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REMARKS BY STANLEY A. CAIN, ASSISTANT SECRETARY OF THE INTERIOR, AT THE MEETING OF THE INTERNATIONAL ASSOCIATION OF GAME, FISH AND CONSERVATION COMMISSIONERS AT PORTLAND, OREGON, SEPTEMBER 21, 1965

Program Concepts of the Department of the Interior with Regard to Fish and Wildlife

I appreciate the opportunity to appear before this group of specialists from Canada, Mexico and the United States. In preparing this talk, I asked Commissioner Clarence F. Pautzke, who now also is Deputy Assistant Secretary, and Directors McKernan and Gottschalk to provide me material on program concepts as viewed by the Bureau of Commercial Fisheries and the Bureau of Sport Fisheries and Wildlife. The principal response I will make to the topic you requested me to develop is to abstract and interpret, as I see them, matters to which these Bureaus have already given much thought.

In government, Presidential appointees come and go -- Secretaries, Under Secretaries, Assistant Secretaries and Deputy Assistant Secretaries. They come and go like tree leaves in the spring that flourish during a short summer and are shed in the fall. But the Bureaus are 99.44% of the tree: roots and trunk and branches. They last for decades. I know this because of the thirty-year service emblems that surround me in Washington. I will not push this analogy too far, for all of you can see some of the pitfalls in the pathology of trees. I will venture only one further extension of the analogy, which is both modest and safe. It is not the leaves that determine the form a tree takes on over time; the form comes from the organic plan of the whole as it responds to the vicissitudes of environment. I am intrigued by this biological analogy that I have used, but I am a little bothered by it, too. Part of the environment of a tree may be man, and, when he practices the topiary art, he does shape the tree, even pruning some deadwood and useless branches to aid its development.

I have organized these program concepts under three headings: water-based resources, upland resources, and finally some other miscellaneous but important ones that do not fit well into the preceding categories. None, I think is really new. Each is not quite more of the

same, but is rather a natural development of the experience of the Fish and Wildlife Service, again like organic growth, in response to the stimuli of a complex environment.

In taking up water-based resources I will speak first of fish and other aquatic organisms and then of waterfowl and the Refuge System.

Man has gone down to the sea in ships for thousands of years. The high seas have been broad highways of commerce, exploration, and adventure. Man has always made some use of the natural resources of the sea, as attested by prehistoric shell mounds on every shore. The loaves and the fishes, the land and the sea together, have nourished man. Although he has yet to turn the full power of science to the sea, some bold starts have been made in the past quarter of a century on physical and biological oceanography. Still more recently what has been dubbed "ocean engineering" is getting underway.

Our Bureau of Commercial Fisheries is largely, but by no means exclusively, concerned with oceanic resources. Its program calls for expanded and deepened investigations of the environments of the seas and of the biological resources associated with them. To a very large extent, the Bureau's studies support the international treaty organizations, providing them with the facts on which decisions are made. Our researches, data gathering, and publications underpin the fisheries branch of the Food and Agriculture Organization and assist many nations. Current studies, such as those on the Pacific Trade Wind Zone, are investigating water masses like meteorologists study air masses, with the promise of comparable important findings. As water masses shift geographically and in depth, important fish species seem to stay with their preferred environment. The Bureau has designs for an atomic submarine for research that should be built because it has capabilities of no existing vessel. Such a new vessel promises break-throughs in both physical and biological oceanography. The all too meager start in ocean engineering has already led to more efficient trawler and gear designs and to adaptation of remote sensing devices for discovering formerly unknown fish stocks and the more efficient location of familiar ones. Many advances increase our capacity for conservation of ocean resources as well as their commercial exploitation. Blind hunting for fish is on the way out.

We can look forward to new developments in salt-water fish farming, not only of shellfish and crustacea, but of finfish. The possibilities are greatest, of course, in estuaries, bays and sounds.

In contrast to open-ocean developments, whatever we do within territorial waters will be completely for the United States benefit.

There are ample reasons for the Bureau's programed emphasis on commercial fisheries and the science that lies behind its success. We are experiencing severe competition from many nations. The world map of "political" fishing changes every year, with much of it uncomfortable for us.

Beyond such difficulties, which the Department of the Interior, the Department of State, and the Congress are trying hard to ameliorate, is the overriding one of hungry people -- uncounted millions of protein-starved people. There is, I think, no scientific fact that we have learned that is not freely available to any nation seeking to improve its fisheries. I do not mean that the oceans can feed the world, or even help significantly if the total mass of human flesh continues its exponential accumulation. But given some rational human behavior, the fruits of the sea can be managed on a sustained-yield basis that will double and double again and again the present harvest.

It is in reference to this need that the Bureau's program to develop whole fish protein concentrate is of worldwide importance. It is gratifying to say that a wholesome product that is highly nutritive and cheap can now be produced by one process and that other processes and development steps are programed.

Estuaries and bays are a sort of no-man's land -- if places so wet can be termed land -- because the two bureaus of the Fish and Wildlife Service have not really met where salt and fresh waters meet. Within a year's time I hope to see specific projects devoted to specific studies by both Bureaus, and in unison wherever possible. Because estuaries are nurseries for many important commercial and sport species of finfish, shellfish and crustacea and also are important habitat for interesting and useful birds and mammals, they must be given more attention. Furthermore, they are rapidly being degraded and even destroyed by pollution, dredging and filling, and diversion of freshwaters both into and away from them, as well as by being occupied by residential, commercial, and industrial developments.

There are important barriers to Federal action regarding the biological features of estuaries. Our Bureaus can appraise and recommend as to the consequences of engineering activities of the Bureau of Reclamation, the Corps of Engineers, and non-Federal activities carried out under

Corps' permits, but they have little or no authority to determine what is to be done. An even greater difficulty, it seems to me, is faced by the State fisheries agencies in those cases where legislatures have so far failed to understand the importance of estuaries for long-term economic benefit.

This is clearly a situation where the States and the Federal Government need to work closely together in research and data gathering so that the case for estuaries can be made cogent to local and State governments and to the public, not excluding sport and commercial fisheries people. We all know cases where we seem helpless to conserve fish and wildlife resources of the estuaries and coasts of our nation -- from Long Island Sound to Florida Bay to San Francisco Bay -- but we do not have to remain helpless.

As to fresh waters, it can be said that there are productive programs on the passage of anadromous species over high dams and through reservoirs. Results of this program will dictate the range, or limitations, of fish migrations in the future -- not only by adult salmon and steelhead upstream to spawn but by fingerlings down to the sea. Here I must mention the advances in fish genetics. Partly by research sponsored by our bureaus, selection and hybridization are making many improvements in fish species. It is already possible to produce new races tailored to fit better the new ecological conditions being produced by other changes man is making in nature. For example, the production of fast-growing and maturing races of anadromous species reduces the time they are subjected to fishing and natural predation in the open ocean and also provides better adaptation to the impounded rivers.

The large reservoirs on the Columbia and elsewhere not only produce problems, they also present opportunities; but the opportunities are for managing a different group of species. Impoundments, most of them far from the mouths of rivers, offer vast new acreages for producing fish on a sustained-yield basis of both commercial and recreational interest. Some starts have been made, but full realization of the potentialities of impoundments -- from the great lakes behind main-stem dams down to farm ponds -- remains for the future. Here again the interplay of State and Federal interests is far from clear. Clarification and cooperation are imperative.

Next I want to say a word or two about hatcheries. There is long experience with hatcheries for stocking streams and lakes with sport fish. Hatchery experience has not been as extensive as that concerning

impoundments for direct production, but it is long enough for many successes and failures to have been experienced with a wide array of species. There are, however, new efforts and developments. I think the Jordan Hatchery in Michigan for aiding re-establishment of lake trout in the Great Lakes is an innovation in the fresh-water field, at least because its primary justification was the rehabilitation of an industry that had been ruined by the lamprey. Several hatchery and related developments on the Columbia are opening up promising possibilities for sport and commercial fisheries in the face of dwindling natural habitat and drastically altered environments. Advances that have reduced unit costs have been made in fish food, disease control, and stocking methods. Continued research will surely produce further benefits.

We already have an extensive Federal Fish Hatchery System, and it continues to grow. Some of the increase is for reasons really beyond the control of the Service, just as with many State hatchery systems. We can visualize future fishing demand and must plan to meet it as conditions change regarding impoundments of all sorts, stream channelization, control of aquatic vegetation, pollution, and -- not least -- the vogues that come and go among fishermen.

Tougher than the scientific and management problems, however, are those of the interplay between the Federal and various State programs, and the relations between agencies at both levels and their sources of funds -- Congress, legislatures, and the sportsmen. Hatchery systems never have been -- and likely never will be -- developed and managed solely on the basis of scientific knowledge and rational planning -- rational, that is, from the point of view of a dedicated Service.

The stumbling block here is the word "rational." The public official who needs a new hatchery in his personal political arena as an aid to his election certainly is not irrational in seeking appropriations for it. Neither is the fisherman who wants planted legal-size fish. Aside from the foregoing, I do believe that hatchery fish of good quality, when properly stocked in the Nation's water, do contribute importantly to our recreational opportunities and the Nation's economy. As an ecologist, I feel much better with stocking programs based on helping to saturate the natural productivity of underpopulated waters, than with some other programs. However, in some places there is even warrant for "put-and-take" programs, but in this case let us not delude ourselves as to what we are doing. This is not fisheries biology.

A public agency should know what a given hatchery program can accomplish. On a basis of its evaluation of the variables, it must estimate what is required to meet certain goals. Having made its position clear, and having justified its position by objective data, the agency has done its part in this regard. Then it should manage its program to the best of its ability.

Leaving the truly aquatic for some mention of waterfowl, we find an area of high interest and considerable controversy. One clear responsibility of the Bureau of Sport Fisheries and Wildlife is that of research on the ecological life histories of these birds and, I would urge also, comprehensive studies of the ecosystems they occupy.

It is not enough, I believe, that we know all we can about the species of migratory waterfowl. We must know also about the other denizens of their habitats. This is for the simple reason that our wildlife program encompasses habitat management. Because it does, we must know the consequences of our management tools for other species of animals, and of plants, too.

When we change the composition and structure of vegetation, control water levels, and affect water quality, use chemical or other control agents or employ fire as a management tool for benefit to migratory waterfowl, we must know how these man-applied things are affecting the lives of other species, regardless of whether they are rare and endangered.

This is a large order. It is gratifying to say that the Bureau's information on such matters is steadily increasing. It is now possible, with considerable accuracy, to appraise the numbers, distribution, and composition of the waterfowl resource, breeding success in relation to habitat conditions, population attrition on migration routes and wintering grounds and, most importantly, the effects of hunting regulations of different degrees of liberality or stringency. There must also be sound information on waterfowl depredations to crops.

In speaking of the demand in such regards on the Bureau's scientific staff I do not mean to minimize the role of the research staffs of the States and the contributions of the wildlifers in our colleges and universities. Biological and ecological information, whatever its source, must be put to work, and it is put to work through the free channels of scientific communication -- none of it is patented knowledge or labeled "secret." It is put to work in the development and management of the National

Wildlife Refuge System and the Federal wetlands program as well as by the States and the Federal-State programs, Pittman-Robertson and Dingell-Johnson. Much of this knowledge goes to work on private lands, too.

Only last Saturday at the dedication of the Northern Prairie Wildlife Research Center -- a new facility for studies of the pothole country and the problems of bird production -- I discussed at some length some aspects of the Refuge System. I will not repeat myself here, except to say that we are interested in an effective public land program for wildlife being completed as rapidly as possible.

There are countless problems in Refuge management. One is the growing pressure to manage them for many purposes, and especially for recreation. We are not opposed to this, but we cannot ignore the first purpose for which refuges were established, regardless of the pressure to do otherwise. I believe that we are prepared to stand firm on this principle. When in one year a third of a million people fish and swim and boat and water ski on a 1,000-acre lake in a refuge, and others picnic and camp along the shores, the matter of timing is crucial. When human use and goose use are time-zoned, that is, separated during the seasons of the year, the problem would seem to be solved and a fine case of multiple purposes satisfied. But there remains the question: When the geese return will they find the habitat degraded?

When refuges are opened to hunting, we often run into persons who oppose all killing for sport and confuse a refuge with a "sanctuary." This one we can face. The problem is somewhat different when a refuge provides so much sanctuary that there is no real opportunity for legal hunting, either on or off the refuge.

Refuges are sponsored by State people. Sometimes the interest is to halt migration so that there is some local opportunity for shooting; i.e., refuges are viewed as public hunting areas, not as "refuges" from hunting. On the other side, some clubs view refuges as a sort of socialization of hunting, taking birds from club grounds. Both views can be understood and sympathized with. Still, we must not forget that private clubs have saved from destruction thousands of acres of prime habitat.

Turning now to upland habitats, we encounter some interesting matters other than those associated with the 54 species classified as waterfowl in our treaties with Canada and Mexico. There are 78 additional species classified as game birds, including doves, rails, snipe,

woodcock and shorebirds; and there are 474 non-game species, most of them songbirds. In this connection, among others, the Fish and Wildlife Service is trying to change its image from that of predominant or even exclusive concern with game, with sport fish and with commercial fish toward what is, and should be, our goal -- to be a Service with a balanced concern for all fish and all wildlife.

One of the problems in moving in this direction is that the public support -- and I mean dollars -- is not fairly shared. The sportsman has long carried much more than his fair share. In my opinion, we need some system of taxes and fees that will apply fairly and in a more balanced way to all users: bird watchers, photographers, hikers, picnickers, campers, boaters, and any others who benefit, as well as to sportsmen.

The new Land and Water Conservation Fund Act goes part of the way on this theme, witness that other "contributions" to the fund come from taxes on motorboat fuels. In this connection, I would urge that all States help promote the sale of the conservation stickers because their own constituencies benefit from the fund.

And what about resident animals? If I had an ounce of discretion I would pretend that no problem exists. But as a Federal man, once a State Conservation Commissioner, I cannot ignore it. In any case, you would not let me.

It would not be fair to say that the States are up in arms. But the walls of Rome were no more stoutly defended by Cincinnatus than are the rights of States to manage and regulate non-migratory animals. My friends in Michigan have identified new threats of Federal encroachment on the States -- in the endangered species bill, for example -- and have already sought legal opinion. They are prepared, perhaps anxious, to carry any threat of encroachment into the courts.

I believe these are mixed fears. On Federal property there is no question in my mind. As custodians of public property, Federal agencies have no moral right, and I believe no legal one, to turn control over to the States. But has the Federal Government violated the fundamental rights of the States? When there is public hunting on Federal land -- as in the new National Recreation Areas -- or public fishing -- as in the National Parks -- the regulations abided by are those of the States. Is it not true that to hunt or fish on Federal property is like hunting and fishing on private property -- a privilege, not a right?

Granted the principle of common law, that fish and game are the common property of the people, becoming private property only when brought into possession... Granted the States, not the Federal Government, have the right to regulate the taking of non-migratory game, except as the Federal Government may have entered into international treaties... But does the Federal Government not have the right, as legal custodians of Federal property, to say for cogent reasons that a certain stream or lake shall be closed to fishing, or that a certain tract of land shall be closed to hunting? On the other hand, when the property is opened to fishing and hunting, the Federal Government, in my opinion, should and will follow State laws, except in very rare instances. The policy statement of the Fish and Wildlife Service says, among other things: "Bureau lands and waters should be opened or closed to hunting and fishing consistent with the intent of State regulations ... except: when there would be significant interference with major objectives of the Bureau installation; when there would be conflict with needed protection of a rare or endangered species or Bureau restocking programs; and when there would be conflict with other significant recreational uses." These restrictions, it seems to me, are exactly the kinds of limitations the States themselves place on hunting.

I come now to the third cluster of problems: Positions and Programs -- the catchall group. We provide four services that merit discussion. First we have the Fishery Management Services Unit, established in the Bureau of Sport Fisheries and Wildlife in 1957, and now known by the simpler title, Fishery Services. It will continue to provide extension-type help to our Bureau of Indian Affairs and National Park Service, and to the Departments of Agriculture and Defense.

Next we have the Wildlife Services Division, which includes the functions of the former Predator and Rodent Control Unit. It also is embarking on extension-type duties.

To discuss adequately the problems of predator and rodent control -- in fact, of nuisance animals of all kinds -- would require too much of your schedule. In any event, the Department, the Bureau, and Jack Berryman, the new head of the Division, should be given sufficient time to get started. It is enough to say, at this point, that control must be under control, not stopped. There is agreement on this at all decision-making levels of the Service. We are seeking the most efficient and safest methods of exerting that control, but only that control for which there is clear need.

Our international cooperative work is another type service. As mentioned earlier, the Bureau of Commercial Fisheries plays a major role regarding various treaty organizations. The Bureau of Sport Fisheries and Wildlife plays a different role in the international field. Current Departmental ideas on the "export" of concepts and methods concerning National Parks and wildlife protection will make increasing demands on this Service. In many ways the United States cannot go it alone and should not try to do so. For example, the Bureau's response to the Alaska Senators' concern for the polar bear led to the international conference at Fairbanks earlier this month. Much more of this sort of activity can be expected during this, the International Cooperation Year, and in following years.

Although not properly a service, in the sense of the preceding, cooperation with the States deserves considerable mention. Secretary Udall made it quite clear to me, when he first asked whether I would be interested in coming to the Department of the Interior, that he wanted strengthened relations with the States. He certainly did not mean more Federal power over the States. The emphasis was on the word "relations." He was talking about better communication and cooperation -- better understanding of each other's responsibilities, goals and needs.

It is in that spirit that I say, "Let us hear from you," and in the words of President Johnson, "Let us reason together." One development is clear: every session of recent Congresses has produced more opportunities, in fact, more requirements, that we work together. Personally, if we have any differences of opinion, I would rather eat the stick and get beat by the carrot.

Another general matter is the program that is intended to do something effective about endangered species. The Land and Water Conservation Fund Act uses the phraseology "species threatened with extinction," and the letter of transmittal of the new bill adds the words "rare and endangered." This program affects the three bureaus under my Secretaryship, but especially the Bureau of Sport Fisheries and Wildlife. In some cases there will be need for expansion of the Refuge System, both federally and by the States. To a considerable extent, however, existing public lands can accomplish much more than at present by recognizing those species that are rare and endangered and providing for them by land classification and special management efforts, so as to see that no species knowingly becomes extinct through man's actions. All agencies of government, local, State and Federal, that manage land share in the opportunity and responsibility. Much also has been done by non-governmental

groups, such as the Audubon Society and the Nature Conservancy, and more will be done in the future.

Much more must be learned about endangered species. Surprisingly, biological and ecological knowledge about most of them is extremely meager -- the California condor, the Everglades kite, the black-footed ferret, to mention only three among dozens. We must know the reasons for population decline that have brought the species to the endangered condition and, on a basis of that information, take the necessary steps to slow and stop further decline and, hopefully, reverse the trend. Certainly habitat is necessary, and some of it must be sanctuary. But protected space is surely not enough; seemingly minor derangements of ecosystems may be critical for survival, such as changes in food webs at seemingly remote links, or kinds and degrees of pollution that would leave the more "weedy" species unaffected.

Pollution of the environment has become an all-pervasive condition of air, water, and soil. We all know that Lake Erie is critically "sick," that Los Angeles gets blanketed by smog, that many agricultural soils are getting loaded with long-persistent pesticides. Radioactive isotopes are in Arctic Eskimos and pesticides in Antarctic penguins; pollutants are showing up in fish of the open ocean and in the tropical jungles far from concentrations of human population, agriculture, and industry.

The Fish and Wildlife Service is expanding and strengthening its work on many forms of pollution, finding increasing support in Congress for such efforts.

What to do about the progressive fouling of the environment is far from resolved. Choices are commonly put before us in the false perspective of man versus an endangered species, economic necessity versus natural beauty, or the practical versus the nostalgic.

Of course, we cannot do without the production of agriculture, forestry, and fisheries, nor without the production of industry. Human population will continue to grow, as will its aggregation into ever-larger metropolitan clusters, and this will mean more phosphates and nitrates in streams and lakes. We have learned much about the reduction of silt pollution by agriculture, but have got nowhere, to speak of, on the contribution of silt to our waters that comes from road construction and real estate development. Heat pollution of water is scarcely yet a concern of those interests whose developments change cool free-flowing streams to impoundments, or of those industries placing a heat burden on water, especially from the new nuclear reactors.

Let us assume that all of these additions to our problem come from activities that are indispensable -- on the land, in the cities and by industry. The right question has not been asked. I think that the pertinent question is this: Can we afford not to pay the cost of restoring and then maintaining the environment in a condition that is livable for man?

My answer is that we must afford the cost, whatever it may be, for man is the dangerous and the endangered species.

The last general topic I wish to comment on is that of research. There is a tendency on the part of the public to think of the State natural resources agencies, and the Federal ones too, as land-managing agencies, with an overtone that they seem to emphasize impingement on the free and rightful activities of citizens. This is sometimes reflected in the approach of State legislatures and Congress when faced by appropriation bills. The case for research is generally harder to make than it is for other programs of the agencies. Even within the agencies, which should know better, there is an ever-present tendency, when money is short, to sacrifice research first.

Research is not a luxury that can be indulged during times of affluence. Knowledge is the cause of affluence, and the tools of the scientific methodology are the surest road to improved knowledge and affluence.

There is not a responsibility that we have nor a thing that we do that cannot be improved by a heavier investment in research. It is my personal belief that the most serious threat to the Fish and Wildlife Service at the present time is the difficulty of hiring, promoting, and keeping the higher grades of Federal Civil Service where our top scientists occur. This is not a genetic disease like hemophilia but some sort of infection that is draining the life blood and vitality from us.

The basis of this position is simple. It is not money that makes an agency effective in public service, although money is indispensable. It is brains. The natural resource in shortest supply, and the one in need of the greatest conservation effort, is the trained human intellect.

If we can conserve and use wisely that natural resource, we will have little trouble making progress on the other problems I have sketched.

In conclusion to these wide-ranging remarks -- that cover the United States "like the dew covers Dixie" -- I would suggest that the States can do more to educate Congress. A more active, balanced and coordinated State approach to legislation would be helpful in determining what bills get introduced and how they progress once introduced.