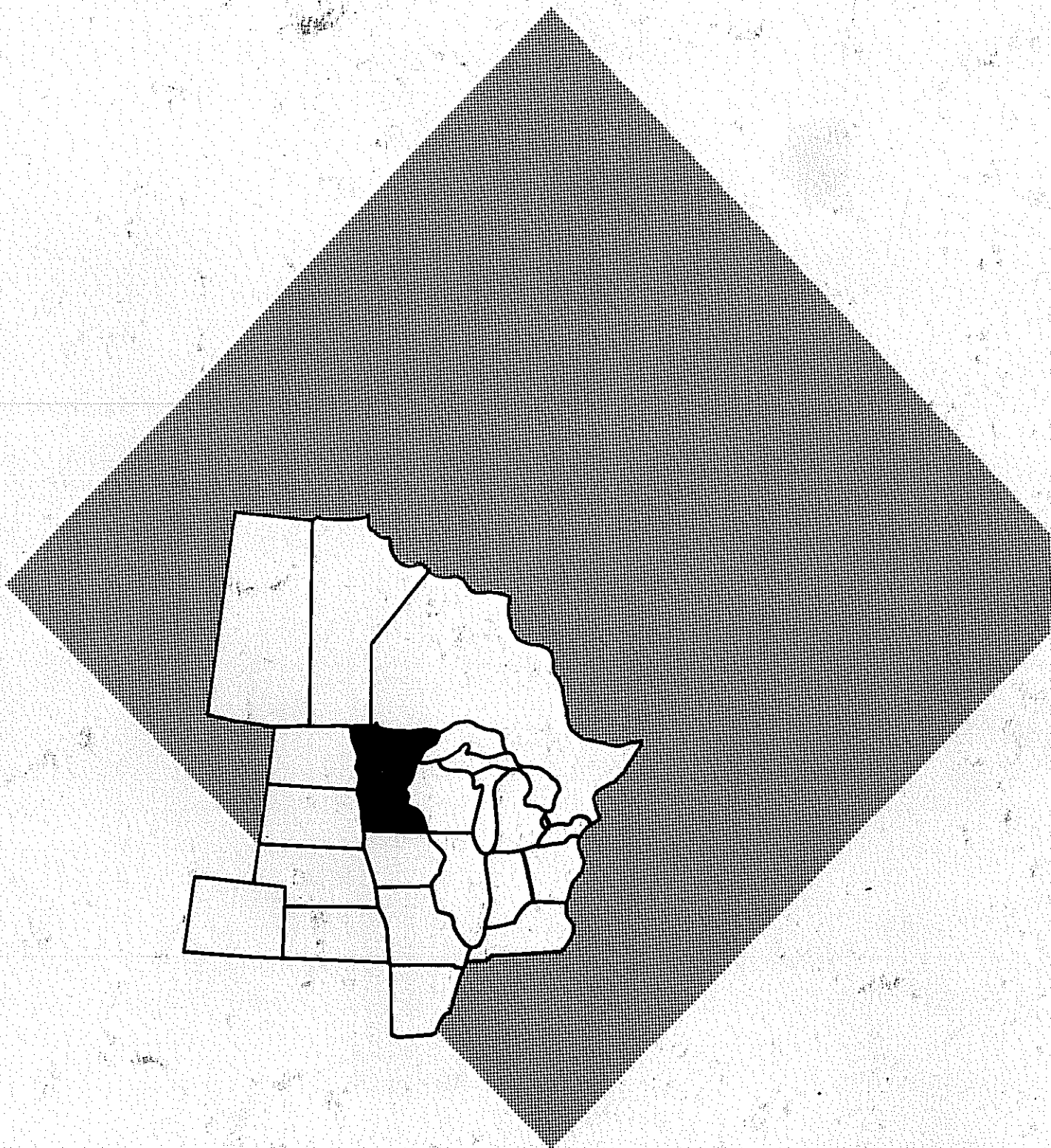

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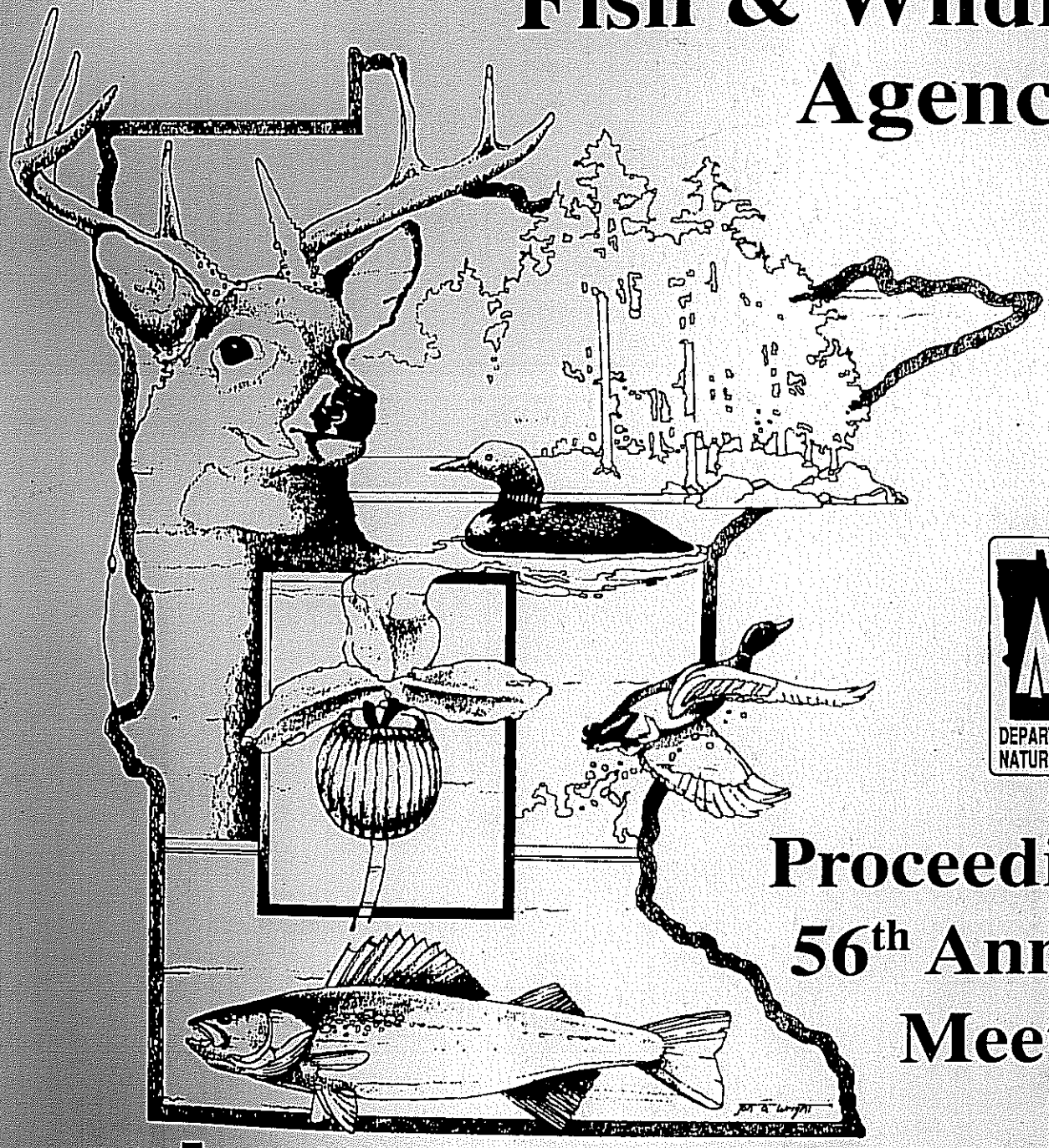

Minnesota
DEPARTMENT OF NATURAL RESOURCES

Proceedings 56th Annual Meeting

PROCEEDINGS OF THE

56TH ANNUAL MEETING

ASSOCIATION OF MIDWEST

FISH AND WILDLIFE AGENCIES

JULY 10 - 13, 1989

RADISSON HOTEL

DULUTH, MINNESOTA

MEETING PARTICIPANTS

ASSOCIATION MEETING PLACES AND DATES

1.	Des Moines, Iowa	1934
2.	St. Paul, Minnesota	1935
3.	Madison, Wisconsin	1936
4.	Sioux Falls, South Dakota	1937
5.	Omaha, Nebraska	1938
6.	Madison, Wisconsin	1939
7.	Mason City, Iowa	1940
8.	St. Louis, Missouri	1941
9.	Duluth, Minnesota	1942
10.	Fox Lake, Illinois	1943
11.	Bismarck, North Dakota	1944
12.	Indianapolis, Indiana	1945
13.	Rapid City, South Dakota	1946
14.	Roscommon, Michigan	1947
15.	Put-in-Bay, Ohio	1948
16.	Lincoln, Nebraska	1949
17.	Milwaukee, Wisconsin	1950
18.	Wichita, Kansas	1951
19.	Des Moines, Iowa	1952
20.	Dorset, Ontario	1953
21.	St. Louis, Missouri	1954
22.	Estes Park, Colorado	1955
23.	Springfield, Illinois	1956
24.	Park Rapids, Minnesota	1957
25.	Bismarck, North Dakota	1958
26.	West Lafayette, Indiana	1959
27.	Rapid City, South Dakota	1960
28.	Higgins Lake, Michigan	1961
29.	Omaha, Nebraska	1962
30.	Columbus, Ohio	1963
31.	Milwaukee, Wisconsin	1964
32.	Toronto, Ontario	1965
33.	Wichita, Kansas	1966
34.	Des Moines, Iowa	1967
35.	Chicago, Illinois	1968
36.	St. Louis, Missouri	1969
37.	Winnipeg, Manitoba	1970
38.	Aspen, Colorado	1971
39.	Wichita, Kansas	1972
40.	Bismarck, North Dakota	1973
41.	Duluth, Minnesota	1974
42.	Traverse City, Michigan	1975
43.	Rapid City, South Dakota	1976
44.	Lincoln, Nebraska	1977
45.	Madison, Wisconsin	1978
46.	Nashville, Indiana	1979
47.	Columbus, Ohio	1980
48.	Des Moines, Iowa	1981
49.	Springfield, Illinois	1982
50.	Lexington, Kentucky	1983

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Roger Holmes
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TUESDAY, JULY 11, 1989

LARRY SHANNON: Good morning! I'm Larry Shannon, Director of Fish and Wildlife, MN DNR, and for the next couple of days, President of the Association of Midwest Fish and Wildlife Agencies. First of all, I would like to say welcome to Duluth, Minnesota, and from the remarks that I have heard over the last days, it seems like many of you are extremely happy to be here in the natural air conditioned city of Duluth. I wasn't sure it was to be this way when I saw the weather report which indicated that it was 91 degrees here. They turned the air conditioner on just in time and I understand today's reported high is supposed to be 67 which is 10 degrees less than what was reported to be yesterday. But, nevertheless, I know that it is nice and cool here compared to what it was in the Twin Cities, so I'm glad we chose Duluth two years ago for this occasion. I hope that the hospitality has been to your liking, and I am sure that as we go along we will hear more about the kinds of things that we have planned for you and Jack Wingate who is the general chairman and others who have worked diligently getting us a good program and activities. The activities, I think, cover a variety of topics. We are going to have talks on many things that are of concern to us and the western part of the U.S. and Canada. We do hope you enjoy the program and join in the discussions as we move along. I would like to begin by asking the Program Chairman, Jack Wingate, to call to order the agencies. Jack will also provide more detail and introduce the members of the Steering Committee to us.

JACK WINGATE: I will read off the states and provinces and the representative of the state or province can respond with your name so we have the official representative.

The next thing I'm going to do is call your attention to the last page of the program which lists the Steering Committee which has put in a lot of effort to set up this meeting so that hopefully it will run smoothly. The committee members are all at various locations in the building tying up last minute loose ends.

There have been room changes on where we are going to meet since the program was printed. For lunch today, we will be in Suites A and B. We will be there for lunch today rather than this room. Tonight for the President's reception we will not be in this room but will be in the Great Hall 2. I meant to find out where the Great Hall 2 is located, but I haven't found it yet. It's just around the corner. Breakfast tomorrow morning will not be in the Great Hall 2 but will be in the room where we had breakfast this morning. At 9:00 a.m. tomorrow, we will be back in the Viking Room instead of Suites A and B. Those are the major changes in room location.

We indicated we would have chartered fishing available. I currently have two boats charted for Thursday afternoon and they leave at 2:00 p.m. and will be back at 8:00 p.m. It will be $56.00 per person for the charter. If you are interested please see me sometime in the next day so that I get your name and so that arrangements can be made. If you are interested in a one-half day charter at some other time, see me sometime today so that we can set this up. I noticed some people from Iowa are looking at a half day charter on Wednesday afternoon and may be interested in additional people. The registration fee

that you paid includes the bus tour tomorrow afternoon and the cruise in Duluth Harbor tomorrow night. The only additional charge on this is if you have a spouse or children that will be going on the bus tour or on the harbor cruise. The bus tour is to leave at 12:30 p.m. tomorrow. This will give you about one hour to find a sandwich. We will be leaving from the lobby area. We are going to Gooseberry Falls State Park which are some interesting falls on the North Shore and to Split Rock Lighthouse State Park which has one of the most historic lighthouses on the North Shore. You can go into the lighthouse where they have an interpretative center and I think arrangements have been made for someone from the Historical Society to talk with us about that. We will be back no later, I hope, that 5:15 p.m. We have about a 10 minute walk from the hotel to the Mystic Queen on which we will be taking the dinner cruise. Dinner will be prime rib and there will be a cash bar on the boat. The cruise will be a little over 2 hours, so we should be back to the hotel by 9:00 p.m. For some of you that have not acclimated to the comfortable weather that we currently have, there are portions of the boat that are enclosed in glass so that you don't have to worry about having an excessive amount of goose bumps.

If you will notice on your name badge, there is a number. This is the number we will be using for door prizes. They have all been entered in the door prize drawing. All the numbers were drawn randomly and everyone should win something. The door prizes, which we will be giving away during the next two and a half days, are located on the table behind the pillar. There is information on the table that you can take with you and look at, at your leisure. I would also like to call attention in your program to our sponsors, people, and organizations that have either donated items for door prizes or who are sponsoring or hosting various parts of the meeting. This kind of sponsorship makes it easier to host a meeting of this type.

The last thing I want to do is to draw the first number.

LARRY SHANNON: Thanks very much Jack. Is the Commissioner here? Well I guess that's been one of the difficult things--to get someone to welcome you officially to Minnesota and to Duluth. We started last year making an attempt to get the governor to come. The governor always likes to appear at functions of this type whenever possible and of course when we started preparing the meeting, it was too early to get on his calendar. Then we found out it was too late. Of course, whenever the governor is unavailable, we always try to get the Lt. Governor and after checking with the Lt. Governor we found out that she is tired of playing second fiddle so she said "Well, it's too late for me too!" So, we ended up not getting either one and we checked around and it was too late for just about anyone else. The Commissioner had planned to be here and I don't know what happened, but on behalf of the DNR and the Commissioner I would like to say welcome to Minnesota and to the air conditioned city of Duluth. We are very pleased with what is happening in natural resources in the State of Minnesota particularly with Fish and Wildlife. As many of you know, over the last several years we have been provided additional monies outside of our regular license fee dollars for a program called Reinvest in Minnesota. We are going to hear more about its beginning tomorrow. Activities of this type have made Minnesota able to better protect and provide more enhancement to its natural resources. We are going to see a film this morning which highlights many of the areas of the

state and the diversity of the resources in Minnesota. Years ago, it seems like another life ago, in Iowa, I heard quite a bit about the resources of Minnesota but never had the opportunity to get up here and actually witness the quality of resources here. So when I did come here to work, it was a very good decision with the resources available.

As Jack mentioned, we have planned a field trip, the bus tour for tomorrow, and we are going to see portions of the North Shore. We will see a natural resource always to our left, excuse me, to our right as we go up and to our left coming back. What I'm speaking about is Lake Superior and those who have signed up for the charter fishing can test the fish management in Minnesota. Visitors from all over stay up here in the air conditioned city so enjoy it while you are here.

With that I will add 10 minutes to the agenda and turn it back over to Jack. While Jack is coming up I would just like to say Jack will moderate the program this morning, this afternoon it will be Dick Hassinger, Fisheries Chief, and tomorrow morning Roger Holmes, Wildlife Chief.

JACK WINGATE: Our next speaker comes very highly recommended from those who are particularly avid anglers because of the work he has done on fish behavior and particularly the ability of a fish to smell and also discuss some of the products he has on the commercial market. Dr. Greg Bambenek is the head of OSMIC Research Group which deals with research on fish behavior. He is an MD by training and a psychiatrist of fish. His interest in fishing has led him to where he is today. At this time I would like to introduce Dr. Greg Bambenek.

GREG BAMBENEK: Thank you very much, Jack. I am thrilled and it is a pleasure to be here. I guess the city hasn't really been air conditioned for the last two weeks. This is the first wind we've had and it is really good. The sun heats up certain layers of the lake which creates break lines. The structure in Lake Superior is thermal walls and thermal breaks on the surface. Those of you that go fishing should find some fairly good fishing. As Jack said, I am a physician and psychiatrist, but I grew up in southern Minnesota in Winona along the Mississippi River. My father was a commercial fisherman and used scents in fishing and did a lot of trapping for muskrat, beaver, to supplement his income and so I grew up using scents for fishing. That wasn't anything strange or new but I continued to improve on it and then with some scientific research to further enhance it. I began selling the product locally here, the Dr. Juice fish samples, over 10 years ago, but it's really the past 5 or 6 years that it got to be the rage.

I would like to start with some slides and get going because I only get one-half hour so I'll speed along and show a few slides. I've got a short video tape of a new product that I'm developing. At the end of July is a manufacturing show called AFTMA. It's an American Fishing Tackle Manufacturing Association show and it's where all companies unveil their new products for the coming year. What this is going to be is a sneak preview of new products that will be unveiled to others at the show. In fact, it's so serious that the AFTMA have been talking about holding the show in September-October to unveil these new products. The problem is the anglers are at the show. They come there to see a hot new product and knock it off and they are

ready for the next fishing season. So one way to do it is to keep pushing the meetings back and pushing the time back. Here is a shot of a morning going out in Lake Superior to do research on fish management done with the Lake Superior water because it is very pure water.

The next one is the line-up of products of scents for sale in the United States. I have a couple for sale only in Europe and Japan. One is a carp scent which wouldn't go over too big in the United States and talk about Europe is real hot there. A horsefish scent which I have been distributing to the DNR around here - it is a horsefish such as the river ruffe. I've done research involving laboratory research, field research and actually a lot of psychological studies and on the next slide you can see us actually planting electrodes in the cerebral cortex of the brain. This is a rainbow trout from Lake Superior and its researchers have cut away the covering of the brain. This sensory system is hidden from most fishermen and they really didn't know what it did. Fish scents have been around for hundreds of years. Fish do communicate on very specific ways through pheromomes.

I guess I've been on kind of a crusade with education. I obviously didn't start out in business but I got into this and part of it was going around the country speaking at various places and letting people know that fish smell. They actually have nostrils. They are very good smellers. They are smelling constantly, 24 hours a day. Most people know how a dog smells. They smell thousands times better than humans. Fish can smell thousands times better than a dog. That makes it a million times better than humans. In fact, the best smelling fish is the American eel. It can detect a dilution of 1 drop of phenol in Lake Erie. Now that's a heavy dilution.

Again, I've been telling anglers about the types of scents. Here is a world record muskellunge caught this year with a fish scent. Nice muskie. I think it was 64 pounds. I have two research vessels and it's a good way to do field research versus the laboratory type of research, which is, you run the same number of lures. These are called trolling lures with outrigger lines, and we can run 6 to 8 lines on each side of the boat. I understand that in Wisconsin you run three lines per person and Minnesota two, and use the same lures, same weight on each side and put the fish scent on one side and nothing on the other. Consistently, months and over the years it's produced, not doubling your catch as some of the other manufacturers claims, but it will increase your catch 25 to 30 percent with the side using fish scent. That's the difference between catching either 10 fish or 12-13 fish. So again, it's not doubling your catch, but it is a substantial increase.

Here's our Lake Superior fishing and one of the trolling boats, one of the research boats, and also, it's one of the boats we will be going out on Thursday with whoever is signed up for the fishing trip for the Duluth-Superior. This happens to be on Lake Superior on the Canadian shore. Here's a typical catch out of Duluth-Superior. These are mostly lake trout. It runs between 10 to 14 fish a morning.

I have a lot of competitors trying to make up their own fish scent and it got pretty serious this fish scent wars as they actually called it, and people saw something selling, they started concocting all kinds of things, pouring stuff together and just don't realize they need a little bottle of Dr. Juice with those other ingredients. But again, consistently, basing it on research and science has helped.

Here is what some of the success can be. These are three of my research staff who are fishing and, no, they are not midgets. This is a nice morning's catch. They almost sank the boat. These are from 68 to 74 pound chinook. Tricky fish like these can take everything you throw.

Here again is a nice fish caught last year. A 54 pound lake trout. Caught with fish scent.

Another avenue that I've gotten into is teaching fishermen that they stink.

Mammals. Bears are mammals, seals, sea lions. Much of this research was done out in British Columbia that were giving off a substance called serine. That is the mammal smell. Fish avoid it; it is death to them. Research shows that little pieces of skin from a human, bear or seal, put into a river will cause the whole salmon migration to stop and to jump back down the ladder to get away from that smell. That's what fishermen are getting on their lures every time they are touching them. So I came up with a test that I started doing at these fishing shows, showing people that they have this serine. What I discovered was that some of the professional fishermen had absolutely no amounts of the serine. Here we have Rolland Martin and Al Lindner on the end here who are professional fishermen and up here is an ad executive and a defensive tackle for the Minnesota Vikings. People at these shows come and say I know I am heavy in that picture, I go fishing, I do everything the same as my buddies but hey, I can't catch fish. A lot of people thought it was luck. Maybe it's more than luck, maybe chemistry. And after doing studies on many fingerprints on various people around the country, we have found a 14-fold difference. It never means the same. It's kind of a genetic trait like hair color or eye color. So it may not be luck that some people catch more fish than others.

This is a two-page ad in a magazine where you clip and send in a dollar and I would do your fingerprints and send it back to you. This is what the positive fingerprints look like. They turn purple with serine.

There is a problem but people needed education. This is a serine molecule, and it's the shape of a molecule that imparts the data and information of what that smell is. This is mammal and that means danger to fish. OK, it's a shape that actually gives some information on cancer, recognizing certain shapes as being foreign or deadly.

Dr. Juice hand-lure cleaner. It is actually the only thing on the market that will bust the molecule apart; busts it in three parts so it's not serine anymore. Therefore, it's not negative to fish. Use it to clean your hands and your lures. I brought some along.

Just read the directions on these two advertisements. Some of the bears around Duluth are really getting into the act. They realize they got bad smells. These oxidizers in the hand and lure cleaner are helping bears get a lot more fish.

It took education for people like professional bass fishermen, the top money winners; they have their own television show. "Here Rolland, try some of this fish scent." "Well, you just can't pass up drinking it." So I had to sit him down and say, "Rolland, here's how you use it." He finally got the hang of it; he caught the largest bass of his television career. It was caught on film. On embarking on the new thing like I was talking about, and unveiling to you, has to do with the subject that fits a fish scent, but kind of goes a little beyond. It has to do with persistent marine debris, the marine debris or freshwater debris. It's a real problem. And plastics are one of the main problems. Causing all kinds of problems in snarling, tangling, strangling, being ingested, or otherwise killing fish. Manufacturers have developed their scents so that fish will eat an inanimate object. They'll eat hooks, they'll eat plastic. That's what I wanted, that's what everybody wanted.

The problem is that it works well, but what about a net? A net will catch fish, but what about a lost net? It keeps catching fish, keeps reintroducing its own smell for catching fish and it will go on for years. I started hearing reports from a Sea World curator down in Sea World in Orlando of people bringing in sick otters, going along the shore and the only way to save them was surgery. What did they find in their stomachs? Their stomachs were filled with plastic worms. It's been kind of an upsurging field because of the fish attractants being used on the plastic worms. No longer is it just plastic, it's a living, smelling, tasting thing to eat and, of course, lacking intestines and causing to feel full and not feed again. Fish scent manufacturers have a real concern about it and wanted to come up with a solution, so I guess what I would like to do now is show you a videotape that's got some fun in it, and also talks about this new product that I am developing which will hopefully overcome some of the problems. The video explains what the idea is behind what we call chewy juice, and one thing is the problem with plastic pollution in our water, is that it is getting worse with the use of powerful fish attractants that are making plastics work better and continue to remain interesting to fish and other mammals lost after they are lost, long after they are snagged on the bottom.

As I was saying before, the fish that ingest plastics get their intestines blocked, are not feeding and get weak, sink to the bottom, get eaten by predators and, where do they show up? The only place they show up is in your statistics. They are not showing up in fishermen's catch, they are showing up on the statistics that you see in the certain line, like where do all those fry go? Where do the smolts go? What is happening to the fish that we are planting? It's a percentage of what's happening to those fish, and is something to be concerned about. Here's the type of debris found. Plastics make up again the majority of them. Again a real problem mainly because it is not biodegradable and stays around for hundreds of years. Again they are plastic pellets found inside their stomachs, was cut open again causing intestinal blockage or causing the fish to feel full. Actually birds, shore birds, are seen feeding their young plastic pellets. What do they look like? They look like fish eggs. And that's just the industrial plastics; that's the

form in which industrial plastics are shipped in vaults and are in these little pellets that run in the machines. What about fishing plastics that are made to look like crawfish, worms, minnows, and bugs?

We have a problem with the strangulation and refuse that gets around the body. Again, lots of plastics, lots of agencies, lots of regulations. St. Paul, Minnesota just banned plastic shopping bags unless they are biodegradable. Some major plastic companies are working on biodegradable plastics. Plastics that have starch in and don't stay in large sheets, that actually crumble, will stay around for a long time. The problem is you can't stow it, so throw it. It's a snagged, lost lure. One of the best places to see this is out in the west where they have large reservoirs and at times the reservoirs have gone down 20 feet. You drop down 20 feet and this is what you see. It looks like Christmas trees, snagged along the side. There are lures, plastics hanging there. Now when the water levels are back up again, that plastic is still fishing, just like the gill net.

Again, this is just the difference between the yellow plastic work and the chewy plastic worm, that is almost gone. Right there is just about two weeks. Hopefully, this can be a replacement for some of these soft plastics, and hopefully it's going to make an impact on future fishing.

Well, this shows you some of the shapes I'm coming out with, but I'm not coming out with large worms this year. I brought some samples for you and I'll pass those around. A press release on chewy juice and plastic pollution. Hopefully, this is going to help people catch more fish because it's real food with real taste and smell and eating down.

Q. Approximately how long can you use a chewy juice lure?
A. That partially depends on water temperature, but it's like 4 to 6-8 hours. Sometimes you can use it the next day. It is biodegradable and is slowly dissolving, and if it's used in cold water, you can use it for a couple of days. But it starts its biodegradation process once in the water. On some of these samples we will hand out, you put it in water, it starts sliming; it doesn't feel like plastic.

Q. What about a damp tackle box?
A. OK, if it's just damp it won't be a problem, but if it gets soaked in water for I would say for 10 to 15 minutes, then it actually soaks up some water and actually expands about 15% in size. That's what partly causes the degradation is its activation to water, so it should remain dry. It has some drawbacks from plastics. That's why plastics are such a good thing. It'll sit in your tackle box for 300 years.

JACK WINGATE: Thank you very much, Greg.

LARRY SHANNON: A short while ago, we had to skip over the Commissioner's comments. I am pleased to say that our Commissioner is here and is scheduled to bring us greetings. He had a strong head wind in trying to get up from the Twin Cities that slowed the plane down, but I'm very pleased to say that Joe is here. Just a few words about the Commissioner. First of all, he is regarded as the Dean of Commissioners of all the state commissioners. Joe has served as the Commissioner since 1978 and has served under both the Republican

Administration as well as Democratic Administration. That's really tough to do. But, he is a man who has very good corporate skills. He's a conservationist, he's a humanitarian, and he knows extremely well how to get along with people. And I think that's a very strong point to people these days when there is such differences, not only within a party but between parties. And he has been able to serve diligently in that type of atmosphere where sometimes there are differences. Joe came up through the ranks in the DNR, first as a game warden back in the middle 50's, and has worked his way right on up to supervisor, and then Assistant Commissioner and eventually Commissioner. As I indicated first, he has held his post since 1978. He is the recipient of numerous conservation awards as well as public service awards and I am very pleased to present the person that I call boss, Joe Alexander. Joe.

JOE ALEXANDER: Well I apologize for getting the program a little backwards to get a welcome after you have had a good program like you've just had from Dr. Juice's presentation, but I would like to welcome all of you from our Governor of the State of Minnesota and our Department, I hope that you get to see a little bit more than you see inside the hotel while you're here. I see on the schedule that there's some options for you to get out on the water and look around a bit. I was extremely interested in this presentation here. I've never gotten very technical on this; I fish a lot, in fact, some people may say too much and I don't think I fish enough. Myself, they ask me how much I fish and I say not as much as I want to, but they may be a little bit more than I should at times. I can remember some theories that I had. I don't even know if they are valid or not, maybe the Doctor can tell me whether they were or not. I used to notice that if I did a lot of filling up of the outboard motor gasoline tank and tried wiping things off with the towel, then start trying to fish, it didn't seem like I was having as much luck as I should. Then I started trying some very basic hooking techniques, I guess from some of my fishermen partners. I cleaned my hands as well as I could with sand or whatever and water and then before ever baiting a hook, squish a minnow. I'd take a minnow out of the pail, which didn't turn people on in the boat too much when I was doing that, but then I had an idea that maybe that might wipe out some of the scent of some of the stuff that I had been handling and I do catch a few fish. I don't know if that ever had anything to do with it.

I am extremely interested in the new techniques mainly because as Commissioner, anything that comes along that's new, we get involved. We get involved with all kinds of things that involve new ways of taking fish and guaranteed ways of reducing our walleye populations. One of the ones that I remember here that was just a couple years ago that we didn't get into, is, I forgot the name of that thing. Dr. Shannon probably remembers it. They were talking about bringing salamander axolotyls into the state from down in Kansas. I didn't mind the salamanders so much, but what happened to it after it changed from a salamander to whatever it changed into wasn't too great and I thought we could probably do without that. We go through a lot of things that makes the time between bites. I have told this story so many times, I think Dick Hassinger is here. I just talked to him a little bit when we were passing out the stuff, but we have a continual dialogue between Ontario and Minnesota and commercial operations that used to be there and the guide boats that operate on Lake of the Woods and some of the northern waters. The

guideboats were talking about the reduction in size, the reduction in catch and Dick was up there at the time at a meeting in Fort Francis. I forgot what the name was, what we called ourselves at that time, but he brought up the idea to those people that pretty well laid it out that if they were going to continue the guide business they were going to have to start fishing suspended walleyes in Lake of the Woods and Rainy Lake and places like that. Those people pretty near laughed him out of the room. There's no such thing, suspended walleyes; you either caught them on the bottom or you caught them near the mouth of the stream or you didn't get them. And it was, I think, about a short five years later, maybe a little longer than that, they were renting out shadraps for $10.00 a day. I think you had to pay a deposit for the shadraps. You couldn't buy them, they were fishing with downriggers and taking a lot of large walleyes. I never miss a chance to remind those people of that when I get up there to tell them about what we're trying to do on new management.

I've watched a lot of things change, and one of the things that I'm most pleased about watching change is the attitude of sporting clubs for those people that deal with us on the professional and technical aspects of managing the Department of Natural Resources. We go to meetings now where a few years ago, you couldn't hear anything other than "stock fish" or "stock pheasants" or stock whatever it happened to be. That was the only management tool that those people could even talk about. Now you hear such things as slot lengths, habitat improvement, season changes, limit type arrangements that we get into in the antlerless quotas and things that we've gotten into that have become very well accepted. If an antlerless quota system back at about the time I started in Owatonna had been proposed, I don't think the legislature would have looked at it. I don't think the slot limit on fish would have been accepted. Fifty years ago I don't even know whether we were even using those terms or not, and now we're getting into that sort of thing. When we propose managing lakes individually, as a body of water that has a personality and a set of biological conditions all its own, we don't get kicked out of the room anymore. People listen to it and that's come about by a lot of people putting in a lot of time out there, taking a lot of lumps on trying to get people to listen to some professional ideas about managing our fish and wildlife resources.

So I'm glad you're here. I think the exchange of ideas that you get into with the number of people that are here and the number of organizations and states and provinces that are represented is great. It never hurts to exchange ideas. I think we always come away with something we might be able to use or at least some ideas. I'm going to stay around until at least after noon. I'll get to hear some more of it, but I hope you have a good meeting. I know you will; it looks like it's gotten off to a good start. Dr. Shannon was right, I don't know if you've been outside yet today, but landing that airplane on this Sky Harbor deal down there on that little runway, we came in at right angles to it. Then he straightened it out. We had a little fun when it hit the ground there, but that's the sort of thing why we're running just a few minutes late and I apologize for that. With that, maybe you can catch up

on a couple of minutes here that you might get behind in and if you have anything you want to ask me about, any of my business that I'm into, I'd be very glad to answer. I'll be around for a little while. Thank you for coming.

JACK WINGATE: Thanks, Joe. Next on the agenda is on Minnesota Diversity. I'd like to introduce Gail Gendler who is the head of our Bureau of Information and Education. Gail.

GAIL GENDLER: Thanks, Jack. I know from the agenda that you fortunately, hopefully, will see a lot of Duluth while you're here. But for those of you who have never been to Minnesota, we want to make sure you see more of our great state. It's a very diverse state. You're seeing a beautiful part wit Lake Superior, with the woods, but the state is much more than this. What you're about to watch is called, Minnesota Overtures, done by the Minnesota Office of Tourism. It has won many international travel film awards. We consider it also very well done and it will give you a glimpse of the natura resources of Minnesota and much more including the people of Minnesota and a bit about some of the celebrations we participate in. You'll recognize a fe of our sporting teams. We want to give you a feel for more than just Duluth and we hope that you will come back to see our great resources statewide. T film itself was shot over a two year period. It was done by Russell Manning Productions. State contribution to it was, as you might imagine, quite high for a film of this quality. The Office of Tourism put $90,000 in it. But it's been used extensively.

JACK WINGATE: The next item that we are going to hear about is the liming o acid sensitive lakes. David Wright who is with the Ecological Services Section of the Division of Fish and Wildlife is the head of the acid rain program here in Minnesota. He is going to talk on the liming of Thrush Lake

DAVID WRIGHT: Thank you, Jack. Minnesota's participating in the acid precipitation mitigation program which is a cooperative program with the USF in four states. The purpose of this program is to study the ecological impacts of using lime to neutralize acidic precipitation in lakes and streams There are three other states that are participating by doing stream neutralization or stream limings while Minnesota is doing a lake liming experiment, which I am going to talk briefly about. This project is part of the National Acid Precipitation Assessment Program, which is looking at mitigative effects, principally liming. Detrimental impacts of acid rain on fish populations are a well-known phenomenon. This popular acid rain poster put together by the province of Ontario depicts concern about losses of a fishery due to acidification of lakes and streams. There's been a good deal of experience using lime to neutralize the impacts of acid rain on acidic systems, and it's well known that once you add lime to neutralize systems, fish can be reintroduced. What's not known, however, is how fast and to what extent the original biological community that inhabited these systems prior t acidification will be re-established. We could certainly reintroduce game fish of interest or forage species, but how fast the rest of the biological community will return is a more difficult question to address. Minnesota's involvement in this project is to look at this question from a different light. We are treating not an acidified lake, but an acid stressed lake. Essentially, we are trying to provide a measure of protection by adding lime

prior to when there has been major loss of the biological community. Protect those organisms that are there so that instead of having acidified systems and the loss of important species, be they game species or important forage organisms, the community remains intact. I would like to emphasize again that this is a short-term mitigative approach to combating acid precipitation.

This project is being done in cooperation with the USFWS. A long detailed protocol was put together by the service for state use. In the case of Minnesota, the lake chosen for use was Thrush Lake; the small lake in the upper right (of the map). This is the highest elevation lake in Minnesota that has an actively managed fish population. It is located in the Grand Marais area, in the middle of Cook County, up by Eagle Mountain, for those of you who are familiar with that part of the state; an area that receives both a lot of precipitation on a statewide basis and some of the most acidic precipitation that falls in the state. It has a mean annual pH precipitation between 4.6 or 4.7, which is about as acidic as precipitation falling in Minnesota gets. Other states and provinces in this midwest association obviously receive much more acidic precipitation than we do.

This is a five year project with a pre- and post-treatment phase. We are now 3.5 years into the project. Lime was initially to be applied in the fall of '87; it actually was applied in the spring of '88. I would like to talk just a little bit about what we've done and what we're finding. Initially the lake was closed to fishing so that we wouldn't have to worry about the impact of angler-induced mortality. In our attempts to determine what impacts were occurring to the fish populations, the main hypotheses that we were trying to test is whether base addition significantly affects the physical parameters, the sediment chemistry, the macrophytes--the whole biological community of the lake. We're looking at a variety of different things (biological parameters) and whether models that have been put together to estimate how much lime should be applied to give a certain amount of response are, in fact, accurate. This is just a picture of Thrush Lake, a relatively small, deep lake, very unproductive, typical of many acid sensitive lakes or acid stressed lakes in Minnesota. Many water chemistry samples are taken to characterize how the lake is responding to the lime addition. These are stratified with depth and are collected year round, which involves going in the winter as well as the summer. In addition to water chemistry data, there is other data being collected onsite, which is meterological data. Here's our tower where that data is collected. as well as monitoring the level of the lake's outflow. A picture of the weir where the outflow is gauged and recorded. The principal focus of this study besides characterizing what happens chemically, is to define what happens to the game fish population, because that's the real interest of the service and really what we are trying to manage.

The fish population in this lake is a put, grow and take brook trout fisheries which is stocked annually to maintain the fish. This is a picture of one of the brook trout. Besides looking at numbers, we are also asking questions as to whether or not the liming is going to influence condition factor, growth rates and such. The minnow community is relatively simple, composed of fathead minnows, pearl dace (shown here) and brook stickleback. Those populations are also being assessed to determine how those forage species vary in response to lime addition. Not only are we looking at changes in population abundance and condition factor, but we also did or are doing a

number of short-term bioassays to determine whether there is short-term mortality associated with lime addition or short-term mortality associated with spring run-off pulses of low pH, high aluminum water and whether lime ha any impact on changing that mortality. There are appropriate controls done a a hatchery where the fish are obtained. There is also a good deal of work being done trying to quantify changes in the zooplankton community and a qualitative assessment of what changes might be occurring in the benthic invertebrate community. We are also doing some qualitative assessments of impacts on the macrophytes. Here is a list of some of the dominant, (most abundant) macrophytes species that occur in the lake, but, again, this is jus being done on a qualitative basis. This lake, as observed in many acidified or acid stressed lakes had, prior to liming, a good deal of filamentous algae which is common in these acidified acid-stressed systems.

Now, I'd like to talk briefly about the actual process of lime addition. Fiv tons of lime was applied to the lake. It was hauled into the lake during the winter of 1987 and stored onsite. The product was almost pure calcium carbonate (about 99%). The calcium carbonate was ground to a mean particle diameter of about two microns. This small particle size was chosen to increase dissolution rate and slow the rate at which the particles settled so that most of it would dissolve in the water column and very little would end up in the sediments. The lime was applied by dumping sacks of lime into this hopper. Then a water pump pushed water into the hopper, the lime was mixed with water, and sprayed out onto the surface of the lake through this manifold. Living Lakes, Inc. was the organization that supplied the manifold and the pumping equipment that we used for the application process. Here's a picture of what the slurry box looked like in action. It took us about five hours to put five tons of lime on the lake. We were told that we were pretty slow and it should of only taken a couple hours. Novices at it, I guess, but that is what you'd expect. The slurry was applied to the surface of the lake Much of the lime did not go initially into solution. Here's an aerial photo showing the discoloration in water that occurred in response to liming. You can see the boat in the middle (of the photo) with the very white trail of th recently applied lime as it settles. You get a very green tinge to the water and that green tinge remains for about two weeks post application. Lime had number of dramatic impacts on physical and chemical parameters in the lake, a one might imagine.

One of the things that changed most dramatically was the transparency. Here in 1988, again, we applied lime in late May. The transparency went from abou 8 meters to about 0.3 meters within minutes of applying the lime in any one spot. That's because all of the undissolved calcite particles that remained in the water. Then gradually, over the next two weeks, that calcite dissolve and the transparency returned to its pre-treatment condition, then exceeded its pre-treatment condition apparently because of settling and loss of phytoplankton from the epilimnion. So, we had major changes in the transparency in the system associated with lime addition.

Likewise, there were some tremendous chemical changes. The firstpoint I'd like to make is that pH went from about 6.5 prior to application to about 9.5 within a number of hours. That 1000-fold change, or 3 units of magnitude change (of the lake) occurred very rapidly. The change was confined to the surface layer, but still it was a relatively dramatic impact on the system, a

relatively dramatic shock. Lower depths responded more slowly because the lime settled very slowly. Four meters rises less rapidly, and by the time you got down to eight meters there was no measurable impact of liming until the fall. So when we applied this material, we got a very stratified impact on the lake. The same thing could be seen if you look at what we call acid neutralizing capacity (what you know as total alkalinity). There was a dramatic jump, a very rapid jump in total alkalinity as one would expect. Also in calcium, dissolved inorganic carbon, in response to lime addition. Again, the impact is most apparent in the surface water and the deeper depths respond more slowly, which provides organisms that have the ability to move into or out of the zone that is being limed an opportunity to escape. If they are impacted, apparently, or if they are stressed by the liming, organisms do have an opportunity or zone that they could move to to get away from those stresses.

There were few short-term negative impacts. We did not see any mortality-induced by liming on our caged fish. The fish survived the lime very well, and we watched schools of minnows swim through the very turbid water at the surface without any apparent ill effects. However, some of the zooplankton, in particular, showed very acute short-term mortality patterns. This is holopedium abundance in May, prior to liming. Holopedium disappeared from the population in July, August and September and reappeared in low numbers in October. Not only Holopedium, but another small rotifer, Keratella, also showed marked decreases in abundance associated with liming. But, on the whole, there were few short-term aquatic effects that we could find associated with the rapid rise in pH.

However, there do seem to be some more dramatic long-term changes, which are just now becoming obvious. These seem to be associated with the fact that although we did not raise the pH very much, (by the end of the fall of the first year after liming pH was only up about 0.5 unit). What we've done is increase the calcium concentrate in the lake a lot. What we've essentially done is, we've done a calcium addition. A lot of organisms seem to be responding to this increased availability of calcium. Snails have reappeared in the lake in great numbers, the fathead minnows now seem to be able to reproduce much more successfully and their population has increased by an order of magnitude. Sphagnum beds, which were very abundant in the 5-8 meter depth range, seem to be dying out. Macrophytes species that were initially low in abundance now are becoming much more abundant. Although we're not done with this study, we're tending to attribute these changes not to the small increase in pH, but rather to the fact that we're looking at organisms that were stressed by the low levels of calcium in the water, and by using calcium carbonate to lime the system we've made conditions much more favorable for these organisms.

I went too fast, but I'm done. If there are any questions, I'd be glad to take them, but otherwise the next speaker had indicated that he has lots to say.

Q: Did you have a control lake nearby?
A: No. Unfortunately, none of these programs have controls. The control is only a pre- and post-. The experimental design is pre-treatment and post-treatment monitoring and there are no control lakes, which is real difficult given the short-term nature of these projects. Even at five years trying to account for weather related variability in the results will be real difficult, but no, there is no control lake.

Q: What is the cost of treatment?
A: The actual cost of treatment was $1,500 for the lime, but in terms of total treatment cost, I don't know. The total cost of the project is large, but there is a great deal of time (and money) put into the chemistry and maybe $5,000-$7,000 to treat a 16 acre lake is what it cost us. Our estimates of how often that would have to be done are roughly once very five years.

Comment: We've done some on the strip mines and coal mines in Indiana and it was a short term success. These patterns of fish populations increase for about two years. In any of these systems, I don't know what the water residency times in your systems are, but whenever you talk about liming, be it a stream or lake, you have to take that into account because the alkalinity you add is washed out of the system or into the groundwater. In addition, there are processes which consume alkalinity as well as generate alkalinity within the lake itself. These should never be looked at as a one time shot. If you're going to get into these as a short-term mitigative strategy, you're looking at repeated applications over time depending upon the rate at which the system re-equilibrates. Some of the most seriously affected Adirondack systems would need to be treated yearly. That's just not practical. Or after every major storm event. You need a system that has a four or five year residency time.

JACK WINGATE: If you have further questions, Dave will be around at least through lunch today and probably for part of this afternoon. He will be more than happy to answer any other questions.

The next speaker will be Carlos Fetterolf who is the Executive Secretary of the Great Lakes Fisheries Commission. Carlos.

CARLOS FETTEROLF: Part of my talk is going to be on the introduction of exotic species in the Great Lakes. The alien ones come from all over the strange places. Here's one I'm talking about. It's called the Zebra mussel. And this has recently been introduced. It's in northwestern Lake Erie at this time and this is how it's colonizing some of the substates of that lake. I'll pass this around. We have as many as 30,000 per square meter on some of the walleye spawning reefs.

That's an Atlantic salmon, that was the first fish, as far as managers know, that was eliminated from the Great Lakes. That happened around 1890. As early as 1837, there were expressions of concern from both countries about problems with fish populations within the Great Lakes. And between 1890 and 1940, there were five unsuccessful attempts between the two countries to bring about fisheries agreements. But, the sea lamprey managed to get into the upper Great Lakes, probably through the Welland Canal which was constructed to go around Niagara Falls. It came from the Atlantic Ocean. It apparently was

never a very serious problem on Lake Ontario early on. But it had been slowly working its way through the lakes, first found in Lake Erie in 1921, in Lake Huron in 1932, Lake Michigan in 1936 and in Lake Superior in 1946. When it was first found, it wasn't really recognized what a serious problem it was going to be. Gradually you began to see the impact it made on the lake trout. These are commercial catches from Lake Michigan, which had been pretty stable, between 5 and 7 million pounds a year for many years, and then dropped starting in the mid-40's and through the 50's until it became an academic question, whether they were extinct or not.

Well, this bunch of people in baggy pants and funny looking hairdos got together in Washington about 1955. They are the people that actually finalized the convention on Great Lakes Fisheries. There were a few whiteheads in the crowd that might recognize people like Jim Moffits who was with the Great Lakes Fishery Laboratory and Fred Westerman who was the Chief of Fisheries in Michigan for many years. The convention was established to determine the need for and type of measures which make possible the maximum sustained productivity in Great Lakes Fisheries of common concern. We have taken that to mean improve and perpetuate fishery resources. The convention created the fishery commission and charged it to formulate the fishery programs, determine best measures for achieving its purposes, to coordinate and undertake research, advise the contracting parties, control the sea lamprey and publish. Well, the only way that the Fishery Commission can even start to do those things is to work with its cooperators. In Canada, we work with external affairs because they are involved in international agreements and, of course, fisheries and oceans. We work with the province of Ontario and the Natural Resources Departments of the eight states. There are two tribal authorities within the Great Lakes that have some management authority and they are full partners. In the United States, we work with the Department of State which is a counterpart of External Affairs, the Fish and Wildlife Service and sometimes the National Marine Fisheries Service when they have some left over energy from their work on the east coast to come into the Great Lakes. When you consider the national boundaries between Canada and the United States, which is essentially run down the mid-lines of the lakes starting over on the east, through Lake Ontario, Erie, up through Lake Huron and up through Superior, you realize that Lake Michigan is entirely within the United States. This means that the surface area of those lakes is divided 68% U.S. and 32% Canadian. When we talk about funding for sea lamprey control, it's funded 69% U.S., 31% Canadian. That was based on the value of the commercial catch of whitefish and lake trout before the sea lamprey devastated those fisheries. When you talk about the management of the lake, the champion for division used to be Lake Erie, because there were four states and the province of Ontario. Now the champion is Lake Superior. You have the province of Ontario, the states of Minnesota, Wisconsin, and Michigan, and you have two tribal authorities up there - the Great Lakes Indian Fish and Wildlife Commission on the west end of the lake and the Chippewa-Ottawa Treaty Fishery Management Authority on the east end of the lake. Six entities are involved in the fishery management of that lake. In order to handle this, or work with these groups, the Fishery Commission has four members appointed by

the President, and four appointed by the Governor General and Council of Canada. They're really appointed in Canada by the Cabinet which is called the Privy Council. That is Gene Savay at this time. Down below the Fishery Commission contracts with its two agents for sea lamprey control - the Fish and Wildlife Service and the Canadian agent is Fisheries and Oceans Canada. It's a very workable arrangement, but it's not without its problems.

Some of you aren't too familiar with the life history of the sea lamprey. Now, I'm going to run through how we control these now. I guess the best way to start is in the lakes where you have the parasitic phase. It's living there from 12 to 20 months, it's parasitic on fish when it first starts being parasitic, and perhaps it's 5 or 6 inches long. After spending 20 months in the lakes it's probably 16 to 18 inches long and it doesn't get that way from sucking on rocks. It gets that way from sucking on fish. The lampreys migrate up tributary streams to spawn. There, larvae can spend from three years, and the figure there says seventeen years, but we're no longer sure of that. But let's say that from three to ten years. Now that's a pretty good strategy for a parasite, not to send its young down to the lake all at once. The transformers change from a harmless filter-feeding animal about the size of a nice big night crawler into the parasitic phase. They develop teeth in the buccal canal, they have teeth on their tongue, and they develop eyes and then they go downstream to feed on fish. That's what the oral disk of an adult looks like. You can get an idea of the size of the animals and their adult parasitic phase. They make a whole variety of wounds on fish. They can make one small hole and stay on that fish for many months until they are satiated, or these are spring wounds where the lamprey was kind of sliding around or riding on the fish. These are lake trout from Lake Superior, by the way.

Our primary method of control is with selective chemical, selective, when it's used properly and when you have just the right concentration in the water body. You must have a certain minimum concentration so that you kill the lamprey and if you have too much, you start killing nontarget organisms. It's our only truly effective tool at this time. We don't like the idea of using chemicals and a lot of other people don't like the idea either. Chemicals are put in 400 tributary streams of the Great Lakes. We have perhaps an average of one incident a year where there is some kind of more than a minor fish kill and citizens get aroused. I'm always amazed there aren't more fish kills. It shows the skill of the people in using material and applying it. We're working rapidly towards an integrated program but there are many hurdles in our way. With constructed barrier dams on some 20 streams, those low head barrier dams have trouble with passing other species of fish. There are traps. You can see one of the workers is standing within a trap in there, and when we empty the trap in some of those streams there is one hell of a lot of lamprey. Those lamprey did not come from that trap, but those lamprey would come from a trap that we would have installed in major rivers like the Sheboygan or St. Mary's River between Lake Superior and Lake Huron. This problem is far from solved.

This is the Hammond Bay Biological Station of the Fish and Wildlife Service. It's in Michigan and is situated on Lake Huron. It's a research station for us. This shows some of the attractant and repellant tests. We've spent 3/4 million dollars trying to find out if there are certain attractants we can use

for sea lamprey. We found that 55% percent of the males like girls and from 45% we don't have any response at all. So it's really 3/4 of a million dollars that we have spent in trying to push the sophistication of the whole attractant science. We have some of the absolute top people in the world working on the feeding habits of ammocetes larva in streams and working on the endocrine system of fish and the endocrine system of lampreys to see if we can find some weakness. We supply lamprey for research purposes to academic researchers all over the country and as we say, "And, for God's sake, when you're looking at these eyes and nerves, keep remembering we're trying to control these animals." These are experiments at Hammond Bay where the lampreys have attached to fish and we are trying to develop better models of how effective a predator or a parasite the lamprey is. Some of our best estimates show only 14 to 16 percent of the fish attacked by an adult lamprey survive that attack. This young lady is S. Sauer; she's one of the most respected fish endocrinologists in the world. Here she is separating a pituitary from the brain of a sea lamprey, and unfortunately, you need one hell of a lot of pituitaries to do much experimenting.

The combined efforts of water quality in fishery management have turned what was a devastated fishery into one with an annual economic impact of about 4.5 billion dollars in the Great Lakes. We have about 4.4 million fishermen who spent about 55 million angler days on the lakes. I wish I had brought some graphics concerning the lakes, because I didn't realize so many of you were from outside the Great Lakes area. But for those of you who are wondering about the size of this ecosystem, you're at the western tip and this stretches 800 miles to the east. If you went from the northern part of Superior to the southern part of Lake Michigan, you go 500 miles as the crow flies. We're dealing with an ecosystem of 95,000 square miles of water.

The Commission's program has been level funded for about six years. We have been robbing Peter to pay Paul. Michigan knows that well. We had given them $1 million in funding for barrier dams, but took it away from them and used it for sea lamprey control. We're at the point now where we must cut back on the sea lamprey program if we don't get help. A year ago, we warned our cooperators of an anticipated shortfall and program reduction. Last November, we announced the cutback. Last December, the states, the tribes, and the provinces took action. Led by New York and with a lot of help from the Sport Fishing Institute, the agencies essentially took this stand. They said federal governments of Canada and the United States, a convention on Great Lakes Fisheries charged you and mandated you to eradicate or minimize the sea lamprey in the Great Lakes. You're not doing it. We want a greater commitment from you. And the states, the tribes and the provinces prepared a white paper which is in the back, and they made presentations to the House of Representatives, to the Senate, to the Great Lakes representatives which resulted in letters signed by 36 congressmen and 15 senators to the Chairman of the Appropriations Committee. The presentations went like this, and this is not the whole presentation. There was a long part in the middle that explained to Congress what the hell a sea lamprey was, and we had some plastic models up there, and all of them were going "yuck, yuck, ooh!" From this Area Representative Obie one of the strongest leaders, Senators Durenberger and Oberstar from Minnesota and Purcell from Michigan. The leader in this was Bruce Schupp of New York State. This is what was said to Congress and to the Senate Representatives. What's the problem? In the sport and commercial

fisheries, there is a serious economic decline. The threat begins in 1990; that's when we're going to cut back on the program. The problem will peak in 8-10 years. The annual loss after 10 years will be $1.4 billion a year. Lakes Michigan, Huron and Ontario, will be the most seriously affected. What's the cause? The Great Lakes Fishery Commission budget shortfall. At the time we did this, the shortfall was $2.8 million. Therefore, the Fishery Commission must reduce sea lamprey control. We would eliminate Lake Erie control when we just started and reduce Michigan, Huron and Ontario control b 40%. The results will be that the sea lamprey numbers will double; trout an salmon will be down 50%, whitefish and chubbs, we don't have as good models for them, and angler expenditures will be down 50%. The tourism infrastructure could collapse. Commercial landings would be down; government investments would be lost and private investments would be lost. Why? Because our shortfall would be 2.8 million for fiscal year 1990. We've had stable funding for years, our costs have increased, there are more lamprey streams, they are expanding their habitat, and we buy our TFM, our toxicants, from West Germany as they're the world's only manufacturer; we are the world' only user. When the U.S. dollar goes down, we have to pay a hell of a lot more for the same amount of TFM. How have we done this? How have we met the shortfall so far? We have diverted working capital funds, delayed integrated management of barrier dams, electrical weirs, sterile-male release research and we've used up our TFM inventory. We expended all of our reserves in this year 1989 and our cutbacks are proposed for fiscal year 1990. The blue is ou annual appropriation which, as you can see, has essentially been level; the green has been the funds that we have been able to supplement our program wit by using our reserves and by taking back contracts; and the red that you see on the far side, is the $2.8 million shortfall that we're trying to overcome Secondary problems are that lampreys are expanding their range. We have untreated populations in the St. Mary's, the Niagara River and Lake Erie. Th intensity and frequency of treatment is too low, predation losses are too high. We anticipate from our models and our sampling that over 100,000 lake trout between three and five pounds are killed by sea lamprey every fall on Lake Ontario. That's about the same number that are caught by anglers out o Lake Ontario. Economic opportunities are lost, and there's a continuing dependence upon chemicals. These figures are taken by some models that were developed by Joe Kuntz of Case Western Reserve, working with information fro fisheries scientists and lamprey biologists. The top green shows what the states, the tribes and the provinces felt was the mandated level of sea lamprey control. If we could achieve mandate level, the fishery would be up 43% after 10 years. By the current level of control, that's the red line; i would be flat. With the reduced control after 10 years, well I guess this i based on a little over 10 years, it would be down by 50%.

What are the needs in fiscal year 1990? The first part is what the Commissi asked for, the $9.6 million, the upper part up there. Ninety-one percent of our budget is taken up with sea lamprey control and research. With 6% in research, this leaves a very small amount left over for administration of th program. We asked for $9.6 million and at that time the government told us were going to get $6.8 million. So we're looking at a $2.8 million cut.

The proposal was to maintain control in Lake Superior because we've had the greatest luck in Superior. We have the greatest level of control, we have the greatest amount of lake trout reproduction, the fishery is excellent, stable and we didn't want to touch our success. In Michigan, Huron and Ontario, we cut back by 40% and research by 30%, administration by 10%, and eliminated our research work for alternate controls. The solution was that we must spend a few million or lose billions. The cooperators, states, tribes and provinces, took the initiative to find the problem, inform the public, ask Congress for an increase. A government agency, a government animal created by Canada and the United States. For the program, it's being given to the state management agencies, states and provinces, and they in turn are saying, hey, we want greater help. So they are cooperatively helping the Fishery Commission, hopefully, to help themselves.

In this block, the lower blue is our projected request. The next is the $2.8 million needed to maintain the current program. The states, provinces and tribes said we need an additional $4.3 million to achieve the mandated sea lamprey control level. We think you need $1.6 million in capital funds to build the facilities for additional research. The cost of no action? $1.4 billion in lost economic activity, 33,600 lost jobs, $1-2 billion lost economic opportunity.

It's an international problem, which is involved with federal authority, it's established by convention between the two countries, it's mitigation for navigation canals that were constructed. There's a responsibility to maintain the tribal fisheries. There's restoration as a national priority with the Fish and Wildlife Service. There's regional magnitude and coordination needed, funding stability must be assured, focused regulation and state and local investments are all involved. So far, because we've raised a stink, the State Department, the Department of Fisheries and Oceans in Canada, have come up with about $1 million more than we expected. The response from Ontario and the states and their fishermen has been varied. It's been tremendous from some states, the effort they have put forth to have their fishing groups and sportsmens groups petition Congress. Ontario is involved in a very large action at this time with all of their groups. We'll know the results perhaps by this fall. As you can imagine, I've spent a lot of my time in the spring and summer talking to reporters. And one guy said, "If you were General Motors, and came out with an announcement that you were going to, because of some regulations, lose $1.5 billion in economic activities, and you were going to lose 33,000 jobs, you'd be on 'Good Morning, America' tomorrow." But because we're talking about a diversified industry all over the lakes, you don't attract the attention that you would if you were a single source like General Motors. This is a very critical time and the Great Lakes states should encourage their representatives to follow up on those petitions that they made to their congressmen who can influence the leaders of the Appropriations Committee and the budget people.

Now I'm going to change subjects. If you remember in that organization chart of the Fishery Commission, there were some various boards and committees and across the bottom, Lake Committees. Those are not really Lake Committees of the Commission itself. They are Lake Committees that were created by the DNR's themselves, but they work under our umbrella. The Council of Lake Committees is all of the Lake Committee members put together. They have a

major role in transboundary issues. A Lake Committee is made up of a senior staff member from each agency administering the fishery and is assisted by expert advisors from all concerned agencies. They're on the management research firing line. They develop and coordinate studies and encourage implementation of their findings. The members appoint internal technical committees to advise them on issues such as coordination of forage base assessment and stocking programs, calculation of total allowable catch for critical species, determination of minimal size restrictions, allocation of harvest among jurisdictions, the choice of genetic strains for stocking purposes and the development of technical management programs for various species. One of the early moves that the Council of Lake Committees made, was to come to the Commission and say we need a joint strategic plan for management of Great Lakes Fisheries. Recognizing the threats to the fishery resource and opportunities for optimizing the fishery require greater management and capability than any one agency or government can provide. The Council recommended in 1978 that the Fishery Commission develop a strategic plan. In so much of its work, the Commission agreed to facilitate the joint efforts of its cooperators by providing guidance at the policy level and a neutral resource within which mutually beneficial programs could be developed. The Commission then established a Committee of the Whole, of which Joe Alexander was one of the members. Members are agency directors and administrators. We had to do that because in order for the fishery people to develop a plan, they had to commit a lot of time to it and the only way to get that commitment was through their directors and administrators.

Well, the directors and administrators also had veto power over this plan. Two years later, in Ottawa, the agency leaders signed their plan. It's not the Commission's plan, but it is their plan. The plan provides direction and focus for the Great Lakes Fishery Management and Research Committee. The goal of the plan is to secure fish communities based on foundations of stable, self-sustaining stocks, supplements by judicious plannings of hatchery-reared fish to provide for these communities an optimum contribution of fish, fishing opportunities and associated benefits to meet the needs identified by society for wholesome food, recreation, employment and income and a healthy human environment. There were strategies involved, consensus accountability, environmental management, and management information. Now one of the neat things about it, there were responsibilities assigned and a triparte type fashion. There were assignments made to Lake Committees: To define fish community objectives, measure progress toward those objectives, to bring environmental issues to the Commission, negotiate the consensus, and report on progress. Then there were assignments given to the agencies: Identify the plans, discuss changed practices with the lake committees, report progress to lake committees, share data, and develop compatible information systems. Procedures for the GLFC were to create a fish habitat advisory board, refer, follow environmental problems, arbitrate, develop environmental predictive capabilities, track activities, catalogue information, summarize Lake Committee reports and recommendations annually. How does it work? Well better than not having a plan. It provides guidance and because GLFC has no line authority over our cooperators, we depend on the Committee of the Whole, the directors and administrators, to evaluate and encourage the performance of the Lake Committees in working on a lakewide basis. Well, that's the way we work.

Here are just a couple of problems that we face. These are the species of fish that are in the Great Lakes at this time. It's not all of them, but we've got some new ones now. But if I was to cut out the exotic species, those that have been introduced by the fishery managers, and those that have invaded, it would kind of look like that. You can see there are lots of members of that fish community that are not native species. Do you remember the alewife? It was well known in 1873 down on Lake Ontario and then it apparently came up through the Welland Canal or through the Erie Canal. There are other connections into Lake Erie then up into Michigan, Huron and finally up into Lake Superior. Well, you know introduced species often do very well in some places. They came into the upper lakes at a time when our predators were very low. They had die-offs. They turned our swimming beaches into fish chowder. And they plugged intakes, both municipal and industrial. I've always wondered when they were going to plug the water intake into a nuclear power plant that was using it for cooling water and we would have a melt down. We buried tons of those fish on swimming beaches with bulldozers.

Well, now there is another invader that's come in. That's the ruffe. It's not the river ruffe. We started calling it river ruffe and an ichthyologist jumped all over us. It's a ruffe. Here are some newspaper articles about it. It was found right out here in the Duluth-Superior Harbor. What's its normal range? You can see it's all over the northern part of the Soviet Union and the Baltic Sea, and if you exchange that circumpolar, if you extend it, you can see that it is going to cover a hell of a big area temperature wise in the United States. What's the effect of the ruffe in other areas where it has invaded? Let's take a look at Loch Lomond in Scotland. The line going down extends from 1982 through 1987 and this is intake information from Loch Lomond. As you can see, the percent of the catch went down for the European perch from 70% to literally 0, while the percent of the catch for the ruffe went up from about 9% to about 90%. Now that's taking over the ecosystem! How are they getting in here? Well, we think possibly through the ballast water. Ballast water is not potable water. Great Lakes ships and ships that travel the oceans are designed to have tanks of ballast water on board. They balance the ship. They give it better maneuverability. So, how much water might come over here in the ballast water of a ship? As much as 1.4 million gallons, which could come from Amsterdam, an estuarian situation, and be discharged in the Duluth Harbor. And when fishery biologists realized that this was going on, they were very embarrassed.

What else has come over? Well, I'm just going to show you a few of the things that have come over lately. This little creature is called BC. It is a predacious zooplankton. It has a ferocious appetite. For all we know, it's going to prey on species of zooplankton which are extremely important to larval fish when they are in the developmental stage. We don't know what else it's going to do. So far it's a very popular food item with fish. What we don't really know is the effect on fish yet. People find the intestinal tract literally jammed with those long spines. We don't know if the fish are able to pass them any better than they can pass rubber worms. But, the book is out on it.

Now I passed that rock around, the zebra mussel. Those threads in the front are what distinguish a mussel from a clam. A clam doesn't have any of those thistle threads. A clam can't necessarily attach to a substrate. But a mussel can, it uses those threads. This is how a mussel shell was colonized by zebra mussels in Lake Erie. Here are some other news articles about the significance of mussels. If I talked to municipal water intake people and I told them, geez, you know, the ruffe just came in. We don't know what the ruffe is going to do. Dick Hassinger will tell you something about that. They would take a look at me and they'd say. Geez, that's too bad. If I tel them that BC was brought in and it's becoming so common that it's accumulatir on the downrigger lines of the trollers throughout the Great Lakes. It's in every one of the Great Lakes. They'd look at me and say, geez, that's too bad. But when I tell them about the zebra mussel, they pay attention. You' all heard about that Valdez oil spill. That's going to be all over in just a few years, nature is going to heal that wound over. You're not going to ever know there was a Valdez oil spill. Those populations are all going to come back, the oil is going to be gone and we're going to be living with this god damn clam for centuries. It's here, we didn't have this before. This thing gets on buoys, it gets on boat hulls, they are going to have to scrape boat hulls, it's going to be spread not only to the Great Lakes, but it's going t be spread to Iowa, and it's going to be spread everywhere. You've got fishermen that come to the Great Lakes and they're going to pick this up on their hulls, they're going to trailer their boats back and you've got zebra mussels. This guy loves water intakes. There's one water intake on the nort shore of Lake Erie that estimates that they have nine dump truck loads of zebra water mussels in their water intakes. Any of you that took physics kn about the dynamics of water intakes. You can get so much water through a pi this big, but if you close it down like that, you're in real trouble. International Joint Commission has faced up to this balanced water issue, that's the International Joint Commission. They have part of that in their new annex. We have the number of ships in ballast water that have come in t last ten years, 7,037 of them. The House of Representatives has introduced bill to control this. All of you who have concern should write your representatives. There are lots of agencies with roles here. The states do at the bottom should definitely assume a role. We are meeting with the Coas Guard. We have guidelines to exchange the ballast water. At the 2000 meter level, 2000 meter depth, it is voluntary for now. We are looking perhaps in the future to making it a regulation, an onboard sterilization.

One more thing. Fish consumption advisories. The National Wildlife Federation has taken a role away from the states. The governors have said t the states, "Come up with a uniform consumption advisory." They are trying. The National Wildlife Federation comes up with their own. It's resulted in great confusion. I wanted to show you, for example, why you can't be sure about the effects of toxicants on people. This is the estimation of what a lifetime dioxin dose would be to cause one additional cancer in 1 million people. Now, you all probably know, that cancer will strike 285,000 of thos

million people to begin with. Now we're looking at statistics that say there's going to be 285,001 cases of cancer. What's the lifetime dose? These are 10 agencies looking at the same data, the same toxicity tests. The USEPA says .006 picograms per microgram per day. You go down to Canada Health and Welfare and they say that 10 picograms per microgram is the dose that will cause one additional cancer. We're trying to draw conclusions from that kind of data and those interpretations. So it's tough. And I'll stop.

JACK WINGATE: Anybody has any specific questions for Carlos, he'll be around for lunch and shortly thereafter. Because of the lateness, we will catch up with him then. Thank you Carlos.

Some nice rollers coming in on Lake Superior. We thought that it would be appropriate to have a talk on how Lake Superior has changed in the last 10-15 years sportfishing wise. In the early 70's, there were no sportfishing boats compared to what we currently have today. Today, talking on "Lake Superior Fisheries: A Success Story" is our Chief of Fisheries, Dick Hassinger.

DICK HASSINGER: Thanks, Jack. I would like to show some pictures this afternoon and try to illustrate some of the things that have happened with fishing here on Lake Superior. We are going to try to tie it in with the Great Lakes Fisheries Commission and the overall view of management on the lakes and how we interact as agencies among the various jurisdictions to produce some outstanding recreational opportunities. I would like to talk a little bit about Lake Superior and more specifically how this success story relates to what's happened to Minnesota and what its future may be.

Lake Superior, of course, is the largest and deepest of the Great Lakes. It historically has supported significant fisheries. Early settlers to Lake Superior were attracted by the abundant fish populations, and many of the settlements along the coast of the lake were involved with the fishery and the fish they could capture in the lake. Lake Superior as a whole has produced about 4 million pounds of lake trout annually. That contribution was one of the main reasons for settlement along that shore. Minnesota has about 1.5 million acres of Lake Superior water. Although that sounds like a lot, we are actually the smallest owner on the lake or have jurisdiction over the smallest portion on the lake. We have about 150 miles of coastline, most of it is rocky, steep sided coastline and in many spots, along our shore within a mile of shore, you can reach 600 foot depths of water.

As I mentioned, the lake trout was the primary fish species in the lake. Historically, 4 million pounds of lake trout out of the lake as a whole and about 350,000 pounds on average in the commercial fishery from Minnesota waters. The lake trout, as we learned and looked back, were not one homogeneous stock, but there were many genetic varieties of lake trout including some other subspecies such as the fat trout or siscoet trout. There were numerous genetic adaptations identifiable when you talk to commercial fishermen. For instance, on Isle Royale they talk about the red fin, the channel trout and the great trout. Some were living in mid-waters and some were close to shore. They all had various behavior patterns and different spawning times.

The commercial fishery started in the late 1800's in Minnesota. Our records go back to the early 1900's. Total commercial production reached close to 600,000 pounds out of the million and a half acres of water and during this period, 1900 to about 1948, averaged about 350,000 pounds. We think a combination of fishing, especially what's been historically called the fishing up process, that is as the local stocks or varieties decline, fisherman would move their nets to other locations and in the past, some of those stocks would come back, but at that period of time, in the early 50's, those stocks were not coming back. Suddenly, when they reached some of the last areas, that combined with the increasing lamprey activity, resulted in a collapse of the fish stock. It was a major collapse. Lamprey activity was at a high level in the early 1960's and virtually no native lake trout were to be found. Of course, the major influence was the predator and the lamprey and you've heard some about the control of that organism from Carlos this morning. The lamprey was pretty prevalent in Lake Superior in the 1960's. Of course, TFM was developed and electrical barriers were operated on some of the major tributaries on Lake Superior both as a control measure and as an index to counting the abundance of those lampreys. The control program is under the Great Lakes Fisheries Commission who subcontracted to the agents of the USFWS on the U.S. side. They are the ones that do the control program. Lamprey attack lake trout and create wounds and lacerations on the skin. You can notice the target area they go for is close to where they can get at some of those internal organisms. Usually attacks in that area result in death of the fish. Lampreys tend to select for the larger fish and most of the mortality studies that we've done indicate the losses are on the bigger fish. Abundance, size and longevity of those fish influence predation. Lake trout are relatively slow growing, long lived fish and are exposed to lamprey to a long period of time, thus becoming a major prey species for them. The barriers which were operated initially on about 16 barriers on the south shore of Wisconsin in Michigan waters back in 1961 took nearly 60,000 lampreys in one year. The resulting first round treatments on the U.S. and Canadian tributaries on Lake Superior resulted in that barrier catch dropping to less than 10,000. Then subsequent treatments on the streams, both in Ontario and on our U.S. side resulting in that barrier catch as an index of abundance of lamprey staying down around 10-15,000. Now this doesn't represent the total amount of lampreys in the lake because many rivers, especially some of the bigger rivers we were not able to get index counts. After 1980, based on the cost of operating those electrical barriers, the barriers were done away with. Some index traps are fished annually just to get some abundance of what's happening. On the Brule River in Wisconsin, the barrier weir was installed in conjunction with the state and their operating a weir for capturing steelhead and migrating brown trout.

The results of the lamprey control resulted in increased stocking efforts and all of the states and Ontario and the USFWS got together and planned an action for stocking of lake trout. Some brood stock obtained from Isle Royale, served as the initial egg source. The federal hatcheries became very important in raising these lake trout to yearlings in size for stocking in Lake Superior, usually around 2 million. In the past, upwards to 2 million lake trout have been stocked. Most of the initial stocking has been done

along shorelines and easy access points such as this and we found out that in those areas along the south shore where it was mainly sandy beaches, the lake trout tended to come back to where they were stocked or their reproduction was less than satisfactory because the spawning substrate was not the proper substrate. Since that time, in many areas, we shipped them off shore, stocking in those traditional areas where lamprey lake trout spawn.

Along the Minnesota coast, it is a little different. Just about our entire coast is a rocky shoreline, most of it is good spawning substrate, so we can continue to stock off of shorelines and into easier access points. When those lake trout come back, there are some fish in the available spawning areas. One of the important aspects of the whole program was to assess and evaluate the results and to determine how well a program is doing or what modifications had to be made. Most states initially used commercial fishermen that had fished the grounds prior to the lamprey, causing the collapse. The commercial fishing was essentially closed except for these fishermen operating on a permit basis to sample for us. Minnesota has about 10 of these fishermen distributed along the shore and we've got records going back to about 1965. These assessment activities have fished essentially the same mesh and amount of net in the same locations from year to year. They are required to report to us on abundance of lake trout, numbers they catch, length measurements, count lamprey marks and provide other biological information used to assess the program. That is working very well for us and continues to be our major source of information regarding status of the lake trout population. The goal of the whole program is to reestablish lake trout populations that sustain themselves.

Some areas in the lake have recovered without stocking or with minimal stocking. They were areas that carried a remnent natural population of spawning adults that were able to bring off successful year-classes during a period of time when as those year-classes grew up, enough of them escaped lamprey depredation to go back to those reefs and spawn and keep that cycle going. Isle Royale is an example where there were not fish stocked. That population has recovered through those native stocks. There are a few other off-shore reefs that have recovered without stocking. The major problems seem to be the inshore areas where lamprey activity was the highest and where reproduction or where the native fish seem to completely disappear. There are now many areas of the lake that are self-sustaining in the Wisconsin area; the Gull Island Shoal area is self-sustaining. Minnesota, however, has been slower in the recovery. Part of that has been because lamprey activity has been high and it has been only recently that we've been able to accumulate enough of the adult lake trout in order to start spawning. Lake trout are slow growing, old individuals and usually start spawning at about 8-9 years of age for the females and can spawn and can grow up to 15, 18 or maybe 20 years of age and reach sizes of 30 pounds or more. These big lake trout become a real necessity for successful egg deposition and for enough survival of the young. It is important that lake trout again be established in this size range. Unfortunately, that is the size that become primary targets for lampreys. We still have problems with gaining enough lake trout of that size to get enough egg deposition to really bring that population up, but it is occurring.

This is a graph of Minnesota waters, of the response of juvenile lake trout and some small mesh nets that we've fished in the lake over the last 16 years. As you can see, we're starting to see higher abundance of young lake trout about 3-5 years old. Right now in Minnesota waters, these juveniles make up about 20% of our samples. Lamprey wounds continue to be a problem. We do see declines, but right now, 5-7% of the spring samples are carrying fresh marks on them. Mortality is still a major factor on the lake trout. We've got here an illustration of the number of fish at each age. The steepness of the graph indicates the quality of fish that are occurring. In 1974, samples indicated no lake trout above 11 years of age and the slope indicated that they disappeared pretty fast. All of that was the result of lamprey activity. That's compared with some samples we had in 1948, which represent probably the best information of what mortality rates may have been on lake trout. It is estimated that with this curve, that about 50% of lake trout were dying each year without sea lamprey and if you extend this out, lake trout up to about 18-20 years of age probably are fairly common in that population. Today, we've improved as the lamprey control program has gotten more efficient. We have extended the survival on those older fish and these are becoming very important. Egg deposition and survival and spawning activity have increased, which is the result of increasing numbers of native fish. There is a big difference between 1948 and 1984. I mentioned earlier about 4 million pounds of lake trout were harvested during the major fishery that occurred and right now, estimates are that 4 million pounds are coming out of the lake. The difference is about 2 million pounds are coming out because of angling or commercial fishing and another 2 million pounds are dying because of lamprey activity. We still have a problem that such a high proportion of the total mortality that is occurring is due to lamprey.

Another fish that is an exotic to Lake Superior, in fact, stocked in Lake Superior here in Duluth for the first time in the early 1900's, is the steelhead rainbow trout. The steelhead has taken on quite a significance in Lake Superior. It is important for fishery, both in the lake and in the spawning migration that occurs in North Shore streams. During the period starting with the ice off in the streams, about the middle of April until the end of May, spawning steelhead come into the North Shore streams and in fact, quite a few anglers try to angle for these spectacular fish. Steelhead, of course, are considered anadromous in the Great Lakes, that is, they ascend the tributary streams to spawn and the young live in the streams for several years and then they migrate back out to Lake Superior for their adult life. The steelhead like to spawn in slower moving headwater areas were they usually select areas with a pool running into a ripple area, build a nest and deposit their eggs. The eggs usually stay in the nests 20 or 30 days and then hatch out with the young, seeking the slower moving areas of the stream until they grow a little older. They then move into the more rapidly moving parts of the stream and become migratory. Usually these young steelhead will spend 2-3 years, depending on their growth, before beginning their migration down to Lake Superior. Our studies have shown that the steelhead home to their parental stream in most cases, to spawn. Minnesota's coastline has 59 streams with about 150 miles of water available to spawning steelhead. One of the big problems we have along our rocky, steep coast are waterfalls that inhibit the steelhead from ascending very far to spawn. Minnesota has had an active program over the last 40 years to alter barriers in order to gain additional spawning water and open up more water for the naturally spawning steelhead.

This is a small project on Lester River and the city park in Duluth. This formerly was a barrier that inhibited steelhead migration. They would get about this far and jump and with nothing to jump to here. Using jackhammers we were able to cut out a couple of pockets, and now the steelheads have access to that stream. It opened up about another 1,000 feet of spawning water and nursery water for steelhead. In some cases, the waterfalls may be too high and one method is to put in a low head dam which allows steelhead to jump and also would lower the height of the falls which would permit steelhead to move further on up stream. In all cases, these barrier alternations are done in such a way as they do not allow access by lamprey. This is a rather good catch of steelhead from one of Minnesota's steelhead streams in the spring of the year. Being a spectacular fish, it has developed quite a following amongst the dedicated trout fishermen in the spring of the year.

In the early 1970's, Minnesota joined the salmon band wagon with the introduction of Coho salmon from Lake Michigan. Much interest developed in cohos in Lake Superior and Minnesota, with this being a typical Lake Superior Coho salmon. We tried cohos for nearly ten years and found that growth to be a lot less than that in Lake Michigan. Cohos averaged about three pounds in Lake Superior with the largest about ten pounds. They spent 18 months in our hatcheries and then were stocked in the lake and spent another 18 months in the lake, coming back in the fall. What we found on Lake Superior was that these cohos tended to come back too late, and although not many were seen in the lake because they ranged quite widely, a lake fishery during the summer did not develop and when they came back they tended to start coming back as mature fish in October. The best fishery occurred about Thanksgiving time along Minnesota's shore. At Thanksgiving time along our shore, coastal streams are starting to freeze and the fishery was not a desirable fishery that we wanted to create. So in the early 1980's, we gave up the coho program for the chinook program. The coho, however, is still a major contributor to the fishery of Lake Superior. The cohos that were stocked did find a home and that home is along the south shore. Some of the south shore streams that have some cold spring-fed tributaries, especially in Wisconsin, and I think to a lesser extent, Michigan, did create enough spawning and nursery habitat so that the cohos were able to reproduce successfully. We now have annual spawning runs that result in a rather significant coho fishery. In Minnesota waters, especially in the early part of the season as the lake warms up in June and first part of July, the cohos come through and anywhere from 5-10,000 cohos may be taken by anglers along our coast. That is occurring without us stocking any of the cohos. Michigan is the only state that is presently stocking cohos into Lake Superior. I think they are feeling that with the amount of natural reproduction that is occurring they perhaps are going to review that stocking program. We have not found any significant coho reproduction on the Minnesota side.

The Chinook salmon was the next introduction that came along. Initially Minnesota stocked the spring-run chinook with some varieties that came from Idaho. Several generations were stocked and were not very successful. We then switched and obtained eggs from Michigan and initiated a program similar

to Michigan's that has been fairly successful. We have developed a Chinook salmon spawning run where we take our own eggs. The size of the salmon have grown larger than we anticipated with chinooks now up to 35 pounds. The state record is over 31 pounds. The chinooks added a new dimension to the fishery, especially on Minnesota's North Shore.

In previous years, the steelhead was the major contributor to the fishing on most streams. We saw about 40-50,000 angler-hours in the spring and would see steelhead catches between 2-5,000 fish. With the introduction of the chinook and their returning in the fall of the year, we added another almost equal fishery for the chinook in those streams with almost 40,000 angler hours and catches approaching 2,500 chinook. The chinook has brought a lot of increased interest in Lake Superior fishing. It has provided some fishing, especially in the fall of the year, when we have moved towards more protection on lake trout and had to close the lake trout season for spawning purposes. We close at the end of September and the chinook then gets the attention and largely takes the anglers' interest off of lake trout which is important at that time of the year in order to allow the spawning escapement.

We operate a trap at French River, where our major hatchery facilities are, that captures the returning fish. We stock enough fish in the French River, which is closed to fishing, to guarantee returns of fish to take wild stock eggs. We are stocking steelhead and obtain 200,000 eggs a year. We're also stocking a more domesticated form of rainbow trout, kamloop rainbow trout, and it has proven to be quite successful. It is raised in the hatchery to yearling size, then is released. It returns, usually in the late fall and over winter period, providing angler opportunities at a time when other fish are not available.

This is the French River Hatchery developed in the early 1970's. It's a unique hatchery in that it pumps water from Lake Superior, heats the water and utilizes a recycling system. This system is similar to a sewage treatment plant. It allows us to recycle 40% of the water for reuse. Eggs are taken, as I mentioned, for steelhead, rainbow trout and salmon. We take about a million Chinook salmon and a million kamloop eggs annually. They are reared inside the facilities. Depending on the size, the chinook are reared for about 6 months, the steelhead are stocked as fry, and the kamloop rainbow are raised to yearling size. The yearling fish are raised in these burrows, circulating raceways. Stocking, of course, depends on size and time of the year. Stocking occurs in the North Shore streams and in the lake itself. The facility drains into Lake Superior so we have diverted the water that comes from the hatchery into the French River so that the fish that are raised in the hatchery and stocked at French River are imprinted to this stream. This has generated considerable interest to the sport angler. Lake Superior had started from virtually no angling when we started and we now have on the order of 0.5 million angler-trips a year on the lake. The catches have increased to about 20,000 lake trout and several thousand chinook, steelhead and Atlantic salmon.

The development of the fishery has been slow with the anglers having to learn how to catch these fish and how to follow the fishing patterns. One of the areas that's been important is the charter boat industry that has come into its own. At last count, I think we are up to now 100 charter boat fishermen and economic surveys indicate about $3-4 million worth of economic impact because of the charter boat industry alone. Most of the fishing is done in typical Great Lakes style, downriggers and outriggers are used, many depending on whether you're fishing deep or fishing shallow.

The charter boat industry does quite well. We have a licensing system for them and they have to report the catches. Last year the catch rate was nearly two fish per angler-trip, which amounts to some very satisfied anglers. Shore fishing is also important along the Minnesota coast because with the cold water we have and the upwelling that occurs, depending on winds, times of the year, angling can be quite successful, especially for lake trout, but to a lesser extent for coho and chinook fishing the shoreline. Steelhead such as this are also pretty important, both in the lake, and as I mentioned earlier, in the streams during the spring.

Another exotic that we have that was mentioned earlier, I wanted to touch on, was the river ruffe, or the ruffe as Carlos says. It has now found a home in the St. Louis River estuary and continues to expand its population. Last year we captured, in conjunction with the Fish and Wildlife Service surveys in Wisconsin about 4,000. This year up until July 1, we captured about 4,000. We have now found them at a spawning trap we have upstream, and have found the ruffe with walleye eggs in its stomach. Also, newly introduced is the white perch. They are found in the lower lakes and are originally from the Atlantic coast or where the St. Lawrence Seaway enters the Atlantic. It also has a potential to compete with some of our native species and raises many concerns about the role of these exotics or aliens in our system. We have a real problem and a real concern about both these species getting into some of our inland waters where they could spread even further.

You'll get a chance on the tour driving up the shore to get a look at some of our streams and some of that rocky coastline. Minnesota North Shore and Ontario North Shore, are unique in that the type of geology and types of stream and lake systems that we have. Thank you very much.

DICK HASSINGER: Well, we're ready to go this afternoon and have some interesting presentations on quite a variety of topics. We would like to start with the Socioeconomic Surveys, which Fish and Wildlife Agencies are finding more and more useful in defining their programs and in explaining the benefits that are derived from the costs of our programs. With us today is Charles Anderson. Charles is a research biologist for the Division of Fish and Wildlife in Minnesota. Charles has his Ph.D. from the University of Michigan and has spent 3 years working at the Savannah River Ecology Lab in South Carolina, and now is with Minnesota in the capacity as Coldwater Fisheries Research Supervisor. Also assisting Charles Anderson will be Paul Cunningham. Paul is also with the Department of Natural Resources, Fish and Wildlife Division, as an Assistant Research Biologist at Detroit Lakes. Paul has his Masters Degree from the Ohio State University. Charles would you like to begin?

CHARLES ANDERSON: About three years ago when I came to Minnesota I considered myself to be a fish biologist. My attitude towards socioeconomics reminded me of two economists I saw at the State Fair that went to the hot air balloon ride and got in the basket, went up, floated around for awhile, after awhile they began to argue about where they were. They were lost! Then they began to argue about whether to stay up or come down. They kept arguing for awhile. They saw a sociologist on the ground, so they asked, "Where are we?" Sociologist answered, "In a balloon." I guess my point at the time was I felt the economist agreed on anything and sociologists gave us short, clear, precise answers that were pretty useless. So, Minnesota promptly put me in charge of a couple of socioeconomic surveys. I've been learning ever since. I finally come down to a pretty simplistic attitude that allows me to start to incorporate those economic data into the high philosophy of resource agency activities. I will briefly explain that to you, then I'll give the podium to Paul to go through a case study of the results of our Minnesota statewide angler attitude survey.

I feel that natural resources management evolved as necessary because of the scarcity of our natural resources. In an economic sense, you can't get an infinite supply of resources at no additional cost. And also, management is necessary because we have conflicting interests of various user groups. Moreover, our managerial institutions operate in a crazy "jurisdictional framework" where jurisdictions do not match up with drainage basins or ecosystems, or flyways in a very biological sense. So as resource managers we have to cope with our own clientele with biological resources and overlapping jurisdictions. In this crazy "framework" I think the public expects four things of us. They expect us to produce decisions that are competent in the biological sense. They want to know what the alternatives are, what's likely to happen if we make some policy change. Secondly, they like for us to make fair decisions. Fair in the sense that they tend to equitably distribute the costs and benefits of our activities. Third, they like for us to perform our goals in a cost-effective way. And fourthly, they would like us to enhance public participation in reaching these acceptable decisions. Of these four key activities for natural resources agencies, only the first one, producing biologically competent decisions really strikes the core of the biological data that I felt was my expertise at the time I came to Minnesota. The other three activities, fair decisions, cost-effectiveness and involving public participation, all start to get into that gray area of socioeconomic concerns. So, we're presently doing a statewide economic survey. It just started this spring. To identify the regional breakdown within the state of where our fisheries expenditures are, I would like to use it in the long run to be able to do some modeling, answer questions like, "If we stock trout in certain areas, or improve water quality in certain lakes, where is that going to attract anglers from?" "How's that going to move the angling dollar about the state?" That will allow us to start digging into cost-benefit comparisons for management activities. Two years ago, we did a statewide angler attitude survey, and I'll turn the floor over to Paul at this point. I think as Paul

goes through the results of that study you, as natural resource people, should try to ask yourself how you would use this data to better perform the four goals I've outlined. How would you use this to explain biological alternatives to various user groups and how would you present alternatives so they think they're fair? How would you use this information for cost-effective management? And with different conflicting interest groups, how do you enhance public participation without polarizing the groups? Paul.

PAUL CUNNINGHAM: Unlike recent declines in popularity among hunting-related activities, interest in recreational fishing is growing. Fishing is a form of recreation that is important to the Minnesota life style. If we considered the percentage of residents who fish and their total days spent fishing, Minnesota ranks among some of the highest in the nation. Commonly, if you travel Minnesota, you will find three statues. Paul Bunyan, the Virgin Mary and the Walleye. Yesteryear, fisheries managers did base their decisions on biological information because resource opportunities were still high relative to their demand. Today it isn't so. Increased angling pressure, in competing needs among different angling interests are occurring in the face of declining resource opportunities. Today fisheries face a new challenge. With ecological prudence we must be able to equitably allocate sport fishing opportunities among anglers and often competing interests. Fisheries management attempts to direct their goals toward many perceived angling types.

The focus of this talk is aimed towards gaining a further understanding of how management views and motives may differ between anglers. First, across several management issues relating to resource allocation, I will compare and contrast the viewpoints of club anglers with resident anglers. Then I will begin to associate differences between resident and club anglers' views about management issues with their angling motives. Can management viewpoints in part be identified by the different reasons why anglers fish? Finally, I will summarize how the opinions of fisheries professionals fit into the concepts which I have presented.

The Minnesota Department of Natural Resources provided the ideas and funding for this mail survey. In 1986, the survey was refined and conducted by Jay Leech and Jim Baltisorie of North Dakota State University. A four-page questionnaire containing over 125 questions was sent to resident anglers, to club anglers and Minnesota fisheries professionals. A sequence of three mailings were used to sample anglers. They used a multiple choice design in which respondents could select an answer which most closely matched their viewpoint. For example they could respond to statements "strongly disagree", "disagree", "slightly disagree", "neutral", etc. To insure a representative sample, we stratified resident license anglers by management region throughout the state. Five hundred club anglers from BASS, Federation of Fly Fishermen, Muskies, Inc., Trout Unlimited and Walleye, Inc. were also sent the same questionnaire. Ninety-one out of 108 Minnesota fisheries professionals also completed this questionnaire.

The first part of the questionnaire contained questions relating to fish management practices. We chose six statements that relate to resource allocation issues. For example, the Minnesota Department of Natural Resources, Section of Fisheries, should allow greater angler participation in making fisheries management decisions. Anglers could choose responses ranging from strongly disagree to strongly agree. Here I repeat six statements previously introduced. The middle column indicates whether or not the differences were significant between resident and club anglers. The asterisk symbolizes the significance and the far right column then defines the difference between the two groups. For the statement "The Minnesota Department of Natural Resources, Section of Fisheries, should allow greater angler participation in the decision-making process," both clubs and resident anglers favored greater angler participation and we found no differences between the two groups. This will give you an idea of the distribution of the response that we found for that question. On the x-axis, these are the seven possible responses ranging from "high disagreement" to "neutral" to "high agreement". On the y-axis is the percent of anglers who answered to each category. Residents are shown in the aqua colored bars and the club members are shown in chartreuse. Over 60% of the anglers in each groups feel that they should have greater participation in making fisheries management decisions.

Now these next five statements related to changes in regulations. For all of the following five statements, lower five, club anglers consistently were more apt to favor greater restrictions. For each statement, we found significant differences between resident and club anglers. For example, the Minnesota Section of Fisheries should designate catch and release lakes and streams. Here differences were significant and almost 50% of the club anglers strongly agreed with the catch and release concept. Then we further modified the statement to say "the Section of Fisheries should designate catch and release lakes and streams in my area." Overall, differences between the two groups were similar to the previous statement. Although catch and release may be somewhat contagious, both groups' enthusiasm slumped when it was suggested in their area. I think I've heard of this phenomena before, they call it backsliding. Yes, we would like catch and release, wait a minute now, not in my area.

The DNR/Section of Fisheries should manage for big fish, though the number caught would be less. Here resident responses centered around a neutral viewpoint, whereas, the club anglers were more apt to view management for big fish positively. These next four are also management statements that relate to fisheries allocation issues. The wording is somewhat different though. For example, anglers were asked, "it is my understanding that using size limits to protect fish populations is; using catch and release regulations to increase walleye size is; and prohibiting spearing of northern pike to protect large pike is; and finally, reducing walleye limits to two in order to increase the walleye catch rate is". Possible responses range from "very ineffective" to "very effective." It is my understanding that using size limits to protect fish populations, although again, club anglers were more inclined to view size limits as very effective. It is my understanding that using catch and release regulations to increase walleye size is. Both groups do feel that catch and release will increase walleye size, but more club anglers were apt to believe this to be a very effective tool. Anglers were

asked if they felt reducing the walleye limit to increase catch rate is effective. Neither group was too hot about reducing the walleye limit from six to two, in order to increase catch rates. But again, a greater percentage of the club anglers felt positive about its effectiveness.

And finally, it is my understanding that prohibiting darkhouse spearing to protect large pike is. Results follow this similar pattern. I have a feeling that not many club anglers spend winter months spearing, though. Nearly 60% of the club anglers felt prohibiting spearing to protect large pike is very effective. Residents also felt prohibiting spearing is a somewhat effective means of protecting large fish.

Now let's compare angling motives between resident and club anglers to begin to assess whether or not an association between anglers views about allocation issues and their motives do exist. Based on factor analysis results, we place statements into three dimensions, peaceful nature, social competitive and catch related. I fish so I can be in a quiet, peaceful place, be alone, relax, think about my personal values, enjoy nature and the out-of-doors and learn about nature. For these six statements relating to the peaceful nature dimension, we compared the responses of the residents with club anglers. Results for all the statements were real similar. I will only present a couple of examples. I fish so I can be in an aquatic, peaceful place. Both resident and club anglers were similar and both showed strong affinity toward a natural, peaceful environment. And most anglers seek a relaxing environment while fishing and again, resident and club anglers responses were very similar. The second product, is social competitive. Responses for the first two statements for this, "be with family member and friends" and meet new people were similar between resident and club anglers. Now who fishes to compete with their friends. Residents overall tend to disagree or feel neutral to a competitive atmosphere, but more club anglers were inclined to agree with a competitive environment, although they, as well, did not show a strong competitive desire. And yes, both groups are inclined to fish the lake and shore. Their skills and knowledge with others, but a larger percentage of club anglers place a higher value on sharing their skills and understanding of sport fishing with other friends. From this picture, you would think that anglers mind the crowded atmosphere. Well that doesn't seem to be the case. More anglers seem to disagree with the statement "I fish so I can be around a lot of other anglers." What is their explanation for the previous boat jam. There may be a sport fishing motive that tends to overrule the previous two dimensions I've summmarized. How important is catching fish? We had to ask. How important is catching fish? Of course, the two groups are very similar and yes, everyone likes to catch fish. "I fish so I can catch a trophy." Although most anglers would like to catch a trophy, as you may expect, club anglers were more likely to agree with fishing for a trophy. In addition, club anglers were apt to place a higher value on catching a particular kind of fish. Anglers were also asked, "How important is catching some fish to eat?" Sixty-five percent of the resident anglers placed some degree of importance on catching some fish to eat, whereas, only 35% of the club anglers placed some degree or greater importance on catching some fish to eat.

In summary, resident and club anglers show a strong desire toward a peaceful nature dimension and for the social competitive groups. Both resident and club anglers favor fishing with family members and friends and meeting new people, yet club anglers are more apt to be slightly more competitive and sho a stronger desire to share their skills and knowledge of sportfishing with others. Finally, residents are more inclined to place a higher value on consumptive aspects of angling, where club anglers are more often seeking a specific species or trophy.

Do differing views about fish management associate with angling motives? Indeed there does appear to be association between management views and angling motives for club and resident anglers. Club anglers view effective restrictive management regulations more favorably than resident anglers. In comparison, resident anglers are less apt to favor restrictive management regulations. Why is this? Residents appear to place a higher value on food as an important component to their sport fishing experience, therefore, they may view these restrictions in harvest as more limiting to their sportfishing opportunities.

Now how about the fisheries professionals? In general, there appears to be a pattern in management viewpoints among the professionals. For most of the statements I earlier presented, viewpoints among fisheries professionals tend to moderate those of resident and club anglers. However, there were two outstanding exceptions. Professionals were asked whether the DNR should allo greater angler participation in making fishery management decisions. Their views on angler involvement in fisheries decisions were extremely different from club and anglers. If you'll remember from before, the resident anglers are very similar to the club anglers' responses I show here. It is my understanding that spearing to protect large pike is knowledge of fisheries professionals about the limited effectiveness of protecting large pike, clash strongly with views of resident and club anglers. Fish managers understand spearing mortality to be small relative to total fishing mortality. Whereas, this controversial issue is a question of allocation of resources among residents and club anglers who may lack enough information to acquire an objective view.

So in summary, Minnesota is blessed with an abundant and diverse aquatic resource that can be managed for multiple sportfishing opportunities. Management agencies do need to be active rather than reactive toward establishing multi-faceted management plans. Angling interests are diverse, need to be accounted for and quantified. And finally, anglers need to play a part in the problem-solving process. As fishing regulations become more complex, the degree of fisheries management success relies on their ability t educate anglers about the purpose of particular regulations. If anglers understand, believe and adopt fish management concepts, then take part in the problem-solving process, greater compliance will ensure opportunities for successful management ventures. Public education and information is a key foothold to the future of fisheries management. Thanks.

Q: Repeat something that I heard last week. I was at a small conference that the Fisheries Commission was sponsoring on social aspects of fisheries management. A speaker said that if natural resource agencies don't market their capabilities and their image so that the image becomes higher with the public, that they're going to lose their effectiveness and that eventually if this trend continues, the public will influence more and more decisions within the DNRs. Does anybody else have a feeling for that? Charles Anderson, you were there. You heard him say that. Dick, so were you. Do you have any response to that?
A: Well, I think that we are seeing more active roles being played by these individuals, especially the organized ones. I don't think that the individuals that are not organized are in that same mode as the organized ones are. Unfortunately, at least from our surveys, we find that the organized individuals represent a very small portion of the user groups. And thus, in Minnesota for instance, where the surveys were done, less than 2% of the anglers may actually belong to an organized group, yet that organized group, simply because they are organized, attempt to influence programs and can have an undue amount of influence on it, at least until the rest of the users speak their piece. So, it may be happening, but that in fact it represents the major thrust of the user. I'm not sure that it does, but nevertheless, I think we are faced with more influence by these user groups, especially through the legislative process.

Q: Now that you've got the study, what would you tell your fish managers?
A: You have the list of objectives. You are supposed to answer that one. My bottom line is that if I was trying to look at the tool of attitudes to describe or begin to think about a multiplicity of interests, I don't think that it can stand alone in making any fisheries decisions, but I guess what I would suggest is that I just use this study as a case history to show the diversity between some of the anglers' motives and that they may be out there for very different reasons, and that we have to consider managing for all the groups.

I would add that the success of the program depends on us bringing some of those ideas closer together. I think that it appears, in Minnesota any how, that managers are going to have to look at themselves in regard to turf protecting or are there some other motives as to why they differ so much in allowing the fishermen to participate in the programs?

DICK HASSINGER: Paul will be around and Charles will be around too, if you have any additional questions, and we do have a publication out on this survey "Attitudes of Minnesota Anglers" that is available should any of you desire a copy of that publication. We're going to move on, so if there are any other questions, we can answer them afterwards.

We've talked a little bit earlier today about some alien organisms in the Great Lakes and Minnesota has some other aliens. I like the word alien. I found out that when we use the word exotic, we may be treating these organisms too lightly in terms of what their effects may be on our ecosystems. We have another exotic plant, alien plant in Minnesota called Purple Loosestrife, and increased concerns about its effects on the wetlands are resulting in more attention being paid to it then other aquatic plants that are not native to Minnesota. Our speaker is Ellen Fuge. Ellen is with the Department of

Natural Resources, Ecological Services Section, and she began her career with the DNR in 1986 with the Scientific and Natural Area Program and worked for a time with the Natural Heritage Program. She now is the Purple Loosestrife Program Coordinator for the Department. Ellen.

ELLEN FUGE: Thank you, Dick. I'm glad to be able to address this group today and I'll start with the slides right away. Purple loosestrife is a new threat to the wetlands in Minnesota. As you know, wetlands are important for wildlife and water quality and water recharge. Over half of the original 200 million acres of wetlands in the United States have been lost. Since the time of settlement, drainage ditches or ditching and draining has reduced the number of wetlands in Minnesota by almost 80%. A new threat to our diminishing wetlands is purple loosestrife. It's invading wetlands, lakeshores, ditches and crowding out the diverse native species in these areas. Purple loosestrife is not a native; it's an Eurasian plant that was introduced to North America in the early 1800's. And, it left behind the natural diseases and insect pests that kept it in check in its native habitat. The plant is easiest to identify when it's in full bloom between mid-July and September. And it's easy to identify once you learn its characteristics. Through these months, you can recognize purple loosestrife, even at a distance, because of its bright purple flowers. The tall erect stem is four-sided, the leaves are opposite each other on the stem and closely attached to it. Flowers have five to six showy purple or magenta petals, also closely attached to the stem. There are several size and age classifications for this plant. The mature plant in the center there has many stalks or canes, and the one or two year plants are generally a single stock and the seedlings are small, of course. Mature plants attain various heights from 2 to 10 feet, and at some ideal conditions, even taller than that, but it can be a formidable plant when it forms dense stands.

Although the plant prefers moist, rich organic soils, it can be found in a variety of soil types and moisture regimes. In Minnesota, loosestrife is often found growing with the more desirable plant Cattails, but of course, other aquatic plants or moist soil plants are interspersed in these areas. These make management difficult, trying to hit the target plant without killing off the desirable vegetation is a problem we are confronting. Several stalks can grow on a single root stalk, and each stalk or flowering stalk, can produce from 100,000 to 300,000 seeds in a single year. That's a tremendous seed-bank and something that we are looking at soon in the research we are undertaking. The tiny seed is about the size of ground pepper and it's spread by flowing water or adhering to wildlife or boats or trailers. The rank winter stalk is easily identified as it remains upright throughout the winter, whereas cattails tend to break down and fall over and so loosestrife stands can be identified in the winter months and mapped. There are several purple flowering plants in Minnesota that are often mistaken for purple loosestrife. The blue vervain is generally an upland plant or dryer soil plant, but it differs from purple loosestrife in that it has branched flower stalks and serrated or roughed-edge leaves. Smart weed is a wetland plant that is often mistaken for loosestrife, but it has a more procumbent habit of growth and

round stems. Blazing Star is a common prairie plant in Minnesota and is quite often mistaken for purple loosestrife. From a distance fire weed is a confusing purple plant but close up the flowers are quite different. Loosestrife flowers, as I mentioned, are closely attached to the stalks, and fire weed flowers have a flower stalk.

The major impact of purple loosestrife is on the ecology of wetlands. Loosestrife is now appearing in epidemic proportions in many wildlife areas in Minnesota including Sherburne National Wildlife Refuge, the Minnesota Valley Wildlife Refuge and the Mississippi floodplain. It is threatening the quality of our wetlands by driving and reducing the diversity of native vegetation in these areas. When the native vegetation is eliminated, the wildlife that depends on this vegetation declines in these areas where loosestrife gets a foothold. Fur bearers such as the muskrat which relies on cattails for its food and shelter, also have diminished in numbers in areas where loosestrife invades. Water fowl production is reduced. These birds require open areas in marshes for feeding and breeding and nesting and these open water areas can become clogged with purple loosestrife stands. The loon and the black tern also require open water areas in marshlands for nesting and feeding.

As I said before, purple loosestrife isn't native to Minnesota; it comes from Eurasia. In the past century, purple loosestrife has spread and become naturalized throughout temperate regions of the world. The following distribution maps depict its western spread in North America. This map from 1900 shows how it was established on the East Coast. One of the first reliable records of purple loosestrife in this country was from the early 1800's in the wet meadows of New England and Canada. By 1940, it was well established in the eastern part of the country and beginning to spread into the Midwest. By 1985 it had gotten to the West Coast and invaded some of the nation's major river systems including the Mississippi River, Minnesota River and the Red River of the North in Minnesota. Plant specimens that are collected and stored at the University of Minnesota Herbarium, were instrumental in tracing the spread of this plant through Minnesota. The first plant recorded in Minnesota was from Ramsey County. That's where St. Paul is, in 1924. The inventory now shows that purple loosestrife occurs in most of the 87 counties of Minnesota. The spread of purple loosestrife at the local level can be astonishing. A single plant can lead to a dominant infestation in two or three seasons. This stand in Winona, Minnesota on the southeastern part of the state, illustrates how this aggressive plant can completely dominate the wetland, driving out all the native vegetation. It would be hard to find anything else in this stand under the purple loosestrife. This example from New York Montezuma Wildlife Refuge, shows how loosestrife took over between 1968 and 1978 in a wetland there. It's a popular plant and has been a popular plant in landscaping and gardens. This label suggests that some of these escaped or loosestrife invasions may come from such plantings. It is also a popular honey plant because it blooms for so many months of the summer; it's a constant and long-time pollen source for bees. And it's also a pollen source in wetlands. Disturbances, such as this road construction, exposed soil, because it's adjacent to this wetland, its moist, open soil is prime habitat for seedling establishment or seed germination. Droughts and drawdowns, exposed mud flats that are again prime habitat for seed germination. This is almost a solid bed of purple loosestrife seedlings that kind of marched out as the water receded. Because it grows in such a variety

of habitats, it can cause a variety of problems. It can clog culverts and choke roadside ditches, increasing maintenance costs keeping these areas clear from this plant. Drainage ditches can be clogged, which necessitate dredging these ditches out more frequently, so that they can function properly. Wet pastures lose their forage value. The tough purple loosestrife plant is not a good forage crop.

In many areas that were established to promote wildlife production, millions of dollars were invested in these areas and when purple loosestrife gets established here, the conservation efforts are almost totally lost. Wildlife management areas are being threatened and spawning areas for northern pike are being threatened by purple loosestrife. The open water areas with grassy substrates for egg laying can be destroyed when purple loosestrife replaces the grasses and sedges that grow on these spawning areas. Scientific and natural areas that are set aside to protect native vegetation and plant communities can be threatened when purple loosestrife begins to drive out and compete with these sometimes rare plants and plant communities. The wild rice fields of Minnesota are also potential habitat for purple loosestrife.

In 1987, the legislature established funding for the Purple Loosestrife Program and in 1989 the legislature continued that funding for another biennium. This program is administered by the Division of Fish and Wildlife, Section of Ecological Services in the Minnesota DNR. The program coordinates statewide purple loosestrife control in four ways. First, by compiling an inventory of purple loosestrife sites. Secondly, by increasing public awareness through talks and displays such as this one at the State Fair and publications like the purple loosestrife poster. A newsletter called "On The Loose," and a brochure are mailed out to thousands of people. Thirdly, the program coordinates the contracting and coordination of purple loosestrife control. And fourthly, we monitor residues. In 1987, as part of the State's commitment to halting the spread of loosestrife, the Department of Agriculture designated purple loosestrife as a noxious weed. This action prohibits the sale of loosestrife for landscaping and also in 1988, another exotic species of purple loosestrife, was designated a noxious weed. So, there is only one purple loosestrife you can sell and propagate in Minnesota - that the native Lithrum aleatum, which is kind of short and not too showy, not very desirable. So virtually every purple loosestrife you see in gardens is illegal. The reason this was done was because it's almost impossible to distinguish the difference in taxonomy between these species and cultivars and although some are claimed to be sterile, there is some evidence that that's not true and the confusion was so great the only alternative was to declare them all illegal.

There are a lot of things that we can do do help curb the spread of purple loosestrife. Just watching for it, recording where you see it, and reporting it to whoever in your state might be concerned or other jurisdictions on matters such as this. In areas where there's 20 plants or less, it's possible to dig them out and get rid of it. Any more than that, it's a bit unwieldy and inefficient to dig it out. It has a tenacious root system and any parts of this root system left in the soil will spread. In fact, almost every part of this plant can grow roots. One of the experiments to try and control purple loosestrife was to flood it. But what happened was that on the tips of the plants that were flooded, little rosettes of leaves formed with little roots, and then they kind of broke off and floated away. So, it's a real

diabolical plant and it has many ways to reproduce. Once you've dug it up, what do you do with it? It's going to have seeds possibly if it's been in flower for awhile. If you just try and bury it somewhere, it could grow there. So, we suggest drying it and burning it. This particular pile brings back fond memories. It was covered with wet mud and was quite green and all that's burning here really is the kerosene. But if you have a place to dry it out, it will burn. It's a woody plant, and it's really pretty flammable once it's dry. Larger patches of loosestrife that are accessible by foot can be sprayed with chemicals. It is an alternative that we're using now. Spot spraying small patches with a backpack sprayer is fairly effective. Larger patches that can't be spot-sprayed can be broadcast sprayed by hand or from boats and trucks. Areas that are inaccessible or just too large to be effectively treated by boats and trucks or broadcast spraying can be treated from the air or using helicopters with microfoil booms to reduce drift and target the loosestrife stands. In Minnesota, a permit is required for spraying aquatic plants. The permit is free if you're spraying purple loosestrife, but it gives us a way to monitor the use of chemicals and insure that they are used properly and that the correct ones are being used in our wetlands. The strategy for controlling small loosestrife populations should consist of wiping out the entire population. Wetlands that do not currently have loosestrife should be monitored to ensure that if it should get established there, it can be removed early before seedbank is established. Current methods for destroying large, dense populations of loosestrife aren't totally effective, although new chemicals are being developed. There are some that are more promising than in the past. Minimizing seed production of large areas is very important and necessary to control the spread of this plant. As programs for statewide control of loosestrife get underway, it's important for the public to know as much as possible about this plant and the harm it can cause. Thousands of acres of wetlands have been taken over by this plant. Yet that's only about 1% of the 2 million acres of wetlands, lakeshores, rivers, boatside and drainage ditches that exist in Minnesota. And that is the end of my talk. Thank you very much. I'll be happy to answer any questions.

Q: How effective is your treatment with rodeo?
A: Rodeo is very effective. Of course, it's limited because you have to target the loosestrife. It will kill everything else. In the past, some broadbase spraying of rodeo was used with the result that the open areas were prime habitat germination for seeds, primarily loosestrife. So, it can be used on a spot treatment basis, but shouldn't be used in broadcasts.

Q: How about insect control?
A: That's a year or two away yet. They've narrowed it down to three insects. A couple weevils and a beetle. They are scheduled to come into this country under quarantine next year. They won't be released until 1991, I believe is the target date.

Q: I think that partially answered my question. That's a natural control mechanism that is used as habitat.
A: These are the insects that they have isolated from loosestrife in Europe and Asia that are effective in controlling loosestrife there. They feed on the flower parts and on the root systems.

I would like to add that there is a paper that Jay Rendall is preparing that addresses developing control programs in your area. It will be available the end of the week. So if you're interested in setting up a program like this, that would be a very good place to start.

Q: You said that this is coordinated by the Fish & Wildlife Service?
A: No. Minnesota DNR Fish and Wildlife.

Q: But the Fish and Wildlife Service has some larger responsibility or not?
A: The Fish and Wildlife Service is involved in the biological control research that is being done that we are working with them on.

LARRY SHANNON: I think it was two or three years ago that a resolution was passed from the Midwest that went to the International. Out of that we got about $50,000 that went to Cornell to do research on biological control. Some work has been done, I believe, in England, already on that. We wanted to take advantage of what was going there to try to produce something here or come up with biological control here.

DICK HASSINGER: Thank you, Ellen. Our next topic is one of special interest to Minnesota. We have a major program of development of wildlife management areas in the state providing homes for wildlife and providing places for hunters to utilize that wildlife. Our next topic is land acquisition programs in the state and the presenter is Roger Holmes. Roger is a long time employee of the Department, putting in more than 30 years with the Fish and Wildlife Division, including time as a Game Lake Survey Biologist, and some time as a field wildlife manager and also in staff positions in the main office. He now is the Chief of the Section of Wildlife and has held that position since 1972. Roger is a graduate of the University of Minnesota. Roger.

ROGER HOLMES: Thanks, Dick. Dick failed to point out one of the most important things about me is that I grew up in Duluth. I put that on there, Dick, for a reason. Because we're in Duluth, of course, as you know and I thought that I should point out a couple of facts, about this area that haven't been brought out yet. We are at what's usually termed "head of the lakes" and "head of the largest fresh water lake of the world" as Dick pointed out earlier and that, I think, is rather exciting. Lake Superior is a fabulous body of water. You've heard a lot about the fish in the lake, but you haven't heard much about the lake itself. The water is very pure. The city of Duluth takes all its drinking water right out of the lake and it is extremely deep, 1,333 feet deep. That's no stock pond in Missouri, Ken. It is interesting to note that as you get on the boat, on the shoreline on the lake, you're at the lowest elevation in Minnesota. The lowest natural elevation. There are some ore shafts that go down in the earth, but the elevation on the shore of the lake is 602 feet. As compared to the outlet of the great Mississippi River, where it leaves our state down in the southeastern corner which is, if I recall correctly, 623 feet. It is

interesting to think too, I was just thinking about it as I sat here this morning, if Lake Superior were to be dewatered, you would have a tremendous hole in the ground. It would probably be the lowest elevation in the continental U.S. because it would be over 700 feet deep. It is, of course, a glacial lake and glacial Lake Superior was several hundred feet deeper or higher than it is now. Of course, if this hotel were here in those days, we would be well under the surface of the lake. It drained out roughly to the southwest through what is now the valley of the St. Croix River and it was a tremendous flow of water. I believe that at some point in geologic history, it combined with the Glacial River Warren that drained Glacial Lake Agassiz. That went out what is through the area that now forms the other large river in the state, that would be the Minnesota River. I would have liked to have seen the confluence of those two rivers; it must have really been impressive. This is a real interesting area geologically. You're located here on some of the oldest rock in the world, approximately 3 billion years old. There is a lot of history to this; that's considerably longer than I have been with DNR.

I have been here quite a while, as Dick pointed out. I started as a survey biologist and I enjoyed that a lot because I traveled all over the state doing surveys on waterfowl lakes. I still have a real interest in waterfowl habitat, particularly, of course, waterfowl themselves. In conjunction with Minnesota, our state began a program of habitat acquisition. It actually began in 1929, when the state legislature appropriated funds to acquire what was then the Red Lake Game Preserve, and that remains the largest area that we have in the state that's managed primarily for wildlife. That's 284,000 acres and after that, through the 30's and 40's, there were an additional seven areas that were acquired. Some in fee title and some under federal license from the Corps of Engineers, for example. It was observed through the 50's, after WWII particularly, that we were losing a tremendous amount of habitat out in the heavily farmed areas of the state. We were losing our prairie wetlands and that loss was rather rapid. It was somewhere between 3 and 5% of the wetlands annually. Obviously, it didn't take too many years before we'd lost a lot of wetlands and it was decided by Richard J. Dorr, who was the head of the Wildlife Section in the 60's, that the only way, or perhaps the best way, I should say, to preserve those areas was to acquire them in fee. The first area was purchased on September 17, 1951. Since that time, we've acquired 1,038 individual wildlife management areas in Minnesota. They total 555,000 acres. We've established a goal that was established in 1975 to acquire in fee title 1 million acres of wildlife land. I don't think we are going to make it unless there are some considerable increases in the rate of acquisition. We are doing our best. We've acquired lands primarily through a $4 surcharge on the small game hunting license. That has taken care of the largest segment of that acquisition of 555,000 acres. Of course, we have the entire program under Pittman-Robertson so we receive 75% reimbursement. In addition to those funds, we have substantial input from what's called the Legislative Commission on Minnesota Resources which administers a program called Resource 2000. This is a program that, as I mentioned earlier, we've got a goal to acquire 1 million acres by the year 2000. In 1975, there were goals established for all of the units of our outdoor recreation system. That was the beginning of a program called Resource 2000 under which the state legislature has appropriated various amounts of money since that time and we've received nearly $20 million through that. So in total, we've expended $39 million on the acquisition of wildlife lands. Now when the program

started, the first few tracts were purchased with donations from school children all across the state. They donated their nickels and dimes. There was a lot of publicity given the program. Of course with that source of funding, as you can well imagine, we weren't able to buy too many acres, but it was a start. It provided a lot of publicity. The key, of course, to our program is dollars. We have been rather successful in finding a couple new sources of money. I won't go into too much detail on one, the Reinvest in Minnesota Program. Jay is going to talk about that afterwards. I don't want to steal any of his material, so I'll just say that we do have an important source of funding through RIM.

The acquisition program, when it first began was called Save Minnesota's Wetlands. We had that printed in all of the hunting regulations, in fact, my former boss, Dave Lasalle, got pretty upset one year when I was in charge of putting together the hunting regulations, and for some reason I neglected to put that in there. I think that is the most upset that he ever was with me. I never forgot it again and we haven't since. I don't do it anymore, but I check to see that it is in there. But at any rate, that has been an extremely strong part of our wildlife habitat program in Minnesota. These areas, of course, not only provide a lot of good wildlife habitat, they provide a lot of recreation. They are, by and large, all open to the public for hunting and trapping and other compatible uses. We've had a number of go arounds within our Department over what are compatible uses. I carry a few scars over some battles on that point. We've taken the position for years that we are not going to allow any motorized vehicles on these areas, including state trails, those sorts of things. When people want to get under my skin a little bit, they bring up the idea of putting trails on wildlife areas. My skin is pretty thick now, so I don't pay too much attention unless I think they are serious. We have made a very concerted effort to keep those kinds of uses out of the areas. We get all kinds of requests for horseback riding, dog trials and you can imagine trying to tell some of these dog trialers why we aren't going to allow them to use the wildlife management area and you can imagine some of the ones. I'm sure a lot of you get into the same kinds of controversies. We have been successful in keeping the dog trialers out of the wildlife areas. That has not been easy, but we have managed to do it. We are quite jealous of those areas and the purposes for which they were established. There had been two or three times in the last decade where we have had to call in the Cavalry, the Fish and Wildlife Service, for help on just what is a compatible use. So that's been quite helpful in trying to keep people out of there. These areas are located primarily in the farming areas. About half of the acreage and probably three-quarters of the projects are out in the heavily farmed parts of Minnesota. Where we do not have a very large public land base, in fact, in most counties the only public land, except for the city parks, is land that has been acquired for wildlife management areas either by us or by the USFWS in their waterfowl production areas. The rest is privately owned. In fact, 98% of all the land in the farmed areas of the state is privately owned and that's not any surprise to a lot of you who come from states south of us where the percentage is even higher.

That is in stark contrast to the public ownership that we have in northern Minnesota. At the latitude of Duluth and north, probably 2/3 of all the land north of here is public owned. There is a tremendous public land base in Minnesota. In fact, the State of Minnesota ranks 4th in the U.S. as a landowner. So we've got a tremendous land base that a lot of you may not be aware of. In fact, 25% of the State of Minnesota is in public ownership. There are large holdings in the Chippewa and Superior National Forests and, of course, there's a lot of land owned by our Department in our program, but our program is small compared to the land that is owned or administered by our Division of Forestry. And then there's a lot of tax-forfeited land that is owned by the State and held in trust by the public, but administered by the counties. With those kinds of resources in northern Minnesota, why it is sometimes difficult to convince the legislature (or it has been in the past, it isn't anymore) to convince the powers that be to acquire additional land? We keep emphasizing the need to acquire lands in the heavily farmed areas of the state, particularly out in the western prairies where we are attempting to provide habitat for waterfowl and upland game and big game. We've got areas now, for example, and when I say big game, that includes moose and bear, up in the Red River Valley, where we have moose that are causing wildlife depredations in cornfield and sunflower fields. Twenty-five years ago, I would have told anyone they didn't know what they are talking about if they told me we were going to have problems on wildlife areas and near wildlife areas with moose in the cornfield. I had a guy call up a couple winters ago that said he had a problem with the moose in his cornfield. I said "you mean deer." He said "I mean moose." And I was thinking one moose had walked through his cornfield. I said "How big a problem is this?" "Well," he said, "I'm looking out my front window right now and I can count 11 of them." That kind of stunned me. He could tell that I didn't believe that. He says, "I tell you what Holmes, I'm going to send you a picture." Several days later, a picture arrived in the mail. I counted them and there were eleven of them out in this cornfield, right out of his front window. So you get into all kinds of things that you don't really expect. But, some of those large wildlife areas that we've acquired in the northwestern part of the state will run in size anywhere from a few hundred up to ten thousand acres. We have one wildlife manager in Kittson who administers all the wildlife management areas in that county plus those in western Roseau County and parts of Marshall that has under his jurisdiction about 75,000 acres of land that we own in fee. He has one assistant. So those two people, if you can imagine someone even a ranch or any kind of privately owned land that two people would manage that total 75,000 acres. We've got a real problem as we acquire these wildlife management areas, trying to take care of them. As we keep acquiring areas, we increase our own problems and our own workload, but we don't seem to know any better because we keep on doing it. We finally got to the point where we started telling the state legislature that if we don't get more people to do the job, we don't want any more money. Under the RIM Program, as Jay will talk about, I stood before a group of sportsmen and legislators about four years ago and told them that very thing, I'm serious about it. If we don't get some people to run this program, don't give any money to the Wildlife Section because we don't want it. That got their attention, because they hadn't heard that from me before. And they don't usually hear that from a good bureaucrat, which I consider myself, but enough is enough. It just gets to a point where you have to say no. Trying to manage and develop these areas is something that is a tremendous job for us--an extensive system like that,

particularly where you have private lands on all sides of you. You have some real land management problems and as those of you who have been closely involved with land management know why some of those neighbors can be a little unfriendly, particularly if you've got a big crop of Canadian thistle, they always complain about that. Now it's purple loosestrife and a few other things. We're having a grasshopper epidemic. It's a plague, I guess. Where we have grasshopper populations that are hundreds of times the threshold level that is considered to cause an economic problem. The aggies say that eight grasshoppers per square yard in cropland will cause economic loss and the entomologists have counted 1,800 per square yard in some areas. We now have a grasshopper control program going on in over 500 townships in northwestern Minnesota. It is probably going to cost $10 million to the State and we have a lot of land in there. We mean DNR, notably the Wildlife Section. We were in the process of carrying out a grasshopper control program on our wildlife management areas and our scientific and natural areas, and it concerns us because there are some endangered and threatened insects on those lands like the Dakota Skipper, which is a butterfly for example, and so it is a serious land management problem. Those kinds of things, of course, doing nothing to raise more wildlife. Of course we've got a lot more grasshoppers. We don't happen to eat those in Minnesota so we don't know quite what to do with them all. Up in this part of the state, this is the year of the bug. We've got an invasion of forest tent caterpillars that is one of the worst we've had. I don't know if you've noticed it or not, maybe you didn't get much opportunity, but they defoliated, almost completely defoliated, much of the aspen in northeastern Minnesota. You can drive from here to International Falls and it looks like early spring. All those moths that are flying around, you'll probably see some when you go up in the harbor, have hatched from those forest tent caterpillars. Then, of course, we've got the deer tick, which carries lyme disease. There's been a lot of hullabaloo about that in recent years and so that's causing more management problems.

I'm digressing, of course. Getting back here to the acquisition program, we are buying about between 3 and 4,000 acres per year of wildlife habitat, dependant upon our funding. That's a lot of acres, but we have to buy a lot more than that to obtain our goal of 1 million acres in fee by the year 2000. We are hopeful that under the Environmental Trust Fund that passed as a constitutional amendment in the last general election (that passed, by the way, with a vote of 78%) provides for a trust fund to do a lot of things, including the acquisition of wildlife habitat to be funded hopefully through the state lottery, which is about to get underway. So, we are hopeful that it will provide a lot of our funding. In the next couple of years, we are going to be at a status quo and keep acquiring our 3-4,000 acres per year until we get a new funding source. I've got some information here on the acquisition procedures that I won't go into, but for those of you that have not been involved in acquisition programs, if you're about to begin, I would suggest you might want to contact someone in our Bureau of Real Estate Management. We've got nearly 40 years of experience in acquiring wildlife lands and a lot of other kinds of lands in DNR and in this state and we could provide some help. Our land acquisition program is well supported by the state legislature and the public, but we do have some problems. I already mentioned weed control and we continually hear about the loss of taxes. We do pay in lieu of taxes. We pay $3 an acre on each acre that's acquired in fee, or 35% of the gross receipts or 3/4 of 1% of the purchased price, whichever is greater. In

some counties, they come out way ahead. They may get as much as 10 times the tax loss through the $3 an acre. In the southern half of the state, particularly in the southwestern half of the state, the $3 an acres or 3/4 of 1% whichever does happen to be higher, usually does not pay in lieu or completely reimburse the county for taxes lost but will reimburse them, say from 1/2 to 3/4. In some cases they break even, but in general, it's a loss to them but not very much. And therefore, we do have some opposition but that has been reduced over the last several years because of our in lieu program. Last year we paid $673,000 in lieu of taxes and that comes out of the Game and Fish Fund, so that bill is paid by the hunting and fishing license buyer. We would like to have that bill paid by general revenue. And it was for one year, but under the RIM program, as part of that RIM bill, the in lieu of tax payment was shifted over to general revenue, and then our Department of Finance got involved and it was changed back much to our chagrin. If we could get that switched over, we'd have more money for acquisition.

I do have some information on land acquisition. Any of you who might be interested in it can see me during the break and I will be glad to provide that to you. We've also got maps showing the locations of all of the wildlife areas in the state. I appreciate your attention, and welcome to Duluth! Thank you.

Q: I had a question on your prohibiting motorized vehicles on your wildlife areas. Have you been approached by your disabled, mobility impaired hunters for access? And, are you doing anything about that and are you responding to 504, if you're using PR money?
A: We do provide for the blind, for example, on other hunting sites for the disabled but they are restricted on where they can go. We do not let people just get on a three-wheeler or four-wheeler and go anywhere they wish, even if they are disabled.

Q: Do you use a permit system?
A: Yes, we use permits for individuals.

Q: Roger, you said most of this money comes with a $4 surcharge on hunting licenses. When I call you up and ask you what your hunting license fee is, do you give me that included or the fee without that? In other words, what's your hunting license fee? And how does the $4 come in?
A: The fee without that, the small game fee, is $13.00, including the surcharge. So, that is confusing. It's printed in the regulations, the cost of the fee and surcharge includes the $4 surcharge.

Q: Then to go with that, do I have to have a pheasant stamp?
A: Yes. If you're going to hunt pheasants. We do have a state waterfowl stamp which is $5.00 and the same with the pheasant stamp. So if you're going to hunt both of those, then it will cost you a total of another $10.00.

DICK HASSINGER: We would like to conclude the presentations this afternoon with a topic that came up earlier today and that has to do with marketing. More and more agencies are getting involved in marketing and the topic seems quite appropriate. The presentation is called Progress on The Responsive Management Project and is being presented by Bud Bristow. Bud is the Responsive Management Project Leader for the Western Association Fish &

Wildlife Agencies who is sponsoring this project. Bud is a graduate of Oklahoma State University and has spent 25 years with the Arizona Game and Fish Department. He also served for 5 years as Director of that agency. Bud.

BUD BRISTOW: Thank you. I'm going to try and speak from up here. I write rather small and I'm going to be referring to the flip chart. You can't see all of it, but don't worry a great deal because I think I'll be reading most all of it anyway. The Responsive Management Project started with the Conservation Education Committee of the Western Association of Fish and Wildlife Agencies. It was a concept that started originally in response to problems that were rather obvious to most of the game and fish directors, to their information education people, and to their planning people. It was a feeling that they were being bombarded with requests and demands from a public that no longer related to the agency and to their products to use a marketing term, as they had in the past. It seemed that we were moving out of the mainstream of the public and we were becoming less and less important in the state's programs in the newspaper, in the news, and with the people. So with that in mind, we started looking how would be the most responsible way to try to respond to this. What's happening, where are we going, where's the public going, what's happening to hunting and fishing and the front page of the newspaper on opening day of deer season as we knew it 10 years ago, 20 years ago. So, with this concept in mind, the charge was given to the Conservation Education Committee of the Western Association to come up with some findings as to what was happening. There was a lot of looking at the demographics of the different states and various information as far as the percentage of people that were hunting, percentage of people that were fishing, etc. One thing that became very obvious, was the fact that if you looked at all of the states in the U.S., including the ones here, you looked at the percentage of population that hunted and fished, and you looked at the population per square mile, it's almost directly proportional. And you see the states lining themselves up in curve like this and as most of our states are increasing in population, you can see your state heading down in the direction which is rather obvious. Your population of the number of hunters may not be actually decreasing, but as you become a smaller and smaller percentage of your population, your influence, your effect on the policy in state, on your ability to actually preserve habitat, to actually serve what you're charged to do (which is to save the resource) in effect becomes less and less and less effective. So, the idea was to see if we can't maintain ourselves over here in this desirable position of Wyoming, which represents about 47% of their people actually hunting in that state. We started looking at ways that we could do that. We tried to assemble some people that could respond to that question. We had a meeting and we got the best minds together that we possibly could. I say "we" because the committee was chaired by the Director from New Mexico, but we attempted to bring together social scientists that were doing work in the demographics and what's going on in hunting and fishing and what's happening with wildlife, psychologists specializing in education, hunter education and public education. We also had people in marketing, we had some people from this area, from Michigan, at the meeting and we went through about a three-day brainstorming session with how could game and fish departments come up with an answer to serve their needs.

We had several objectives that we lined up. First, we recognized that we needed a practical and a timely method of doing socioeconomic studies. I say practical and timely. If you've been involved in that and you've gone to the firms that contract, by the time that you design one and you get the dollars together, you may be two years down the track, or six months, or maybe worse, $50,000 further ahead in expenses than you had planned. So what we wanted to do was try and get that capability closer to the people that were actually going to be identifying the need for it, the people in the game and fish departments. Another thing was that we needed the skill to measure change as it was occurring, and to attempt to predict change, and I say attempt to predict, because you never know until it's after the fact on that. Another thing that we needed was personnel, the personnel within the agencies to receive training in this skill, this art. I want to call it an art because I think that's what the approach is. So that those people could see the needs for it in their management programs, as well as identifying the fact that we need to get this additional information. Perhaps they would then take the information and incorporate it into their program. We wanted our project leader personnel, our division chief, to receive training like this. And, of course, after the project while I think everyone recognizes that is a success at this point, after the experience we had there, we recognized that if we going to have a very large expensive program, we're going to have to have cooperative funding for it. We also need to have the ability to exchange information, the fact that someone in another state may come with the answer for the problem that you just now recognized. So, with those ideas in mind, we put together a concept for a program.

It had two sides to it. One side would be the tools or mechanisms so that we could do this socioeconomic study. I call it this to get away from marketing terminology or scientific terminology. I call this the survey library. We would put together a group of surveys in a library form that an agency could use, one or all of them, and gather this information. The first thing that was recognized that we needed in the library would be the one on demographics, demographics for a particular state or section of the state, etc. After that the ones that we are very familiar with, participation and preference studies that you see accomplished in the U.S. Fish and Wildlife Service Survey every five years. There would be a section on that. Another one would be material that you've probably seen, most of the publications have been done by Dr. Steven Keller, although there are several other people doing studies in attitude profiles toward fish and wildlife. You've heard some of that this morning from the other study that was done in Minnesota. Not a great deal, but I've seen more of that in the last two years than I've ever seen in the previous 20 or 30 years of work. We wanted to find out what our people, and when I say our people, I'm thinking all of our public, how much they knew about wildlife and then as important, what are the sources of their information. We want to find out if they are really getting it from Walt Disney or if they are reading the newspaper or wherever. I think we won't be too surprised on this. Another one is agency performance. We wanted to have the ability to get their ideas on how they felt about the agency and also on their program priorities, whether they preferred hunting related priorities or they were more into the non-game or photography, perhaps the purchase of lands, for example, in some states; that program would receive a very high priority. In a state that has a real high percentage of federal property, it probably wouldn't receive as high a priority. As far as expenditures, there

are the ones you normally would expect, plus funding preferences. I think that we will find that there is a big difference, I know that we will find it in some cases because I've seen it in studies. A certain segment of the population will object to their dollars being spent in some ways, however. They would prefer and would even promote establishing a program where they could provide dollars where they could be taxed. In fact, if they knew the funds were going into another direction, I think we would get a lot of surprises on that one.

Then the last one that we wanted to make sure of was what we call our blank survey because it's designed on a software package that's used through a microcomputer system and is designed so that each individual state agency can place in their own survey. Perhaps you want to find out some information concerning depredation problems in northern Montana with wolves or something like this. This would give you the opportunity to design your own program, conduct your own survey and have the information back perhaps in the week between then and the controversial commission meeting that you knew was coming up in a week or two. You could design it as an indepth study if you wanted it to be a 50 question survey or you could have it if it were an emergency type situation with three questions on it. It gives you the ability to provide information to your commission for them to make a decision based on something other than just the volume of feedback you're getting from the audience. We all recognize that the whole world is run, I think, by minorities, but occasionally, it would be nice if you knew what the people really think rather than just what the three vocal people in the audience indicate that they feel that they think. This would give the state agency the possibility to do that.

The training program. That is a vital part of it and it goes as a complete package. The training will consist of a three-day workshop that would be put on by the people that are developing these materials. The training will include training in actually operating the surveys. They will be provided in two forms. One will be provided in a hard copy, just like the written copy of the survey, but the one that will be used most often will be provided to you in software form so that you can use it on an IBM compatible computer. The surveys will be set up so that the survey can be operated by someone with minimal training. In that the question will appear on the screen and the surveyor, after receiving the response, will punch a button and the next question will come up on the screen. So that you can go through a long list of questions, perhaps several hundred questions and by branching and the computer doing the branching for you, just like a plant key, you can go through maybe 10 or 12 questions and yet you can assemble information on a survey that may be several hundred questions long. A person is not put in the position of being asked how much dog food did he buy when actually he's already indicated he didn't hunt with dogs. Or he might not even be in that section if he indicated he didn't hunt. So you can see the possibility. The other thing is the team that will be doing this training will teach the three individuals that will be taking the information from each state. They will be teaching them the way to write questions, also to analyze the questions and then the mechanics of coding the information, making the changes in the information and if they want to replace bluegrass with quail or to specialize each of the questionnaires for the particular state. This is the survey side of it. It is called the constituency inventory package, that is why I used the word survey side of it.

The other part, which is just as vital, I think, is the training program for personnel, which includes a basic course in marketing, but also the marketing is the theory in practice in using the information you just looked at that you would gather from the various publics. It also includes a section that is on dynamics of change. This is sort of an inward look at the agency and in inward look at the individual that would be doing the training and that would be taking the training. The idea is that with this type of training, the individual can recognize where he fits within the agency. He can recognize his personality type and why he feels the way he does towards change and also it gives you an opportunity to recognize the problems perhaps within the agency and why you're not so receptive to change. And, in effect, gives you a way to affect change by understanding.

The next one, the marketing section, mostly relates back to the information you would have here. It's the principles of marketing of the 4 p's: the product, price, place and the promotion. It looks at fish and wildlife in those perspectives. Also, it makes you recognize the need to segment your public. I heard the question that was asked earlier concerning how do we keep these other groups out of fish and wildlife business and do our own thing. I think what we have to recognize is we work for all of the people, but we need to recognize that they are different segments. They don't all have the same needs and they don't have all the same desires, but we've got to work for them and we've got to learn how to speak to them. Maybe with marketing, we can design our products so there is a product for everyone of those segments of the public. That's one of the things that will be taught. The other situation is the communication processes that you have. Hopefully, if you find out the knowledge of these people, where they get their information, you'll be capable of talking to them. If you find that they read a particular magazine, you'll probably speak to them that way or if they watch the 6:00 news, you may have to speak to them that way. But, you can't talk to all segments of society in the same manner, because we don't read or watch the same thing.

The other section concerns issue management. Issue management is the various things that go into control, and this is not meant to indicate that it is brainwashing or anything like that. The control of the information that goes out on particular issues. And this came about because of the need to recognize it. We have problems with hunting, anti-hunting. We have a new program that is going to go in. There's a lot of adverse publicity that comes forward. Through issue management and through the control of the information that goes out, we have a much better chance to either make that program acceptable or maybe we won't even do the program if it isn't acceptable. Maybe we shouldn't if it is not acceptable. That is the training side of the program. This one is going to be considerably longer than the other one. The other one is more orientation of just utilizing the macro computer processing of the surveys.

The design and the analysis. This side is for training within the agency itself. The way the program is set up right now, three people from each state would attend the other orientation program and three people would attend this one. The idea is the three people that attend the ASP or the in-house training would then act as trainers within the agency. They would have the

capability to do the training themselves, but I would imagine a great deal of the training would be through contract with some outside expert. They will probably do part of it and probably you'll want to contract part of it out. But the three people that go to the training program can do it all themselves, if they would like to.

As far as the organization of the program, there are two phases. The development phase and implementation phase. We are into the development phase now. It started almost two years ago and the contracting authority is the Western Association of Fish and Wildlife Agencies. They have the contracts with the two teams that are actually doing the work. They also have the contracts with the states that are the sponsors of it. They contracted with a director to coordinate the program, that's me. They appointed a five-person advisory board. This advisory board is the governing body for the program. They are reviewing the materials, they also have quarterly meetings, make decisions as far as policy, whether we are going to write a new contract for this, write a new contract for that, etc. The advisory board is made up of five people. One's from the west, midwest, southeast, northeast and another one from the west. You have a representative here, Wilma MacKenzie, from the Minnesota Department is on the advisory board. We have two contract teams. One of them is for the CIP and it includes Dr. Keller, Dr. Shaw and Dr. Carpenter. Dr. Shaw and Dr. Carpenter are located at the University of Arizona. Dr. Keller is at Yale University. The ASP side of it is contracted to Dr. Peyton at Michigan State University. A doctoral candidate, Roger Eberhart, is accomplishing much of the work there.

The program began in 1987 after a number of inquiries had been made around the states as far as who would like to be involved. The association's support was obtained from the western, southeastern, midwestern, northeastern and the international that year. Funding progress actually started a year ago last January. At present, we have contracts with 23 states. The sponsorship is for $7,000 from the 23 states. I said states, one of those is a province. There are a couple of other provinces that indicated that they will probably become members. Fish and Wildlife Administrative funds are also available for the project. In addition to that, we have a grant from the National Fish and Wildlife Foundation, which is paying for the pilot test of the program. That will start in September. In addition, the International supplied $18,000. We have a review board which is made up of individuals from 39 agencies that review the materials as they are developed. They comment on them and their comments are then coordinated by one of the individuals of the advisory groups, according to which area they are in. They take their comments, put them together and we try to incorporate them in the materials. The materials are being developed. Some of them are in the sixth review stage right now. Some of them are in the first review stage. They are to be completed this fall. All of the programs should be completed. All of the materials should be developed by that time. A number of them are in the Midwest. I think Kentucky is involved with planning. One of the original ones was Minnesota, Ohio, a number of others, Kansas. This is a timeline which I don't think most of you can see. I'll run through it quickly.

For the remainder of the development stage. First the CIP, this is the survey package. The surveys are being developed right now and their last review will be in August. Some of these have been through a number of reviews. The last one should be in August. The board wanted to identify within each one of those surveys a particular section that we would identify as core questions and we would attempt to get all of the states that used them to ask as least those questions. That way you could compare your information to the information from Florida or another state. There's lots of other questions you may want to add, you may want to subtract, whatever. If we can identify a core group, then we will have the ability to compare one statement to the other. The orientation program will be delivered for that. The training program will be delivered for that in February. The training program for the inhouse training, the ASP side of it, that one should be completed and it should be delivered in March. It will be on one side or the other of the North American. The pilot test for the two states, Louisiana and Wyoming, will be conducted this fall and their final report will be due January 15 in both cases for the ASP as well as the CIP. The board has drafted up an implementation plan which was accepted last week by the Western Association and it includes these things. They hope that after the program is delivered, there is a national office established. There then would be a full time coordinator with the financial support to go with it. They will seek affiliation with the International, whether that will be working for them or just an association, they didn't indicate. There will be a new board and it will be made up of representatives appointed by each of the associations, one from Midwest, Southeast, etc. and one from the International. They are recommending, and have made application for, Fish and Wildlife Administrative Funds for the first two years and they have recommended an annual membership fee, much smaller than the buy-in fee. Services for example, they want to have someone on retention all the time for problems with computer surveys. Someone you can call up when you hit a glitch and you want to escape or turn it off or something. So they would provide those services, plus other services if the person or the state wanted to contract it. The other thing was that they were recommending contracts buy in at $10,000 after the initial orientation program which will be given this next spring. The reason that I brought the report to you was to ask that you consider sponsorship prior to next spring. We would like to get the workshops all organized and in place and the other thing is that we would ask for the association to support the request for administrative funds for an interim period of two years only from Fish and Wildlife Service this September at the International.

JACK WINGATE: Because of the lateness of the hour, we will wait until later to ask Bud any other questions you may have. Bud, we do appreciate your coming.

A couple quick announcements before we move into the next portion. Six-thirty tonight is the President's Reception. It will be in the Great Hall II, not as the original agenda said. For those interested in Charter Fishing, if you haven't already seen me, please do so, so I can finalize the arrangements. Breakfast tomorrow morning will be where breakfast was this morning and where lunch was this noon. Spouses are invited. If you have children with, they are invited.

LARRY SHANNON: Thank you. I want to thank Jack, Dick and Roger for moderating today and thank you for your attendance. Thanks again and those that need typing just see me or one of the ladies at the registration table; they will be waiting if you need typing done. Thank you.

Wednesday, July 12

ROGER HOLMES: Well it's good to see all your smiling faces this morning. I don't see anyone here that appears they ate too much pickled herring last night. As far as some of the rest of it, that was good too. It is always a temptation at little affairs to have one Manhattan too many. I don't know of anyone who did that. We are going to start right off with a presentation by Carrol Henderson. I'll tell you a little bit about Carrol. He's a native of the State of Iowa, and he got his degree in zoology from Iowa State University in Ames. Got his masters degree in ecology from the University of Georgia and was in the Air Force and a few other things along the way until he got a job with the Minnesota Department of Natural Resources as the assistant manager out at our famous, or infamous, maybe that's more correct right Ken, our infamous Lac Qui Parle Wildlife Management Area that is reknowned for holding about 2/3 of the eastern prairie population of Canadian geese on their migration into Missouri. Carrol enjoyed that a lot. He got into many varied management programs out there and was hired as our nongame specialist. He supervised the nongame program now for about 13 or 14 years and has built the program from its infancy to what it is now. The first year, I recall, when we had our nongame check-off, it took in about $400,000 and the projected income into that program this year was about $1.2 million. Carrol is a genius at promoting that program. He has a lot of ideas on how to get the public's attention, how to publicize the program and it's been extremely successful, as you will see from his remarks. The credit for the success of that program goes to him. With that, I would like to call on you, Carrol.

CARROL HENDERSON: Thank you Roger. I appreciate the invitation to join you for your meeting, to share a few ideas about Minnesota's nongame program, and the nongame programs in general and also the kinds of things that you might be able to take back and share with some of your own people. This has been one of those kinds of jobs where once you get into it, you find your niche and so much for the career ladder, you just stay there. I guess if you're still having a good time since 1977, that must mean this is the right job for me. Anyway, the nongame program is one of those where we have had to basically define our role as we have moved along because when we first began that program in 1977, there was no program. And, in fact, I had a rather unique challenge at that point when I was hired in St. Paul because I was hired as a nongame supervisor in charge of no budget and no people. I suppose the total funding just amounted to my salary plus a few expenses and incidentals. So the whole statewide scope of the program was about $30,000 give or take a few, but I'll never really know because it wasn't even a line item in the budget. It was just me and whatever I could generate. Since then, we've gone through an interesting evolution and I think what's important here is that this is an evolution that's occurring in every state and province all around us. We might each be at different points of time, but it's parallel evolution; we're all going through the same changes in social structure, changes in public attitudes and changes in outdoor recreation.

Nongame is intricately involved with all kinds of things along the way regarding that kind of wildlife. At this particular point in time, it's very exciting to see where the program has come over those years. In the first three years of the program, we dealt a lot with volunteers, who went out and did quite a bit of field work. My own was checking heron colonies and putting together a preliminary list of bald eagle nesting sites in the state and doing things that you do as a one-person program with mostly volunteers and no money. But even then I found out that lack of money isn't necessarily something that has to hold you down. For example, I really wanted to reintroduce river otters out in western Minnesota, along the Minnesota River. They had been gone over 100 years out there. And it was going to cost about $200 per otter to bring some otters in from northern Minnesota. In order to get the program going, I went to a sportsmens club that I knew was quite a good one out in western Minnesota, the Willmar Sportsmens Club. I put a proposal together and went to them saying that if they could donate $600 I could get 3 otters to bring down to Lac Qui Parle. And they thought that was a good idea, so they contributed $600. Well, then I went to the St. Paul Audubon Society and I said the Willmar Sportsmens Club had just donated $600 and this is to reintroduce otters into a place where they are not really intended to be trapped or anything, just to restore that original diversity. Would you be willing to match their donation? Of course they didn't want to be left out, so they donated $600. Well, then I went to the Minnesota State Archery Association and I said the Willmar Sportsmens Club and the St. Paul Audubon Society have both donated $600 and I want this to be a collective project where everyone is participating, many different types of people because we want to show people that nongame is something that represents many types of interest, sportsmen and private citizens, and I got $600 from the Archery Association, even though you are not supposed to shoot otters with bows and arrows either. Then I had an $1800 kitty to start with. We started moving otters out there, we moved a total of about 25 animals and within about 3 years by moving those otters, we did start a new population in western Minnesota. It was a low-key project and that helped carry us into a point of time back in 1980 when the check-offs started. And that's when life changed real fast because I literally woke up one morning and found that our check-off had passed about 2:30 in the morning during the last days of the legislative session. I literally read about it in the newspaper that morning. It was a nice surprise. My budget went from about $30,000 to over one-half million dollars in one year. That was a big shot.

ROGER HOLMES: I've got to interrupt you. Can you tell about releasing the otters without telling what happened to you.

CARROL HENDERSON: You mean the otter in the toilet?

ROGER HOLMES: No. I mean the one in the cage when you're releasing it.

CARROL HENDERSON: Oh, that one. First, the otter that we released in front of the T.V. cameras. Our very first otter. There's an old Norwegian named Helge Lundemark from up in northwest Minnesota who caught our first otter and we flew it down in a Conservation Officer plane. We had one of our T.V. stations, Channel 5, follow us from the airport all the way out to the release area. What we were doing was, we had trappers contracted to catch the otters

in one and a half coil spring traps, so that we would bias our catch towards smaller otters and females. He was trapping them and then we were picking them up and bringing them down. We had all these people gathered around to see this otter being released. It turned out that it was a small female, it was about this long, and Helge had built this huge wooden crate; he thought there was a monster otter in there. We opened it up in front of the cameras and everyone was gathered around. Here's this little otter all curled up in the straw and it kind of looks up at us and lays down and kind of shuts it eyes again. It was just resting in there. Well, nothing happened. The cameras were running. We had to do something and we had the water of the lake right down in front of us. I had these big chopper mitts on. I didn't realize that we still didn't know what sex it was and we really did need to know what the sex was, so I put these mitts on and kind of go down like that and grab that otter around the neck and then I discovered it's hard to sex an otter when its rear end is going around at 100 miles an hour, so I yelled to the manager, Arlan Anderson, "Andy, Andy, grab the tail." So he got down there and he wrestled the rear end of the otter down and finally pinned it down. By this time I had forgotten all about the T.V. cameras running and I announced to the world "It's a female." Well, just about that time she squirmed out of my hold and clamped down real good on my thumb. I yelled out, "It's a biting female." So I let loose of it. We all backed away and the little otter is kind of ruffled but stands around and then it started to head down to the lake. One of the sportsmens club members from the Willmar Sportsmens Club, was right down in the lakeshore, right where the otter was supposed to go. The otter gets down there and sees this guy standing there. He turns around and runs right back through our legs and into the woods. And that was how our little news feature ended up. I guess Andy and I were saying, "Go the other way, otter," and of course he didn't understand it. I guess our secretary, Paulette, back at the office, said she laughed for half an hour after watching the news that night.

But, I suppose I should tell about the one in the toilet now that you're curious. See, we had another otter that grew up in the fishing camp up in Lake of the Woods. It was in the Northwest Angle and the people who owned the camp were concerned that at the end of the summer, this little otter who had become adapted to the presence of people, was going to get killed and skinned out and they didn't want to see this little semi-tame otter get killed. This was a real celebrity otter. It would swim up to a fishing boat and then leap up into the boat and race around looking for fish and of course the fishermen were kind of surprised by this. Left them pretty wide-eyed! Then it would jump out and swim around. Well, this woman took it on herself to smuggle the otter across customs to Baudette for the winter. She got caught by customs. We got a call from customs that they had this semi-tame otter that they didn't know what to do with. And this was at the exact same time that I was starting this restoration project, so I said well if it's not too tame we can just turn it loose with all the rest. So they drove it down that day to the Twin Cities. I got this big cage with an otter in it and they had said that it wasn't too wild, that I really didn't need to worry about it biting or anything. I stopped at a minnow dealer and he gave me a whole ice cream bucket of fathead minnows. Then I headed home. Of course I wasn't quite sure what the best protocol was to take care of a semi-tame otter. My wife and my boy weren't home, so I decided, well, I'll just take it into the bathroom and turn it loose, and see what happened. I filled the tub. So I carefully

opened the cage up and this thing just kind of slithers out, pokes around the bathroom a few time and looks into the tub, leaps in and just starts swimming back and forth and I thought it was great. I've never done that before. Well, then I took my ice cream bucket full of minnows and I threw a few minnows in the tub. The otter really loved that. He just kind of swallowed one after another until there was only one left and then he just kind of swam after that one bumping it with his nose, just teasing it. Finally he swallowed that one too, and then he saw my bucket up on the sink unit. He leaped out of the tub, across the toilet, and just grabbed that bucket and stuck his head right down in those minnows and chowed down. Of course that was his whole food supply until I could get him out of Lac Qui Parle the next day. So I grabbed that bucket away from him and he grabbed it away from me and it fell all over - minnows in the toilet, minnows on the floor, minnows everywhere. This is kind of degenerating fast. Then he decided to go exploring. He tried to go down the clothes chute. I had to pull him out of there. He tried to go into the towel closet, I pulled him out of there. And it was really amazing while he was not vicious or mean or anything, he was just kind of there. He jumped back into the tub and swam around. I was sitting on the edge of the tub, and he gets out and crawls around on my lap, kind of toweling himself off on me, and then he jumps back in again. He left me all wet. Then he tried to go down the toilet and I had to pull him out of there. So anyway, this otter was kind of a celebrity by the time we got him out to Lac Qui Parle because he got into several other things. I took him to my son's school the next day and he escaped in the classroom and that was kind of exciting. You should have seen those kids lifting up their seats - just like human popcorn - when he ran across the room. And then his last famous parting shot was that we turned him loose in Arlan Anderson's out at Lac Qui Parle. Just to show these people this interesting otter, actually the first one we had brought in. He went around the room and around the room and climbed up on the desk and down the drawers, then he went around behind where several people were standing including the secretary, and all of a sudden he just shimmied right up that secretary's leg and goosed her with his nose, and her eyes got real big and all you hear were these guys. I don't know what you say to a lady whose got an otter hanging on her leg, but everyone was petrified and were afraid to make the next move. So she had to take care of herself at that point. Finally, he ran down her leg. We caught him and took him down to the lake and turned him loose. That was one of our more interesting adventures along the way. But, we did get the otters established in spite of this semi-tame one.

Since then, we've worked with a number of endangered species. We worked with species like the peregrine falcon and in fact if you were to head up to the North Shore to a place called Palisade Head, we've got a pair of peregrines that were released in the Twin Cities and came up here. They're nesting. They've raised four young ones this year. We're actually releasing 30 peregrines here in northeast Minnesota. The wonderful thing about northeast Minnesota is that they hardly have any great-horned owls. You have to be in a peregrine project to appreciate that fact. They love falcon hors d'oeuvres. Anyway, we've turned loose over 100 peregrine falcons over the last several years. We've got a pair nesting in St. Paul. We've got one pair nesting in Minneapolis, and although it's come along a little bit more slowly than we had hoped, the project is working. We've got three breeding pairs and hope for more in the future.

Another major success that we are experiencing this year is that we are now into our 10th year of trumpeter swan restoration work. It started slowly, but it was just planning meetings back in 1979 looking at what the possibility was to bring back the trumpeter. It's been a long project and it's been a hard project. There's no good book you can go to like with peregrines, and find out exactly how you're supposed to do it. We, in many ways, had to develop some of our own techniques, our own sources of birds and go from there. This year, for the first time, with swans that were two years old, we turned them loose two years ago, so they are now going into their fourth year. We ended up with five nests, five pairs of swans nesting from an initial release of 20 swans. So we're looking at about 50% survival after two years with breeding by the birds that are still alive. The last I knew, three of those clutches out of five have hatched. We have nine cygnets so far. We had six eggs in another nest that were just about ready to hatch and then the fifth nest, we're not sure how many eggs there are. So, we could end up with maybe 15 or 16 swans. We did have one hatch last year that survived, but those birds were a little bit premature. So that was just an extra bonus for the project. We collected eggs in Alaska for three years, and we also get eggs from supplemental sources like the Brookfield Zoo in Chicago, Minnesota Zoo, and from the Delta Waterfowl Research Station in Manitoba. We will have another 50 swans that will be old enough to release next year and about another 24 swans to release the next two years after that from these captive sources. We've now gotten to the point where we're able to see some early indications of success from that project. It's exciting to see this is now spreading to other areas as well, so that we can actually see a regionwide interest and commitment to protecting swans. Also, we will have probably over 50 or 60 swans old enough to migrate this fall, so for all you states to the south, you might want to remember and check in with your Information and Education Bureau this fall, about October to November, and just put in a little reminder that people should watch for trumpeter swans that have either neck collars or wing marks. We will send out a release to all the wildlife sections and let them know about this when the time comes. But anyway, don't be surprised if a few trumpeters show up, even literally at your back door or office like in Des Moines. We whispered in their ear before they left Minnesota.

Q: Everybody enjoyed them there. The last two winters we've had at least 3 trumpeter swans winter in the city of Des Moines, along the Des Moines River.
A: That's great. We've had other projects. We just brought in 27 burrowing owls from South Dakota last week and those are being released out at the Lac Qui Parle area in western Minnesota. Those are an endangered species. We've had a lot of other activities that are going on though. Those are just the high profile projects. We've got things going on that like bluebird recovery, where we work with volunteers. Last year those volunteers put out bluebird houses and they raised over 12,000 baby bluebirds. And those are just the people who bothered to send in reports. There are lots of other people out there who are just doing it for fun, without keeping records. And, some people will be putting out bird houses; that's kind of trite, that's not really the meat of wildlife management. I guess I've somewhat changed my attitude on that over the years, having seen what's happened with ducks since the early 1960s. And now with bluebirds, I brought along four of these Peterson style bird houses for door prizes, so I'll let Jack take care of the distribution on those as time goes on here.

I think the thing that really brought home how important these are, is that this helps you reach new clientele. People who might not be your traditional hunters or fishermen or trappers. You can entice them into wildlife conservation activities and interest and commitment by lighter projects like bluebird houses. I guess the classic example on this was a farm wife named Sharon Possen, from New Richland, MN. She went to one of our bluebird nest box workshops where we taught people how to attract bluebirds to their property. Her son was in 4-H and he needed the project. So, that seemed like a good one. So, he put out four bluebird houses on their farm. It was a nice big dairy farm down in southcentral Minnesota or southeastern Minnesota. One of those four boxes had a bluebird in it that year. While that doesn't seem like much, one nest, one pair of bluebirds. Well, this was like a bomb dropping on that farm. Every time someone came to that farm that summer, either the son or the mother had to take those people out to see their bluebirds. Well, then he showed a really nice display at the County 4-H Fair and people were just enthralled by this because they hadn't seen bluebirds for years either. So, a lot of people reached for that information at the county fair. The next year, the whole 4-H Club adopted bluebirds as a standard project for everyone to do, so then they had about 20 kids all building bluebird houses. The farmer across the fence from them didn't want them to get by with having all the bluebirds, so then he put up about a dozen boxes on his farm the next year. In the meantime, Sharon Possen decided that if that will work, gee, then maybe the DNR has other things that you can do on your land and help wildlife. So she started going to special workshops that were being held by the Division of Forestry for private landowner workshops for woodland management and then she started having food plots put in on their farm for whitetail deer. They put up wood duck boxes for wood ducks. I don't know what the farmer was doing all this time, but it really didn't matter because she was calling all the shots. Even directing some of our programs to the wrong people. Anyway, they were doing a lot of conservation work on their farm and they were coming back to the DNR repeatedly looking for more and more things that they could do to help wildlife, just because of that one pair of bluebirds. It really opens doors. So, that's why even though sometimes it might seem like a lot of work and a lot of extra bother to do some of these public interest workshops, it builds this new clientele like almost nothing else I've seen in the state. I think this is really important in conjunction with the kind of meeting you're having because when you're looking at these potential opportunities for new clientele, there are a lot of people out there who are quite interested in wildlife and I think if they know what we're doing, and what we're trying to accomplish, they will support not only our concepts, but also our legislative proposals.

I guess this is why the check-off is kind of a nice tangible reflection of those changing attitudes. Because when you live entirely on donations, or almost entirely on donations, you really appreciate the citizen attitude. You know that they have to be positive or you're dead in the water. Last year our donations to the nongame check-off had increased to the level that we got $911,000. And I thought, "Wow, that's really wonderful." That's more than double what we got in the first year on our check-off back in 1980. I'm really worried about how oftentimes check-off revenue peaks out and then starts to decline. In Colorado, for example, their revenue built up over several years to over $700,000 and now it's down to around $300-400,000 again.

And, of course, with competing check-offs, it gets even more difficult. Well, I decided we needed to put just a little bit more oomph into out check-off campaign so we contracted for a publicist to work three days a week with radio and TV stations making public appearances. And then we changed the gist of our whole promotional campaign. We have been telling people, look for the loon on your Minnesota tax forms. Well, then it dawned on me, only 40% of the people do their own forms. So 60% of the people never even saw the darn loon. So this year, the gist of our campaign is "Help Wildlife." We didn't say nongame, we said "Help Wildlife." Tell your tax preparer to check-off for wildlife, and that was our billboard message. We put up 30 billboards in the Twin Cities area. We used this theme, and that way we were appealing to 60% of the people. Otherwise, they will forget when they go to their tax preparer. We are trying to get that critical moment when they are at the tax preparer that they might remember.

Of course, we had a few other things happening during that period. We had a hugh die-off of trumpeter swans in the Twin Cities at Hennepin Park from lead poisoning. So there was a lot of consciousness about wildlife right during the tax season, and I'm sure that didn't hurt us any as far as awareness, but whatever that combination of ingredients was, we increased our spending for the check-off publicity by about $16,000 this year. Eight thousand dollars for a publicist, $8,000 for more posters and other incidental materials. Our donations have gone up more than $200,000 over and above the $911,000 we got last year. So we're at a point where we're experiencing our first million dollar year in check-off donations. That's a real exciting point in time. Now I thought it can't get much better than that, but then we had a little thing that happened in the legislature that some of you might have heard about, which is a new endangered resources corporate tax check-off, which means that on the corporate forms that need to be filed by some 60,000 Minnesota taxpayer corporations, there is now a check-off line for them too. This will go into effect on the tax forms a year and a half from now, although it's for the tax year starting next January 1. So we won't really see any money for about a year and a half to two years. No one knows how much this might generate. It could be $2 million, $4 million, $6 million, it just depends on just how aggressively we promote it. But you can trust me that I'll figure some way out. This is an exciting possibility because as far as I know, this hasn't been done in any other state. It represents another new plateau we can reach.

I don't know how much more we can depend on donations to the nongame check-off, and I guess that's a message that I'd like to leave with all of you. You're probably all well aware of the check-off revenue by itself is not dependable and it's not a long-term solution. It only gets you started and then you find out that it has lots of dilemmas of its own. You need to somehow balance, match or finance some other way to stabilize and increase that income over the longer term because there is this huge amount of increasing interest in wildlife. Some surveys done by the Forest Service, for example, have estimated that the amount of travel and nonconsumptive, if you want to use that word, type of wildlife recreation is going to increase five-fold between 1980 and the year 2000. Another real surprising figure that just came out recently in the U.S. Fish and Wildlife Service Summary for the State of Minnesota for 1985, is that the amount of money being spent for bird feeding, bird watching, wildlife photography, and all of those

"nonconsumptive" types of use, reached $238 million in 1985. The way to put that into perspective is that the amount estimated for all hunting activities in Minnesota was $214 million. As far as I know, that was probably the first year that we have seen that comparison. Up until then, we didn't know how those compared. Now I don't want to put that in a context that means that it's somehow in competition with hunting. I think it simply reflects this new clientele and the fact that they want to increase their activities. They're enjoying a lot more activity and they need some guidance. Otherwise, you can see you'll have problems developing in that area of resource management as well. There is a huge need right now, to somehow look for creative ways to reach those clientele, to show that we have programs and activities to offer to them, and maybe meet with your staff people and talk about how this is going to affect your section or units, say over the next ten years. As these programs are changing and developing, obviously the check-off alone isn't going to carry the load. If you've got all of these new people who are looking to spend money, are there ways that somehow that money can be rechanneled into your programs. That's been the biggest dilemma so far. So what if someone goes out and takes pictures of birds. Nothing comes back to your department out of that $238 million that's being spent for nonconsumptive activities. The state does get sales tax money back on those expenditures, but then when you go to the legislature, I don't know that that message has been made yet about how much money they're getting because of those activities. Somehow it needs to be made very painfully clear to them that some of that revenue should reasonably be recycled back into resource management programs.

One of the things that has been happening in Minnesota that has allowed some of this to happen is the Reinvest In Minnesota Program, where we've gone beyond traditional funding sources to help bridge that funding transition into future programs. We've been doing some land acquisition in the line of habitat development work and prairie restoration in cooperation with the Reinvest in Minnesota Program. But, there's a lot changing out there right now. The people are hungry for nongame materials. They want to know what they can do. I guess that's one of the reasons why I brought along lots of these "Landscaping for Wildlife" books for door prizes. We also have another publication you can obtain on the order forms that are shown on your tables - "Woodworking for Wildlife." This is a publication that I wrote back in 1984. It was basically a summary of information from a group of people who I considered experts all over the states for each of the species I included. It was so popular that we've gone through over 50,000 copies now. It's gotten into some unusual places. I may have told some of you that we got a request from the Soviet Academy of Sciences for copies of this. So I sent a couple of copies over to Russia. I thought it was real interesting that about a month or two later, I got a request for a copy of "Woodworking for Wildlife" from the CIA. I still don't know what that means. But anyway, if you'd like to read a best seller that has something to do with international intrigue, this is it. This has things that people can do hands on, it's good for classroom use, youth groups, and one of the things that we've done is that now the price that is quoted on these order forms are retail. If you, as a conservation organization, want to purchase quantities of these, like 10 or more, you can get a 40% discount. The mailing costs $1.50, regardless of number. So whether you order 1 or 10 or 100, it's $1.50.

Then the last thing I would like to mention is Landscaping for Wildlife. I think many of you have probably seen or heard about this. We printed 25,000 copies last year and we have just run out. We've gone through our first printing. It's been much more popular than I ever could have imagined. It has guidelines, again, for those private landowners, those people who may not be going out and doing a whole lot, but it gives you a bridge to those people to develop an interest in wildlife. There are many ways you can promote this through workshops or private lands programs. We've seen that by using this approach, you can bring in more people and then when you get things like a corporate tax check-off or a Reinvest In Minnesota Program in the legislature, you'll find that life gets a whole lot easier because you've got a lot more people interested in writing letters or making phone calls to support your programs.

Unfortunately, I can't go into a lot of the details on what the nongame has been doing because it does cover a lot of territory. We've got about 150 projects underway in the state. So I left some materials on your tables for you. I appreciate your interest and your attention and if you do have any questions about any of these materials or activities, you're welcome to give a call in St. Paul. Thank you.

ROGER HOLMES: Thank you very much Carrol. The nongame program has provided me with a special benefit because I've got a telescope set up in my office. In fact, one of the attorneys came in, looked at that telescope, and accused me of having that on the window of the YWCA. I told him to take a look through that telescope. It was aimed at the North Central Life Insurance Building where the the hatch box was located for the pair of falcons in St. Paul. They produced four chicks last year and four again this year. In fact, I was in the office the other night looking out the window at the smokestack across the street and I saw a bird fly by. I thought it was a pigeon at first, and lo and behold, it was not, it was a peregrine. This is the building right across the street. They have moved from downtown. That's, I figured, about 13 blocks from our office and when they got on the wing just a couple of weeks ago, they moved over across the street from the DNR building. They are flying around over there, so we're having a lot of fun watching them. So, it brings the nongame program right into downtown St. Paul. It's pretty nice when you can gaze out the window from your office and watch endangered species like peregrines.

The next topic is a real interesting one, too. A program that started in Minnesota in 1984, it's called Reinvest In Minnesota and it has created a lot of interest in our state. It's got quite a history that I won't go into because Jay is going to be doing that. I'll introduce Jay Rendall at this time who is a native of Wisconsin. We've been doing a good job of recruiting people in Minnesota from surrounding states. We have four or five people from the State of Michigan and, in fact, from most of the states in the Upper Midwest. Jay happens to be one of our people from Wisconsin and he got his degree in natural resource analysis and management from the University of Wisconsin. We recruited him to Minnesota. He served as the Purple Loosestrife Coordinator which you heard about yesterday from Ellen Fuge. Jay did a lot of the initial work on the purple loosestrife program and, in fact, whenever that topic comes up in the meeting or legislature, he's right up on the edge of his chair and ready to jump in. He handled the program, the

promotion of it, during our legislative process and did a real good job on that. He works real well in the legislature and was successful in getting the appropriation for the control of purple loosestrife, Eurasian watermilfoil, which of course a lot of people worked on those, but Jay kept pushing them on the loosestrife end of it and we got $300,000 combined to control those two plants. Jay deserves a lot of credit for that work. And just recently, 4-5 months ago, Jay was promoted into the position of the Reinvest In Minnesota or the RIM Coordinator, and we'll hear from Jay at this time.

JAY RENDALL: Thank you, Roger. As Roger said I worked for a couple of years on purple loosestrife and I probably could have given the talk yesterday blindfolded with my hands tied behind my back. But, today I'm going to talk about RIM. It's something I've been working on since February and it's been around a lot longer than that. I guess it's also the 'kiss of death' to have to follow Carrol Henderson. After his presentation, it will be difficult to keep you entertained. I've got a lot of nice slides to explain the complicated RIM Program. I also should point out that Roger mentioned I came from Wisconsin where I started out in wildlife ecology. Early in the first semester, Joseph Hickey from Wisconsin gave us a talk and said that if we got straight "A"s and had a Ph.D. in Wildlife Ecology, that we still probably would never get a job. So I immediately switched to the Landscape Architecture Department and got into more ecology and native landscaping and the natural resources stuff and now ended up working for the Department in the Fish and Wildlife Division. So there are ways to get there other than the normal route. Anyways, my topic today is Reinvest in Minnesota. I did bring a display and we do have handouts, so if there are some questions afterwards, some of the literature probably will explain parts that I don't explain in my talk.

Reinvest in Minnesota, or RIM, is a comprehensive program to help maintain Minnesota's rich natural resources and heritage. In 1984, Governor Perpich established a Citizens Commission to promote hunting and fishing in Minnesota. The commission found that fishing, hunting and other wildlife related activities contribute over $1 billion/year to the state's economy. The commission's report concluded that for Minnesota's economy to continue to benefit from fish and wildlife resources, the state needs to annually reinvest $60 million a year into soil, water, fish and wildlife programs. The RIM program, created in 1986 by Governor Perpich and the State Legislature, was Minnesota's response to the economic and environmental issues outlined in the report. Governor Perpich has stated, "RIM is landmark legislation. It provides the foundation for programs that can protect our natural heritage and insure that all residents can continue to enjoy and take pride in the quality of life for which Minnesota is famous."

The primary goal of RIM is to <u>increase public and private investment</u> into the state's fish, wildlife, soil, water and other natural resources. This investment in our aging, and increasingly used, "natural resource factory" will improve the environment, boost tourism, and increase recreational opportunities in the state. It is good for the economy of rural areas as well

as the economy of the state as a whole. In theory, the process is a self-perpetuating one, and as you can see from this graphic, the tourism industry generates $1 billion/year in the state's economy and we reinvest through the RIM Program back into the aging natural resource factory. We create better recreational and tourism opportunities which then generates again better tourism for the state. So, in theory, the process should continue to generate the income which would justify the legislature appropriating it for RIM.

RIM is made up of a variety of activities. Some are administered by the Department of Natural Resources and some by the Board of Water and Soil Resources. The Board of Water and Soil Resources is administered locally through the Soil and Water Conservation Districts. The DNR activities are primarily focused on public lands, however there are some private land projects that I'll talk a little bit about later on. But primarily we focus our efforts with our RIM funding on public lands. The BWSR's activities are focused exclusively at private lands. So at this point, you're probably wondering, "What does RIM do?" and "How does the reinvestment benefit the environment and outdoor activities?" So, I'll get into the details at this point. RIM activities benefit all aspects of the land: wildlife, fish, native plants, water and soil.

The first of those issues is wildlife. Many of our typical wildlife management activities are funded or there is an acceleration of our activities with RIM funding. There are also some new initiatives that we're undertaking with RIM dollars. Prescribed burning is a activity which we have accelerated substantially with the RIM program. It's done on prairies, and for sharptail habitat as well as some over-mature aspen areas to help regenerate those. These aspen regeneration areas, which were new initiatives in 1986, benefit many wildlife populations and therefore provide additional recreational opportunities such as hunting and wildlife observation which Carrol mentioned earlier today.

Fisheries enhancement is another activity which is funded by the RIM program. Erosion problems on lakeshores are corrected with RIM's fish management projects. These projects help protect spawning areas and improve water quality. This project happens to be on the Winnibigoshish, one of our major lakes in central Minnesota. The Fisheries enhancement projects directly and indirectly provide more fishing opportunities throughout the state, either from fishing piers that have been constructed as this example, or from improved fish populations.

Minnesota's native plants are part of our strong natural resource heritage in the state and we have programs within RIM that benefit those parts of our landscape. The RIM prairie bank allows landowners to protect native prairie by enrolling their land in 20 year or perpetual easements.
In this way, our natural heritage, rare species and our, now rare prairies, are protected for future generations.

Another real popular part of the RIM program is our Critical Habitat Match. The legislature appropriated $4.7 million to the Department of Natural Resources, and then we seek to have that matched by the private sector, either by businesses or private individuals. We're just getting started, so I think we can fairly say that we've matched $4.7 million and totally benefitted the Fish and Wildlife and native plant habitat in the state by $9.4 million through the Critical Habitat Match Program.

Chamberlain Woods, which was just dedicated last Sunday, is a Scientific and Natural Area. This was donated by one private individual, 220 acres, to protect a floodplain forest and some unique geologic features on the site. It's an example of how the Critical Habitat Match works well with the private sector involvement. Of course many of the conservation groups use this an a tool to double their efforts. The Minnesota Waterfowl Association, Ducks Unlimited, Pheasants Forever, and all those groups use this all the time. It's very easy for them to fund raise when they can say the state's going to match whatever they put in. I think it's one of the most important parts of the RIM program.

The part that you may have been more familiar with that's unique around the country, is the RIM Reserve. This is administered, as I said, by the Board of Soil and Water Resources and it is to improve private land conservation and to establish permanent cover on farmland that meets certain criteria. There are certain components of the RIM program aimed at different parts of the landscape. We now have enrollment for hillside areas, we have sensitive groundwater areas, riparian areas, highly erodible areas, and the landowners are encouraged to enroll their land in 20 year easements or perpetual easements. They have to put a permanent cover crop on this land. We usually recommend the native species. Benefits of the RIM Reserve are reduced soil erosion and sedimentation and increased wildlife habitat. So far in the state, there's been 28,000 acres enrolled in the RIM Reserve and increased recreational opportunities on those acres. They are still privately owned so the landowner has control over whether or not hunting is allowed but to the best of my knowledge, on most of these areas the landowners do allow hunting.

RIM Reserve also addresses water quality issues. As I mentioned earlier, riparian lands are now a criteria for which land may be enrolled as sensitive groundwater areas. These are areas where there are sandy soils or karst topography where the groundwater is immediately affected by the surface land use. The benefits of protecting these areas are obviously less erosion and improved water quality.

The Board of Soil and Water Resources also restores drained wetlands on farmland and they have the Wetland Restoration Program. The benefits of this, of course, are increased waterfowl populations, increased recreational opportunities, and as in the Red River Valley this year, flood control. I think a lot of us, maybe not in this group, but a lot of people don't have a connection between wetlands and the floods and obviously we like to make that point more prominent when we have problems like this up in the Red River Valley.

On a statewide basis, RIM has some impressive accomplishments. The first significant thing is that we brought together over 50 interest groups to form the RIM Coalition which supported the activities of RIM and encouraged the legislature to provide the funding. With the help of the RIM Coalition, the state legislature and Governor Perpich, $53 million has been reinvested in Minnesota since the program started in 1986. Of that amount, as I said earlier, $4.7 million has been Critical Habitat Match. This graphic shows roughly how much was donated in the first 2 years in cash and in land, from which sector of the public, whether it was from individuals in businesses or from conservation groups. This is the statistic that I find to be the most interesting about RIM. The first 2 years of the program, it preserved, protected or enhanced 190,000 acres through the DNR; that's all the DNR programs combined. And if you break that down per work day, it's 300 acres preserved, protected or enhanced every work day since the program started. I don't think anyone can come up with a number like that anywhere else to what some program has done. That's the number I think impresses me the most. It's meant to the DNR in terms of acquisition, 20,000 acres in the first 2 years and 140 new sites whether they're for forests, natural areas or wildlife management areas. You can see here that many of them are donated by conservation organizations, some were purchased with the matching dollars, some were donated directly by individuals or businesses. We did use bonding money for acquisition of wildlife areas and we have several projects that are in the works right now that aren't completed.

Most importantly, though, is that we satisfy the public's opinion of what we're doing, and I think this is a testimonial to the whole story of RIM that we've got a happy camper here. So, that's the end of my slide show. I'd be glad to answer any questions about the legislation or other things that we've done with RIM and encourage you to take the literature that I brought along; it helps explain the program.

Q: In the RIM Reserve, what are the range of payments for land and roads in the Reserve?
A: The perpetual easements are based on the land value in the township. It's, I believe, 90%. It's a lump sum payment. Ninety percent of the land value within that township, and that varies dramatically. It was brought to our attention that in two adjacent townships, the land value of one was $600/acre and the adjacent one was $200/acre. The landowner brought up the point, "Why should I enroll it in one township when I get paid significantly more on the other?" So there are some localized problems with this approach, but on a statewide basis, the program has worked real well. The competition was CRP and the program wasn't set up to compete with CRP. It was to complement it. There are some areas of the state where CRP payments are more than the land has in value over a 10-year period. Why would a landowner enroll in a 20-year perpetual easement if he can get paid more than the value of the land in 10 years? So, we do have some problems with that. We find that the people that are committed to protecting the landscape and its resources and that maybe aren't quite as aggressive as a farmer are interested in enrolling the program whether they're close to retirement or they just have a better ecological conscience. They are the ones we are looking for and we are not trying to compete with CRP.

Q: Do you go after lands or do you wait until the landowner comes to you?
A: The landowners come to the Soil and Water Conservation District. They have certain enrollment periods where there is new funding available. They have an open enrollment and then all of the applications are screened by local screening committees. They actually select which ones they think have the most impact on the landscape. They may get twice as many applications as we can fund, and it's up to the local committees.

Q: What's the total annual budget and what are all the sources of funding mentioned and critical demands?
A: Well, in the first year of RIM, in 1986 the program got $16 million for one year. That was between the two agencies. Then in the next biennium, it received $22 million in total which was again divided pretty much equally between the two agencies. This last year, for the biennium that just started, we received approximately $10 million. The reason I say so far, it that it was not a major bonding year and we expect to go back next next to get the major bonding request that we had submitted. Our original request this year was $29.1 million. Of course, we came up far short of that. The DNR part actually did fairly well. We got the majority of that and the Board of Soil and Water Resources only got maybe $3 million. I don't know why that occurred but we got a number of new positions in the DNR for new initiatives such as forests, wildlife, habitat coordination and some environmental review positions. Anyway, we've got 14 new positions in the Department to carry out new activities and $2 million in general funds.

ROGER HOLMES: Thank you very much, Jay. Just a couple of additional comments on RIM. I would like to emphasize the Critical Habitat aspects of our RIM program. I would encourage you to consider a program like that if you don't already have one in your state because there are a lot of people out there who want to give money particularly for natural resource work and especially fish and wildlife work. All it takes sometimes is some kind of incentive like a match. I say "all", that's a big thing but it's amazing what people will do, individuals, corporations, when they can take some money and put into a program that they know is going to be matched. When there is a pot of money sitting there that they can get at, particularly sportsmens groups, and they can raise money and can get that matched by the state, the incentive is tremendous. When you consider that we've started out with $2 million in the first appropriation, a lot of people said that's ridiculous. You're just not going to get that kind of money from the private sector. Well they were dead wrong. The brochure, in fact, explains part of it, but we've got more information on the critical match and you don't need a total RIM program as you've seen described to do this. All you need is the matching program to go after those private dollars because you can really leverage your money. It really works and we have been able to do a lot of things with that. The part of the program in Minnesota that people hear about the most is the RIM Reserve Program. We see this written up in the paper, about its agricultural program and so forth, which is fine with us because, in fact, when the program first started the idea in the legislature was to appropriate the RIM Reserve part of the money the DNR. I was handling the testimony at that time and I said, "No! We don't want the money. It's suppose to go to the Department of Agriculture." It's an agricultural program and as it's turned out, we have agricultural types out there promoting wildlife work like crazy. The last time it was their idea and the Board of Soil and Water Resources to take one-

third of the money, that was $3 million, to restore wetlands. For some of you who have been around for quite awhile, that is a switch, when you've got the Department of Agriculture out there promoting restoration of wetlands. You think about the impacts of that. So what can be better than having those people out there doing this kind of work. The same thing worked in our Division of Forestry aspen recycling program and on prescribed burning. That appropriation went to them. It was our idea and we promoted the thing while it was a joint idea on that one. They got the money and they in fact came up with the Aspen Recycling Program. So we're trying to spread the wealth around as far as the money is concerned, as this gets more people involved with doing these conservation projects. We keep emphasizing basic soil and water resources. We've got to protect our waters, protect our soils and protect, therefore, our fish and wildlife habitats. And it's working. It's really exciting. Thanks again, Jay.

ROGER HOLMES: The North American Waterfowl Management Plan is our next topic. I'm not going to go into a great deal of detail in introducing Harvey Nelson because I think everyone here knows Harvey and I will point out that Harvey is a native Minnesotan, he grew up near Evansville, in the west central part of the state. That's where he got his interest in waterfowl and duck hunting. He's a long time Fish and Wildlife Service employee. He has served as Regional Director and Associate Director and is considered by most of us to be the dean of waterfowl managers in this country. Without going into all of his other accomplishments and areas of expertise, I would just call on Harvey.

HARVEY NELSON: Thanks, Roger. In preparing for the meeting here today, I wanted to take a somewhat different tack than in the past. Most of you in this room have traveled many of the same circuits that I have in the last year and a half or more and a good many of you have heard me talk about the different approaches in the implementation of this program in the past 18 months. So I don't want to bore you with a lot of those details again, other than to very quickly give some introductory information in a minute or two for those of you who may not have been at some previous meetings. What we've done is develop another slide series that kind of illustrates accomplishments, and this is not yet complete. It is still a little bit rough, so it's a good opportunity to try it out on an audience. You can expect to see this symbol more and more as the months and years go by. It's the mark of the North American Waterfowl Management Plan. It's the emblem for a bold international partnership to save waterfowl, wildlife and our precious natural wetland ecosystems. And I think it will become a well recognized graphic in the conservation field in the years ahead.

Just very quickly to bring you up to speed, most of you know that the plan is already three years old, signed in May of 1986 by the Secretary of the Interior and the Minister of Environment for Canada. The plan, of course, has a 15 year planning horizon from that point. Unfortunately, or fortunately, both of these gentlemen are no longer in office and we are looking at their successors. Times have changed and, hopefully, for the better. But at any rate, these gentlemen were instrumental in bringing the plan to this point. Most of the implementation effort in the U.S. has occurred in the past 12 to 18 months.

Today I want to concentrate mostly on what's happened in the U.S. There's a lot of new activity in Canada, too, which would take another 15, 20, 30 minutes to summarize. You folks realize that the plan was drafted with our shared international waterfowl source as the principle point in mind. Its goal is to restore waterfowl numbers to the 1970 levels. Since the early 1970's waterfowl species have been in trouble. In fact, we've learned in just the last few days that, as the current information is coming together, 9 of the 10 principle species declined even further the past year. The only one that showed some improvement was canvasback. Preliminary data for this year's survey show about a 7% further decline in mallard population from last year, and pintail and bluewing teal have slid to the lowest levels on record. We can talk about a current situation later in the day, after this program or whenever time might permit if you wish. I don't want to dwell any further on that at the moment. But anyway, to accomplish the plan's goals, a breeding population of 62 million ducks was cited as the objective of this program which will produce a fall flight of 100 million birds, which we need to maintain the population levels we were accustomed to back in those days, in the early 70s. How do we do this? The number one challenge is to revitalize habitat across North America. If wetland habitats are treated carelessly, we can expect continued declines in waterfowl populations.

Waterfowl numbers depend on the health of the wetland habitats. The plan calls for preservation and enhancement of critical waterfowl habitat like the prairie potholes pictured here. I hasten to add that quality upland nesting habitat is of equal importance for upland nesting ducks and other wildlife. You folks know that. It's not just waterfowl that will gain from the plan, wetlands are home to more than 160 species of birds, 35% of the endangered species rely on wetlands. I don't really need to tell you people that many other species of mammals, amphibians, reptiles, fish and shellfish and vertebrates use the wetland environment in some portion of their annual life cycle, if not in total. What would we do without wetlands? In addition to what I mentioned above, we need them for recreation, education, groundwater storage, flood control, and a host of other relationships. Wetlands are sort of the archives of our natural heritage. They have greater productivity, species diversity, and economic value per acre than perhaps any other ecosystem on the North American Continent. They perhaps equal the rain forests of the tropics in terms of relative value to wildlife. But as you know, by the mid-70's, more than half of the wetland in the contiguous U.S. had been lost, and we continue to destroy them at about the rate of 450-460,000 acres a year. That's not changed a whole lot yet, unfortunately. The plan addresses this loss by targeting 6 million acres for protection and enhancement. That's over and above what we've already done collectively in the past.

Now I would like to tell you a little bit more about the Progress we've made towards achieving some of these lofty goals in the U.S. The sort of elbow grease projects, on-the-ground activities are happening in the six regional programs called Joint Ventures that are shown on this map in the U.S. There are two corresponding major habitat joint ventures in Canada, the prairie pothole region there and eastern habitat joint venture in eastern Canada. Joint ventures are in a sense coalitions or teams of representatives from federal, state and private organizations forged together in a two-partnership arrangement. I sort of like what Carrol Henderson said earlier and also Roger

when they talked about getting the public involved. That's what the joint venture concept is really all about. Not just ourselves, state and federal agencies, but the public at large, and the national conservation organizations and interested groups of that type. It's amazing what they can do and we're beginning to experience the same thing which was mentioned in Minnesota. We're experiencing the same experiences in the joint ventures as we progress. I think that's the key to success. Up until now, we've never had this kind of a framework on a broad national basis to identify with.

Let me begin our U.S. report with news from the Atlantic Coast Joint Venture, the one on the farthest right. It spans 13 eastern states from Maine to South Carolina. Nearly all waterfowl wintering on the Atlantic flyway use this area during migration and, of course, some also breed here. It includes about 90% of the Atlantic flyway geese, trumpeter swan, canvasbacks, and the entire population of Atlantic Brant and greater snowgeese. It's the wintering grounds for 3/4 of the continental population of the American blackduck. The partners in this joint venture have pledged to protect about 650,000 acres such as this salt marsh in New Jersey shown here. To be successful, they are looking for more innovative ways for wetland and wildlife to coexist and to flourish in spite of the competing demands. And competing demands there are. Modern society has tipped the delicate balance between fresh, brackish, and salt marshes, to the degree you wonder if it's recoverable in many areas. Development projects like this one shown here suit the demands of consumers but they threaten the unique wildlife habitat and completely disrupt the natural hydrological cycles so necessary in these areas. We need to maintain and reestablish the natural exchange of salt and fresh water to our coastal marshes. We can do this by opening channels to permit free tidal flow and in some cases block intrusion of salt water to marshes that have been devastated by headlong careless development. Maintaining high quality marsh habitat requires protection of buffer habitats and enhanced water quality. Now we can maintain the ecosystem, vital to waterfowl, including the blackduck, if we do a number of things. But the management is complex. There are many, many inter-agency and jurisdictional problems in these areas that must be overcome to do this successfully. The wood duck is another species that will benefit from the Atlantic Coast joint venture. You don't hear a lot about this bird in terms of the current stressful conditions, but as an example, cooperators from the Nature Conservancy, Ducks Unlimited, South Carolina Wildlife and Marine Resource Department, and other other organizations, are at work in prime waterfowl habitat in the so-called Ace Basin in South Carolina, a large marsh complex formed by the confluence of three major river systems. This is designated as one of the flagship projects for this joint venture. The Ace Basin is a real jewel. It is sort of a key area for the plan in this part of the country. In addition to that, it's a bird watcher's paradise. Some 30,000 acres have already been committed for protection and management in this area and that's just the beginning.

Moving to the Lower Great Lakes and St. Lawrence Basin, this includes parts of Michigan, Ohio, Pennsylvania, New York and Vermont. In this area, the wildlife biologists have looked at one wetland species, the beaver. That's being necessary to help another species, such as the black duck. Beaver and black duck management go hand-in-hand in this part of the world. There's much that's been learned about this in the past but I think we need to begin to apply this knowledge into a more positive way and take advantage of these

situations when that opportunity does exist. A lot of times it doesn't involve land acquisition or intensive management, if you can turn the critters loose and let them do their own thing. Just one example. Cooperators in the Erie Marsh Project of the Lower Great Lakes and into the St. Lawrence Basin. People here will be constructing and rebuilding levies and dikes on remaining marsh areas to keep them intact. These water control structures will protect and enhance habitat in areas that fringe the Ohio, Michigan and Ontario shores of Western Lake Erie. There's also a good opportunity for additional wetland restoration in this part of the country. Once complete, these projects will assure habitat for waterfowl, shore birds and a host of other migratory birds.

A number of new things are happening among the other federal agencies. We have new cooperative agreements with the Departments of Defense, Army and Interior which means the Corps of Engineers and the Fish and Wildlife Service. More recent agreements are with the National Association of Conservation Districts and we're looking at similar arrangements with the Bureau of Reclamation and others. At any rate, service men and women in the military agencies are undertaking some extraordinary maneuvers for the plan. In August of 1988 when the Department of Defense signed the agreement with the Interior, they identified some 32 major military installations that offer opportunities to enhance wildlife values, particularly wetlands and waterfowl. This is an example of what's being done around the area of New York that was one of the first to come into the picture and tie into the Lower Great Lakes Venture. In addition, the National Guard is assisting partners with construction of dikes. I know a person in the Lake Erie marshes and they are looking at the same opportunities elsewhere. And that's nothing new. A lot of you have used the National Guard to do things for you in the past. But the opportunity is there to pursue it.

Let's move to the Lower Mississippi Valley Joint Venture which spans parts of 10 states--Arkansas, Illinois, Indiana, Kentucky, Tennessee, Louisiana, Mississippi, Missouri, Oklahoma, and Texas. Most of you are familiar with the values of the so-called Mississippi Delta and the large bottom land of hardwood areas. The area was a forested wilderness for many years, and shaped by the Mississippi River seasonal overflow. But things have changed. Although hundreds of thousands of acres are already lost to intensive agricultural development, logging and industry, the cooperators in this joint venture are determined to protect some 300,000 acres of these types of lands and to restore much of the marginal agricultural development back to bottomland hardwoods or other marsh situations. A good start has been made in this area. Some 60,000 acres have already been committed to some of the first three or four projects that have been on the table. To meet this ambitious goal, joint venture teams at the project level are working again with private landowners. In the southeast, through the services program called "Partners for Waterfowl," sort of an outreach effort, landowners like this in many parts of the country are installing water control facilities on their properties to improve marsh conditions and to assist the waterfowl effort. Oaks and other mass producing trees offer waterfowl high quality nutrition that they need to return to the breeding grounds in good condition in the spring. Here, for example, cooperators in a joint venture project in Mississippi, are planting acorns on lands that we once cleared and drained for farming in the early 70s, replanting these back to a timber situation. Nothing new about this. People experimented with planting acorns and redeveloping, restoring bottom land

hardwoods back in the 1930's under the WPA program. The techniques are there. Sometimes you just have to reach a long way back to find them. This is an example of how some of the wetlands restoration efforts are underway on Farmers Home Administration plans in Mississippi and Tennessee. Because so many wetlands are on private property, these outreach efforts are essential work under the plan. At the same time, we can't overlook the need for improved management within the service of our own national wildlife refuges and with the state wildlife management areas. I think at some point as we bring all these efforts and interests together, it's much easier to begin to identify the priorities that exist out there, because you're the managers that are confronted with making those decisions and the administrators that have to set up those priorities. Through the joint venture planning arrangement, hopefully, it will give us another framework to operate within. Another example in the Lower Mississippi last spring, is the team effort at the Big Lake National Wildlife Refuge in Arkansas. This set an example where volunteers got together on weekends, some 20 people or more, including an owner of a crop dusting service and a seed supplier company, and working in shifts, they literally loaded some 23 tons of milo and Japanese millet seed into airplanes, which reseeded some 3,000 acres of exposed mud flats. These grains sprouted and grew well in the moist soil. After reflooding, the waterfowl arrived in the area in unprecedented numbers. On areas that normally harbored about 30,000 ducks, that fall waterfowl biologists counted some 950,000 birds in December. A high percentage were mallards. Another example of what intensive management can do.

The Gulf Coast Joint Venture extends from Texas to Alabama. This region overwinters one-fourth of North America's migrating ducks and nearly 400,000 geese of several species. Members of this joint venture have pledged to preserve some 386,000 acres of critical habitat and to enhance many more acre of public and private lands. As an example, the joint venture partners here started a pilot program a year ago with rice farmers to set private lands aside in a sort of mini-refuge where waterfowl could roost without disturbanc through the winter months, during the hunting season, and a short time thereafter. Response to these small areas was immediate. Biologists counted in this area some 70,000 ducks and 10,000 geese on the 15,000 acres in Louisiana, which is one of these rice lands in the mini-refuge developments. Work has been started within the Gulf Course Joint Venture on some 40,000 acres of additional habitat, both in terms of individual projects and the ric areas proposals.

In the Gulf Course Region, salt water intrusion is a continuing problem. Water intrudes from the ocean into the more productive fresh and intertidal marsh zones. Dredged boat channels for oil drilling and other human activities further aggravate this problem. This gives you some idea of what' happening there as many of you are familiar with that part of the country. About 50 square miles of coastal freshwater marshes, are being lost to salt water intrusion annually in this area. It could get worse depending on the land development that's beginning to occur there. Cooperators in the Gulf Coast Joint Venture are doing a number of things at the moment. They are improving water control capabilities by renovating aging structures and installing new flapgates and locks on used waterways. Rather simple things that can be done once you have the cooperative effort and the authority to d it. The new agreement that has been established between the Corps of

Engineers and the Service signed in February, 1989 provides a new opportunity whereby these powerful allies could join in a new era of prudent water development and marsh management. I think it behooves all of us to work closely with this effort and watch what happens. There are some good examples already of improved relationships with the Corps. An outstanding example, I think, is right here in the Midwest in the Upper Mississippi River where the Service and the five states involved under the Environmental Management Program have established an outstanding example.

Other species depend on the Gulf Coast Ecosystem, including these alligators. I said 'these' because there are really two there. If you look close, you'll see junior sitting on mom's head. This is an important critter in that part of the world. Many years back, they were considered a very real seriously endangered species, but by protection and improved management, with their reproductive capability, we have a whole new era of alligator management. It is important for the marsh interests. Ninety percent of the fish and shellfish harvested in the Gulf use wetlands as nurseries and its feeding grounds. In this area, the major endangered species include the brown pelican, whooping crane and bald eagle.

Let's move to the Central Valley Joint Venture in California where some of the world's most intensive agriculture is practiced. Water just doesn't pool up anywhere in the central valley floor unless someone puts it there. Water, both quantity and quality, are vital to waterfowl management in this area. One of the primary efforts by the Joint Venture teams working on the different projects within the Central Valley is to obtain dependable sources of high quality water for wildlife areas. Organizations like Ducks Unlimited, The Natural Conservancy, National Audubon Society, and even the defenders of the wildlife, together with the California Waterfowl Association and the Waterfowl Habitat Owners Alliance have all banded together to deal with this problem collectively and cooperatively with the Bureau of Reclamation. Maybe we have a new opportunity here again to address this issue in a more positive way. A strong private lands enhancement component is another part of the California Joint Venture and the Central Valley Joint Venture. In one project the California Waterfowl Association, Game and Fish and Ducks Unlimited have started a program similar to that in Texas and Louisiana to show rice farmers how they can accommodate waterfowl on their land as well as club owners and owners of waterfowl hunting clubs. One of the clues here is to get people to retain that water far enough into the winter period so the birds can use it after the hunting season and until the time they return north. The common practice is to draw the water off those lands the minute the hunting season ends. For a period of about 30-45 days, a lot of additional values can be created by merely maintaining water, not doing another single thing. So in exchange for relatively minor monetary incentives, and other technical assistance, a number of landowners and club owners have delayed tillage and they've kept water on these areas to make grain residue available through the winter period. Again, the folks involved in the Central Valley Joint Venture will enhance more than 400,000 acres of private lands through this and other techniques. Nowhere in North America do so many ducks depend on so little habitat.

About 60% of the Pacific flyways waterfowl winter in the Central Valley. Many of you folks have been there and observed that. Waterfowl are often crowded into very small areas. Most of you also know that about 95% of the original wetlands in the Central Valley of California have been lost. One of the primary objectives of the joint venture is to seek to protect the 80,000 acres of wetlands that remain unprotected. They've already made a lot of progress. They told me last week that they feel that they are well on the road to attaining about 25% of that goal already through various combinations of efforts.

Let me move to the prairie pothole region. Most of you have been involved in many aspects of the small wetland program in the Midwestern states and you're familiar with the Service's program and the companion programs of many states. I don't really want to dwell on that too much. Those programs are ongoing and hopefully can be expanded. The prairie pothole joint venture in the U.S. is an attempt to build on the existing activity, insofar as possible. You've heard some reference to that in terms of what's happening here in Minnesota the past few days. The prairie pothole venture here encompasses portions of Minnesota, Iowa, North and South Dakota and eastern Montana. As most of you know, intensive farming has reduced upland nesting cover and dealt a serious blow to prairie duck nesting populations. In addition to the wetland losses that continue to occur, this slide shows a wetland, drained years ago for farming, that proved unproductive for crops in most years. You can see how easy it was to drop the water out of that basin into a nearby tributary, but this area can be made productive for waterfowl again. In this case the cooperators struck an agreement with the landowners to restore this wetland. As you can see, water return and waterfowl response has been almost immediate to this newly restored habitat. This is relatively easy to do. One ditch plug put this marsh back into operation. Take a look at that again. A minor installation in that drainage system restored that marsh. That's been the secret to wetland restoration in the Midwest. Last summer the Fish and Wildlife Service folks in Region 3, in the Upper Midwest here, restored some 2,000 basins on private lands, mostly under the CRP Program. Similar actions, of course, have been taken by the participating state wildlife agencies. Great potential there! You've heard some reference to that already. In the prairie pothole region, a strong private lands program is underway.

One thing I want to stress is that again we're dealing with a large dimension of what can be done on private land. We think we established sort of a landmark agreement last February-March when we signed the new Cooperative Agreement between the Service and the National Association of Conservation Districts, which opens up our opportunities for partnerships between farming and wildlife conservation on private lands throughout the United States. That national agreement has been funneled down to the National Association of Conservation Districts to the state level and they are in the process of developing local agreements through the NACD offices with our folks.

Cooperators in these joint ventures know that it's possible to have abundant wildlife and profitable agriculture. This is a key theme we need to keep in the foreground as we proceed. There are two joint venture flagship projects, as we call them at the moment, in the prairie pothole joint venture--Lake Thompson area in South Dakota and the Chase Lake project in North Dakota. Here the cooperators have gotten together and intelligently worked to develop

a sound land ethic, by involving farmers, private corporations, local businessmen, the state and other conservation organizations in the early planning and decision-making process. It's so important I think that we always need that. I suggest that you keep your eye on the Chase Lake project in North Dakota. That's taken on a new dimension and some new life that one wouldn't have predicted, even a year ago in that state. I suspect this project will begin to rival the project in Saskatchewan in terms of significance and scope. I think the pieces are coming together to make that happen. In the prairie pothole joint venture, the partners involved had pledged to protect 1.1 million acres of critical habitat and to restore, develop and enhance considerable more. Intensive management programs will have to be instituted, much of which will have to be accomplished on private lands. We also need to address the problem of low nesting success and high loss of nesting hens and broods to predation. Somehow we have to reverse that trend. This has to be part of our management scheme. High recruitment of young waterfowl require upland nesting cover of good quality adjacent to good quality wetland complexes and, hopefully, as free as possible from the predators. A tough task.

Let me come back and talk briefly about other major areas of concern. The plan itself identified regions of North America which are of major importance to waterfowl. As I said, early in the U.S. we started with the six joint ventures that were outlined earlier and are shown here in pink. They were selected as high quality and high priority areas. In addition to this, we've initiated action on the seventh area, the Plya Lakes Venture, which is that green spot down in Texas and Mexico. Actually that should be expanded northward into the adjacent states. This joint venture has received conditional approval the past year primarily because they've done a lot of planning in that area among the involved states. There's good documentation of what needs to be done. The State of Texas was ready to move ahead and obligate money for it. That will come into full focus, I think, in 1990-91 when we begin to update the North American plan. Somewhere action has started in the Rain Water Basin of Nebraska. Again, a real important area with a lot of background information available. Not a full-fledged joint venture at the moment, but will likely come into focus in our process in 1990-91. I guess that's the budget year we're talking about. Planning is also ongoing in several other areas where joint ventures will likely be formed during the next five years. Those areas that are in green on this map in the lower 48 are areas like the sandhills of Nebraska and the adjacent Great Plains area to the north of that. We will probably combine several green spots in the northwest in the intermountain country as well as the Northwest Coastal Area and on into Canada. We have seven additional critical identified areas in Alaska which are of a different nature. The habitat areas identified in Alaska are largely in public ownership. It's not a big land acquisition problem; it's more of an interagency jurisdictional management arrangement that needs to be examined and improved. We're beginning to work on that. Eventually all of these colored areas will become a joint venture. In eastern Canada, much new work has been accomplished in recent months. It's not truly reflected on this map. I would like to emphasize, though, that almost anywhere that there are wetlands, there's valuable waterfowl habitat. There are many areas outside of these joint venture areas that are very important. They are important to attaining the ultimate goals of this plan, but we don't have a good system to deal with that yet. We're looking at that and we'll address this whole issue

as to what do you do outside of these areas. If people come to you and your state or to the Service or to whoever is involved, and it may be in a state where there is no planned joint venture, but they want to participate, they want to help. What do you tell them? We have to have an answer for that. We will as we proceed, but we are trying to deal with first things first. In the updating processes of the plan we hope to address that.

I have not talked about the species' joint ventures at this point the blackduck and the Arctic geese. Both of those are undergoing some internal administrative revision and I think we'll see our first meeting of the Arctic goose group in South Dakota following the International Meeting in September. We're looking further at the blackduck issue. They've regrouped and established a new management board of administrators and have submitted a first proposal that I think is workable. So we'll see more action on the blackduck side. No other species joint ventures have been entertained up to this time.

Let me talk about some concerns though. During the past year we've encountered many concerns and problems but I think the important ones are these. There's been a general undertone or a feeling of lack of strong Congressional support for the plan in general. There's certainly been a lack of strong federal commitment on the budget process. It's not been reflected as we would like to see it in the Fish and Wildlife Service Budget or Interior Budget to date. I think there's been a lack of understanding of the urgency and need to provide funds to the Canadian Program as outlined in the plan. Those are the issues that've been addressed most forcibly in recent months. I'm convinced that we are beginning to get increasing support for the plan on the national level and those of you that travel in those circles are well aware of some of the things that have happened. I'll try and summarize those. One of the more positive developments, I think, was the establishment of the U.S. Implementation Board. This is a 17 member policy group which more or less represents the top conservation organizations in the country. There have been some other additions to that board since this slide has been and it has taken on a little different configuration. Most of you know the membership and the significance of the role that these people play. Max Peterson here, of course, represents the International Association on that board. I've been pleasantly pleased, I would say the last three months, in terms of the new actions this group has taken. These actions through their own constituencies collectively represent some 9 million members across the country, and that in itself is significant.

Some of the things that they've done recently--they certainly helped push Senate Bill 804. You remember at the time of the North American Wildlife Conference when Senator Mitchell gave his proposal the first day of the meeting. I think that was one of the more promising events of the year. It was sort of again the turning of the corner in terms of congressional interest and support. I think most of you are familiar with Mitchell's bill which established a new act, the North American Wetlands Conservation Act which will, hopefully, provide the necessary congressional authorization and a long-term funding base for the plan. More recently, companion bills have been introduced to support this, Congressman Davis from Michigan, and then Congressman Conti and Dingell have banded together for a somewhat different bill. I understand that those two are coming together in some form though no

hearings have been held on either of the latter. There was a hearing June 1 on the Mitchell bill and, hopefully, in the next remaining weeks of this Session of Congress, or when they reconvene, this will be jelled into a single workable bill that will provide the support that we're needing. I think that in itself will provide the federal commitment that we've been seeking. We've been carrying out the plan in sort of a piecemeal fashion but most of you remember that under the original concept the total plan will cost about $1.5 billion. A pretty high price tag for just the habitat features alone. Of this total about $1 billion needs to be spent in Canada for the habitat components and about $0.5 billion in the U.S. The financial burden for the Canadian portion is to be shared by both countries. Three-fourths of the money spent in Canada, which is about $750 million, is slated to come from U.S. sources. This doesn't say from the U.S. Government but at some point there'll have to be a stronger role played there at the federal level. The remainder, or $250 million will come from Canada, the Canadian Program, on a 75/25 matching basis. For the U.S. contribution, combinations of federal, state and private dollars will be used to meet the U.S. commitment. We're doing this a step at a time. That's sort of a short-term solution to a long-term problem. We took the first steps to achieve this goal in 1988. Most of you are familiar with the first-step project which consisted of utilizing matching dollars from Ducks Unlimited. Eleven states and the federal government appropriated money to the Fish and Wildlife Foundation. About $4 million was raised. Canadian sources including Wildlife Habitat Canada, Ducks Unlimited, the provinces and the federal government matched this with $4 million, and the $8 million was achieved and made available for Canadian action on the plan. Those dollars have gone forward and are being applied to the project level. You will recall that in 1989 we began working on the second step. About $6 million has been pledged by, I think, 21 states or something of that nature at the moment. There's probably a greater amount of money pledged right now then there might be matching money to handle but at any rate that step has been taken. This money will be matched in Canada by federal, provincial and private sources according to the agreed ratio of 25 Canadian: 75 U.S. This will result in another $8-9 million being made available to Canada under the second step. But as I said, these are short-term solutions. We need a larger long-term secure funding base to achieve the objectives of this program. That's what hopefully the Mitchell bill or other congressional actions will begin to support. I'm not sure how many more steps of this nature we'll need to engage in before we take on the bigger challenge. There's a limit, I think, to how far you can project this, but yet it's a good system. It certainly established credibility and support for the ongoing program. I think that's been important in these initial two years. When we say that we see increasing national support, we mean it. Because most of you know that President Bush speaking at the Duck's Unlimited East International Waterfowl Symposium, said that his goal was "to work with the government at all levels and with the private sector to stop destruction of these precious wetlands." Besides the North American plan, there is one way to do this. He said again, "You may remember my pledge, that our national goal would be a no-net loss of wetlands. Together we're going to deliver on that promise of renewal. I will keep that pledge. It's time to stand the history of wetlands destruction on its head." and he went on to say, "From this year forward, anyone who tries to drain the swamp is going to be up to his ears in alligators." That's a pretty strong commitment. He also said at the meeting that he intended to see an appropriate bill put into action before the end of

this year, and I hope he does. Together, the partners in this plan are already delivering on the promise of renewal. In projects across the country, teams are working like these folks at the Lake Thompson and Crystal Springs Project Dedications that occurred on June 2 and 3 last month. We've had other dedications like the Meredith Marsh in Iowa and the Kate May project in New Jersey. There are about another 10 on the horizon, including the Chase Lake Project in early October of this year in North Dakota. This is kind of a new trend but dedications are important at this stage of the game to rouse the public interest and to create the awareness and illicit their support.

We have to ask ourselves "Who is the North American Plan"? It's a lot of people--the farmer, the bird watcher, the business leader, the writer, the biologist, the hunter, the city dweller. It's kind of like me and it's you. And, hopefully, it can be everyone. I think for too long conservation organizations and devoted individuals worked diligently but independently only to witness the continued decline of waterfowl populations and destruction of wetland ecosystems. The North American plan offers hope and has restored enthusiasm. In the past year, on the ground progress shows that the plan has emerged from the preliminary planning and implementation stage. Innovation and collaboration has really begun. A lot has happened in the last 90 days. There have been many new developments in Canada also in the last 60-90 days. I'd like to believe that we've turned the corner in terms of getting this plan underway. We've got a lot to do. This will be an image that we should all keep in the back of our minds. We've got a long ways to go to make this a success. And without getting into a lot more detail, I'm going to stop right there.

I put on the back table some copies of the Waterfowl 2000, which is a publication we put out every two months in cooperation with the Canadian Wildlife Service. It gives you an update. I also have some copies of a press kit available if anybody would like more detail. If you do, just give me your business card, your address, and I'll try and mail them to you.

ROGER HOLMES: We're short of time but we could take a couple of quick questions if anyone happens to have one they want to ask. Thanks a lot, Harvey. That was very well done. We're going to wrap it up here.

JACK WINGATE: I have three quick announcements. Tomorrow morning at 8:45 we are going to gather out in front of the hotel for a group picture. Secondly, the bus is going to leave, hopefully, at 12:30 today at the Superior Street entrance. I realize it's going to push everybody kind of hard to try and fin a sandwich that might be quick. Keep your stomachs in shape for tonight as we're going to have prime rib. We hope to have the bus back to the hotel by 5:15 this afternoon. We have about a 10 minute walk to the boat. The boat will leave at 6 o'clock tonight.

ASSOCIATION OF MIDWEST FISH AND WILDLIFE AGENCIES
RADISSON HOTEL, DULUTH, MINNESOTA
BUSINESS MEETING
MINUTES

THURSDAY, JULY 13, 1989

LARRY SHANNON: Good morning, good morning! I would like to call the 56th Annual Business Session to order. To begin the meeting, I would like to ask John Urbain to call the roll.

JOHN URBAIN: Arkansas; Illinois; Indiana; Iowa; Kansas; Kentucky; Manitoba; Michigan; Minnesota; Missouri; Nebraska; Alaska; North Dakota; Ohio; Ontario; South Dakota--present; Ontario, Saskatechwan, Wisconsin--absent. Mr. President, we do have a quorum.

LARRY SHANNON: Thank you, John. Thanks. Before we get on to the order of the business this morning, I would just like to say again thanks to Jack and the Steering Committee for all of the work that they've done over the last two years. I think the work that they have done shows for itself with the tour yesterday and the culmination of yesterday's event, boat trip. The fine weather they ordered shows good planning. We appreciate that work, Jack.

Before we begin today's program, I would like to find out if there are any changes or suggested changes on the agenda for the morning. There's one thing that I forgot to put on--the approval of the 1988 minutes. I know there are some changes that have been detected, some corrections that need to be made. So with that in mind, I would like to call on Max Peterson. Max is the Executive Vice President of the International and it's a pleasure having you with us here today. Max.

MAX PETERSON: Thank you Larry. Anybody that's been in Washington for a few years appreciates this natural air conditioning that we've been enjoying. It's time to figure out some way I can stay up here for another 3 weeks, but I can't figure out a good excuse. I would like to do three quick things. One is to highlight some things that have happened last year, things that are happening now and to answer any questions you might have. In the six months that I've been there, the confusion level is pretty high. It's been an interesting six months. We started out the year with not only my coming on board, but Gordon Robinson leaving to go to West Virginia. We had a 50% turnover in the small organization. You lose a lot of institutional memory with that kind of change. In fact, I guess the first major point I would like to make is that the International is effective only to the extent the member states are actively involved in what's happening. The International Association draws its strength from the member states and provinces. If we don't plan or if the states or provinces are not there to say "yes, this is where we want to go," or "yes, this is where policy ought to be," then we would become ineffective very fast. The committee structure is extremely important to us and we are indebted to several of you here that serve on the Great Lakes committees.

Last year was a banner year in terms of legislation on the national level. I have a little paper that goes through this that Larry's going to send out, as he has the mailing list. It has, I think, some things of interest to you and you might even want to use it in your own state in terms of things that have happened and things that are pending. We saw the reauthorization of the Lacy Act, the reauthorization of the Atlantic Striped Bass Confirmation Act and on and on. We didn't get a few things in the last couple of years that we would like to have. One was a redefinition of the Sierra Club vs. Clark having to do with states' authority for threatened species. Unfortunately, since the Endangered Species Act is now passed, it is not likely anybody would want to change that, and the opportunity to change that may take a while. There is a pending proposal to reintroduce the wolf in Yellowstone which might provide an opportunity to deal with that question again.

We started out this year as you know with a major proposal left over from the Reagan Administration, to cap PR and WB. I think all of you recognize the importance of that, but I just picked a couple of numbers at random to show the impact of capping at $100 million. Minnesota would lose $3 million of Wallop-Breaux reimbursement. Minnesota would also lose another $700,000 of Pittman-Robertson. So you see between the two of those, that's $3.7 million. Kentucky would have lost $1.3 million in WB and almost $0.5 million in PR. That fight which many of you helped with in a lot of different ways was one that the President did announce his opposition to during the campaign. Apparently, the President remembered that. I understand that he chastised some people for not paying attention to his campaign speeches when he finally found out what was going on. What we're really saying is that the resource piece of the federal budget pie in 1978 was 3% while last year it was 1 %. In other words, the federal budget lost half of its portion in natural resources in that 10-year period. We are asking you to help us out. Talk to your delegation. It's not enough just to argue that money ought to go in this pot, or this pot, or some other pot, but within the natural resources area, we need to argue that the size of the pot is not big enough. The amount of money that the federal government is putting into natural resources total is just not accurate. With budget cuts, there is no real chance for getting something in nongame. That's why it's been difficult to get some nongame funding which everybody seems to support in theory, but when you start asking people to put their money there, it is a different story. My own view is that the only way we're going to get nongame funding is that the users are going to have to agree to have to be a tax or some kind of special user fee on cameras or whatever in order to create the same kind of funding mechanism that we got for PR and WB. I've seen practically no way that anybody is going to agree to give up money from somewhere else in the budget to do that because the supporters of that so far have been unwilling to pay any additional taxes. That undercuts the argument to Congress that this is important and refuse to pay additional taxes to pay for it.

A couple of things that are happening right now I want deal with real quickly in the four or five minutes that I have left. On a happy note, we learned last week that Gordon and Conrad were going to introduce a bill on refuge revenue sharing which would mandate the Secretary of the Interior pay the required amount out of designated receipts. The Secretary of the Interior's got something over $2 billion in receipts that come in and doesn't go to land, water, conservation or the reclamation fund or some other designated fund that are undesignated receipts. He would pay somewhere around $6-8 million each year to pay the full amount which is required for refuge revenue sharing, or what's usually been appropriated.

You can't even find the federal budget and without that assured funding it's pretty hard to convince the states and Canada that they should depend on dollars from congressional appropriations. Larry, does Minnesota have the same trouble with some counties not wanting land acquisition unless assured of in lieu of tax payments?

What we'd like to ask is that you agree that this is a problem and you contact your delegation to support Gordon and Conrad's bill. That would be extremely helpful to us if you could do that. The final thing that I'm going to mention in due time is the Farm Bill in 1990, It's now beginning the legislative process. The conservation provision of the farm bill will probably not be finalized until next spring. There will be a farm bill next year. Congress has a habit, when the major farm bill comes up, of extending it unless they can agree on the new one fairly soon. Now they are all saying there is going to be a 1990 Farm Bill. Let me make one final comment about the farm bill that is coming up. I would like to say that my own interpretation on where we stand on the upcoming farm bill is that you remember the way the farm bill worked. We got the conservation reserve program and swampbuster with sodbuster coming along later in the process. Well, some people are just now being exposed to the restrictions of the swampbuster and they are saying to their congressmen, "did you really mean this?" "I can't do this, did you really mean this?" So the people that have visions that we are going to go way beyond the 1985 Farm Bill will have to recognize we got a big problem where we are when it comes to wetlands. I think we can make some improvements, particularly on CRP. We really need your best thoughts of really what will be acceptable on your farming area. Remember that bill goes before the House Ag Committee and the Senate Ag Committee. So we are going to have to work with that. Larry, with that, I'll be here if anyone wants to talk to me.

LARRY SHANNON: Thanks very much, Max. We've got a little bit more in terms of legislation that is particularly pertinent to us here in the Midwest from Al Farris a little bit later. We want to thank Max for taking time out from his busy schedule and coming to spend some time with us. This is my sixth annual meeting and the first time we've had the opportunity to have the Executive Vice President of the International spend time with us. Usually they like to go to the West Coast because the Western Association meets about the same time as we. Jim Gritman is here to provide us with some update in terms of what's happening in Region 3. Jim.

JIM GRITMAN: Thank you, Larry. It's a pleasure to be here this morning and give you an update on what the Fish and Wildlife Service is doing in Region 3 and what we hope to do next year. One of the things that's happened the past year is that we will have a change in leadership on the Federal Aid Program. Bob Lange is now the Federal Aid Coordinator. That position was upgraded by one grade which was done nationwide and is now Deputy Assistant to the Regional Director. I'm very pleased with that. I'm also very pleased with Bob Lange because in the short time he has been on board he's visited all 8 states. He's come up with some strong recommendations as to how he thinks he can make the program better. Part of the reason we had to make it better, is because the funding in Region 3, has gone from $22 million in 1985 to $62 million this past year. That's a tremendous increase for the same amount of staff to handle. I know it's also impacted all the states. So what we're looking for are better and easier ways to get the job done. The only way we can do that is through the cooperation of the states. He's recommended that we put together a little group that will be making recommendations to me and also to state directors as to how we can get things done better. It's not going to wait two or three years for a report, It's as things come up that are within the regulations that we can do that will improve the service to the states and we intend to implement them immediately. Also, for the first time in Region 3, they put out a facts sheet on what's going on in Federal Aid. All your Federal Aid Coordinators and your states have received this. There are some extra copies in the back if you'd like to pick them up. I'm looking for big things in Federal Aid.

You also heard from Carlos Fetterolf about the Great Lakes situation and mainly he talked about sea lamprey control. The Fish and Wildlife Service is really involved in the rehabilitation of the lakes as far as lake trout is concerned. Carlos mentioned the strategic plans for the various lakes. In order to meet these right now, we still fall $3 million short every year of what is called for in those plans as far as stocking. We have the Iron River Hatchery where we could produce close to 1 million lake trout annually but that has not been completed. We're trying to push to get that thing completed. That will get up to where we are only $2 million short. The pressure that's put on from a harvesting standpoint; people say the Indians, commercial fishing and all this, but I'll tell you what, you go out there and you look at those Great Lakes and see the charter boat fishing industry and what's going on. We are overharvesting in just about every lake and I think Lake Superior is the only one we're not. But this isn't just Indians and commercial fishing, this is also sportfishing. An awful lot of it. We also have the tow which is a new vessel that we got. We got this through a drug enforcement agency. It was seized hauling drugs in Florida. We brought it up to the Great Lakes. It's now been renovated and for the first time we now have a vessel so we can stock and plant our 1-year old lake trout stock out on reefs and so forth offshore where they should have been. In the past, we relied on car ferries, barges, anything we could have get our hands on. We now have that vessel used four months of the year stocking. The other four months when it cannot be used, it is available for other uses. So if any states have any use for it and so forth, let us know, and we can make the vessel available. We'll do this at whatever it costs for the crew and so forth. We're not trying to make money off of it.

As far as the North American Waterfowl Management Plan, this is very important in Region 3. We have three active joint ventures going: Prairie Pothole, Lower Mississippi Valley, and Lower Great Lakes. We're in the process of creating four new national wildlife refuges in this region. Just two years ago, we only had one on the drawing board. I mentioned payment in lieu of taxes. This is a big issue. We just went through this in Minnesota. Hopefully, that's going to be signed off on and will be a reality here, hopefully this week. The three joint ventures that we are involved in, only have one person that coordinates this in the regional office and he's very busy. We also have a new joint venture that hopefully is going to come on board, which Wisconsin is heading. This will cover parts of Wisconsin, Michigan and Minnesota. We hope to have this on line which means we have to add some people to the staff. Where they're going to come from, I don't know, because we have no more ceilings for it, but this just has to be done this coming year. As for the farm bill, this region has probably been the most active within the Fish and Wildlife Service. The farm bill activities, as of last year, would restore over 2,500 wetlands and most of these restorations were in Minnesota, Iowa and Wisconsin. As surprising as it might seem, a lot of them were in northeastern Indiana. That activity is still continuing. We have nine force account teams - these are teams from refuges with refuge equipment that are working within the region and this year we hope to restore an additional 1,500. We should make it which will mean over 4,000 wetlands will have been restored in 2.5 years. The total acreage is somewhere around 11,000 acres. I never dreamed in my career that I would ever see us in the wetland restoration business on private lands. This started out just restoring them on CRP lands but we also had some inquiries from other people. Therefore, we had a little agreement drawn up that if they would agree not to drain them or allow them to stand for 10 years, we would restore them. We're overwhelmed. We can't handle all the requests. I thank all the states for working so closely with us and providing manpower and also some funds for this, too. But I think it's a great opportunity and one that we just couldn't see go by the boards. Also, swampbuster consultations were just completely overloaded. We just can't handle it all. In this region we were budgeted for a little over $800,000 for farm bill activities. This includes wetland restoration and everything. We will, this year, spend over $1.5 million. This means those funds came from other ongoing activities. That's where the people come from. But again, I think it is something that we can't let get by. I do have to thank all the states for their participation and help in this because they really have helped us a tremendous amount. The biggest participant state is Region 4 because they've got an awful lot that they can get out of this and a lot of opportunities, also Region 3, of course, and Region 6 in Denver. I'd say those are the three prime regions that could show more for the dollar than any of the others.

We also have another program in Region 3 called the Environmental Management Program on the River. It's the Upper Mississippi River. There are five states involved. The funding for this comes through the Corps of Engineers. This past year we were funded to the tune of about $12 million. Hopefully, we're going to be funded about $19 million this coming year. In this there is a long-term resource monitoring program on the river. We have an environmental management technical center that was just established in Alaska. It's in a new building that we lease, 7,000 sq. ft. We'll have 17 employees there. I think we've got 15 now and 2 more coming on board. Again, we've got

the money but we didn't get any people. These 17 positions have come from some place else. For the first time in my memory, Region 3 is going to be over-ceiling at the end of the year. Normally, Washington doesn't look favorably on that but, sometimes it's easier to ask for forgiveness than permission, so we're going ahead. I'm very pleased.

We have five monitoring stations, all manned by the state, run by the state, with funding coming through the Corps to the Fish and Wildlife Service to the states. Also involved here is rehabilitation and creation of habitat on the river. We have a number of ongoing things there. All the states are involved. Projects completed have been Island 42 in Minnesota, Monkey Shoot in Missouri and approval for construction on Blackhawk Park in Wisconsin, Clarksville Refuge in Missouri, Browns Lake, Iowa, Guttenburg Ponds, Iowa and Lake Onalaska in Wisconsin. Recommended for approval is Andalusia Refuge in Illinois. It is my understanding that this week the Corps came back from Washington wanting a little more information on Andalusia but hopefully that thing will be going forward. This past year we came up with, through the cooperation of all 8 states and the Forest Service, a Recovery 2000 which is a plan to recover 28 endangered species in this region out of the 41 that we have listed by the year 2000. What this will mean is that it will be cheaper, we will save money, we'll come out ahead if we can go forward with this plan and get the funding as needed. Because many times if you can get the funding in the way of land acquisition and manage it for one species, it will affect another. So, it's really a cost savings approach. It has been met fairly favorably up on the hill. We have been asked many questions about it. I have to thank all the states because you really got behind this and your congressional support has been great.

One of the other things that we did do this year was when we sent out our checks to the counties, in payment for in-lieu of taxes, we also sent a letter to all 16 senators and to the congressmen who had a refuge in their district, pointing out what they were receiving in the way of payments, the counties, and what they would have received if it would have been 100% reimbursement. So, they do have that message. That is not lobbying, that's just passing on information. So, hopefully, this will have some effect. I have no date as to when the confirmation hearings for John Turner will be held, who is designated as the next Director of the Fish and Wildlife Service. Any questions that I can answer at this time? Thank you.

LARRY SHANNON: We did have a representative for Region 6, Regional Office of Fish and Wildlife Service and I don't believe he's here. So we can't get an update for Region 6. I think from what we've heard from Harvey yesterday and from Jim this morning regarding the North American Waterfowl Management Plan and also from Max, and also the 1990 Farm Bill, it seems to me that most of you know that these two issues particularly, as the Midwest goes, so goes the Nation. We, in my estimation, are the pivotal point in terms of what happens. It impacts us tremendously and I do hope that Congress sees fit to fund the North American Waterfowl Management Plan as has been recommended and also that the necessary language to improve the 1990 Farm Bill over the 1985 Farm Bill, is heeded. We'll hear later a little bit more in terms of some of the proposed changes in the 1990 Farm Bill. But, I would like to say that a year ago two things that I was hoping we could do in this Association, is to provide more impetus in the direction of these pieces of legislation coming up

this session of Congress. You received letters five or six months ago outlining some things that we need to do. I think most states have responded to their congressional delegation and keeping the delegations informed of how we feel about the 1990 Farm Bill. There is quite a bit of work to be done and I would like to thank Max and the staff in Washington for keeping us abreast of the progress made on these various bills, not only these two, but everything else that happens in Washington. With a small staff like that, it's no small wonder that they worked 50-60 hours a week and sometimes seven days a week in trying to keep us informed. I'd like to thank all of the various states for supporting this direction. Many times sending representatives to Washington to provide information and testimony on behalf of some of our interests. That will conclude my remarks. I'm going to ask John for the Treasurer's Report.

JOHN URBAIN: Thank you Mr. President. The Treasurer's Report for the 1988 transaction calendar year. Total assets beginning January 1, 1988 were $12,087.96. Receipts for 1988 annual dues of 18 member states $1,800. Interest on a cash management account of $541.26. Total receipts were $2,341.26. Total assets for 1988 $14,429.22. Disbursements for 1988. Association advanced to North Dakota, $500.00. Melville Emblem - those were for awards - $14.76. Total disbursements $514.76. Total assets December 31, 1988 of $13,914.46.

The assets were located, one in the checking account of $5,619.67 and a cash management account of $8,294.79. That's the Treasurer's Report for 88. Our assets coming into this calendar year January 1, 1989, was $13,914.46. Receipts for 1989, 14 member states annual dues, $1,400.00. Interest on the cash management account $234.64. Total receipts to date of $1,634.64. Total available assets to date, $15,549.10. Disbursements for 1989. Association advanced to Minnesota $500.00. Omni Press which was part of the publishing costs of the 1988 proceedings was $936.01. Melville Emblem, $6.61. Total disbursements of $1,442.62. Total assets to date are $14,106.48. Assets are located in the checking account of $3,077.05. Cash management account, this is Waddell and Reed, of $11,029.43. Any questions concerning our money? Thank you.

LARRY SHANNON: Thank you, John. We've got a motion to approve the report from the Treasurer. That will be approved. Can we just receive a motion to receive John's report? It's been moved and seconded that we receive the report of the Secretary of the Treasurer. Are there questions? Those who favor to receive the report as given, let it be known by saying "aye." Aye. Opposed is "nay." Ayes have it. Thank you.

LARRY SHANNON: Do I hear a motion for the approval of the 1988 minutes? Moved and seconded that we approved the minutes of the 1988 meeting.

JACK BAILS: In last year's Audit Report, which was not mine, I noticed that the Audit Committee Report for period January 1, 1987 - December 31, 1988, that should read, January 1, 1987 - December 31, 1987, on page 104 in the Audit Committee Report in two locations, so that they weren't reporting on something that had not yet occurred. So it should read that "All financial records beginning January 1, 1987 through December 31, 1987," in the first and second instance in the Audit Committee's Report.

LARRY SHANNON: Are there other corrections to the minutes? Those who favor the minutes being approved as corrected, let it be known by saying "aye." Aye. Opposed is "nay." The ayes have it. Thank you. Now we'll have our Audit Report.

JACK BAILS: I was joined on the Audit Committee by Ken Babcock from Missouri and Loren Colpitts from Manitoba. We met yesterday, July 12, 1989, here in Duluth. All the financial records that you heard reported on this morning for the period January 1, 1988 to December 31, 1988, were provided by John Urbain and reviewed by the committee. An examination of those records did show the deposits and expenditures were properly recorded and was in agreement with the bank statements that he reported on today. The 1988 calendar year Treasury Report appears to be a true and factual report of the finances of our Association, and with that, I would move that the Fiscal Report for calendar year 1988 be accepted as presented by the Treasurer.

LARRY SHANNON: Seconded by Bill Baily from Nebraska. Those who favor the audit report given by Jack, let it be known by saying "aye." Aye. Opposed is "nay." Ayes have it. Thank you. The information given by John on the balance is something that we should keep in mind a little bit later on in this morning's proceedings because there has been some concern about the amount of money that we have in the treasury. There will be some recommendations coming forth regarding that amount. Al Farris has officially agreed to provide us with not a report but information on legislation.

AL FARRIS: Thank you, Larry. I'm standing in for Steve Wilson and I hope I'll get some help from Harvey Nelson or Max if there are questions. Two areas that I want to bring to your attention that you need to pay constant attention to yourself or your staff person that you have assigned to that. First of all is what is called the North American Wetland Conservation Act. It involves three bills: Senate Bill 804 from Senator Mitchell of Maine, H.R. 2322, by Representative Davis of Michigan and, H.R. 2587 by Representative Cotty of Massachusetts. I understand that on H.R. 2322, Davis has now signed on and also Dingell of Michigan. So it looks like H.R. 2587 is going to be the House or the version to watch in the House. There are some important differences. You all received, each state should have received a copy of an analysis of those three bills from the International, dated 16 June, 1989. One of the important differences is that, and Max touched on it a little bit this morning, in the House Bill it changes the North American Wetlands Conservation Committee to strictly an advisory committee to the migratory bird committee. I think that there is some feeling that that is partially because of Representative Cotty and Representative Dingell being on that migratory bird conservation committee and commission and they want to make the other one an advisory body rather than a decision-making body to their body. Those two bills are the ones to pay attention to.

The other subject area is the farm bill. Two pieces of legislation here, S. 1063, by Luger of Indiana and S. 970 by Fowler of Georgia. As Max indicated, this kind of sprang up right before the July 4 holidays. I received a call from Mark Reeff and George LaPointe who said we need some quick input from the habitat protection committee, and we need it so we can prepare testimony for the 13th of July. Well, if you got to looking at it with holidays, weekends etc. in there, we had only about five days to put some comments together. So they graciously faxed the two bills and the committees drafted a position out to the members of the habitat committee. Those people did some quick turn around and got comments back to me. I received comments from several states involved here, Arkansas, Missouri, Minnesota, Ohio, the ones I can remember. I'm sorry if I left somebody out, but I got those comments back, talked to George on Friday, which must have been about the 7th and he sent me back, over the weekend, a copy of his draft testimony on Tuesday. That's the reason I was late for the beginning of the meeting, because I was on the phone with George going over that testimony again and they are, today, giving that testimony. He and Mark are giving that testimony before the House Ag Committee which is basically the opening round of hearings on Ag legislation. There are some differences. Both the bills had good points and bad points, I think, right now, the specifics are not all that important, because when you're at this stage on those bills, they're going to be negotiated, they're going to be modified, they're going to come down to different positions. I think some of the interesting points, or there is a growing tendency that I see and I think it is a little disturbing, it may divert from the important parts of the farm bill is to get into some new areas.

You're going to meet a new woman in the future related to Ag legislation, it's LISA, that's low input sustainable agriculture. I'm afraid LISA's going to become a problem for us because there are a lot of groups that are going to push for us to take a position on low input sustainable agriculture. Low input sustainable agriculture is just about like minimum tillage. It's whatever you want it to be, as long as you're not using a moldboard plow, you're engaged in minimum tillage. Well, as long as it's not corn, corn, corn, it's low input sustainable agriculture. There are all kinds of variation on that. I'm going to be bothering your technical people through the habitat protection committee for input on that. Basically, to this point, we have taken a position of staying out of that argument. As Ray Evans, from Missouri, puts it, it's a giant swamp that you can wander into and never get out of. There are all kinds of variations, all kinds of groups pushing their own variation of that, but my concern is that it may get to be a sticking point, and there are some groups, that are trying to climb on the bandwagon and hang on to the coalition in Washington, D.C. that may present a very radical face on this part of Ag legislation that we may have to just come out and voice ourselves. The states may have to do that very clearly through their delegation to let them know we're not a part of that. There are all kinds of things being drawn in. Well testing, groundwater protection, urban forestry are all areas that are now being hung into Ag legislation.

The other one that relates to ground water protection and well testing is the whole area of limitations on chemicals used in agriculture. That's going to be another area where we are going to find groups trying to push us into taking a position this way or that way. Some of them are not going to be moderate positions, some of them are going to be very radical positions. But, again, I think we want to stay out of as much as we can. So far, the committee has recommended a very non-committal position on the regulation on agricultural chemicals. Wetlands, as Max pointed out, seems to be a real big sticking point, a point of contention that will cause problems for the 1995 Farm Bill. I don't see a lot of problems, at this point at least, attached to CRP. Both these bills have some interest in expanding what we call filter strips to make them widers along streams and rivers and includes some sink holes, maybe a little expansion for restoration of wetlands on CRP, but I don't see any big radical changes in there. They both have some interest in multi-year contracts on annual set-asides. Whether that will come about or not there's a couple of recommendations on ways to do it. There is one provision in the Fowler Bill that I don't know where it came from or how it could possibly work, calling for an annual greening crop to be planted on annual set-aside and then plowed under. We are going to have to get that straightened out. Those are some of the recommendations that went back to George and to Mark and they will be bringing up in their testimony. We're early in the process. Keep your people tuned in, keep them responding through the habitat committee as they have been in the past. I want to thank you for that because there has been some, particularly this last time, some real quick turn-around, some real good thought put into that. Questions?

Q: I know Kit Bond from Missouri was trying to get something in on multi-year set-aside and there was also some mention of a 4" reserve. Has any of that come out yet, do you know?

AL FARRIS: I just looked at the Luger Bill and filed that quickly. The Luger Bill talks about a 3-year set-aside only if the operator is participating in wheat feed grain, cotton rice program, must set aside 5% of the base, must reduce soil erosion to T. Twenty-five percent cost share on establishment of three year seedings can be used for wildlife habitat improvement. There's a problem in this one. Only if the states agree to match the cost for payment. The Luger Bill, all three, has a requirement that the states participate with some level of cost-sharing, mostly for the establishments of the seedings for multi-year set-aside. Our comments to the International on that was that it isn't going to work because most of the states are not going to have the money to do that. So it won't happen. If there are different thoughts on that, I guess we need to know it. The Fowler Bill calls for contracts of three to five years, no less than 20% of the set-aside acres enrolled in multi-year contracts, and I pointed out that that can become a problem if that's 20% a year, you may run into some resistance from the Department of Agriculture with it because that's 20% one year, 20% the second year, 20% the third year, and pretty soon you've got a lot of it in there. You have to say no more than 20% or "x" amount of acres. Because they won't want to keep getting nickeled that 20% a year. Pretty soon you've got so much tied up that they lose a lot of their flexibility and commodity control. With no less than 10% of all annual set-aside acres dedicated to wildlife habitat, set-aside must be in a legume rotation, cost share is authorized, but it is not limited to establishment. There's a growing tendency here for state participation in cost sharing for

those things that are looked at as wildlife habitat. There are other movements. As you say, Kit Bond has some interest in that area. We've been working with the Iowa Cattleman's Association because we've stumbled into finding out what the Iowa Cattleman's Association is interested in, and has in the past tried to promote some kind of long-term contracts on annual set-asides with a buy back provision so they can buy that forage back. In fact, last week we formed a conservation group coalition that meets with the Cattleman's Association periodically. Last Thursday night, Jim Wooly, who happens to be a former employee of the DNR now with Pheasants Forever, met with the Cattleman's Association Board of Directors to talk to them about mutual interest on some kind of strategic forage reserve or long-term contracts on annual set-asides to see if we could find some common ground. I think there are a number of areas where that thought is emerging. With the drought, at least in the western midwest and the western states, there may be more interest than there has been in the past. Any other questions?

I have a question that maybe needs to be answered here. How serious do you see this situation that is developing with Dingell and Conti over advisory or actual authority related to the North American Waterfowl Management Plan? The problem is that we've got four members, two members in the senate and two members in the house, on the Migratory Birds Commission. They make the decision on where the migratory birds money goes from that standpoint. So they would like for this committee to be an advisory committee for them. You can see why. That is a good commission over time, but what it really says is that the private sector is going to put up 50% just to give advice to the commission and they may or may not follow the advice. We've got to try to figure out someway to keep the state from suffering.

I think the other thing that is not clearly understood is that the Migratory Bird Conservation Commission as established now only has authority to deal with land acquisition and funding allocations in the United States. They have no authority to address the issues in Canada and Mexico. Somehow that's got to be brought together.

They also basically buy land for wildlife refuges. That's their mission and this is much broader. The North American is much broader than that. We're going to meet with the staff next week and try to see if we can't figure out some middle ground there. We going to have to object, most of us to the Migratory Bird Commission having some consultation or relationship to this. But to just make it a subsidiary to this looks inappropriate for people who are supposed to be partners, to just be an advisory. At least that's the view we are taking now for the state. That's what you had given us.

I guess some states feel they have been advisors long enough in some situations, particularly in Ag legislation where they haven't gotten to say anything about it. A lot of sensitivity about that.

Anyway, we feel the states should have a seat at the table and not to be just some napkins in the closet. In Washington if there's a compromise, we should sit down with John to decide.

LARRY SHANNON: Thank you, Al.

That was an information item so there is not need for a motion on that.

Richard Pierce from Ohio will provide us with the Resolutions Committee report.

RICHARD PIERCE: Thank you, Mr. President. I'll ask for your help to get through this because I'm not sure what I'm doing here. We came up with a couple resolutions and maybe another one that we should offer. I'm not sure of the correct procedure to get into that but I also had some late day comments from Bill Bailey from Nebraska. He might want to make a comment on those.

BILL BAILY: I was thinking about one of the items that Max brought up this morning. I was told to bring it up before the Association to try to resolve the issue of revenue sharing. This is an issue that we've dealt with many times before, we've dealt with it at the central flyway on several occasions because it is so important to several states. Unless this problem is resolved, there is still going to be a lot of foot-dragging and resistance in my opinion among the states that have several hundred thousands of acres that are involved in that mess. I don't know if it would be appropriate to have a resolution on this piece of legislation since there seem to be no resolutions on the other pieces. But certainly it seems appropriate that each of us go back and support the legislation that is being introduced at this time in an attempt to resolve the issue. It may be appropriate for the President of the Association, since Minnesota was also involved, to direct, in the name of the Association, supporting this issue. I don't know whether we need a resolution or not.

LARRY SHANNON: I think we can probably handle that with a letter.

RICHARD PIERCE: Moving on, we did come up with a couple of resolutions. First one deals with the 1991 Farm Bill. I guess it's proper then for the President, when we go through these, to call for approval or disapproval of them. We've already got the other resolutions. These are the two completed resolutions we came up with. There was some discussion as a result of the talk we heard from Carlos Fetterolf. Possibly the Midwest Association should come up with some type of resolution addressing ballast water in the Great Lakes. I'll defer to the President if he would like the Resolution Committee or if the Association in whole would like us to draft that we come up with one addressing ballast water in the Great Lakes. Now, Mr. President, is it proper procedure for you to call a vote for these resolutions?

LARRY SHANNON: Yes.

RICHARD PIERCE: Going through these quickly, the resolution on the 1990 Farm Bill,
WHEREAS, a majority of the Midwest Fish and Wildlife Native Plant resources are directly affected by the management of private lands, and
WHEREAS, farmers FOR agricultural producers are the primary private land managers in the midwest, and
WHEREAS, these land managers based a majority of their land management season on federal farm legislation and policy, and
WHEREAS, the 1985 Farm Legislation contained major conservation provisions

that improved management soil and water resources that directly benefitted our fish, wildlife and native plant resources, and
WHEREAS, these conservation provisions need to be continued and improved upon to better protect and change our fish, wildlife and native plant resources, and
WHEREAS, Congress is beginning to develop new farm legislation for the 1990's and the future status of our fish, wildlife and native plant resources is dependent upon the contents of this legislation, and
WHEREAS, it is essential for Midwest Fish and Wildlife Agencies to provide recommendations and input on the new farm legislation so the fish, wildlife and native plant resources are protected and unchanged, and
WHEREAS, an important strategy for providing these recommendations is through the use of the Wildlife Management Institute.
NOW, THEREFORE, BE IT RESOLVED, that the Association of Midwest Fish and Wildlife Agencies fully supports the current conservation provisions of the 1985 Farm Legislation and calls for the continuation of each provision in the 1990 Farm Legislation.
BE IT FURTHER RESOLVED, that the Association of Midwest Fish and Wildlife Agencies will provide $5,000 in funding to the Wildilfe Management Institute to provide input and recommendations into the 1995 Farm Legislation so that fish, wildlife and native plant resources will be protected and unchanged.

I guess there is quite enough money to pull that off. That was our resolution.

I move that we adopt this resolution.

LARRY SHANNON: It was moved and seconded that we approve resolution number 1 regarding the 1990 Farm Bill.

Q: I would simply offer up, it seems to me one of the things that Michigan would like to see is to have Wildlife Management Institute provide an analysis of the 1985 Farm Bill and then to make recommendations and changes to the 1990 farm legislation. I would like to see some kind of analysis of what we have accomplished, whether in fact it's uniform or spotty throughout. I think it has been administered differently in different areas.

LARRY SHANNON: Anyone care to comment on that?

AL FARRIS: First of all, there is an analysis going on through a coordinated effort, at least on the conservation reserve program lands in all regions of the state, with the Midwest being in the leadership position and being the first one doing that. That information is available. It has been reported periodically with periodic reports being sent to all member states of the International. Beyond that, I don't know of any analysis that would be available other than acreages enrolled and what those acreages have been devoted to. You're correct, it has been spotty. The reason it has been spotty depends on the land in a given state, how much of it qualifies for CRP, how much of it has gone into trees versus gone into grass. I think that is

probably the big key. Beyond that, I am not sure what the Wildlife Management Institute would provide you in the way of an analysis. I think what they are going to give back to you is a regurgitation and maybe a distillation of the information that is being collected through the National Ecology Center Study at Fort Collins because that is the only data that is being collected. You've already been given that.

MAX PETERSON: Let me add to what Al said. That report is now available. A more popularized version soon will be available. There is also a traveling team looking at actual interpretation on the ground. A team that includes recognizing the National Association of Conservation Districts is taking wildlife people and so on. That will be available soon.

LARRY SHANNON: I think that's the direction we are heading now. May I just comment on the resolution here. This is an outgrowth of a letter that came from Larry Jahn of the Wildlife Management Institute several months ago. You were sent letters for your opinion on this, and in terms of whether we should support this. I believe it was five years ago or so that we provided $5,000, or maybe six years, towards the 1985 Farm Bill. They're coming back now saying they would like to have some assistance as we attempt to get the 1990 Farm Bill legislation language the way that we would like so we need some help. Most of the states responded and all of the states that did responded did indicate that we should provide some financial assistance in this endeavor. That's why this resolution is first.

ROGER HOLMES: Mr. President, I think the group would be interested in knowing that we in Minnesota, as we did before, sent $20,000 out of our pheasant habitat stamp money to the Institute to further this effort for the 1990 Farm Bill.

AL FARRIS: Just one comment about the resolution. I basically support the resolution. The only thing that bothers me is that the first 'now, therefore, be it resolved' has a little bit of "don't change anything in 1990" and that bothers me a little bit because we are in fact, recommending some changes, recommending some expansion. Outside of that, I don't have any problem with that, but it looks as if we want it exactly like it was in 1985. I don't believe we want to say that.

LARRY SHANNON: I'm glad you pointed that out because we are making some recommended changes, and somehow we may need to reword this to make sure that that message gets across.

We need a little recognition in there that certain provisions need to be changed, improved, expanded, whatever words you want to use there, rather than absolutely locked in exactly like 1985.

AL FARRIS: Roger Holmes has one and I agree with him. In the next to last line where it says "for the continuation of these provisions," put "for the continuation and improvement of these provisions in the 1990 Farm Legislation."

LARRY SHANNON: Let me just read that portion of it again. "NOW, THEREFORE, BE IT RESOLVED, that the Association of Midwest Fish and Wildlife Agencies fully supports the current positive conservation provisions of the 1985 Farm Legislation and calls for the continuation and improvement of these provisions in the 1990 Farm Legislation."

Those in favor of the resolution as amended let it be known by saying "aye." Ayes have it. Thank you.

As I mentioned to you earlier, I passed on Resolution #2 for a second and would offer that we were in drafting stages of a resolution addressing the subject Carlos Fetterolf talked of on ballast water in the Great Lakes. I would offer to you a rough draft of that. I don't have a finished draft as I didn't get it to the printer's here on time. Though they were most gracious to do the rest of it. That would read something like:
"WHEREAS, the Great Lakes Sport and Commercial Fisheries are resources of great economic and recreational importance, and
WHEREAS, these resources are threatened by the introduction of aquatic organisms from foreign ports brought in by means of the ballast waters or freighters and tankers, and
WHEREAS, introductions have occurred in the Great Lakes of consequent harm to the Great Lakes Fisheries.
NOW, THEREFORE, BE IT RESOLVED, that to protect native fisheries and eco systems in the Great Lakes, the Midwest Association of Fish and Wildlife Agencies urges the U.S. Coast Guard to adopt the regulation prohibiting the dumping of ballast water originating in foreign ports, in the Great Lakes system. Such ballast water should be dumped at sea in exchange for open sea water.

Again, I want to point out that that is a draft that we pencilled in. We would ask the Association to provide some resolution of that type for your consideration. I move this resolution be adopted.

LARRY SHANNON: Thank you Richard. It's been moved and seconded that the Association adopt the resolution which will be submitted to the U.S. Coast Guard regarding the ballast waters. You heard from Carlos about some of what's called aliens or exotics that are being introduced into the Great Lakes waters from organisms coming in the ballast of ships. This was discussed at the Great Lakes meeting last year. And so the resolution here is to see if we can prevent further introduction of alien species into the Great Lakes waters.

A: They're talking about exchanging this for mid-ocean waters. Are some of the shippers going to have problems with that, using fresh water ballast because of the corrosive nature of saltwater? If so, has anybody looked into the sterilization or disinfecting of fresh water before it is released? I assume they're using fresh water for a reason.

Q: The Great Lakes Fisheries Commission did look into that. Ballast, the way it's engineered, they don't just have one or two ballast tanks, they have many on a vessel. They said that to try the disinfectant is one thing that they looked into, but there are so many nooks and crannies where they couldn't get to, that would not work. The exchange in the open seas is 2,000 feet or deeper; I think is what they said, that this is the way to do it. They also have to have ballast on when they leave these ports. So, that's why they take the fresh water. So that's the problem. They can't leave port and go out there and take on ballast.

LARRY SHANNON: If there are no further questions, those who favor the resolution let it be known by saying "aye." The Ayes have it. Thank you. I'll have that completed and forward a copy to the President for distribution among the membership.

RICHARD PIERCE: Going back to Resolution #2, I'll read that to you.

WHEREAS, Director Larry Shannon and associates of the Minnesota Department of Natural Resources, Division of Fish and Wildlife, have provided the members of the Association an outstanding program and display of Minnesota diversity and hospitality.
NOW, THEREFORE, BE IT RESOLVED, that the Association of Midwest Fish and Wildlife Agencies assembled at its annual meeting in Duluth, Minnesota, July 10 - 13, 1989, commends and thanks Larry and his associates of the Minnesota Department of Natural Resources, the Division of Fish and Wildlife, for organizing, and conducting a most successful fifty-sixth annual meeting.

Mr. Chairman, I move that we adopt this resolution.

LARRY SHANNON: Thanks. Those who favor let it be known by saying "aye." The Ayes have it. Thank you.

Thank you for the report of the Resolutions Committee. I would like to reiterate again that the work that was conducted was that of the Steering Committee. I played a small role in that but Jack Wingate, whom I tapped two years ago, played a major role in getting the program, the facilities and all of the arrangements made for this meeting. For Jack and all of the members of the Steering Committee, again, I'm most appreciative. And for Larry Duke, to spend the time that he has spent with us as a representative from the Bureau of I and E, Information and Education, I am again appreciative.

The next committee report is that of the Nominations Committee. Al Farris has graciously consented to pinchhit for Don, who had to leave to catch an early flight.

AL FARRIS: I want to thank Jack for having the meeting in Duluth rather than some place like Owatonna or Blue Earth or someplace that looks a lot like northern Iowa. It wouldn't be like leaving home. Don had to leave for an airplane. He asked me to present the Nominations Committee report. The Nominations Committee met Tuesday, July 11, 1989. We would like to make the following nominations: President, David Hales, Michigan; Vice-President, Richard Beringson, South Dakota; Secretary/Treasurer, John Urbain, Michigan, Immediate Past President, Larry Shannon, Minnesota. We move acceptance to these nominations.

LARRY SHANNON: Is there a second? Yes. Any questions, discussions? Those who approve the report of the Nominations Committee let it be known by saying "aye." "Nay" for the opposition. The Ayes have it. Thank you. We look forward to being somewhere in Michigan next year and Jack said somewhere probably in the lower peninsula. Thank you all.

The Awards Committee. Al again is pinchhitting for Larry Wilson.

AL FARRIS: Larry was the chairman of the Awards Committee. As you know, there are awards presented by the Midwest Association every year. He asked for nominations for the Merit Award and the Special Service Award and received no nominations from the membership for those awards. Therefore, I have only one award to present today. If Larry Shannon would come forward, I want to present the President's Award to Larry Shannon. A few years ago, we used to present this award the next year. It really didn't mean a lot so we changed it to presenting it to the president right at the end of the meeting, which I think makes it more meaningful. Particularly in light of the fact that some part of the membership is going to change during the year. So Larry, on behalf of the Association, I want to present this to you and everybody's thanks for a fine meeting and I know personally from me, thanks for a fine meeting. Thank you. That's the end of my report.

LARRY SHANNON: Thanks Al, and thanks to the Association for this award. Again, as I've said on a couple of occasions, I accept this on behalf of my staff who has worked diligently throughout the years and assisted me not only through this year's presidency, but in all of the other activities that we have in this Association as well as the International. Again, thanks very much.

The next item of old business, as I read through the minutes of the 1987 meeting, I recognized that we did not have a report from the Ad Hoc Committee that was established in Winnipeg. That was established as a result of discussion on dues. I remember reading something in there that Bill Baily said about the paying of dues. This came about because we were, as I mentioned earlier, having an increase in the balance in our account. Coming forward to provide a report on that Ad Hoc Committee will be Scott Henderson. Scott is pinch hitting for Steve Wilson, who is unable to get here.

SCOTT HENDERSON: This committee was challenged a couple years ago to find a meaningful or useful way to use the funds building up the treasury of the organization. It was suggested that it might be very worthwhile to arrange and organize some sort of program and a management theme for the directors and upper level staff member states and provinces of the organization. We have looked into that. What I have given you is a very brief report. We have found that a one-two day professional seminar in a management or organizational area would cost about $25-35,000 depending in participants and the number of people in attendance. These typically are the things that most of you get the flyers on every day. On a per person basis, we have found that if these are designed for a set group, they are not solicited, we can do this somewhat cheaper. We have found a group in Arkansas in particular, and several others in various states that have been interested in preparing such a seminar for the group. We have simply gone through and written down here six or seven potential topics that can be prepared specifically for the group with enough lead time. I'm not sure that the timeframe that we have suggested is adequate to prepare an entire program at the discretion of the group, but certainly I think there is time to tailor it to the needs of a somewhat unique group such as this. This is a little different than what the standard fare is. At any rate, we in Arkansas have agreed and would welcome the group in Arkansas. We're the farthest south of any state in the organization. We have yet to meet there as far as I know. If you choose to continue, we'd be glad to have you in Arkansas. We'd propose to arrange this for mid-October to mid-November of this year. Dates have not been firmed up but with your approval and further direction from this group, we'd be glad to begin arrangements for something in that regard. At that point, I guess I don't have a specific motion to offer, Mr. President, but with further direction, we'd be glad to continue.

LARRY SHANNON: Thank you. As I mentioned earlier, this report is an outgrowth of discussion we had two years ago and we would like to get some reaction from you at this time. In terms of whether this is feasible or whether you might have some other ideas or whether we can put this on the back burner for awhile. Any reactions?

AL FARRIS: One question. I guess it's for John. Since we just made a $5,000 commitment and there will be expenses associated with this conference and the minutes, do you have an estimate of what the balance is going to be or where we are going to be financially?

JOHN URBAIN: As I commented earlier, the total assets to date for the Association is $14,106.48. I do anticipate that there will be some additional interest from the cash management account in the neighborhood of $200. There are four additional dues to collect, so currently we should, this year, have about $14,700 in the Association account. You have to subtract $5,000 that goes to Wildlife Management Institute. That gives you an idea of where we stand in terms of money. If Minnesota needs to publish the proceedings through the Association, that is in the neighborhood of a $1,000 - $1,200 cost there.

It seems to me this is a very worthwhile expenditure of our collecting friends. My only question would be if Arkansas would set up some information we could get and, it seems to me, my own reservation would be they get some commitments in advance from the members and make sure we have a sufficient representation in numbers to justify putting on the conference. I think this information would indicate if there is support for use of this money for this conference.

I think probably under the timeframe that we are looking at from now until mid-October, it will be very difficult to do all that. To do that, I think we have to look at sometime next year, poll the group and see what we can do. We probably wouldn't have time to do much of that.

LARRY SHANNON: One of the things, when I met as part of the committee, we did talk about that in the early part of the year, many of the states are involved with legislative activities and would find it difficult to get there. This is why it was suggested to do it around the late October or even up to early December. That's probably being the best time to do it unless we wait until after May and then we are getting close to this meeting next year. That is why this time period was chosen.

COMMENT: I think we can arrange it without any problem, we just have to start almost immediately doing that. Without notice of participation, we are going to be locking into some $3,000 no matter how many showed up. I understand why you'd be glad to host it and glad to have everyone there. It certainly is up to the group.

COMMENT: I guess to move it along, I propose that we postpone it. Send out a letter to the membership to tell them about the timeframe and possible topics and report back to the, do we have an executive committee?

LARRY SHANNON: There is an executive committee, but usually the executive committee does not function between sessions, but it doesn't mean that the executive committee cannot. In fact, there are times when perhaps we should be a bit more active during the year.

COMMENT: We've talked to this group about those seminars and we did not get a specific proposal from them which we can do. In fact, they are chomping at the bit to get us a specific proposal. Why don't I go back and see how quickly they can do that and get us an exact proposal as far as cost and number of participants they could accommodate. If they could do that in time, perhaps they could get the information with a notice out to willing participants. I really think that is pushing it too far to pull it off in two or three months. You might want to give it a try.

COMMENT: If that's the case, why don't you take the realistic approach and defer this until you do have some time? If the executive committee or commission or whoever has it at that point. I would think they could make a decision once you are decided on the subject matter. Then make a decision to go one way or the other at that point. Most of us won't be there and you won't have such a large group. We could get together quickly.

Q: This kind of training is obviously available in a lot of different sources and all of us get these things as you pointed out, Scott. Is this specifically tailored to the resource manager? Is that the idea here that these folks that you are looking at have not been exposed to tailor this to the needs of the resource manager?

SCOTT HENDERSON: Yes, that's the indication that they would. They do have. Most of these, in fact, are on your standard list that they work from, but they will and the reason I thought about this group specifically and not something bigger is because of the times on here. These people have done a good job for some of them that we've been to. I think they would do well. I think they would be enjoyable and productive for anybody, mainly just for trying to make the fall deadline. That is why we zeroed in on them being in Arkansas trying to get something done quickly.

AL FARRIS: I have another suggestion that if we are going to consider this on an ad hoc basis at the North American in March, I think that's a good way to handle it. In the end, each state will be polled and asked to express 1. number of people, 2. subject area and 3. the time of year.

LARRY SHANNON: Is that in the form of a motion, Al?

AL FARRIS: Yes it is.

LARRY SHANNON: It has been moved and seconded that we poll the membership to determine those three things, 1) the number of individuals that would be interested in attending, 2) subject area of the training and 3) time of year preference. Are there questions, discussion on the motion? Those who favor the motion let it be known by saying "aye." Opposes "nay." The Ayes have it. I believe that's a good way to handle it. There's a little bit of leeriness about this because we didn't have concrete information at this point to act on and I believe once we've gotten that information from you, then we can get a better report and recommendations back to you.

Q.: How's the membership going to be polled? Do you want that done through the Secretary or Arkansas?

LARRY SHANNON: Perhaps that should be done through the secretary/treasurer. Thanks very much. Is there other old business? Is there any new business that should come before the Association?

BILL BAILY: I would like to move that the President be authorized to direct a letter in support of legislation.

LARRY SHANNON: Thank you, Bill. Al.

AL FARRIS: Just a point of information. Does the International have a position on that issue?

BILL BAILY: We don't have a specific resolution.

AL FARRIS: It would be consistent with the International position but not as far as the specifics are concerned.

BILL BAILY: I don't see any problem with doing this and being consistent with International's position.

LARRY SHANNON: Thank you, Bill. We didn't get a second on that. Can we get a second on that? Any further discussion? Those who favor the motion let it be known by saying "aye." Opposed is "nay." The Ayes have it and we will get some information forwarded to us by Max. Thanks, Bill. Any other new business that should come before us? If there is no new business, then what I would like to do is offer to Jack the opportunity to speak on behalf of the incoming President.

JACK BAILS: Just very briefly, I hope you can make the trip to Michigan next year. Tentatively, we will be looking at the city of Grand Rapids. We've had staff here observing and conjuring up ideas for opportunities for you. We will probably offer some optional trips for those who may have special interests in either wildlife or fisheries as well as building of the program, as you did such an excellent job here for spouses, evening entertainment. Excellent job, a difficult act to follow. We hope to see you next year in Michigan. I just recalled the last Midwest I was at several years ago was in Rapid City. It was an excellent time there and we hope we can provide an equal hosting job that you provided this year, Larry. So on behalf of Michigan, we look forward to seeing you next year. I feel it's a privilege to host this organization. Thank you.

LARRY SHANNON: I would like to officially pass the gavel over to you. I think the photographer wants to take your picture. Let's do it this way. Thank you.

JACK BAILS: With that I assume we have a group photo downstairs. Is that correct? Is that still scheduled? With that we'll conclude this year's session of the Association's meeting. Thank you all for your attendance.

ASSOCIATION OF FISH AND WILDLIFE AGENCIES

RESOLUTION NO. 1

WHEREAS, the majority of our midwest fish, wildilfe and native plant resources are directly affected by the management of private lands; and

WHEREAS, farmers or agricultural producers are the primary private land managers in the midwest; and

WHEREAS, the 1985 farm legislation contained major conservation provisions that improved management of soil and water reosurces that directly benefitted our fish, wildlife and native plant resources; and

WHEREAS, these conservation provisions need to be continued and improved upon to better protect and enhance our fish, wildlife and native plant resources; and

WHEREAS, Congress is beginning to develop new farm legislation for the 1990's and the future status of our fish, wildlife and native plant resources is dependent on the contents of this legislation; and

WHEREAS, it is essential for Midwest Fish and Wildlife Agencies to provide recommendations and input on the new farm legislation so that fish, wildlife and native plant resources are protected and enhanced; and

WHEREAS, an important strategy for providing these recommendations is through the use of the Wildlife Management Institute;

NOW THEREFORE, BE IT RESOLVED that the Association of Midwest Fish and Wildlife Agencies fully supports the current conservation provision of the 1985 farm legislation and calls for the continuation of these provisions in the 1990 farm legislation.

BE IT FURTHER RESOLVED that the Association of Midwest Fish and Wildlife Agencies will provide $5,000.00 in funding to the Wildlife Management Institute to provide input and recommendations into the 1990 farm legislation so that fish, wildlife and native plant resources will be protected and enhanced.

ASSOCIATION OF MIDWEST FISH AND WILDLIFE AGENCIES

RESOLUTION NO. 2

WHEREAS, Director Larry Shannon and his associates of the Minnesota Department of Natural Resources, Division of Fish and Wildlife have provided members of the Association an outstanding program and display of Minnesota diversity and hospitality.

NOW, THEREFORE, BE IT RESOLVED that the Association of Midwest Fish and Wildlife Agencies assembled at its annual meeting in Duluth, Minnesota, July 10-13, 1989, commends and thanks Larry and his associates of the Minnesota Department of Natural Resources, Division of Fish and Wildlife, for organizing and conducting a most successful 56th annual meeting.

REPORT OF THE TREASURER

Duluth, Minnesota
July, 1989

Balance of assets brought forward from 1987--$12,087.96

Total receipts for the business year 1988, including dues from 18 members and interest on cash mangement account--$2,341.26

Total expenditures for the Bismarck, North Dakota conference--$500.00

The status of the Association's funds at the close of business for the year of 1988 relates total assets of $14,914.46

Balance of the 1988 checking account forwarded to the 1989 account--$8,294.79

The official Association financial ledger showing receipts and expenditures has been made available to the audit committee.

John Urbain, Treasurer (1988)

TREASURER'S REPORT

1988 Transactions

Total Assets beginning January 1, 1988		$ 12,087.96
Receipts 1988:		
Annual dues	$ 1,800.00	
Interest on cash management account	541.26	2,341.26
Total Available Assets		$ 14,429.22
Disbursements 1988:		
Association's advance to North Dakota	$500.00	
Melville Emblem	14.76	514.76
Total Assets, December 31, 1988		$ 13,914.46
Accounting of Assets, December 31, 1988:		
Cash in checking account		5,619.67
Cash Management Account No. 1212990-4750		8,294.79
Total Assets, December 31, 1988		$ 13,914.46