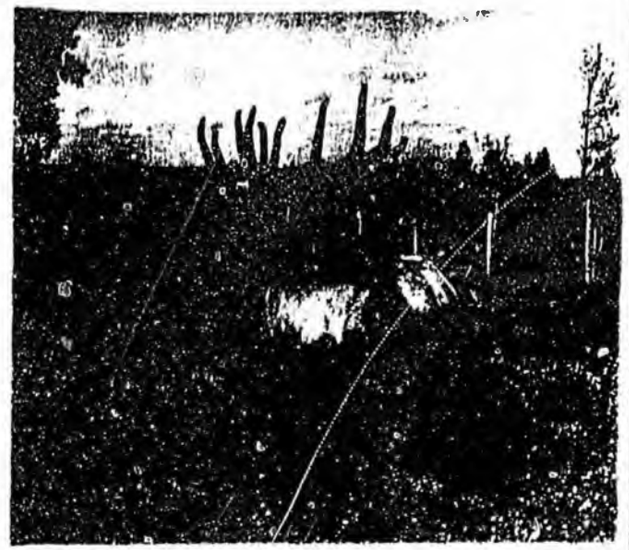


Bison adapt well to life on the farm.

OTHER BENEFITS

* Game farming conserves the soil by leaving it in grass rather than tilling it each year and exposing it to erosion by wind and water.
* Game farming preserves the species. For example there would be no plains bison today if they had not been preserved in captivity. The Pere David deer which has been extinct in China for a century is now being re-established from a game farm in England.
* Game farms provide an opportunity to learn things about the

GAME FARMING IN ALBERTA



Wapiti - 70,000 years of adaptation makes them a most efficient converter of our natural forage to high protein low cholesterol red meat.

Farmers Working With Nature For The Benefit Of Both.

Printed For Alberta Game Growers Association

ECONOMIC CONSIDERATIONS

★ Some studies show that the feed required to produce one pound of beef will produce 1.3 pounds of bison meat or 1.4 pounds of elk meat.

★ Bison that are 24 to 30 months old can be finished on a barley ration for 60 days and will sell for $1800 to $2000 for meat ($3.00 to $3.30 per pound dressed).

★ Bison, elk and other game animals are very well adapted to our climate. They require no special shelter and respond well to good feed.

★ Although elk cannot be slaughtered in Alberta there is definitely a North American market for venison. Elk venison is something many North Americans have eaten. It is a socially acceptable food.
Many people consider red meat an essential part of their diet yet they are concerned about the higher cholesterol levels of other meats. The Government of New Zealand's annual report on export sales showed nearly half a million kg. of venison was exported to Canada and the U.S.A. last year.

★ In New Zealand where game farming is 10 years ahead of us they now have ¾ million head on about 4000 farms. In selling their venison the biggest problem in breaking into a new market is to get enough animals to give customers a steady supply. This is the kind of a problem many farm producers would like to have.

★ When the antlers that elk grow each year are carefully removed at exactly the right stage they contain a substance that is of value to pharmaceutical companies in Hong Kong, Korea, and other oriental countries. This results in a cash bonus to elk farmers. In 1989 a mediocre bull that produced 15 lbs. of velvet antler gave his owner a bonus of about $1400.

★ The velvet antler bonus that elk farmers receive is money from outside our country from people who have earned it by producing cars, computers and VCRs for us to buy. Farmers feel good about getting needed cash income by producing a product someone else wants to buy rather then from a subsidy our government must borrow and our children must repay.

★ There are no special grants, subsidies or handouts to help people get started or expand in game farming. Some of the normal farm incentives such as reduced tax on purple fuel apply to game farms the same as they do to any other farm.

★ Game farming is attracting investors without special tax concessions or grants that are given to most new industries. In fact investors with risk capital are coming forward far faster than game farmers can find stock for their basic herds. They are often satisfied with taking a share of the profit rather than demanding return of their capital plus a fixed or floating interest rate as required by banks. They will also give a game farmer money to invest in animals without insisting on a mortgage on his land and home.

★ Game farming is fast proving to be one of the most efficient ways to convert the forage produced on our land into cash that comes from outside our country. When we combine native animals that have adapted to our climate for thousands of years, our vast areas of land that is best left seeded to grass, a population of stock people who have mastered the art of recognizing an animal's needs, and investors who are willing to put their dollars on the line to produce something that the world wants to buy, we have a winning combination.

ALBERTA GAME GROWERS ASSOCIATION
APPLICATION FOR MEMBERSHIP

I would like to be considered for membership in the Alberta Game Growers Association and understand that I will receive copies of all publications to members including "The Canadian Game Farmer & Bison Bits" magazine, notices of meetings, conventions, field days and special events. If I am approved as a "full member" I will also have voting rights at all meetings. (Full membership is available only to those who are actively farming game animals within Alberta or are engaged in active research in Alberta involving game ranching.)

I have read and agree to comply with the Code of Ethics of the Association.

NAME ..... PHONE .....

If membership is in name of company or partnership, state the name of the individual who will have voting rights and exercise other membership privileges.

ADDRESS .....

I am interested in the following species: (Check where applicable) ELK____ DEER____ BISON____ OTHER ____

I presently own and / or operate a game farm: Yes____ NO____ $100.00

I hereby apply for (check one) _____FULL MEMBERSHIP $ 50.00

_____ASSOCIATE MEMBERSHIP .....

ENCLOSE A CHEQUE FOR THE APPROPRIATE AMOUNT AND SEND TO
ALBERTA GAME GROWERS ASSOCIATION
BOX 3299, SPRUCE GROVE, ALBERTA T7X 3A6
PHONE: (403) 962-6212

USE THIS FORM TO APPLY FOR MEMBERSHIP AND RECEIVE BACK COPIES OF LAST 2 NEWSLETTERS AT NO CHARGE.

Memberships expire on Dec 31 each year

GETTING STARTED

The main requirements for starting a big game farm are: 60 acres of privately owned land capable of producing good pasture, a suitable fence, a handling area and squeeze (for blood testing and eartagging), a basic herd of breeding stock, some basic knowledge and experience in handling livestock, and a license (not needed for bison).

Before starting a big game farm it is a good idea to visit several existing farms and attend as many meetings and seminars as possible.

The Fish & Wildlife Division has a publication which outlines the procedure to get a license. It tells how to submit a development plan for approval. You must build your fences and handling facilities exactly as shown on the plan you get approved. Your facilities are then inspected and when you pay the $100 fee your permit is issued.

You should be able to construct the minimum 10 acre fence, install gates, one cross fence, handling facility and water supply for about $10,000. Exact price will depend on the design you use and how much of the labour and material you are able to supply yourself.

You should not start any construction without first having your development plan approved. If changes are needed they are easier to make on paper.

Breeding stock is available from many of those presently raising elk. It may be a good idea to look at the availability of stock early in your planning stages and to get the opinion of an experienced elk farmer before you make a large investment.

Alberta Game Grower Association meetings are a good place to meet other game farmers and learn more about the industry. A membership application form is attached. You will note that you do not have to own a game farm to be an associate member.

NOTE: If you are interested in learning more about the industry you should pick up a copy of "Big Game Farm Procedures Manual" from a Fish & Wildlife Office near you.

FUTURE CONSIDERATIONS

The Alberta Game Growers Association would like to see provision for the sale of meat from game farm animals provided that they are slaughtered in a government inspected facility and that the animals are positively identified (by their metal eartags) as coming from a game farm.

The present regulations that apply to the slaughter of other farm animals for sale provide for the identification of the animal by a government brand inspector, inspection of the live animal and later the carcass by a government appointed meat inspector or veterinarian. The packaged game farm meat could also be marked as "farm raised" with the animal number stamped on the package. The result would be a tightly controlled system that would be very difficult for the poacher to penetrate. It would require no more inspection costs then those presently needed for bison or beef.

The Association would also like to see game farming recognized by the Alberta Department of Agriculture as a part of our diversified capacity to produce a valuable product from our land. Game farmers do not want to depend on grants, handouts, or subsidies from government but could use advice on nutrition, genetics, preventative health care, and marketing. They look forward to seeing the many qualified people in our provincial Department of Agriculture becoming more available to game farmers as our industry grows.

CODE OF ETHICS
ALBERTA GAME GROWERS ASSOCIATION

This code shall serve as a guide to members of the association in conducting their affairs. The code is not intended to cover all possible undesirable activities and in no way shall restrict the right of the board of directors to expel any member "whose conduct is, in the opinion of the board, prejudicial to the interests of the association" as provided in the constitution.

1. Members are concerned about the welfare of natural populations of wildlife and support the public's right to enjoy them.
2. Members abide by all laws of any jurisdication within which they carry on their activities as game growers.
3. Members will provide adequate food, shelter, space, handling facilities and health care to ensure the well being of animals in their care.
4. Members will take precautions as necessary (often beyond the requirements of regulations) to prevent the spread of parasites or disease.
5. Members will not deliver any animal into the custody of a person who, in the opinion of the member, does not have the facilities or the ability to provide for the animal's needs.
6. Members offering animals for sale will give an honest description as to age, health records and genetic background to the best of their knowledge.
7. Any knowledge which is gained by members in raising their animals which might benefit the natural populations in the wild will be made available without charge to any government agencies or other organizations which will use the knowledge for the betterment of natural populations.
8. Any violation of this code by a member may be reported in full detail in writing to the Ethics Committee of the association. If it is the opinion of the committee that a violation may have taken place the committee will schedule a hearing to allow the member in alleged violation an opportunity to respond. If it is then the opinion of the Ethics Committee that the member did violate this code the committee will present to the board of directors all details and make a recommendation to:
   (a) send the violating member a letter of reprimand, or
   (b) suspend the violating member for a period of time, or
   (c) expel the violating member from the association.

The recommendation will be adopted only after a majority vote by the board of directors.

9. In the event that the member who is alleged to have violated the code is on the Ethics Committee or on the board of directors they shall abstain from all meetings, discussions and votes regarding their alleged violation.

10. In all cases of an alleged violation all details of the violation, hearing, recommendation of the committee and decision of the board or a letter of reprimand will be absolutely confidential. The only information released by the board will be that a specified (named) member has been "suspended" or "expelled".

The Code of Ethics has been approved by resolution of the board of directors December 2, 1988 and becomes effective and enforcible on January 1, 1989.

Will diseases be brought in with game animals imported into Alberta?

Canada has some of the highest import standards for livestock of any country in the world. To be eligible for importation from outside Canada, game animals must pass the same tests required for livestock. In addition, the authority to require additional testing, and, where necessary, to close the province's borders to imported game animals, will be maintained in the Wildlife Act and in the proposed new Livestock Industry Diversification Act.

Alberta has an obligation to prevent the introduction of diseases which do not exist here and which could pose a threat to our wildlife. Meningeal (brain) worm of elk, deer, moose and other species is an example of such a disease. Since Alberta is presently free of this parasitic disease, a moratorium has been imposed on the importation of elk and deer into Alberta. This moratorium will remain in place until a satisfactory method is developed to ensure that imported animals do not carry the parasite into our province.

Is commercial production of wild animals a new practice?

No. Commercial production of game species is not new. All animals now farmed were once wild. And, even after centuries of commercial production, the wild counterparts of farmed animals continue to exist as wildlife. Clearly, wild animals and their domestic counterparts do not threaten one another's existence.

Will the sale of elk meat increase the incidence of poaching?

Strictly controlled slaughter of elk will add provincial brand and meat inspectors, as well as public health inspectors, to the anti-poaching team that already exists in Alberta. The meat industry is one of the most highly regulated in Canada, and is fully capable of handling elk meat in a manner which will protect both the consumer and the wildlife of Alberta.

How will the sale of elk meat be restricted to that from game production animals?

Game production animals will be slaughtered under the system of controls and in the slaughter facilities which already exist in Alberta. All elk presented for slaughter will be inspected for proof of ownership under the Livestock Identification and Brand Inspection Act by provincial brand or meat inspection staff. The same inspectors will ensure that only those elk which can be identified as originating from a licensed game animal production farm will be permitted to be slaughtered. Only designated plants will be permitted to slaughter elk raised on game animal production farms. In addition, carcasses will be ribbon-branded in a manner which will allow identification of legal game meat with the plant of origin.

How will the sale of velvet antlers be restricted to those from game production animals?

All velvet antlers sold in Alberta now must bear a special tag issued only to licensed game animal producers, and the producer must report all sales. This system will be maintained by Alberta Agriculture along with regular farm inspections to verify the sales reports. In addition, velvet antlers must meet very rigorous quality standards in order to be acceptable to buyers. Antlers grow through this acceptable phase in a matter of a few days, so the window of opportunity for harvesting wild elk with acceptable antlers would be prohibitively short even if there were a legal market for unregistered velvet.

How will the transportation of game production animals be regulated?

Control of the transportation of game production animals will become the responsibility of Alberta Agriculture. All game production animals being transported anywhere in Alberta will continue to be required to be accompanied by a manifest. This is similar to the present requirement for cattle and horses. Game production animals destined for shipment out of the province will be required to be accompanied by an export permit under the Wildlife Act.

Will game animal production be allowed on Alberta Crown land?

No. Current restrictions contained in the Wildlife Act will be incorporated in the Livestock Industry Diversification Act, to prohibit the production of game animals on Crown land.

Will game animal production be the first step towards allowing paid hunting?

No. The Wildlife Act prohibits paid hunting of big game species on game farms and ranches. In addition, the Livestock Industry Diversification Act will prohibit hunting, paid or otherwise, on game animal production farms.

LIVESTOCK INDUSTRY DIVERSIFICATION IN ALBERTA

A Livestock Industry Diversification Act has been introduced to the Alberta Legislature. The proposed Act will be designed to permit the development of a more viable game animal production industry. When the proposed legislation is enacted, the sale of elk meat will be allowed in the province and responsibility for overseeing game animal production will be transferred from Alberta Forestry, Lands and Wildlife to Alberta Agriculture.

Game animal production is potentially very important for Alberta's agriculture industry. With increasing competition from abroad for our traditional agricultural products, our producers need opportunities to diversify. To help Albertans make the most of the exciting opportunity this new industry provides, the government is proposing legislation that will allow game animal production to grow and to develop further the market for its products, while continuing to protect our native wild animals.

Is game farming new to Alberta?

No. Game farming – the raising and sale of game animals for breeding stock – has been allowed in the province for more than 30 years. About 3,300 elk (plus small numbers of moose, white tail deer and mule deer) are now being raised on 120 licensed game animal farms in Alberta. The sale of products such as velvet antlers from animals produced on game farms has been allowed. The sale of meat from these animals has not been permitted.

What species of animals can be game farmed in Alberta?

Only those big game species which are native to Alberta and which Alberta Forestry, Lands and Wildlife permits may be game farmed. Elk is the species of major interest. The other animals permitted to be farmed are moose, white tail deer and mule deer. Under the proposed changes, Alberta Forestry, Lands and Wildlife will continue to determine which species can be game farmed.

What will change under the new legislation?

When the proposed legislation is enacted, game animal production in Alberta will be expanded to allow the sale of elk meat from animals raised on licensed game production farms in the province. In addition, Alberta Agriculture will assume the primary responsibility for supervising and regulating game animal production farms. The raising of game production animals will only be permitted on licensed farms that are regularly inspected for compliance with the Act and regulations.

Why is this change being made?

It will allow game animal production to become a viable agricultural enterprise. Our traditional agricultural products will continue to face increasingly stiff competition abroad. Our producers and processors need opportunities to diversify.

What is the status of game farming in other parts of Canada and in the United States?

With the exception of Newfoundland, all provinces have already enacted or are considering legislation to allow game farming. Saskatchewan permits the raising and sale of meat from both native and non-native species, including elk. British Columbia allows the farming and sale of meat from fallow deer, red deer, bison and reindeer. The Yukon and North West Territories allow the raising of bison, reindeer and elk, and permit meat sales for bison and reindeer. Ten of sixteen of the western states in the United States allow the farming of native big game species. Eight of these ten states allow the sale of meat.

Is it economically feasible to raise game animals domestically?

Yes. Elk production is desirable from the farmer's perspective because three saleable commodities are produced – meat, velvet antlers and breeding stock – each of which is in demand. Several strong markets have been developed for elk velvet antlers that recognize Canadian elk velvet as a premium product. Breeding stock continues in strong demand.

Will wildlife populations in Alberta be depleted to obtain breeding stock for game animal production?

No. Fish and Wildlife officials of Alberta Forestry, Lands and Wildlife will continue to tightly control and restrict the collection of live wild game animals under the Wildlife Act.

How will game animal production herds of elk be built?

The herds will generally be built over a period of years through the breeding of the animals currently on game animal production farms. Some animals may be added through importing animals from game farms outside Alberta. Such imports, if allowed, will be strictly controlled to prevent the introduction of diseases or genetic impurities, and protect the health and genetic integrity of our native wildlife.

What's to stop a producer from capturing a wild animal and adding it to his herd?

A system of controls is already in place to prevent this from happening. Producers are required to identify their animals through the use of a tamper-proof eartag in each ear of the animal. The producer is issued a set of pre-numbered tags, and each tag must be accounted for. An inventory control system is in place which ensures that records of all births, purchases, sales and deaths are kept and made available to inspection staff. This system will be continued under the jurisdiction of Alberta Agriculture.

Do game production animals pose a disease threat to the wild herds?

No. Game animals confined to game production farms are susceptible to the same diseases as wild, free-roaming wildlife. However, since game production animals are accessible and manageable, diseases are relatively easy to prevent or control through good husbandry along with vaccinations and treatment for any problems which may arise. It is clearly not in the best interest of the game animal producer to allow the productivity of his animals to suffer through the presence of diseases.

Wild animals in Alberta are not free of diseases and parasites. For example, many elk and deer are infected with liver flukes, some big horn sheep are infected with lung worms, and moose are generally subject to heavy infestation of ticks.

SB

231

SENATE COMMITTEE REPORT

E: 5/3/91 FURTHER: Finance

DATE TURNED INTO OFFICE: 5-13-91

Resources Committee considered SENATE BILL NO. 231

"An Act authorizing the commissioner of natural resources to convey land within the Chugach State Park to the Municipality of Anchorage."

+ a mg g + Cmte rends e CSRA as be adopted rdg.

and recommended:

[ ] replace with _____ CS _____ [ ] same title
[✓] or adopt _____ CS SB 231 (CSRA) [ ] new title
[ ] technical title change (HB only)

[ ] attached amendment(s)
[ ] _____ letter of intent adopted

[✓] do pass

[ ] do not pass

[ ] no recommendation P. 0 Fn 1

[ ] individual recommendations

[ ] further referral to _____

ATTACHES NEW FISCAL NOTE(S): Dept/Date:

[ ] fiscal note(s) _____

[ ] zero fiscal note(s) _____

[ ] appropriation-no fiscal note

APPROVES PREVIOUS: Dept/Date:

[ ] fiscal note(s) _____

[✓] zero fiscal note(s) DNR 4/25/91

[ ] Governor's bill w/fiscal note

SIGNING DO PASS:

Lee Cot Cot
Zha
Sra
Brad

OTHER RECOMMENDATIONS:

Floyd Jones (Do Pass)
Chair: Signature and Recommendation

Alaska State Legislature

Senator Curt Menard

While in Session:
P.O. Box V
Juneau, Alaska
99811
(907)465-2679

Interim:
165 E. Parks
Highway
Wasilla, Alaska
99687
(907)373-2878

Senate District E

SPONSOR STATEMENT

SB 231 will resolve the longstanding property title problem of a number of private landowners who inadvertently built homes outside of their property lines on state and Municipality of Anchorage land in the vicinity of Bird Creek.

The three way land exchange described in SB 231 will result in the homeowners receiving approximately .6 acres of state land and approximately 1.5 acres of municipal land on which their homes were mistakenly built. In return the Municipality of Anchorage will receive approximately 4.8 acres of valuable public fishing and recreational access along Bird Creek.

Additionally, an amendment was adopted in the Community and Regional Affairs Committee which will remedy a surveying error which occurred when the land was originally conveyed from the Federal Government. Tidelands, normally reserved to the state in the original conveyances, were not identified along Bird Creek, and consequently were not identified in the State's later conveyance of the Bird Creek Regional Park land to the MOA. The C&RA committee substitute provides for the conveyance of approximately 1.0 - 2.5 acres of tidelands to the state.

Thank you for your consideration of SB 231. I would appreciate your support.

WE SUPPORT
MADE IN
ALASKA

AMENDMENT

TO: SB 231

Page 2, line 7

DELETE "retain"

INSERT "convey to the State"

Page 2, line 7 - 8

DELETE "permanently in public ownership and to manage the tidelands as public trust land"

INSERT "on the parcel that they will receive"

PROPOSED BIRD CREEK LAND EXCHANGE
SB 321

The Municipality of Anchorage (MOA), the Alaska Department of Natural Resources (DNR) and a group of homeowners who own land along Bird Creek are proposing a land exchange. Bird Creek is located in Bird Creek Valley which is along Turnagain Arm southwest of Anchorage. The lands involved in the proposed land exchange are owned by the homeowners, the Municipality of Anchorage and the State.

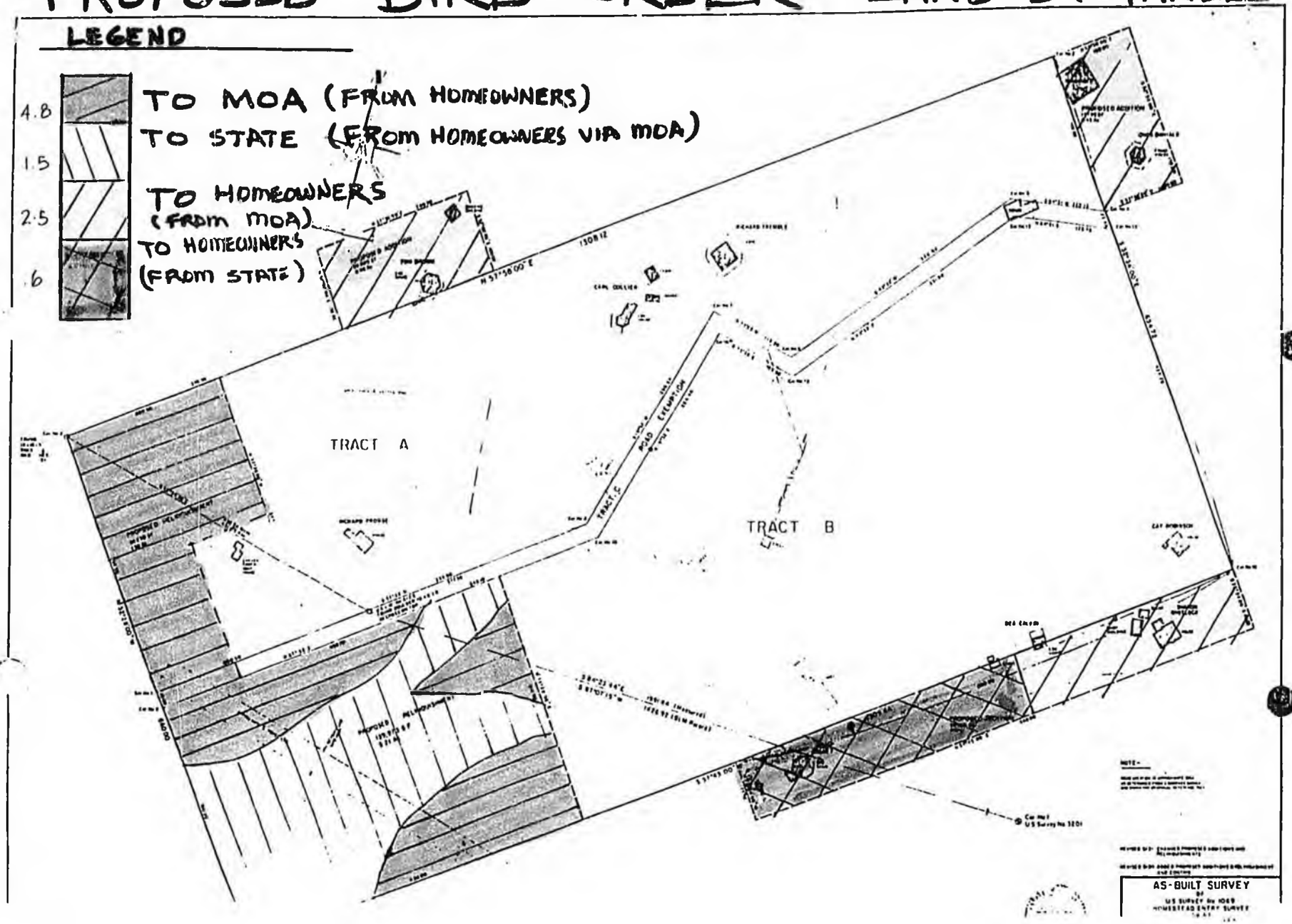
The land exchange, as shown on the attached map, would give the public an additional 4.8 acres of land along Bird Creek. This land is heavily used by persons sport fishing for salmon in mid to late summer. This land also possess important fish and wildlife habitat values as a portion of it is a saltwater influenced wetland. This land along Bird Creek is proposed to be conveyed to the MOA and could be added to the Bird Creek Regional Park. Tidelands within this parcel, to be conveyed to the MOA will be reconveyed by the MOA to the state. The nearby municipal Bird Creek Regional Park is managed through a cooperative agreement with DNR as part of Chugach State Park. In exchange for this land, the homeowners will receive three pieces of public land totalling 2.05 acres which adjoin the parcel they presently own. The homeowners are interested in these tracts because they mistakenly placed some of their homes just off of the property that they own and on public land owned by the state and municipality.

Until recently, the homeowners thought that they only had to trade land with the MOA. In 1987, voters in the Municipality of Anchorage approved the land exchange in a municipal election. However, a closer review of the land ownership in the area revealed that a portion of one of the three tracts to be conveyed to the homeowners, by the MOA, included an Alaska Department of Transportation and Public Facilities's (DOTPF) material site that is within Chugach State Park. This portion of land is estimated to be 0.6 acres in size. The actual size of the tracts will not be confirmed until the land is surveyed. The material site was established before the land became part of Chugach State Park. DOTFP has agreed to give up their interest in the tract to be conveyed to the homeowners if it is surveyed before it is conveyed. However, because the land is part of Chugach State Park the Alaska State Legislature must authorize the removal of this land from the park.

SB 321, if enacted into law, will authorize the Commissioner of DNR to remove the land from the park and convey it to the MOA if: 1) it is determined that it will not interfere with DOTPF's use of the material site, and 2) MOA will only use the land for the purposes of the proposed land exchange. The land conveyed to the MOA, estimated to be 0.6 acres, will in addition to the lands it has received from the State under its municipal land entitlement. The acreage of the tidelands that the MOA will reconvey to the State is not know, but is estimated at 1.0 to 2.5 acres.

by DNR/Parks 4/24/91

PROPOSED BIRD CREEK LAND EXCHANGE



7-LS1111\A
Luckhaupt
3/26/91

SENATE BILL NO. 231

IN THE LEGISLATURE OF THE STATE OF ALASKA

SEVENTEENTH LEGISLATURE - FIRST SESSION

BY SENATOR MENARD

Introduced:
Referred:

A BILL

FOR AN ACT ENTITLED

"An Act authorizing the commissioner of natural resources to convey land within the Chugach State Park to the Municipality of Anchorage."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

*** Section 1.** PURPOSE. The purpose of this Act is to authorize the commissioner of natural resources to convey certain state-owned land located within the Chugach State Park to the Municipality of Anchorage to enable the municipality to enter into the land exchange with the owners of U.S. Survey 1069 that was authorized by Anchorage Ordinance 87-94. The legislature finds that the conveyance of land authorized by this Act and the exchange authorized by Anchorage Ordinance 87-94 will improve public access to Bird Creek, resolve pending litigation between the owners of U.S. Survey 1069, the state, and the municipality, and ensure that tidelands in the vicinity of Bird Creek will be managed in perpetuity as public trust land.

*** Sec. 2.** Notwithstanding AS 41.21.121, the commissioner of natural resources may convey to the Municipality of Anchorage not more than two acres from within ILMT 37208, Section 9, Township 10 North, Range 1 West, Seward Meridian, if the commissioner determines, after consultation with the

commissioner of transportation and public facilities, that the conveyance will not unreasonably interfere with the operation of the Department of Transportation and Public Facilities and that the Municipality of Anchorage has agreed in writing to accept title to the land under this Act for the sole purpose of implementing the land exchange authorized by Anchorage Ordinance 87-94.

* **Sec. 3.** The commissioner of natural resources may convey to the Municipality of Anchorage the state interest in tidelands within the land authorized to be conveyed under sec. 2 of this Act only if the Municipality of Anchorage agrees to retain the tidelands permanently in public ownership and to manage the tidelands as public trust land.

* **Sec. 4.** If the commissioner conveys land to the Municipality of Anchorage under sec. 2 of this Act, the commissioner shall, within 30 days of the conveyance, certify to the revisor of statutes the revision of AS 41.21.121 that is necessary to reflect the conveyance made under this Act. The revisor of statutes shall incorporate the revision into the next revisor's bill prepared under AS 01.05.036.

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

OFFICE OF THE COMMISSIONER

WALTER J. HICKEL, GOVERNOR

400 WILLOUGHBY AVENUE
JUNEAU, ALASKA 99801-1796
PHONE: (907) 465-2400
FACSIMILE: (907) 586-2754

April 24, 1991

The Honorable Steve Frank, Chair
Senate Community and Regional Affairs Committee
P.O. Box V
Juneau, AK 99811

Dear Senator Frank:

Subject: SB 231, which authorizes the conveyance of up to two acres of state land within Chugach State Park to the Municipality of Anchorage.

Position: The Department of Natural Resources supports this bill because it will correct the problems of private land holders who inadvertently built homes outside of their property lines, on state and municipal land, and will allow the Municipality of Anchorage to acquire valuable public fishing and recreational access along Bird Creek. We do, however, recommend an amendment relating to the ownership of tidelands that are part of the exchange.

Background: The Municipality of Anchorage, the Department of Natural Resources and a group of Bird Creek area homeowners would like to complete a three way land exchange that has been discussed for many years. As a result of the exchange, the homeowners would receive approximately .6 acres of state land and approximately 1.5 acres of municipal land on which their homes were mistakenly built. In return, the public would receive approximately 4.8 acres of sport fishing land along Bird Creek. The exact amount of acreage to be exchanged will not be know until a survey is completed.

This bill authorizes the Department of Natural Resources to convey up to two acres of public land to the Municipality of Anchorage. The area to be conveyed contains a gravel pit managed by the Department of Transportation and Public Facilities and will only be transferred if it does not interfere with DOT/PF use of the site. After receiving the land from the state, the municipality will convey it to the Bird Creek homeowners. In return, the homeowners will convey about 4.8 acres of land along Bird Creek to the municipality to include in the nearby municipal park. The park is managed under a cooperative agreement with the state as part of Chugach State Park. Municipality of Anchorage voters approved the exchange in a 1987 municipal election.

Recommendation: Amend page 2, line 7 to read:

Municipality of Anchorage agrees to convey to the State

(retain) the tidelands on the parcel it will receive (permanently in public ownership and to manage the tidelands as public trust land).

Please let me know if you need additional information about this matter.

Sincerely,

Harold C Heinze

Harold C. Heinze
Commissioner

cc: Members of the Committee
Senator Menard
Bruce Kendall, Legislative Liaison, Office of the Governor
Frank Turpin, Commissioner, Department of Transportation and Public Facilities

FISCAL NOTE

STATE OF ALASKA
1991 LEGISLATIVE SESSION

BILL NO. SB 231

Revision Date:

Department Affected: Natural Resources

Title: Conveyance of Land
Chugach State Park

BRU: Land & Water Management

Components: Land & Water Management

Sponsor: Senator Menard

Requestor: Senate Community & Regional Affairs

COMPONENT SERIAL NO. 431

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 92	FY 93	FY 94	FY 95	FY 96	FY 97
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND&STRUCTURES						
GRANTS,CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0
CAPITAL						
REVENUE						

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

Estimate of Current year impact: None

ANALYSIS: (Attach a separate page if necessary)

Prepared by: Gary Gustafson Phone: 762-2692

Division: Land & Water Management Date: 25-Apr-91

Approved by Commissioner: Harold Heinze Date: 25-Apr-91

Agency: Department of Natural Resources

Distribution (by preparer) : Legislative Finance, legislative Sponsor, Requestor, OMB, & Impacted Agency(ies).

REV 10/90

SB

241

SENATE COMMITTEE REPORT
FIRST COMMITTEE OF REFERRAL

DATE: 4/5/91 FURTHER:

Date of 5-Day Notice: _____
(in accordance with Uniform Rule 23)

DATE TURNED
INTO OFFICE: _____

Resources Committee considered SB 241

Authorizing the Alaska Commercial Fisheries Entry Commission to establish a moratorium on new entrants into certain commercial fisheries and relating to qualifications for entry permits.

and recommended:

[ ] replace with _____ CS _____ [ ] same title
[ ] new title

[ ] attached amendment(s)

[ ] _____ letter of intent adopted

[ ] do pass

[ ] do not pass

[ ] no recommendation

[ ] individual recommendations

[ ] further referral to _____

ATTACHES NEW FISCAL NOTE(S):

Department(s)/Date:

[ ] fiscal note(s) _____
_____
_____
_____

Department(s)/Date:

[ ] zero fiscal note(s)_____
_____
_____
_____

[ ] appropriation-no fiscal note

[ ] Governor's bill w/fiscal note

SIGNING DO PASS:

_____
_____
_____
_____
_____
_____

OTHER RECOMMENDATIONS:

_____
_____
_____
_____
_____
_____

_____
Chair: Signature and Recommendation

DEPARTMENT OF FISH AND GAME
POSITION PAPER

Bill No. Senate Bill 241

Sponsor Senator Jones

Division Commercial Fisheries

Bill Title: "An Act authorizing the Alaska Commercial Fisheries Entry Commission to establish a moratorium on new entrants into certain commercial fisheries and relating to qualifications for entry permits."

Department Position: Support

SB 241 will establish a mechanism whereby the Commercial Fisheries Entry Commission (CFEC) may place a moratorium on new entrants to a fishery for a period of up to four years. The ability of CFEC to place a moratorium on new entrants to a fishery will be of benefit to the Division of Commercial Fisheries management programs. It will be of particular benefit when applied to new developing fisheries for which the division has little or no biological resource data, effort is growing rapidly, and funds for management of the fishery are lacking or inadequate.

The institution of a moratorium would stop the growth of effort in a fishery at a level that would most likely allow a continuance of the fishery at some harvest level which would provide an economic return to the industry and the state. The moratorium would provide an opportunity for the department to work with the public in development of a management plan for the fishery. That plan would then be presented to the Board of Fisheries for their consideration. The moratorium would also provide a time period during which the department and the industry could seek the funds needed for the management of the fishery.

Commissioner's Signature Don Collinsworth **Date** 4/13/91

FISCAL NOTE

STATE OF ALASKA
1991 LEGISLATIVE SESSION

BILL NO SB 241

Revision Date: 4/5/91
Department Affected: Fish and Game
Title: Moratorium on Commercial Fisheries Entry
BRU: Commercial Fisheries
Component: Commercial Fisheries
Sponsor: Senator Jones
Requestor: Governor
COMPONENT SERIAL NO. 4 5 9

Expenditures/Revenues: (Thousands of Dollars)

OPERATING	FY 92	FY 93	FY 94	FY 95	FY 96	FY 97
PERSONAL SERVICES	0					
TRAVEL	0					
CONTRACTUAL	0					
SUPPLIES	0					
EQUIPMENT	0					
LAND & STRUCTURES	0					
GRANTS, CLAIMS	0					
MISCELLANEOUS	0					
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL	0	0	0	0	0	0
REVENUE	0	0	0	0	0	0

FUNDING: (Thousands of Dollars)

GENERAL FUND	0					
FEDERAL FUNDS	0					
OTHER	0					
TOTAL	0	0	0	0	0	0

POSITIONS:

FULL-TIME	0					
PART-TIME	0					
TEMPORARY	0					

Estimate of current year impact: None

ANALYSIS: (Attach a separate page if necessary.)

Prepared By: Bob Clasby
Phone: 465-4210
Division: Division of Commercial Fisheries
Date: 4/15/91

Approved by Commissioner: Ron Somerville
Agency: ADF&G
Date: 4/13/91

Distribution (by preparer): Legislative Finance, Legislative Sponsor, Requestor, OMB, & Impacted Agency(ies).

Rev 10/90

SENATE BILL 241

"An act authorizing the Commercial Fisheries Entry Commission to establish a moratorium on new entrants into certain commercial fisheries and relating to qualifications for entry permits."

Senator Lloyd Jones, Chair of the Senate Resources Committee, has introduced legislation that would authorize the Commercial Fisheries Entry Commission (CFEC) to establish a moratorium in certain commercial fisheries. Senate Bill 241 has been cosponsored by Senator Dick Eliason, Senate President. A similar bill, House Bill 137, was also introduced in the House of Representatives by Representative Ben Grussendorf. Since the proposal was introduced, a number of questions have been asked. The following information is provided to address those questions.

QUESTIONS AND ANSWERS

WHAT IS A MORATORIUM AND WHAT WOULD IT DO?

A "moratorium" is a simple way to temporarily stop new people from entering a fishery. A moratorium does not directly affect anyone who is already actively participating in the fishery.

Under the terms of SB 241, during the time that a moratorium is in effect, the CFEC would be required to work with the Department of Fish and Game, the Board of Fisheries, and representatives of the industry to examine conditions within the fishery to devise an appropriate management plan (which could or could not include the establishment of a maximum number under the current limited entry authority).

No moratorium would remain in place for longer than four years; likewise, no fishery would be placed under a moratorium more than once.

WHY IS A MORATORIUM AUTHORITY NEEDED?

In new, emerging fisheries, experiencing a rapid growth in participation, there may not be enough information available on the biology of the resource to make informed decisions on how much effort the fishery can sustain and how to manage the fishery under the sustained yield principle. Rather than risking a closure of the fishery while the necessary data are gathered, a moratorium would allow the fishery to continue by establishing a temporary cap on the number of persons fishing in order to control growth and to provide an orderly fishery.

In existing fisheries, where the conservation of the resource and the economic viability of the fishery is threatened by increased effort, but where the current limited entry program may not be an appropriate management alternative, a moratorium would give managers, biologists and the industry time to develop an alternative management solution.

No person or agency within Alaska currently has the authority to implement a moratorium in commercial fisheries that occur in state waters.

HOW WOULD A MORATORIUM BE INITIATED; WHAT CRITERIA WOULD APPLY?

Work on establishing a moratorium would be initiated after receiving a petition from the ADF&G Commissioner. The public could also petition the ADF&G commissioner. The Commission would consider the request and decide whether or not to propose a regulation to establish a moratorium. If such a regulation were proposed, public hearings would be held

in the affected area prior to adoption of (or rejection of) the regulation(see attachment: **Steps in the Moratorium Process)**

Under SB 241, a moratorium could be proposed by CFEC if it is demonstrated that a threat to a fishery's conservation or economic stability may exist because of a rapid increase in participation; and if it is deemed there is insufficient information to conclude that limited entry would solve the problem. In those circumstances, the CFEC may adopt a moratorium.

WHAT WOULD HAPPEN DURING A MORATORIUM?

People **currently participating** in the fishery would continue to fish under existing regulations. CFEC, members of the industry, and fishery managers and biologists would work together to devise a management plan that would allow for as much participation in the fishery as would be consistent with sound management principles.

At any time during the moratorium period, the CFEC could repeal the moratorium regulations and return the fishery to its previous "open to entry" status.

As noted, the CFEC can repeal a moratorium regulation at any time; however, a period of four years allows time for the Board of Fish to meet (if new regulations are required), and it also allows time for multiple sessions of the Legislature(if new legislation is necessary to manage the fishery). Finally, placing a limit of four years on the length of time that a moratorium can be in effect insures that a "closed class" of participants is not created and sustained.

WHAT WOULD HAPPEN AT THE END OF THE MORATORIUM?

Assuming that the CFEC had not repealed the moratorium regulation before the moratorium expired, one of three things would happen at the end of the moratorium:

1. A new management plan could be adopted by the Board of Fish or the Legislature (or both);

2. Limited entry could be implemented by CFEC by adopting a maximum number under its existing authority; or,

3. The moratorium could expire and the fishery would again be open to new entrants.

WHO DECIDES WHO MAY FISH DURING A MORATORIUM?

Under SB 241, CFEC may establish the qualifications based upon past participation in the fishery, including specific years of participation and/or the minimum harvest during the qualifying years.

At a minimum, anyone who actively participated in the fishery in any of the four years prior to the moratorium would be qualified. In new fisheries that have not been open for four years, all participants would be qualified to participate during a moratorium.

WILL THE MORATORIUM BE USED FOR EXISTING FISHERIES OR JUST EMERGING FISHERIES?

The moratorium could be used in either emerging or existing fisheries.

HOW IS A MORATORIUM DIFFERENT FROM LIMITED ENTRY?

Under the Limited Entry Act, the purpose of both the moratorium and limited entry is to "promote the conservation and the sustained yield management of Alaska's fishery resource

and the economic health and stability of commercial fishing in Alaska." The main difference is that the moratorium is a **temporary** measure, while limited entry is permanent. Also, the moratorium includes everyone currently fishing, while limited entry would probably exclude some currently active participants from the fishery.

WON'T PEOPLE RUSH OUT AND BUY PERMITS IN RESPONSE TO TALK OF A MORATORIUM?

There is frequently an increase in the number of persons buying interim-use permits when there is discussion of limited entry in a fishery. But, just buying an interim-use permit would not qualify someone for an interim-use permit during the time that a moratorium is in effect, or qualify someone to apply for a permanent limited entry permit. To become eligible, a person must demonstrate active participation in the fishery by fishing his/her permit and recording landings on fish tickets.

DOES A MORATORIUM CREATE A "CLOSED CLASS"?

No. Since the moratorium expires after 4 years, and cannot be renewed, there is no danger of establishing a permanent closed class. Also, interim-use permits, issued during a moratorium, may be transferred through CFEC upon a showing of hardship. (Additionally, we note that the mid-Atlantic surf clam fishery was under a moratorium continuously for over a decade and was not subjected to a legal challenge).

CAN A FISHERY BE OPENED ONLY TO ALASKAN RESIDENTS AT THE END OF A MORATORIUM?

No. Although maintaining Alaskan fisheries exclusively for Alaskan residents may be an attractive idea, it is unconstitutional to discriminate against non-residents.

WON'T THIS BILL JUST MAKE IT EASIER TO IMPLEMENT LIMITED ENTRY?

Not necessarily; in fact, it may make it more difficult. The procedure for limiting entry in a fishery will not change if the moratorium authority is passed by the legislature. The CFEC will still have to propose a maximum number, hold hearings, and make findings on the record before implementing limited entry; however, during the time that the moratorium is in effect, those who are opposed to limited entry will be able to make their case for an alternative management plan. The moratorium authority will be an addition to existing CFEC regulatory authority. The moratorium will provide a less burdensome alternative to implementing limited entry.

ISN'T A MORATORIUM JUST ANOTHER WAY TO CUT PEOPLE OUT OF THE FISHERY?

No. It is a way to keep **new** participants out of a fishery until enough is known about the fishery to allow additional participation. Under a moratorium, everyone who had fished at some time during any of the 4 years prior to the moratorium would be allowed to continue fishing. Under the current limited entry program, some current participants would probably be excluded.

(The original of this document was prepared by the CFEC for HB 137; changes have been made by the Senate Resources Committee to comply with SB 241.)

Alaska State Legislature

Chair, Resources Committee
Vice-chair, Transportation Committee
Member, Rules Committee
Member, Committee on Committees

District A
Ketchikan, Wrangell, Petersburg,
Hyder, Myers Chuck, Kupreanof

Senator Lloyd Jones

352 Front Street
Ketchikan, AK 99901
907 225-9082
Fax: 907 225-8546

P.O. Box V
Juneau, AK 99811
907 465-3743
Fax: 907 465-3922

EXPLANATION OF PROPOSED CS SENATE BILL 241

The proposed committee substitute for Senate Bill 241 makes certain changes to the original bill. These changes are the result of staff from different offices working with the drafter and with the Limited Entry Commission and are especially in response to concerns voiced by some commercial fishermen.

Sec. 5 of the bill(the section which establishes the moratorium)

Page 4. line 18 petitions the commission under AS 44.62.220. The statutory reference was added to better define the formal petition process which is required.

Page 4, lines 28-30. A fishery that has been subject to a moratorium under this section may not be subjected to a subsequent moratorium under this section unless five years have elapsed since the previous moratorium expired. (deletes the language which limits a fishery permanently to only one moratorium). This language was added to allow for more flexibility if a fishery were threatened and met all the criteria at some point in the future, but it does not allow for more than one continuous four year moratorium period.

Page 5, lines 3-6. deletes [as necessary] to mandate that, during a moratorium, research will be conducted and consultation will be carried out with ADF&G, the Board of Fisheries and the fishery participants.

Sec. 12 - new section added

Page 7, line 14. Adds an immediate effective date. The original SB 241 did not provide for an effective date.

7-LS1014\G
Utermohle
4/11/91

CS FOR SENATE BILL NO. 241 (RESOURCES)

IN THE LEGISLATURE OF THE STATE OF ALASKA

SEVENTEENTH LEGISLATURE - FIRST SESSION

BY THE SENATE RESOURCES COMMITTEE

Offered:
Referred:

Sponsor(s): SENATORS JONES, Eliason

A BILL

FOR AN ACT ENTITLED

"An Act authorizing the Alaska Commercial Fisheries Entry Commission to establish a moratorium on new entrants into certain commercial fisheries and relating to qualifications for entry permits; and providing for an effective date."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. FINDINGS AND PURPOSE. (a) The legislature finds that

(1) the continuation of a commercial fishery may be threatened by the lack of adequate biological and resource management information necessary to determine the amount of fishing effort that a fishery resource can sustain;

(2) the continuation of a commercial fishery may be threatened by an increase in fishing effort that is coupled with a lack of sufficient biological and resource management information necessary to ascertain, consistent with the principles of sustained yield, whether the fishery can support additional fishing effort;

(3) the provisions of the current commercial fisheries limited entry statutes, developed for commercial salmon fisheries, may not be appropriate for certain other commercial fisheries in the

state;

(4) the time consuming process required to consider, adopt, and implement a limited entry program for a fishery, coupled with public discussion of a proposal for limiting entry into the fishery, can stimulate a rush of new entrants into the fishery before the limited entry program can be implemented.

(b) It is the purpose of this Act to

(1) authorize the Alaska Commercial Fisheries Entry Commission to temporarily prevent additional participants from entering a threatened commercial fishery in order to

(A) allow the fishery to continue in an orderly and controlled manner until additional data can be gathered from the commercial harvest and from biological research;

(B) protect the fishery and participating fishermen dependent upon the fishery by lessening the risk of closure of the fishery for lack of an effective management plan; and

(C) allow control of the development of the fishery; and

(2) avoid a potential risk to a threatened commercial fishery, as well as a rush to limit entry into the fishery, while allowing sufficient time for research and careful consideration and discussion of all management alternatives for regulating the fishery and entry into the fishery among interested parties, including the public, fishery managers, the Board of Fisheries, the Alaska Commercial Fisheries Entry Commission, and the legislature.

* Sec. 2. AS 16.43.100(a) is amended to read:

(a) To accomplish the purposes set out in AS 16.43.010, the commission shall [:]

(1) regulate entry into the commercial fisheries for all fishery resources in the state;

(2) establish priorities for the application of the provisions of this chapter to the various commercial fisheries of the state;

(3) establish administrative areas suitable for regulating and controlling entry into the commercial fisheries;

(4) establish, for all types of gear, the maximum number of entry permits for each administrative area;

(5) designate, when necessary to accomplish the purposes of this chapter, particular species for which separate interim-use permits or entry permits will be issued;

(6) establish qualifications for the issuance of entry permits;

(7) issue entry permits to qualified applicants;

(8) issue interim-use permits as provided in AS 16.43.210 and 16.43.220;

(9) establish, for all types of gear, the optimum number of entry permits for each administrative area;

(10) administer the buy-back program provided for in AS 16.43.310 and 16.43.320 to reduce the number of outstanding entry permits to the optimum number of entry permits;

(11) provide for the transfer and reissuance of entry permits to qualified transferees;

(12) provide for the transfer and reissuance of entry permits for alternative types of legal gear, in a manner consistent with the purposes of this chapter;

(13) administer the collection of the annual fees provided for in AS 16.43.160;

(14) administer the issuance of commercial fishing vessel licenses under AS 16.05.490;

(15) issue educational entry permits to applicants who qualify under the provisions of AS 16.43.340 - 16.43.390;

(16) establish reasonable user fees for services;

(17) issue landing permits **under** [IN ACCORDANCE WITH] AS 16.05.675 and regulations adopted under that section; [AND]

(18) establish and collect annual fees for the issuance of landing permits that reasonably reflect the costs incurred in the administration and enforcement of provisions of law related to landing permits**; and**

(19) establish a moratorium on entry into commercial fisheries as provided in AS 16.43.225.

* Sec. 3. AS 16.43.180(a) is amended to read:

(a) The commission shall adopt regulations providing for the temporary emergency transfer of entry permits and interim-use permits when illness, disability, death, required military or government service, or other unavoidable hardship prevents the permit holder from participating in the fishery. To alleviate hardship pending a final determination of the permit holder's eligibility for an entry permit, the commission shall adopt regulations providing for the temporary emergency transfer of an interim-use permit issued under AS 16.43.210(b) **or 16.43.225**.

* **Sec. 4.** AS 16.43.210(a) is amended to read:

(a) Pending the establishment of the maximum number of entry permits under AS 16.43.240 and the issuance of entry permits under AS 16.43.270, the commission shall issue interim-use permits under regulations adopted by the commission for each fishery, **not subject to a moratorium under AS 16.43.225,** to all applicants who can establish their present ability to participate actively in the fishery for which they are making application.

* **Sec. 5.** AS 16.43 is amended by adding a new section to read:

Sec. 16.43.225. MORATORIUM ON NEW ENTRANTS INTO CERTAIN FISHERIES. (a) Subject to (b) of this section, the commission may establish a moratorium on new entrants into a fishery that

(1) is experiencing increases in participation and fishing effort that significantly exceed historic levels of participation and fishing effort known for the fishery; or

(2) has developed within the four calendar years preceding the calendar year in which the commissioner of fish and game petitions the commission to adopt a regulation establishing a moratorium on new entrants into the fishery.

(b) The commission may establish a moratorium on new entrants into a fishery described in (a) of this section if

(1) the commissioner of fish and game petitions the commission under AS 44.62.220 to establish a moratorium on new entrants into the fishery; and

(2) the commission finds that

(A) the fishery has reached a level of participation that may threaten the conservation and the sustained yield management of the fishery resource and the economic health and stability of commercial fishing; and

(B) the commission has insufficient information to conclude that the establishment of a maximum number of entry permits under AS 16.43.240 would further the purposes of this chapter.

(c) The commission may establish a moratorium under this section for a continuous period of up to four years. A fishery that has been subject to a moratorium under this section may not be subjected to a subsequent moratorium under this section unless five years have elapsed since the previous moratorium expired.

(d) While a moratorium is in effect, the commission shall conduct investigations to

determine whether a maximum number of entry permits should be established under AS 16.43.240 by

(1) conducting research into conditions in the fishery;

(2) consulting with the Department of Fish and Game and the Board of Fisheries; and

(3) consulting with participants in the fishery.

(e) The commission must establish by regulation the qualifications for applicants for an interim use permit for a fishery subject to a moratorium under this section. The qualifications must include the minimum requirements for past or present participation and harvest in the fishery. The commission may not issue an interim use permit for a fishery subject to a moratorium under this section unless the applicant can satisfy the qualifications established under this subsection and establish the present ability and intent to participate actively in the fishery.

* **Sec. 6.** AS 16.43.240(b) is amended to read:

(b) When the commission finds that a fishery, not designated as a distressed fishery under AS 16.43.230 **or not subject to a moratorium under AS 16.43.225.** has reached levels of participation **that** [WHICH] require the limitation of entry in order to achieve the purposes of this chapter, the commission shall establish the maximum number of entry permits for that fishery.

* **Sec. 7.** AS 16.43.240 is amended by adding a new subsection to read:

(c) When the commission finds that a fishery subject to a moratorium under AS 16.43.225 has reached levels of participation that require the limitation of entry in order to achieve the purposes of this chapter, the commission shall establish the maximum number of entry permits for that fishery.

* **Sec. 8.** AS 16.43.260(a) is amended to read:

(a) The commission shall accept applications for entry permits only from applicants who have harvested fishery resources commercially while participating in the fishery as holders of gear licenses issued under AS 16.05.536 - 16.05.670 **or** [AND] interim-use permits under AS 16.43.210(a) **or 16.43.225** before the qualification date established in (d), [OR] (e), **or (f)** of this section. The commission may specify by regulation the calendar years of participation that will be considered for eligibility purposes.

* **Sec. 9.** AS 16.43.260(d) is amended to read:

(d) Except as provided in (e) or (f) of this section, an applicant shall be assigned to a priority classification based solely upon the applicant's qualifications as of January 1, 1973.

* **Sec. 10.** AS 16.43.260(e) is amended to read:

(e) Except as provided in (f) of this section, when [WHEN] the commission establishes the maximum number of entry permits for a particular fishery under AS 16.43.240 after January 1, 1975, an applicant shall be assigned to a priority classification based solely upon the applicant's qualifications as of January 1 of the year during which the commission establishes the maximum number of entry permits for the fishery for which application is made.

* **Sec. 11.** AS 16.43.260 is amended by adding a new subsection to read:

(f) When the commission establishes the maximum number of entry permits under AS 16.43.240 for a fishery that is subject to a moratorium under AS 16.43.225, an applicant for an entry permit for the fishery shall be assigned to a priority classification based solely upon the applicant's qualifications as of the effective date of the regulation establishing the moratorium.

* **Sec. 12.** This Act takes effect immediately under AS 01.10.070(c).

FISCAL NOTE

STATE OF ALASKA
1992 LEGISLATIVE SESSION

BILL NO. SB 241

Revision Date: 4/5/91
Department Affected: Fish and Game
Title: Moratorium on Commercial Fisheries Entry
BRU: Commercial Fisheries
Component: Commercial Fisheries
Sponsor: Senator Jones
Requestor: Senate Resources Committee
COMPONENT SERIAL NO. 4 5 9

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 93	FY 94	FY 95	FY 96	FY 97	FY 98
PERSONAL SERVICES	0					
TRAVEL	0					
CONTRACTUAL	0					
SUPPLIES	0					
EQUIPMENT	0					
LAND & STRUCTURES	0					
GRANTS, CLAIMS	0					
MISCELLANEOUS	0					
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL	0	0	0	0	0	0
REVENUE FUND SOURCE:	0	0	0	0	0	0

FUNDING: (Thousands of Dollars)

GENERAL FUND	0					
FEDERAL FUNDS	0					
OTHER FUND SOURCE:	0					
TOTAL	0	0	0	0	0	0

POSITIONS:

FULL-TIME	0					
PART-TIME	0					
TEMPORARY	0					

Estimate of current year impact: None

ANALYSIS: (Attach a separate page if necessary.)

Prepared By: Bob Clasby
Phone: 465-4210
Division: Division of Commercial Fisheries
Date: 12/18/91

Approved by Commissioner: Ron Somerville for
Agency: Department of Fish and Game
Date: 12/20/91

Distribution (by preparer): Leg. Fin., Legislative Sponsor, Requestor, OMB/DBR, Gov. Legis. Ofc., & Impacted Agency(ies).

Rev 10/7/91

Alaska State Legislature

Chair, Resources Committee
Vice-chair, Transportation Committee
Member, Rules Committee
Member, Committee on Committees

District A
Ketchikan, Wrangell, Petersburg,
Hyder, Myers Chuck, Kupreanof

352 Front Street
Ketchikan, AK 99901
907 225-9082
Fax: 907 225-8546

P.O. Box V
Juneau, AK 99811
907 465-3743
Fax: 907 465-3922

Senator Lloyd Jones

Sponsor Statement
Senate Bill 241
Senate Resources Committee
April 15, 1991

Senate Bill 241 would provide the Commercial Fisheries Entry Commission (CFEC) with a tool that could be utilized on a temporary basis to manage a certain fisheries.

At this point, the CFEC has only one tool at their disposal to regulate participation in a commercial fishery --the implementation of a permanent limited entry program.

However, there are situations where there may not be sufficient information or data available on a particular resource to make informed decisions on how much effort a fishery can sustain. This is particularly true of fisheries which are experiencing a rapid growth in participation.

Rather than resorting to a closure of the fishery while data is being collected, a temporary moratorium on NEW participants would allow the fishery to continue while the necessary information is being collected.

In such instances, where the conservation and economic stability of the fishery is threatened by increased effort but where a full blown limited entry program may be inappropriate, a temporary moratorium, as proposed by Senate Bill 241, would buy time to look at data and alternative ways to manage the fishery.

Some of the provisions of Senate Bill 241 are as follows:

1. The CFEC would be authorized to initiate a moratorium under certain conditions. The commission would have to receive a petition from the ADF&G commissioner formally explaining the reasons for the need for a moratorium in a particular fishery.

1. The CFEC would be authorized to initiate a moratorium under certain conditions. The commission would have to receive a petition from the ADF&G commissioner formally explaining the reasons for the need for a moratorium in a particular fishery.

2. The moratorium would be placed on "new" participants in a fishery The fishery must meet certain criteria to qualify for a moratorium and participants must satisfy certain requirements in order to qualify for an interim-use permit under the moratorium.

3. Regulations would have to be promulgated for the establishment of a moratorium and there would thus be public hearings.

4. A moratorium may only be in effect for a maximum of four years and cannot be renewed.

5. During the moratorium period, the CFEC, the Department of Fish and Game and the Board of Fish and the fishery participants will be working together and research will be conducted into the fishery to obtain the needed data.

6. At the end of the moratorium period, the moratorium automatically expires and the fishery is again open to new entrants unless a determination has been made to limit the fishery.

In short, Senate Bill 241 is not an attempt to "limit" a fishery; rather it is an attempt to buy time for a fishery that is threatened to learn about the resource and see what management tools are needed.

The bill is supported by the Department of Fish and Game and of course, by the Limited Entry Commission. Further support comes from certain commercial fishing groups, such as the southeast dungeness crab fishermen and the participants in the developing dive fisheries, such as sea cucumbers and sea urchins.

1. The CFEC would be authorized to initiate a moratorium under certain conditions. The commission would have to receive a petition from the ADF&G commissioner formally explaining the reasons for the need for a moratorium in a particular fishery.

2. The moratorium would be placed on "new" participants in a fishery The fishery must meet certain criteria to qualify for a moratorium and participants must satisfy certain requirements in order to qualify for an interim-use permit under the moratorium.

3. Regulations would have to be promulgated for the establishment of a moratorium and there would thus be public hearings.

4. A moratorium may only be in effect for a maximum of four years and cannot be renewed.

5. During the moratorium period, the CFEC, the Department of Fish and Game and the Board of Fish and the fishery participants will be working together and research will be conducted into the fishery to obtain the needed data.

6. At the end of the moratorium period, the moratorium automatically expires and the fishery is again open to new entrants unless a determination has been made to limit the fishery.

In short, Senate Bill 241 is not an attempt to "limit" a fishery; rather it is an attempt to buy time for a fishery that is threatened to learn about the resource and see what management tools are needed.

The bill is supported by the Department of Fish and Game and of course, by the Limited Entry Commission. Further support comes from certain commercial fishing groups, such as the southeast dungeness crab fishermen and the participants in the deueloping dive fisheries, such as sea cucumbers and sea urchins.

There is a series of "questions and answers" in the committee packets and representatives of the Limited Entry Commission are here to go through the bill by section, if you wish and to answer any questions. I should note that we are also on teleconference.

STEVE COWPER, GOVERNOR

COMMERCIAL FISHERIES ENTRY COMMISSION

P.O. BOX KB
JUNEAU, ALASKA 99811-0302
PHONE: (907) 465-4081

October 29, 1990

Glen A. Wilber
Vice-President
Alaska Underwater Harvesters Association
3311 Halibut Point Rd.
Sitka, Ak. 99835

Dear Mr. Wilber:

Thank you for your letter of Sept. 25, 1990, and the petition from concerned citizens and members of the Alaska Underwater Harvesters Association. Your petition asks us to "to issue an immediate "moratorium" on the issuance of any new permits for the harvest of sea cucumbers in Alaska and that a study be conducted into the possibility of future "limited entry".

We must deny your request for the moratorium as we lack the statutory authority to implement a simple moratorium. Under the existing limited entry statutes, the only way we can restrict the number of participants in a fishery is by committing to a full-scale, salmon-type limited entry program.

As the State's limited entry program can be relatively expensive to implement (due to the initial allocation process), we must necessarily be conservative in using the program. We usually do not undertake a limitation unless we are convinced that the program is appropriate, will serve the purposes of the statute, and will produce substantial benefits. At this point, we do not feel that we can draw such conclusions in this fishery.

As you may be aware, we recently directed our research staff to conduct a study into the possibility of using the existing limited entry program in the Southeastern Alaska diving fisheries. There are many issues to consider. We would like to see the results of our staff's study and hear the thoughts of the Board of Fisheries on appropriate management measures before we contemplate any full-scale limitation proposals.

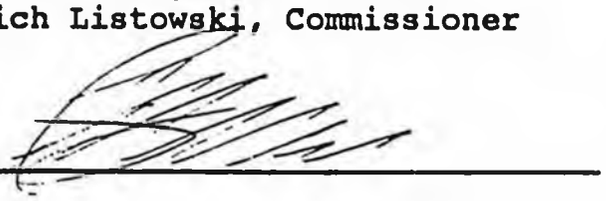
In the meantime, we are hopeful that the interim management measures in the sea cucumber fishery will be adequate and will discourage those who might seek to enter the fishery on a speculative basis. Hopefully, the new plan will "buy time" so that other potential management measures can be considered more carefully.

Even though we lack the power to act, we are sympathetic toward your request for a moratorium on new entrants and we might consider using such authority if we had it. Representative Ben Grussendorf has indicated that he wants to explore the need for new legislation to provide the Commission with the authority to implement a simple moratorium in such situations. We plan to work with Representative Grussendorf to help in every way that we can.

Again, thank you for your letter and petition. We share your concerns about the fishery. Your continued help as we investigate these issues will be greatly appreciated. If you have further questions or thoughts on these matters, please do not hesitate to contact us.

By Direction of the

COMMERCIAL FISHERIES ENTRY COMMISSION
Bruce Twomley, Chairman
Phil Smith, Commissioner
Rich Listowski, Commissioner

By: 

cc: All Petitioners
The Honorable Ben Grussendorf
State House of Representatives
Doug Rickey, Aide to Rep. Grussendorf
Eric Jordan, Chair - Sitka Advisory Committee

RECEIVED
SEP 27 1990
COMMERCIAL FISHERIES
ENTRY COMMISSION

September 25, 1990

Entry Commission
Alaska Commercial Fisheries
8800-109 Glacier Highway
Juneau, Alaska 99801

Dear Sirs:

Please accept the enclosed petition from concerned citizens and members of the Alaska Underwater Harvesters Associated based in Sitka, Alaska. In this petition we ask that the commission issue an immediate "moratorium" on the issurance of any new permits for the harvest of sea cucumbers in Alaska and that a study be conducted into the possibility of future "limited entry".

If you have any questions, please feel free to contact me by correspondence (3311 Halibut Point Rd., Sitka, AK 99835) or phone (907-747-3177). Thank you for your assistance.

Sincerely,

Glenn A. Wilber
Vice President
Alaska Underwater Harvesters Association

Enclosure: Petition With 75 Signatures

Response Deadline 10/29/90

WE THE UNDERSIGNED PETITION THE STATE OF ALASKA LIMITED ENTRY COMMISSION AS CONCERNED CITIZENS AND MEMBERS OF THE ALASKA UNDERWATER HARVESTERS ASSOCIATION. IN THIS PETITION WE ASK THAT THE COMMISSION ISSUE AN IMMEDIATE "MORATORIUM" ON THE ISSUANCE OF ANY NEW PERMITS FOR THE HARVEST OF SEA CUCUMBERS IN ALASKA AND THAT A STUDY BE CONDUCTED INTO THE POSSIBILITY OF FUTURE "LIMITED ENTRY".

PRINTED NAME	SIGNATURE	ADDRESS	DATE
Larry J. Smith	Larry J. Smith	1321 Sawmill Cr.	5/10/90
Shelia K. Smith	Shelia K. Smith	1321 Smc Rd.	5/10/9
Sharon Gillispie	Sharon Gillispie	2620 HPR	5/10/9
Margaret Nettles	MARGARET NETTLES	Box 1995 SITKA	5/11/9
John McNutty	John McNutty	Box 269 SITKA	5/11/

SEP 27 1990

WE THE UNDERSIGNED PETITION THE STATE OF ALASKA LIMITED ENTRY COMMISSION AS CONCERNED CITIZENS AND MEMBERS OF THE ALASKA UNDERWATER HARVESTERS ASSOCIATION. IN THIS PETITION WE ASK THAT THE COMMISSION ISSUE AN IMMEDIATE "MORATORIUM" ON THE ISSUANCE OF ANY NEW PERMITS FOR THE HARVEST OF SEA CUCUMBERS IN ALASKA AND THAT A STUDY BE CONDUCTED INTO THE POSSIBILITY OF FUTURE "LIMITED ENTRY".

PRINTED NAME	SIGNATURE	ADDRESS	DATE
James A. Weis	James A. Weis	Box 6042 Sitka AK.	5-10-
Kayla Perala	Kayla Perala	405 Dearmond Sitka	5-
Michael S Wolf	Michael S Wolf	Box 6266 Sitka	5-
David McMillan	David McMillan	Sitka	5
Jennifer Carlson	Jennifer Carlson	414 Dearmond St. Sitka	
WAYNE CARLSON	Wayne Carlson	414 DEARMOND ST SITKA	5-4
Susan C. Weis	Susan C. Weis	416 Andrews AK. 998	
Duane Loebick	Duane Loebick	410 Andrews AK, 998	
Gary Wolf	GARY WOLF	P.O. Box 6266 SITKA	
Florence L. Smith	Florence L. Smith	101 Sharon Dr. Sitka	

SEP 27 1990

...RIES

WE THE UNDERSIGNED PETITION THE STATE OF ALASKA LIMITED ENTRY COMMISSION AS CONCERNED CITIZENS AND MEMBERS OF THE ALASKA UNDERWATER HARVESTERS ASSOCIATION. IN THIS PETITION WE ASK THAT THE COMMISSION ISSUE AN IMMEDIATE "MORATORIUM" ON THE ISSUANCE OF ANY NEW PERMITS FOR THE HARVEST OF SEA CUCUMBERS IN ALASKA AND THAT A STUDY BE CONDUCTED INTO THE POSSIBILITY OF FUTURE "LIMITED ENTRY".

PRINTED NAME	SIGNATURE	ADDRESS	DATE
Jack Wedel	Jack Wedel	Box 920	5/8/9
RANDY SPIEGGS	Randy Spiegs	110 EAGLE WAKE	5/8-9
Greta L Eliason	Greta L Eliason	207 Cedar Hts	5-8-9
MITCH COWAN	Mitch Cowan	Box 6349	5-8
WILFRED RIVERA	Wilfred Rivera	808 Lake St	5-8-90
Boguslaw Fryze	Fryze	806 Lake St	5-8-9
Glenn A Wilbur	Glenn A Wilbur	3311 HPR	
Joan N. Rucker	Joan N Rucker	3311-HPR	5-8-9
Craig Meurs	Greg Meurs	P.O. Box 604	5-8-9
CLYDE COURSEY	Clyde Coursey	230 KOGWANTAN	9 MAY 9
KRIS HOFFMANN	Kris Hoffmann	10½ MAKSOUTOFF	5-9-9
D. FORD	D. Ford	Box 2351 SITKA AK.	5/9/90
PAUL L DRAKE	Paul L Drake	1812 Sawmill Creek	5-8-90
G K Keener	G K Keener	470 Katlian Sitka	5/9/9
L.T. Smotherman	L.T. Smotherman	Box 6220 Sitka AK	5-9-9
Paul B Moreno	PAUL B MORENO	Box 2953 Sitka AK	5-9
J.C. Loch	J C LOCH	617 KATLIAN M	5-9
DEBORAH M. REEDER	Deborah M. Reeder	107 SHELIKOF DR	
BRIAN G. BERGMAN	Brian G. Bergman	212 LAKEVIEW DR SITKA,	
GARY ATKINSON	Gary Atkinson	P.O. BOX 1953 Sitka	5-9-90

SEP 27 1990

WE THE UNDERSIGNED PETITION THE STATE OF ALASKA LIMITED ENTRY COMMISSION AS CONCERNED CITIZENS AND MEMBERS OF THE ALASKA UNDERWATER HARVESTERS ASSOCIATION. IN THIS PETITION WE ASK THAT THE COMMISSION ISSUE AN IMMEDIATE "MORATORIUM" ON THE ISSUANCE OF ANY NEW PERMITS FOR THE HARVEST OF SEA CUCUMBERS IN ALASKA AND THAT A STUDY BE CONDUCTED INTO THE POSSIBILITY OF FUTURE "LIMITED ENTRY".

PRINTED NAME	SIGNATURE	ADDRESS	DATE
Larry Pearson	Larry Pearson	Box 1143	5-8-90
Jim Cushing	Jim Cushing	404 Lake St.	5/9/90
Terry Lindvall	Terry Lindvall	313 Lake	5/9/90
DIANNE LINDVALL	Dianne Lindvall	313 Lake	5/9/90
Thomas A Sommers	Thomas A Sommers	P.O. Box 21	5-14-90
Jim Goddard	Jim Goddard	Box 1362	5/9/90
Jim Stewart	Jim Stewart	717 Katlian	5/9/90
Les Richardson	Les Richardson	214 Brady	5/9/90
STEPHEN C. SHAFFER	Stephen C Shaffer	315 Seward St.	5-9-90
Carl R Sargster	Carl R Sargster	101 Kuhule dr	5-10-90
Ron Heathman	Ron Heath	1511-3 SMC	5/10/90
Ross R Brigham	Ross R Brigham	3106 HPR	5/10/90
William Frantz	William Frantz	3109 HPR	5/10/9
Jerry Sutton	Jerry Sutton	4014 HPR.	5/11/90
Frank Loucks	Frank Loucks	Box 3154 SITKA	5/11/90
Brian Omann	[illegible]	Box 2981 SITKA	5/11/90
George Kubik	George Kubik	1752 HPR Lite	5/11/
Jan Kubik	Jan Kubik	713 Katlian SITKA	
Pat Miller	PAT MILLER	Box 1284 Sitka	
Byron Paul	Byron J Paul	102 Lance Dr Apt #1	5/11/90

RECEIVED

SEP 27 1990

...ES

SEP 2? 1990

WE THE UNDERSIGNED PETITION THE STATE OF ALASKA LIMITED ENTRY COMMISSION AS CONCERNED CITIZENS AND MEMBERS OEC THE ALASKA UNDERWATER HARVESTERS ASSOCIATION. IN THIS PETITION WE ASK THAT THE COMMISSION ISSUE AN IMMEDIATE "MORATORIUM" ON THE ISSUANCE OF ANY NEW PERMITS FOR THE HARVEST OF SEA CUCUMBERS IN ALASKA AND THAT A STUDY BE CONDUCTED INTO THE POSSIBILITY OF FUTURE "LIMITED ENTRY".

PRINTED NAME	SIGNATURE	ADDRESS	DATE
Eric Quintin	Eric Quintin	3914 HPR	5-11-90
C-J Mulkey	C-J Mulkey	P.O Box 1649	5-11-90
Ben Taylor	Ben Taylor	Box 965	5-10-90
Milton Hunt	Milton Hunt	Box 2355	5-11-9
Sandra Hunt	Sandra G. Hunt	Box 2355	5-11-90
Bradley F. Scougale	Bradley F Scougale	Box 6276	5-11-90
David M Owens	David Owens	417 Katlian St B-12	5-11-9
Mike Angus	Mike Angus	Box 3204 Sitka	5-11-9
Lauren Rogers	Lauren Rogers	Box 6102	Sitka 5-11-90
Toni DePue	Toni E. DePue	Box 6102	Sitka 5-11-9
Kirk Van Winkle	Kirk Van Winkle	P.O. 842	Sitka 5-11-9
Steve Brandt	Steve Brandt	Schedule #23	Sitka 5-11-90
Jerome Brown	Jerome Brown	Box 1947	Sitka 5-11-90
Stuart Denslow	Stuart Denslow	Box 6191	Sitka 5-11-9
Carrell Campbell	Carrell Campbell	2604 Sawmill Creek	Sitka 5-11-90
Kelly L. White	Kelly L. White	P.O. Box 2402	Sitka 5/11/90
Beverly S. Brill	Beverly S. Brill	Box 1439	Sitka 5/11/90
Jerry D Bauman	Jerry D Bauman	310 Marine	Sitka 5/11/9
Earl G. Shaffer	Earl G. Shaffer	Box 1421	Sitka 5/11/9
ED CAITY	Ed Caity	Box 423	Westeviah Five Sitka

March 24, 1991

From: Spencer Severson
F/V Snorkel
PO 6412
Sitka, Ak. 99835
(907) 747-0509

To: Lloyd Jones
PO Box V
Juneau, Ak. 99811

Re: Red Sea Urchins in S.E. Alaska
A Fledgling fishery with Potential

Dear Representative Jones,

I have been a harvest diver in S.E. Alaska for the past 10 years. We have had several sea urchin fisheries in that period. mostly in Ketchikan and Prince of Wales Island area.

We now are commencing a small fishery in Sitka, with a local processor in joint venture with the largest sea urchin buyer in California. It appears very viable.

The bad news is that F&G is unable to grant us an adequate quota to proceed because of lack of funding and directive to manage a new emerging fishery.

Please see the below outline which I am sending to each of our S.E. legislators explaining our objectives.

Any help would be greatly appreciated.

Sincerely,

Spencer Severson

SOUTHEAST DUNGENESS CRAB ASSOCIATION
P.O. BOX 935
PETERSBURG, ALASKA 99833

MARCH, 1991

Senator Lloyd Jones
P.O. Box V
Juneau, Alaska 99811

Honorable Senator:

I urge you to support legislation introduced into the House and Senate granting the commercial fisheries entry commission authority to impose a temporary moratorium upon developing and potentially endangered fisheries.

This is a very responsible bill which will allow the resource and its effort to be studied while preventing further damage. We are very fearful of the adverse impact an infusion of large, non-resident boats will have on this fishery. Our livelihood is at stake.

Please consider this legislation carefully and the positive impacts it will have on Alaska's fisheries for Alaskans.

Sincerely,

LADD NORHEIM
SEDCA TREASURER

WPF:veb

cc: Tom Findley
Larry Cotter

SOUTHEAST DUNGENESS CRAB ASSOCIATION
P.O. BOX 935
PETERSBURG, ALASKA 99833

MARCH, 1991

Senator Lloyd Jones
P.O. Box V
Juneau, Alaska 99811

Honorable Senator:

I urge you to support legislation introduced into the House and Senate granting the commercial fisheries entry commission authority to impose a temporary moratorium upon developing and potentially endangered fisheries.

This is a very responsible bill which will allow the resource and its effort to be studied while preventing further damage. We are very fearful of the adverse impact an infusion of large, non-resident boats will have on this fishery. Our livelihood is at stake.

Please consider this legislation carefully and the positive impacts it will have on Alaska's fisheries for Alaskans.

Sincerely,

ROCKY C. LITTLETON
SEDCA MEMBER

WPF:veb

cc: Tom Findley
Larry Cotter

SOUTHEAST DUNGENESS CRAB ASSOCIATION
P.O. BOX 935
PETERSBURG, ALASKA 99833

MARCH, 1991

Senator Lloyd Jones
P.O. Box V
Juneau, Alaska 99811

Honorable Senator:

I urge you to support legislation introduced into the House and Senate granting the commercial fisheries entry commission authority to impose a temporary moratorium upon developing and potentially endangered fisheries.

This is a very responsible bill which will allow the resource and its effort to be studied while preventing further damage. We are very fearful of the adverse impact an infusion of large, non-resident boats will have on this fishery. Our livelihood is at stake.

Please consider this legislation carefully and the positive impacts it will have on Alaska's fisheries for Alaskans.

Sincerely,

Dennis D. O'Neil

DENNIS O'NEIL
SEDCA MEMBER

WPF:veb

cc: Tom Findley
Larry Cotter

Alaska State Legislature

Sen. Lloyd Jones, *Chair*
Sen. Sam Cotten, *Vice-Chair*
Sen. Dick Ellason, *Member*
Sen. Steve Frank, *Member*
Sen. Rick Halford, *Member*
Sen. Curt Menard, *Member*
Sen. Fred Zharoff, *Member*

P.O. Box V
Juneau, AK 99811

907 465-4907
Fax: 907 465-3922

Senate Resources Committee

SECTIONAL ANALYSIS

SENATE BILL 241

Section 1 Findings and Purpose

Findings:

The Legislature finds that 1) a commercial fishery may be threatened because of a lack of data which would provide information on how much fishing effort the fishery can sustain; 2) a commercial fishery may be threatened because of an increase in fishing effort, coupled with the lack of sufficient biological information; 3) a limited entry program might not be appropriate and it also extremely time consuming and expensive to implement in situations where it might not be necessary:

Purpose:

Senate Bill 241 would allow the Commercial Fisheries Entry Commission to establish a temporary moratorium on **new** participants in a threatened fishery so that the fishery can continue in an orderly manner while research is conducted into the fishery.

Section 2. Amends the general powers of the CFEC to allow for the establishment of a moratorium, as provided in Senate Bill 241.

Section 3. Amends the statutes enabling the CFEC to issue emergency transfers to provide for such transfers of interim use permits issued for a moratorium as provided in Senate Bill 241.

Section 4. Excludes a fishery which is subject to a moratorium under SB 241 from the interim-use permit qualifications established for the limited entry program. The provision for interim use permits under a moratorium is established in Section 5 and this eliminates duplicative language.

Section 5. This is the main section of the legislation which sets out the provisions under which a moratorium may be established.

For a fishery to qualify for a moratorium it must meet one of two criteria:

1) the fishery must show increases in fishing effort that significantly exceed historic levels of participation; or

2) the fishery has developed within four years previous to the year in which the ADF&G commissioner petitions the CFEC to adopt a moratorium.

Before the CFEC can establish a moratorium on a fishery, it must receive a formal petition from the Commissioner of Fish and Game and must find that the level of participation has

increased to a degree that threatens the fishery and that there is insufficient information to conclude that limited entry is warranted.

The moratorium on a fishery may only last for four continuous years and may not be renewed.

During the moratorium, the CFEC is required to conduct investigations and research and consult with the Department, the Board of Fish and the fishermen.

This section directs the Commission to establish regulations which include past or present participation and harvest in a particular fishery.

Section 6.

Clean-up language to separate out a fishery which is subject to a moratorium from a fishery that is not designated as a distressed fishery.

Section 7 Authorizes the commission to establish the maximum number of entry permits for a fishery under a moratorium if it is deemed that limited entry will be necessary.

Section 8-11. Application for initial issue of entry permits. Amends the statutes relating to applications for limited entry permits to include holders of interim-use permits under a moratorium.

DEPT, (TX) : COMM FISH DIV

Table 1. Statistical Area A (Southeast Alaska) Dungeness crab catch, number of participating vessels, number of landings, and average catch per landing, 1961 to present.

Year/ Season	Catch in Pounds	Number of Vessels	Pounds per Vessel	Number of Landings	Pounds per Landing
1961	1,449,405	-			
1961	671,455	-			
1962	2,985,939	-			
1963	3,296,362	-			
1964	3,996,100	-			
1965	2,392,395	-			
1966	1,968,117	-			
1967	2,033,156	-			
1968	1,900,690	-			
1969/70	1,149,111	20	57,456	392	2,931
1970/71	776,617	21	36,982	380	2,044
1971/72	451,281	23	19,621	315	1,433
1972/73	597,587	30	19,920	315	1,897
1973/74	748,519	41	18,257	483	1,550
1974/75	713,668	43	16,597	453	1,575
1975/76	611,621	36	16,989	346	1,768
1976/77	515,378	25	20,615	174	2,962
1977/78	127,345	12	10,612	87	1,464
1978/79	750,284	25	30,011	207	3,625
1979/80	801,753	37	21,669	313	2,562
1980/81	512,247	26	19,702	226	2,267
1981/82	2,935,110	76	38,620	748	3,924
1982/83	3,648,035	128	28,500	1,306	2,793
1983/84	2,152,738	133	16,186	1,533	1,404
1984/85	1,833,421	180	10,186	1,565	1,172
1985/86	2,314,322	215	10,764	2,071	1,117
1986/87	2,458,224	224	10,974	2,330	1,055
1987/88	3,390,845	241	14,070	2,810	1,207
1988/89	3,320,675	266	12,484	2,678	1,240
1989/90	1,922,408	249	7,721	2,116	909
1990/91[1]	2,491,572	222	11,223	2,116	1,177

[1] Most recent year's data should be considered preliminary.

DEPARTMENT OF FISH AND GAME
POSITION PAPER

Bill No. Senate Bill 241

Sponsor Senator Jones

Division Commercial Fisheries

Bill Title: "An Act authorizing the Alaska Commercial Fisheries Entry Commission to establish a moratorium on new entrants into certain commercial fisheries and relating to qualifications for entry permits."

Department Position: Support

SB 241 will establish a mechanism whereby the Commercial Fisheries Entry Commission (CFEC) may place a moratorium on new entrants to a fishery for a period of up to four years. The ability of CFEC to place a moratorium on new entrants to a fishery will be of benefit to the Division of Commercial Fisheries management programs. It will be of particular benefit when applied to new developing fisheries for which the division has little or no biological resource data, effort is growing rapidly, and funds for management of the fishery are lacking or inadequate.

The institution of a moratorium would stop the growth of effort in a fishery at a level that would most likely allow a continuance of the fishery at some harvest level which would provide an economic return to the industry and the state. The moratorium would provide an opportunity for the department to work with the public in development of a management plan for the fishery. That plan would then be presented to the Board of Fisheries for their consideration. The moratorium would also provide a time period during which the department and the industry could seek the funds needed for the management of the fishery.

Commissioner's Signature Don Somerville **Date** 4/13/91

FISCAL NOTE

STATE OF ALASKA
1991 LEGISLATIVE SESSION

BILL NO. SB 241

Revision Date: 4/5/91
Department Affected: Fish and Game
Title: Moratorium on Commercial Fisheries Entry
BRU: Commercial Fisheries
Component: Commercial Fisheries
Sponsor: Senator Jones
Requestor: Governor
COMPONENT SERIAL NO. | | 4 | 5 | 9 |

Expenditures/Revenues: (Thousands of Dollars)

OPERATING	FY 92	FY 93	FY 94	FY 95	FY 96	FY 97
PERSONAL SERVICES	0					
TRAVEL	0					
CONTRACTUAL	0					
SUPPLIES	0					
EQUIPMENT	0					
LAND & STRUCTURES	0					
GRANTS, CLAIMS	0					
MISCELLANEOUS	0					
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL	0	0	0	0	0	0
REVENUE	0	0	0	0	0	0

FUNDING: (Thousands of Dollars)

GENERAL FUND	0					
FEDERAL FUNDS	0					
OTHER	0					
TOTAL	0	0	0	0	0	0

POSITIONS:

FULL-TIME	0					
PART-TIME	0					
TEMPORARY	0					

Estimate of current year impact: None

ANALYSIS: (Attach a separate page if necessary.)

Prepared By: Bob Clasby
Phone: 465-4210
Division: Division of Commercial Fisheries
Date: 4/15/91

Approved by Commissioner: Ron Somerville
Agency: ADF&G
Date: 4/13/91

Distribution (by preparer): Legislative Finance, Legislative Sponsor, Requestor, OMB, & Impacted Agency(ies).

Rev 10/90

MAR 1 4 1991

STATE OF ALASKA

WALTER J. HICKEL, GOVERNOR

8800-109 GLACIER HIGHWAY
JUNEAU, ALASKA 99801
(907) 789-6150 Licensing Calls
(907) 789-6160 Other CFEC Calls
(907) 789-6170 FAX

COMMERCIAL FISHERIES ENTRY COMMISSION

March 8, 1991

Paula Terrell
Capitol Room 9
Mail Stop 1100
Juneau, Alaska 99811

Dear Ms. Terrell:

Please find enclosed a table containing the number and percent of resident and non-resident participants in the Southeastern Alaska Dungeness crab fishery for the years 1986 through 1990. Do not hesitate to call if you have questions on this information or if I can be of further assistance.

Sincerely,

Susan M. Shirley

Susan M. Shirley
Research Analyst

Enclosure

RESIDENT VS. NON-RESIDENT PARTICIPATION
IN THE SOUTHEAST ALASKA DUNGENESS CRAB FISHERY
1986 TO 1990

YEAR	RESIDENTS	NON-RESIDENTS	Total
1986	181 87%	27 13%	208
1987	216 92%	19 8%	235
1988	249 92%	23 8%	272
1989	230 90%	26 10%	256
1990	227 84%	42 16%	269

State of Alaska
Commercial Fisheries Entry Commission
8800-109 Glacier Hwy
Juneau, AK 99801
(907) 789-6160 / Fax 789-6170

5/17/91

HONORABLE LLOYD JONES:

WE HAVE BECOME AWARE OF A PETITION PRESENTED TO YOU OPPOSING YOUR S.B. 241. WE BELIEVE THIS PETITION IS INDICATIVE OF THE DILEMMA FACING THE S.E. DUNGENESS CRAB RESOURCE. THESE PETITION SIGNERS/ FISHERMAN ARE POTENTIAL NEW ENTRANTS INTO AN ALREADY OVER-CROWDED FISHERY WHICH THREATEN THIS IMPORTANT RESOURCE.

S.B. 241/HB 137 IS A REASONED AND RESPONSIBLE SOLUTION TO OUR CURRENT RESOURCE PROBLEMS. AND WE URGE YOU TO STAND FIRM ON THIS IMPORTANT LEGISLATION.

THANK YOU,

WILLIAM FLOR, PRESIDENT
S.E. DUNGENESS CRAB ASSOCIATI

SOUTHEASTERN ALASKA DUNGENESS CRAB FISHERIES
1974-75 TO 1989-90 SEASONS

CFEC Briefing Report 90-5

prepared by

Susan M. Shirley

June 5, 1990

Commercial Fisheries Entry Commission
8800-109 Glacier Highway
Juneau, Alaska 99801-8079
(907) 789-6160

SOUTHEASTERN ALASKA DUNGENESS CRAB FISHERIES
1974-75 TO 1989-90 SEASONS

CFEC Briefing Report 90-5

prepared by

Susan M. Shirley

June 5, 1990

Commercial Fisheries Entry Commission
8800-109 Glacier Highway
Juneau, Alaska 99801-8079
(907) 789-6160

Southeastern Alaska Dungeness Crab Fisheries
1974-75 to 1989-90 Seasons

TABLE OF CONTENTS

TABLE OF CONTENTS continued

PREFACE

The purpose of this report is to examine participation, catch and earnings data from the southeastern Alaska Dungeness crab fishery and to provide background information for the Commercial Fisheries Entry Commission to use in its consideration of limited entry in this fishery.

The information contained in this report on the southeastern Alaska Dungeness crab fishery is from the 1974-75 season to the 1988-89 season. Data from the Yakutat fishery are not included. The 1974-75 season contains data only from 1975. The 1989-90 season consists only of data from 1989, which should be considered preliminary.

Data are from the D09B (pots, vessels $\leq$ 50 feet in length), D91B (pots, vessels > 50 feet in length) and D99B (ring nets) Dungeness crab fisheries. Data are not included for Dungeness crabs caught by divers.

Some of the tables have been edited to preserve the confidentiality of the data. Catch and earnings data are not disclosed when the number of persons (or vessels) is less than four, and additional data may be masked to preclude extraction of confidential data.

I. INTRODUCTION

Statistical Area A

The southeastern Alaskan Dungeness crab (Cancer magister) fishery occurs in Region I of the ADF&G (Alaska Department of Fish and Game) Division of Commercial Fisheries. Region I consists of Statistical Area A (Southeast Alaska) and Statistical Area D (Yakutat). This report concerns only data from Statistical Area A.

Statistical Area A includes all waters of the Alexander Archipelago and the outer coastline from the southern limit at the International Boundary at Dixon Entrance northwest to a line projected southwest from the western-most tip of Cape Fairweather (Figure 1).

In recent seasons, the intensity of effort in the Dungeness crab fishery in southeastern Alaska has increased, but effort has been concentrated in fewer areas. Four districts (Districts 6, 8, 14 and 16) produced 70% of the total catch in 1989-90. Within those four districts, 40% of the catch came from Duncan Canal, the Stikine River mouth, Glacier Bay and Cape Fairweather (1990 ADF&G Shellfish Report to the Board of Fisheries).

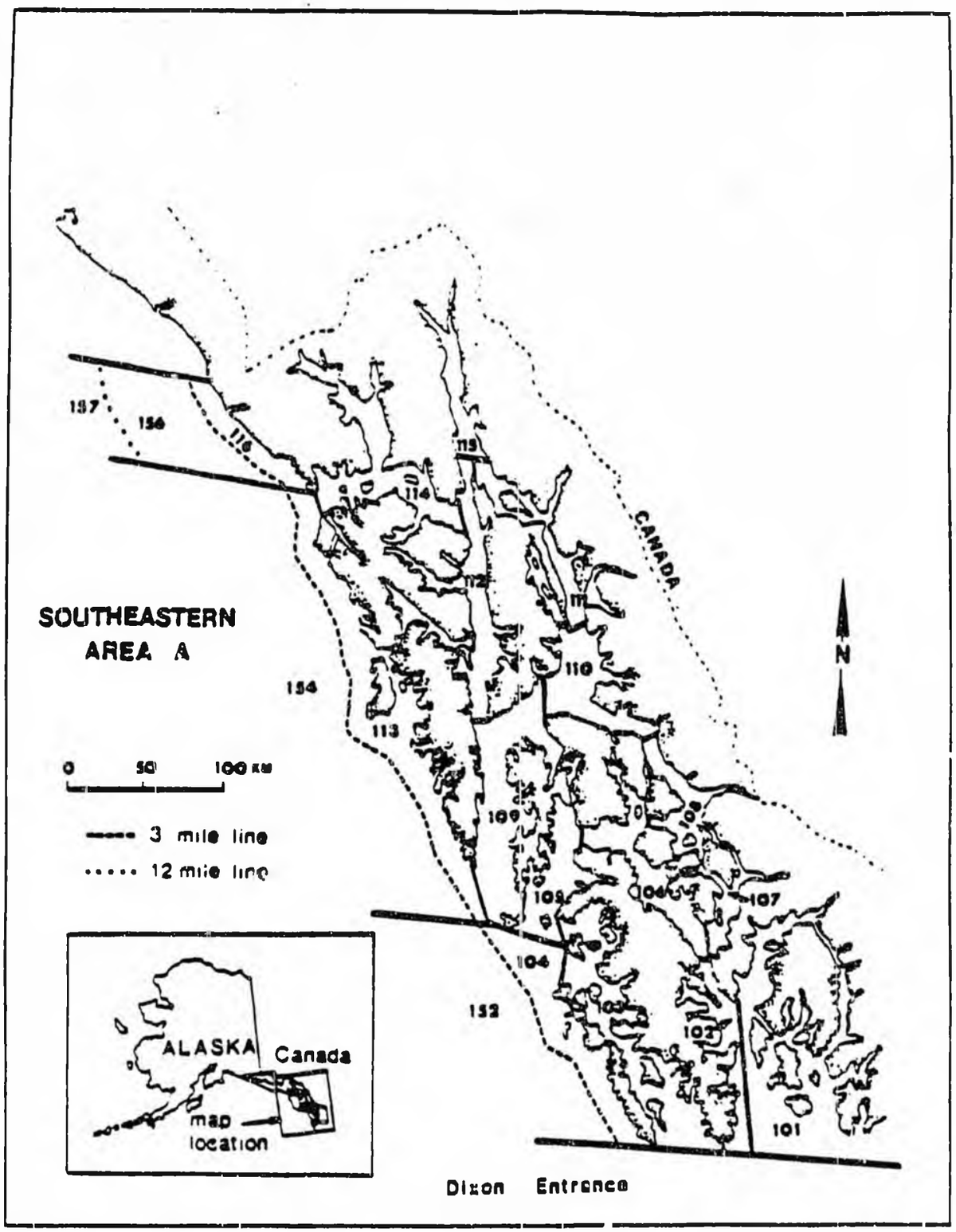


Figure 1. Map of Statistical Area A (Dixon Entrance to Cape Fairweather).

An aerial survey of Dungeness fishing effort in 1988 indicated very high effort in some areas while effort was low in other apparently suitable habitats. Concentration of effort was related to productivity of the area and not to location relative to port or processors (Ken Imamura, ADF&G). All fishing grounds are known and exploited during the fishing season, and conflicts between fishermen on the grounds are increasing.

Of all Dungeness crab caught in Alaska in calendar year 1988 (7 million pounds), 48% was caught in Statistical Area A. The Dungeness crab harvest from Statistical Area A was 11% of the total combined Dungeness catch of Alaska, British Columbia, Washington, Oregon and northern California in the 1988-89 season.

Limited Entry and the Southeastern Alaska Dungeness Crab Fishery

In May, 1984, the Commercial Fisheries Entry Commission (CFEC) received a petition from 33 crab fishermen requesting entry limitation in the southeastern Alaska Dungeness crab pot fishery (Appendix A). The Commission decided not to limit entry in the Dungeness fishery because (Appendix B):

1. Participation levels had been very high during the past few years, but were expected to decline as crab stocks down south recovered and prices dropped.

2. The catch per unit effort was declining and future effort should decrease.

3. The Dungeness fishery was dominated by gill net-size vessels, but included a wide range of vessel sizes. Vessel upgrading after limitation could result in increased fishing power.

The CFEC was petitioned in February, 1989, by 30 fishermen from Petersburg to "impose a moratorium on new permits being issued and institute a study of the limited resources of the Southeast Dungeness crab fishery" (Appendix C).

The CFEC denied the petitioned request explaining that CFEC did not have statutory authority to impose a moratorium, but was conducting research into the crab fishery (Appendix D).

II. MANAGEMENT OF THE DUNGENESS CRAB FISHERY

3-S Management

The southeastern Alaskan Dungeness crab fishery is managed by ADF&G through a modified 3-S system (size, sex and season) developed and utilized by other Pacific Coast Dungeness fisheries. Management in southeastern Alaska has been approached from a conservative standpoint because of the proximity of Alaskan crabs to the northern limit of the range of Dungeness crabs in North America.

The goal of 3-S management is to maintain stock reproductive potential by not harvesting male crabs until they have had an opportunity to participate in stock reproduction. A minimum legal-size carapace width (6.5 inches) was established for harvestable male crabs. In theory, 100% of the male crabs of minimum legal size or greater could be harvested in this recruit-only fishery. No female crabs are harvested, and harvesting of crabs is prohibited during the crabs' primary molting and mating periods.

The 3-S management plan is modified in southeastern Alaska by alteration of the fishing season. Prior to 1979, most areas were open for Dungeness crab fishing for the entire year. In 1979, new regulations were adopted which

specified an opening date of June 1 and a closing date of February 28 to protect molting and mating crabs. A season closure from August 15 to September 30 was instituted in 1985. The goal of the restrictions on season length in both 1979 and 1985 was to protect molting and mating crabs.

The molting period of crabs is highly variable and depends to a large extent on water temperature. Crabs molt sooner in years of warmer water temperatures than they would in years of cooler water temperatures. The molting period of adult male Dungeness crabs in Icy Strait begins in early May and continues through late August, with the primary molting period in mid-summer (Shirley and Shirley, 1988[1]). The molting period of adult female Dungeness crabs begins in early July and ends in late September with the primary molting period in early fall.

Shellfish fisheries managers have acknowledged that fishing still occurs during significant portions of the crabs' molting and mating periods in southeastern Alaska (1989 ADF&G Shellfish Report to the Board of Fisheries). This problem is not unique to Alaska, however. Many unmarketable soft-shelled crabs were encountered in the Washington and Oregon Dungeness crab fisheries in December of 1988 and 1989 which prompted a postponement of the season

[1]Shirley, S. M. and T. C. Shirley. 1988. Appendage injury in Dungeness crabs, Cancer magister in southeastern Alaska. Fishery Bulletin 86: 156-160.

TIME

RENEWAL SAVINGS CERTIFICATE

As a current subscriber, you're entitled to get TIME—America's #1 newsweekly—for as little as 99¢ an issue. That's a savings of up to 60% off the cover price!

Send me TIME for:

☐ 3 years (156 issues) at 99¢ an issue ☐ 1 year (52 issues) at $1.09 an issue

UP TO 60% OFF*

Send no money now! Just drop this in the mail to keep TIME coming and we'll bill you later!

TDA5GT4

Name _____

Address _____

City _____ State _____ Zip _____

Under our convenient Subscription Service Plan, TIME will hereafter send you renewal notices with a bill for another period at the then-prevailing rate. If we don't hear from you, you will be under no further obligation. *Off the $2.50 cover price.

T493A

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 22, TAMPA FL

POSTAGE WILL BE PAID BY ADDRESSEE

TIME

P.O. BOX 61190
TAMPA, FL 33661-1190

opening in 1990 from December 1 to January 1 (Steve Barry, Washington Department of Fisheries).

Even with a conservative approach to 3-S management, it is probable that all stocks are being exploited at a very high rate, with only minimal protection provided for molting and mating crabs. The effectiveness of 3-S management in maintaining the reproductive potential of the Dungeness crab population could be improved by closing the fishery during the summer months, but the Alaska Board of Fisheries has continued the summer fishery because of economic concerns expressed by fishermen. The abundant summer crabs with clean, new carapaces command a high price in the frozen-in-shell and live crab tourist season markets in Alaska and more southern ports (1990 ADF&G Shellfish Report to the Board of Fisheries). This is also the time that harvest levels decrease in the Dungeness crab fisheries in Washington, Oregon and California.

Vessel Registration

Other management practices have included seasonal closures of some areas, gear restrictions and vessel registration. Southeastern Alaska (Statistical Area A) is a superexclusive registration area. A vessel registered to fish Dungeness crab in this area cannot fish Dungeness crab in any other area of the state during the registration year.

Vessels must be registered annually. The registration year extends from January 1 to December 31. In 1988-89, 259 vessels registered to fish Dungeness crabs in Statistical Area A (1989 ADF&G Shellfish Report to the Board of Fisheries). No vessel inspection is required prior to the season opening for Dungeness crab in Statistical Area A.

Gear Regulations

Dungeness crab pots, ring nets and diving gear are lawful gear for Dungeness crab. No more than 300 pots may be fished by a vessel in Statistical Area A. Other gear regulations include restrictions on the dimensions of pots, numbers of tunnels and escape rings, prohibition of pot storage in the water during season closures and a requirement for part of the mesh in the side wall of the pot to be made of degradable cotton twine.

Other Management Strategies Considered

Guideline harvest regulations were rejected as an additional management tool because they were not part of the traditional 3-S management system for Dungeness crabs.