

DIVISION OF FISHERIES

2017 – 2022 STRATEGIC PLAN FOR THE CONSERVATION OF ILLINOIS FISHERIES RESOURCES



Our Mission:

By law, the mission of the Division of Fisheries is to conserve and enhance the state's fisheries and aquatic life resources.

Our Vision:

Excellence in fisheries management and research for the benefit of recreational anglers, the state's economy and future generations of Illinois' anglers.

INTRODUCTION

The State of Illinois is nearly 400 miles long from the northern border to the southern tip and possesses a great diversity of fisheries resources. For example, Lake Michigan in the north supports populations of salmon and trout while the cypress-tupelo swamps in the south are home for the banded pygmy sunfish. The state is nearly surrounded by water, with its entire western border formed by the Mississippi River, its southern and southeastern borders formed by the Ohio and Wabash Rivers, and the northeastern boundary delineated by the Lake Michigan shoreline. The interior is drained by an extensive system of tributary streams. Natural lakes are limited to numerous small glacial lakes in the northeastern part of the state and some river backwater lakes adjacent to the major streams. One of the most distinguishing features of the "Prairie State" is its general lack of topographic contrast. The gently rolling terrain and productive soils are the result of its glacial history.

Late in the 1800's the first conservationists foresaw the threatening drain on our natural resources and urged more conservative use of timber, soil, water and wildlife resources. Many citizens became sharply aware of the need for conservation of our natural resources during the "dust bowl" days of the 1930's.

Early settlers of Illinois found clear streams, vast prairies and extensive forests. The streams contained many species of fish. Beaver, turkey, river otter, the pileated woodpecker and many other species populated the woodlands. Prairies had abundant wildlife including the now-endangered prairie chicken.

Illinois' conversion from wilderness to agriculture, towns and cities has created significant challenges for wildlife and fish managers. Many species that remain abundant today are managed by regulated hunting and fishing programs operated by the Illinois Department of Natural Resources.



BACKGROUND

Illinois' landscape has undergone major transformation in the past 160 years. In the 1820's, forests covered about 40 percent of the state; the remainder was mostly tallgrass prairie. Today about 10 percent of the forest and less than one percent of the original grasslands survives. Family farms have decreased in numbers from 200,000 to less than 100,000 in 80 years, replacing a variety of agricultural crops and pasture with large-scale grain or livestock operations. In no more than an average human life span, the character of the state's wildlife and fish habitat has changed significantly. Natural Resources managers have responded by implementing managed fishing, hunting and trapping regulations, endangered species protections and habitat restoration practices – including fire management – to make remaining habitat more productive. The Federal Clean Water Act has dramatically improved water quality in lakes, rivers and streams. While some grassland species of wildlife are declining, others like deer, turkeys, otters, eagles, and many others, are thriving.

Now more and more Illinoisans are aware that our natural resources require professional management and protection. Many citizens have joined the ranks of conservationists to urge more careful use of our land, water and wildlife resources.

Illinois' large human population has greater need for recreational outlets than ever before. Increasingly, people are demanding the use of our natural resources for camping, hiking, bird-watching, hunting, fishing and nature study. Satisfying these growing needs, require the best technical and managerial skills from natural resource management agencies.

The central purpose for managing the state's fisheries is to provide a diversity of quality angling opportunities while protecting, maintaining and restoring populations of native and non-native species of fish. Generally, the activities needed to manage the state's fisheries include monitoring the life cycles of different fish populations in varied habitats, manipulating fish populations to meet management goals, operating a hatchery system to stock fish for anglers and for conservation purposes, understanding trends in angling pressure and preferences, and devising strategies to maintain sufficiently healthy and genetically diverse fish populations. The need to devise effective strategies for dealing with the illegal introduction of fish and other aquatic species into the state's waters is also crucial.

Monitoring activities such as netting and electrofishing provide managers with data on the size, composition, and trends of individual fish species, which is necessary to effectively manage a fishery. An analysis of these data may reveal a need to manipulate a population to meet management goals. Fisheries that are maintained by hatchery stocking (typically lakes and reservoirs) can be easily manipulated by changing stocking rates or sizes of fish that are stocked. Manipulation of wild fisheries (most streams and rivers, but also some lakes and reservoirs) is typically more difficult. Engaging anglers for this purpose through fishing regulations is the preferred method, but often may not be sufficient if the target species is not easily captured by hook and line, or if the angling pressure on the water body is insufficient to accomplish the desired changes.

The Division of Fisheries collects data on fish and aquatic life abundance, distribution, and trends to establish and maintain an understanding of the overall health and well-being of the state's fisheries and aquatic resources. Data collection and interpretation form the basis of understanding our fish resources in the state. These data allow the Division of Fisheries to do the best job possible of managing and protecting the fisheries and aquatic resource for public use and enjoyment, including making management decisions about fishing regulations, making recommendations to other agencies and individuals, and solving fisheries and aquatic problems, both biological and social. These data are used to monitor trends in populations and to understand how changes, ranging from human-caused to natural changes, affect populations.

Making informed, biologically sound, and ecologically defensible decisions is only possible through effective and comprehensive data collection and interpretation. Information on the status and trends of fish populations is used to evaluate the suitability of hatchery stocking levels, the effect of existing fishing regulations, or the capacity of a population to respond to alternative regulations. Survey results and inventory work have been essential to the management of the resource and have helped to describe and quantify damages to natural resources over the last century, including highway construction, dam operations, and environmental disasters.

Results from survey and inventory activities are used in explaining fisheries and aquatic habitat information and providing technical assistance to the general public, angling groups and school children. Information is disseminated to the public through a variety of sources ranging from the internet, peer-reviewed publications, in scientific journals, and to talks with sporting groups at state and local levels.

ILLINOIS WATER RESOURCES

Table 1. The following is a breakdown by water category for the state:

Water resource type Classification		Number (bodies)	Acreage
Lake Michigan		1	976,640
US Army Corps of Engineers reservoirs (Shelbyville, Carlyle, and Rend Lakes)		3	54,580
Impoundments	State and public	1,287	121,667
	Private/Organizational	90,000	140,631
	Commercial	510	3,126
		Miles	Acreage
Rivers and Streams	5'-100' wide	23,900	69,400
	100'-300' wide	19,030	18,000
	>300' wide	1,513	237,600
(Mississippi, Illinois, and Ohio Rivers)			

Total surface acreage			1,621,644

Reservoirs	The three US Army Corps of Engineers reservoirs in Illinois (Carlyle, Rend, Shelbyville).		
Impoundments -			
State	Waters owned or leased by the Department.		
Public	Waters open to the public and owned or leased by other governmental agencies.		
Organization	Waters owned or leased by sportsmen's club, homeowner's association, scouts, etc.		
Private	Privately owned or leased waters which are not operated by organizations or as commercial areas.		
Commercial	Licensed fee fishing areas and private fish hatchery ponds.		

Funding

The Division of Fisheries has an annual operating budget of approximately \$10-15 million. The primary funding sources are the state's Fish and Wildlife Fund (license sales and stamp receipts) and the federal Sport Fish Restoration Program (federal tax dollars derived from sport fishing-related equipment and fuel sales). These sources are supplemented with competitive grant awards, cooperative agreements, partnerships and legislative appropriations. All funds are allocated based upon the goals, objectives and activities outlined within this strategic plan and implementation plan.

ANGLING TRENDS AND ECONOMIC IMPACT OF FISHING IN ILLINOIS



Nearly 750,000 Illinois anglers, age 16 and over, fished nearly 14 million angler-days in 2016. In addition, over 400,000 thousand young anglers, ages 6-15, fished our waters making Illinois one of the most heavily fished states in the country. Fishing continues as one of the most popular outdoor activities in Illinois. Direct spending by anglers in 2011 (most recent figures) was nearly \$1 billion, generating approximately \$3 billion to the state's economy. Commercial fishing and recreational boating contributed additional hundreds of millions of dollars. For these reasons conserving, managing and enhancing the states aquatic resources is the most important mission of the Illinois Department of Natural Resources- Division of Fisheries. Major threats to this resource are water pollution by agriculture, industrial and sewage releases, and continued urban sprawl, especially in the urbanized Chicago area. In addition, Illinois has less water acreage than most states of

its geographical size. The Illinois Department of Natural Resources, by statute, has jurisdiction over 203 species of fish, 45 species of amphibians, 74 species or reptiles, 25 species of crayfish and 78 species of mussels.

Most recent data from the 2011 National Survey of Fishing, Hunting and Wildlife-Associated Recreation showed the most preferred species by angling days in the state are panfish (22%), excluding crappie. Panfish are followed closely by black bass species (largemouth, smallmouth and spotted) at 20%. Slightly below the bass are catfish, all species, and crappie at 19% and 17% respectively. Next are the true bass species, white, bass, striped bass and hybrid striped bass at 11%. Coolwater species such as walleye, sauger, muskies and northern pike make up 6.4% of the angling days and trout and salmon followed at 4%. Other fish species comprised nearly all the rest with frogs and turtles totaling approximately 0.6% of the demand.



Demand for angling days by water type is as follows: Impoundments (61%), Streams (27%), Corp of Engineers Reservoirs (6%) and Lake Michigan (6%). Supply of quality fishing days has historically (since statistics began in 1977) lagged approximately 10-15% below demand and is projected to continue that trend into the near future. For that reason, coupled with the lack of available water acreage and water quality degradation, the Division of Fisheries must intensively manage its waters. This comprehensive Strategic Plan is intended to help direct that management.

STRATEGIC PLAN FOR ILLINOIS FISHERIES AND AQUATIC LIFE RESOURCES

The Strategic Plan for Illinois Fisheries and Aquatic Life Resources outlines the IDNR Fisheries Division organization of projects and programs, implementation of mandates and policies, and the tools used to manage Illinois fisheries and aquatic habitats to enhance aquatic resources and improve angler access in the State. The Division of Fisheries implements policies and programs that emphasize the management of fish populations and the protection and restoration of their habitats. These programs include operation of an efficient hatchery system to stock lakes, rivers and reservoirs where natural reproduction is limited or lacking. This is in fulfillment of management objectives for conservation programs. The monitoring and regulation of angler harvests to maintain balanced ecosystems, in conjunction with educational programs and maintaining adequate public access to fisheries are developed providing high quality angling opportunities in Illinois' waters. Invasive species management is also an important part of managing aquatic resources in Illinois and is often accomplished through regulation, rules, and scientifically informed control strategies.

Fisheries and Aquatic Life Management Statewide Objectives:

- 1. Provide a diversity of quality angling opportunities for naturally-produced and introduced fish through appropriate management of self-sustaining populations supplemented by the judicious use of hatchery-reared fish.**
- 2. Protect, maintain, and restore native fish and aquatic life populations, their habitats, life cycles, and genetic diversity through the implementation of science-based best management practices and a rigorous monitoring program that feeds data-driven management and regulatory decisions.**

Goal 1. Provide Diverse Fishing Opportunities

With a large human population which has an ever-increasing amount of leisure time, the demand for high-quality angling opportunities is increasing. To meet this demand, it is requisite that existing resources, as well as new areas of opportunity, be marketed and managed to meet this need.

Objective 1: Increase public awareness of Illinois' diverse fishing opportunities.

- Strategy 1: Promote diverse fishing opportunities statewide by providing targeted information and updates to specific regions, demographics, interest groups, and the media.
- Strategy 2: Work with local tourism and economic development organizations to demonstrate and market the connections between Illinois' diverse fishing opportunities and quality of life, both economic and non-economic.
- Strategy 3: Instill awareness and appreciation of Illinois' fish, fishing heritage, and fishing opportunities into the culture and education of Illinois citizens.
- Strategy 4: Work with the commercial fish industry to optimize its efficiency and value in ways that provide maximum sustainable benefits to Illinois' citizens.

Objective 2: Create or enhance fishing opportunities.

- Strategy 1: Identify and catalog areas where fishing access is needed, prioritize locations, and work with partners to address these needs.
- Strategy 2: Use fish stocking as a tool to create new, or enhance existing, fishing opportunities.
- Strategy 3: Implement fishing regulations designed to create improved fishing opportunities.

Goal 2. Increase participation and interest in fishing among all demographic groups.

Wider participation by all races and ethnic groups provides a greater sense of ownership among those participants, as well as strengthening the Division of Fisheries' capabilities to meet new challenges from a fiscal standpoint.

Objective 1. Increase angling participation by all ages and ethnic groups while increasing annual license sales.

Strategy 1: Identify what influences or impedes fishing license purchases.

Strategy 2: Investigate ways to increase fishing license sales through implementation of alternative license sale structures and incentive purchase programs.

Strategy 3: Increase fishing education and outreach through programs and partners, both existing and new.

Goal 3. Provide Strategic Resource Partnerships.

An ever-increasing awareness and interest in resource management among constituents has provided an opportunity to join in partnerships to achieve common goals. These constituent groups provide the Division of Fisheries with financial assistance, manpower, and feed-back regarding resource management programs and issues.

Objective 1: Achieve fisheries management goals through partnerships.

Strategy 1: Increase the proportion of Illinois' annual fish production that benefits cooperative arrangements

Strategy 2: Assume leadership roles and participate in fisheries management and regulatory processes involving interstate resources

Strategy 3: Work towards a program whereby habitat enhancement projects can be achieved through partnership collaborations.

Strategy 4: Provide constituents with guidance on resource issues and contribute to the development of decision support tools when requested.

Strategy 5: Develop and maintain a list of partners along with their specialized skills and equipment.

Objective 2: Promote aquatic resource stewardship

Strategy 1: Support, enhance, and foster the growth of existing programs to assist in teaching Illinois' youth about stewardship principles and aquatic resources.

Strategy 2: Promote interpretive centers at State fish hatcheries and other aquatic resource centers to increase public attendance

Strategy 3: Partner with local chambers of commerce or other economic development groups to promote aquatic resource stewardship and to develop region-specific quality-of-life messages disseminated through multimedia outlets

Strategy 4: Develop web-based tools and information to help individuals or groups practice good aquatic resource stewardship.

Objective 3: Increase angler recruitment and retention.

Strategy 1: Partner with angler groups and sport retailers to increase angler recruitment and retention. In particular, the Recreational Boating and Fishing Foundation (RBFF)

Goal 4. Refine Assessments and Develop Decision Support Tools

The science of fisheries management is ever-evolving and the implementation of new strategies and methods is commensurate with the wise management of our aquatic resources.

Objective 1: Conduct comprehensive assessments of fish and aquatic life, habitat, and aquatic resource users.

Strategy 1: Refine a fisheries assessment strategy that continues to develop with the Status and Trends in fishing license sales and accounts for specific management needs.

Strategy 2: Develop and implement surveys to track the public's opinions, attitudes, and participation related to angling and aquatic resources.

Objective 2: Develop new and improve existing decision-support tools to optimize Illinois's fisheries and aquatic resources.

Strategy 1: Develop GIS-based tools to enhance landscape and waterscape-level management decisions with regard to such things as habitat protection and rehabilitation, lake and river assessments, fish passage barriers,

Strategy 2: Develop, refine, and implement stock assessment models and tools for intensively-managed fish and aquatic life species.

Objective 3: Evaluate fisheries management actions.

Strategy 1: Determine levels of natural reproduction by salmonids in the Great Lakes.

Strategy 2: Conduct reviews of the fish stocking program to evaluate cost effectiveness of each stocking location and species and to determine associated effects on local and state economies.

Strategy 3: Conduct reviews of habitat improvement projects to evaluate cost effectiveness of each program component.

Strategy 5: Conduct reviews of fish harvest regulations to evaluate their effectiveness in restructuring or otherwise improving the fishery.

Goal 5. Rivers, Reservoirs, and Inland Waters Fisheries Management

The Illinois Rivers, Reservoirs, and Inland Waters Fisheries Management Program is a comprehensive, statewide federal aid project encompassing many of the fisheries management activities that are eligible for federal aid to sportfish restoration. There is a need for fisheries management in Illinois to produce and maintain a fish population that will supply a satisfactorily sustained return to the angler. The overall goal of the project is to provide Illinois anglers with quality fishing opportunities on the state's rivers, reservoirs, and inland waters. The program will complete fish and aquatic resource applied sport fish management evaluation and investigation activities on Illinois waters, including more than 300 state and public lakes, 15 public river systems, three inter-state rivers, and three U.S. Army Corps of Engineers reservoirs.

Objective 1. Conduct surveys and inventories on lakes and rivers

Strategy 1: Fish stock assessment surveys will be conducted to provide for optimum sport fishing opportunities on lakes and rivers

- Biological, physical and chemical surveys will be conducted to collect and evaluate water quality and fish species relative abundance, age

structure, growth, sex ratios, forage habits, age at maturity and mortality rate data per Manual of Operations protocols

- Angler interview data will be collected to assess the catch and harvest of targeted fish species
- Targeted fish species will be collected to assess relative abundance, age structure, growth, sex ratios, forage habits, age at maturity and mortality rates

Strategy 2: Fish consumption advisories will be released to the public informing them of the potential health issues if fish are eaten from the tested lakes and rivers

- Fish flesh will be collected as needed in cooperation with the IEPA and the IDPH to assess contaminant levels.

Strategy 3: Fish and mussel kill surveys will be conducted as necessary to enumerate and evaluate total numbers of fish and mussels killed by pollution caused vectors on lakes and rivers

Strategy 4: River basin survey data will be collected in conjunction with IEPA annually to provide fish population assessments for sportfish management and protection

Strategy 5: River basin survey fisheries reports and Lake Management Status Reports will be completed annually

Strategy 6: Targeted fish species surveys will be conducted as needed to provide additional specific fisheries data

Strategy 7: All data collected during annual and targeted fish surveys will be entered into the IDNR Fisheries Database

Objective 2. Aquatic habitat improvement

Strategy 1: New habitats will be developed to increase the quality of angling opportunities and existing habitats will be expanded to increase the quality of angling opportunities

Strategy 2: Appropriate biological or herbicide control measures will be used to remedy nuisance aquatic vegetation thereby promoting quality angling experiences in lakes and ponds.

Objective 3. Technical guidance and assistance to public agencies

Strategy 1: Effectively coordinate administrative activities with land management, other governmental agencies, NGO's, fish hatcheries, Department staff and the general public

Objective 4. Technical guidance to private water owners

Strategy 1: Provide fish management, stocking and technical assistance to private pond and lake owners

- In some situations, on-site visits are necessary and will be conducted
- In most cases pond management problems can be remedied via telephone calls
- Printed literature will be provided to private water owners as needed

Objective 5. Fish population management on reservoirs, lakes and rivers

Strategy 1: Fish population manipulative procedures will be accomplished according to approved protocol prescribed in the Division's Manual of Operations

- Fish toxicants will be used in accordance with label guidelines to reduce or eradicate nuisance fish species in lakes and ponds

Strategy 2: Catch and harvest regulations will be used to protect and sustain fisheries, balance predator and prey fish populations and improve fishing quality on lakes and rivers.

- Strategy 3: Supplemental stocking of sport and prey fish will be conducted according to prescribed protocol in lakes and rivers
 - Fish stocked will be from the Division's hatchery system, private fish hatcheries or on-site rearing ponds

Objective 6. Fisheries and aquatic resource planning on rivers, reservoirs, and inland waters

- Strategy 1: Lakes and rivers management planning is necessary to effectively manage state and public inland waters
 - Management plans will be prepared, reviewed and updated as needed to ensure efficient and cost-effective lake management activities are accomplished
- Strategy 2: Effectively communicate the sport fish populations of lakes and rivers to the angling public
 - An exchange in information between the Fisheries Division and the angling public is critical and promotes a positive impression of the Division to the public

Objective 7. Rivers, reservoirs, and inland waters management evaluations and investigations

- Strategy 1: Supplemental fish stockings will be monitored to determine their efficacy in creating and maintaining sport fish populations on lakes and rivers.
- Strategy 2: Lake and river habitat improvements will be planned and evaluated
- Strategy 3: Harvest regulations will be assessed on lakes and rivers

Objective 8. Develop and complete native fish, commercial fish, and mussel monitoring and management activities on lakes, rivers, and streams

- Strategy 1: Monitor and regulate commercial fish harvest
- Strategy 2: Monitor and regulate caviar harvest
- Strategy 3: Monitor and regulate commercial mussel populations
- Strategy 4: Enter into interstate cooperative research, regulatory and management activities

Objective 9. Provide technical assistance to federal and state sponsored private landowner assistance projects such as USDA-CREP, IRAP and other conservation projects

- Strategy 1: Technical guidance on best management practices for aquatic habitat stabilization and improvement, including riparian corridor improvements, will be provided to private landowners and ecosystem partners
- Strategy 2: Field investigations using standard sampling protocol will be implemented when appropriate

Objective 10. Conduct investigations and evaluations to improve our understanding of use patterns, satisfaction, and preferences of recreational anglers

- Strategy 1: Create and implement an electronic system to track fishing licenses and permits
- Strategy 2: Conduct surveys to estimate use patterns (e.g., harvest and effort data, angler satisfaction) from recreational anglers

Objective 11. Publish investigations and evaluations results that are peer-reviewed,

well-written, and timely

Strategy 1: Provide divisional and departmental reporting policies and procedures as guidelines for written work

Strategy 2: Provide staff with resources to complete reports

Strategy 3: Promote and facilitate publication in peer-reviewed journals

Objective 12. Conduct investigations and evaluations to improve understanding and conservation of snapping turtles and bullfrogs use patterns, angler satisfaction, and management strategies and preferences of recreational anglers

Strategy 1: Determine the distribution population status and critical habitats of common snapping turtles and bullfrogs

Strategy 2: Maintain the sport harvest of snapping turtles and bullfrogs through the use of regulations and seasons

Strategy 3: Develop and implement a statewide plan for sustaining harvest and conservation objectives

Goal 6. Lake Michigan Management

The Department's Lake Michigan Program manages fish stocks in the 1,526 square miles of Lake Michigan located within the Illinois border. Annual assessments of sport, commercial and prey fish populations and angler harvest provide information for effective management of fisheries in support of the Lake Michigan Management goal. Native species restoration (lake trout) and recovery (yellow perch) are being pursued through collaboration with other state, federal, and institutional entities. Evaluations of the effectiveness of the stocked salmon and trout fishery and near shore, non-salmonine sport fishery are essential for balancing available resources with societal demand. Assessments of fish recruitment and predator-prey interactions in the near shore community are integral to effective planning in management decisions. Long-term planning is guided by the *Fish-Community Objectives for Lake Michigan* and coordination with other jurisdictions is accomplished through the Lake Committee structure under the aegis of the Great Lakes Fishery Commission.

Objective 1. Assess the relative abundance and condition of important sport, commercial and prey fish species.

Strategy 1: Assess the Illinois component of the Lake Michigan lake trout population in terms of relative abundance, age structure, strain performance, reproduction, growth, sex ratios, food habits, age at maturity, and mortality rates for sexually mature age groups.

- Tag with coded-wire tags and release lake trout at Julian's Reef (proposed stocking for 2017 is 120,000 lake trout).
- Conduct an annual spring population assessment of lake trout with bottom-set, graded-mesh gill nets as specified in the Lake Michigan Lake-wide Assessment Plan (Lake Michigan Technical Committee).
- Conduct a fall spawning assessment of lake trout with gill nets at offshore reefs in Illinois waters.

Strategy 2: Assess the status of the yellow perch population in terms of relative abundance, age structure, growth, sex ratios, and age at maturity.

- Conduct an annual spring spawning survey of adult yellow perch at Chicago and Lake Bluff.
- Obtain an annual index of yellow perch recruitment success by seining for young-of-year and yearling perch at five shoreline locations during summer.

- Strategy 3: Conduct fish stock assessment surveys to describe forage stocks and predators in terms of relative abundance, distribution, growth and age structure.
- Conduct annual spring fish stock assessment surveys at Chicago and Waukegan focused on waters <125 feet deep.
 - Conduct an annual spring stock assessment survey at Waukegan focused on waters >125 feet deep.

- Strategy 4: Assess the returns of salmonines to Illinois harbors in terms of relative abundance, growth, age structure, sex ratios and homing success.
- At designated Illinois harbors, annually mark and release Chinook salmon (proposed stocking for 2017 is 150,000 Chinook salmon), coho salmon (300,000), rainbow trout (110,000) and brown trout (110,000).
 - Sample returning salmon and trout annually by electrofishing at selected harbors weekly from mid-September through mid-November.

- Strategy 5: Determine species composition, relative abundance, and distribution of non-salmonine nearshore sport fishes in selected harbors and nearshore areas along the Illinois Lake Michigan shoreline.
- Conduct an annual spring and summer assessment of non-salmonid nearshore sport fish species by electrofishing at four selected harbors and nearshore areas of the lake.

Objective 2. Assess the recruitment dynamics of important sport, commercial and prey fish species.

Strategy 1: Investigate impediments to lake trout natural recruitment and conditions that lead to successful reproduction when it occurs.

- Strategy 2: Develop improved methods for predicting yellow perch recruitment success and gain a better understanding of mechanisms influencing recruitment.
- Index juvenile yellow perch annually with micromesh gill net CPUE and compare relative growth and survival among year classes and across years.
 - Survey juvenile (age-0, age-1, and age-2) yellow perch, their prey resources and dietary composition across multiple nearshore habitat types with implications for determining eventual year-class strength.

- Strategy 3: Characterize the nearshore community of juvenile forage and sport fish and associated invertebrate prey populations and determine how biotic and abiotic factors interact to affect growth and survival of nearshore fishes in Lake Michigan.
- Quantify seasonal abundance and composition of nearshore fish and invertebrate communities on an annual basis and evaluate effects on yellow perch abundance and growth.

Objective 3. Utilize sport and commercial harvest surveys to assess impacts of harvest on fish populations and provide information for effective management.

Strategy 1: Estimate annually fishing effort and harvest by sport anglers fishing in Illinois waters of Lake Michigan.

Strategy 2: Annually re-estimate constants used to extrapolate creel data to non-creeled sites, times-of-day, and fishing modes.

- Strategy 3: Determine the age composition of angler-caught yellow perch annually to determine the contribution of various population segments (year classes and sexes) to the recreational fishery.
- Strategy 4 Monitor Lake Michigan charter boat effort and harvest.
- Strategy 5: Monitor commercial fishing effort and harvest.
- Strategy 6: Determine the age, growth, movements, and Illinois sport harvest of marked Chinook salmon, coho salmon, lake trout, and rainbow trout.
 - Collect information on marked salmonids of Illinois origin at fishing tournaments.

Objective 4. Integrate management of fisheries in the Illinois portion of Lake Michigan with other Lake Michigan management authorities and the broader Great Lakes.

- Strategy 1: Coordinate assessment data collection with Lake Michigan Technical Committee to ensure lake-wide assessment needs are met.
- Strategy 2: Participate in lake-wide management planning through the Lake Michigan Committee.
- Strategy 3: Develop assessments to measure progress toward achievement of the *Fish-Community Objectives for Lake Michigan*.
- Strategy 4: Develop assessments to measure progress toward achievement of the objective of *A Fisheries Management Implementation Strategy for the Rehabilitation of Lake Trout in Lake Michigan*.

Goal 7. Ensure Efficient Fisheries Division Operations

Fisheries Division Operations activities encompass general administrative tasks that seek to continually improve program activity reporting and planning, manpower planning, and staff development for all Fisheries Division personnel. Opportunities for staff development and support ensure all personnel stay abreast of current fish management information, skills, and techniques. Planning and review is essential to the administrative processes within the Division of Fisheries as efforts are made to continually improve upon existing practices.

Objective 1: Encourage professional development for all employees.

- Strategy 1: Provide training opportunities to all staff
- Strategy 2: Encourage staff involvement in professional organizations
- Strategy 3: Facilitate staff access to relevant fisheries information via trade and professional publications, technical assistance documents, and other applicable outlets

Objective 2: Provide leadership support and resources necessary to meet the goals of the Fisheries Division.

- Strategy 1: Develop a new three- to five-year staffing plan for the Division.
- Strategy 2: Staff vacant positions in all regions and fisheries disciplines as provided for in the Division organizational chart.
- Strategy 3: Seek and incorporate new and emerging technologies and techniques into Fisheries Division operations.
- Strategy 4: Enhance and maintain equipment and facilities.
- Strategy 5: Review work plan activities on an annual basis to document accomplishments and identify aquatic areas in need of improvement.

Objective 3: Streamline Fisheries Division programs and decision-making processes.

Strategy 1: Conduct periodic reviews of all Fisheries Division programs.

Strategy 2: Continue to support decision-making authority at the lowest appropriate level.

Goal 8. Illinois Urban Fishing Program

The Illinois Urban Fishing Program was initiated in Chicago in 1985. Aquatic education and clinic programs are held in city parks and consist of Summer educational fishing sessions which are followed by fishing at a nearby stocked lagoon. The Summer clinic program has since been expanded to additional parks statewide, but the original format remains the same. Events held throughout the year and special clinics are held throughout the city as well.

Objective 1. Conduct fishing and aquatic environmental educational programs

Strategy 1: Conduct fishing programs in schools (K-12), with senior groups, at day care facilities, and in parks to spur interest in fishing

Strategy 2: Continue cooperation with Illinois school districts

Objective 2. Conduct Summer fishing clinics for urban fishing participants

Strategy 1: Hold approximately 1500 structured Summer urban fishing clinics annually utilizing division employees and volunteers for 40,000 participants

Strategy 2: Stock urban park lagoons with catchable sized hybrid sunfish and channel catfish

Strategy 3: Maintain clinic sites at Auburn, Columbus, Douglas, Garfield, Gompers, Humboldt, Jackson, Lincoln Park South, Marquette, McKinley, Riis, Sherman and Washington parks

Objective 3. Conduct special event clinics for urban fishing participants on weekends, after school, or times when the structured clinic schedules or sites cannot be utilized.

Strategy 1: Hold special events for user groups such as special needs children, recreational groups, block clubs, school groups, senior citizens, park districts, and any other interested group

Strategy 2: Conduct large group fishing clinics (40-200 participants) without the educational facet of above events

Goal 9. Statewide Outreach

Outreach initiatives conducted by the Division of Fisheries throughout the State of Illinois are aimed at ensuring the sustained use of Illinois' recreational fisheries resources while optimizing economic and social benefits.

Objective 1. Inform the public about management practices and policies so they are knowledgeable about and can participate meaningfully in the regulatory process

Strategy 1: Facilitate public participation in state regulatory rules processes

Strategy 2: Conduct informal meetings with user groups

- Strategy 3: Participate with fishing groups in a formal manner by involvement through the Conservation Congress
- Strategy 4: Inform and gather input from the public through the Divisions website ifishillinois.org and the IDNR website. Ensure timely updates of the websites
- Strategy 5: Utilize the Sportfish Analysis System to analyze and update fishing information for public dissemination through the website
- Strategy 6: Maintain Havana Fisheries Field Station, district and project offices for constituent interaction and coordination of fisheries research projects
- Strategy 7: Continue to inform and educate the public through media outlets

Objective 2. Consider recreational angler preferences and impacts, including both social and economic effects of management actions, in the decision-making processes

- Strategy 1: Regularly collect, utilize, and report data on the economic significance and social benefits of sportfishing in Illinois
- Strategy 2: Communicate recreational angler preferences to decision-makers

Objective 3. Achieve recreational angler compliance with laws and regulations

- Strategy 1: Regularly update and publish the fishing information booklet containing fishing regulations for the next fishing season.
- Strategy 2: Maintain dialogue with Conservation Police Officers to identify enforcement priorities relative to specific fisheries and licensing requirements
- Strategy 3: Provide CPO enforcement training, and provide opportunities for fisheries staff to participate in CPO enforcement activities

Objective 4. Develop and cultivate associations with recreational anglers, the public, and relevant agencies

- Strategy 1: Establish and maintain personal contact with local communities, recreational anglers, fishing organizations, and Advisory Committees
- Strategy 2: Develop and participate in inter-agency management teams
- Strategy 3: Collaborate with federal, state, local governments, and nongovernmental organizations (NGOs) that are working on priority fisheries and habitat issues

Objective 5. Promote participation in recreational fishing activities

- Strategy 1: Conduct special one day events annually for 100-500 participants per event where instructional stations on individual topics are taught by fishing clubs, service clubs and/or businesses
- Strategy 2: Conduct multi-topic programs all involving aquatic ecosystems
- Strategy 3: Conduct 15-30 minute presentations about fish management, fish identification, or other related aquatic topics around the state.
- Strategy 4: Provide fishing loaner pole program. Poles are purchased by or donated to the Division then given to libraries, concession stands, and boat liveries. They can then be checked out for public use much like a library book
- Strategy 5: Provide live fish and interactive fish displays, fisheries information literature and in-person expertise at the Illinois State Fair.
- Strategy 6: Conduct meetings with user groups to promote fishing and aquatic education activities and to receive feedback from the angling public
- Strategy 7: Conduct innovative recreational angler recruitment and

- retention initiatives
- Strategy 8: Maintain public communications with our user groups both informally and, more formally for example, through the Conservation Congress

Goal 10. Aquatic Nuisance Species Management

Coordinate the implementation of a Statewide Aquatic Nuisance Species (ANS) Management, Prevention, Control, and Abatement Strategies Program, including all aquatic non-native species (i.e., plants and animals, and any parasites or pathogens). Regulate aquaculture and aquatic life possession, importation, and transportation through permits and licenses.

Objective 1. Manage and monitor aquatic nuisance species

- Strategy 1: Prevent new introductions of aquatic nuisance species into Illinois, e.g. the Great Lakes and the Mississippi Basin waters of Illinois, with ability to detect and respond adequately to detections.
- Strategy 2: Coordinate efforts with other state, federal, provincial, city and county agencies/project such as:
- Lake Michigan Lamprey Control Program
 - Asian Carp Control Strategy Framework
- Strategy 3: Coordinate listings of species, facilitate legislative, regulatory, enforcement, and other actions to prevent new ANS introductions
- Develop Early Detection monitoring network of introduction pathways and high-risk sites (e.g., ports, popular lakes) for new non-native species
 - Make recommendations to the Injurious Species List.
 - Facilitate risk assessments and screenings as needed to adequately convey risk of any species not on the Aquatic Life Approved Species List when necessary.
- Strategy 4: Limit the spread of established populations of ANS into uninfested waters of the state through application of control strategies that aim to prevent the introduction of, or attempt to control all invasive nuisance aquatic species
- Develop or update as appropriate the regulations to prevent transportation of ANS within Illinois, either intentionally or unintentionally
 - Identify and prioritize ANS whose spread poses the greatest risks and should be managed most aggressively
 - Monitor existing populations and spread of high priority ANS to aid control measures
 - Develop Early Detection monitoring network to adequately depict progress to prevent spread Deploy and/or develop control mechanisms for ANS when the cost- benefit of eradication are considered likely to outweigh the costs.
- Strategy 5: Abating harmful ecological, economic, social, and public health impacts resulting from infestation of ANS.
- Assess the ecological, socioeconomic and public health impacts of ANS within Illinois using risk assessments as needed prior to allowing importation of Aquatic Life not on the Aquatic Life Approved Species List.
 - Identify and prioritize response, abatement, or control strategy through an updated statewide ANS plan as necessary

- Develop strategies for mitigation of ANS impact when abatement/eradication is not feasible
- Coordinate eradication efforts with other federal, provincial, city and county agencies

Objective 2. Regulate Aquaculture, Fish Importation, Restricted Species Transportation and Stocking, and other fish possession, transportation, and stocking activities.

Strategy 1: Issue aquaculture permits to applicants/facilities that meet the criteria to possess an IDNR Aquaculture Permit.

- Assess facility location and species requested for aquaculture production.
- Allow species found on the Aquatic Life Approved Species List.
- Conduct Facility Inspections when Restricted Species production is requested.
- Regulate and permit the importation of Restricted Species into IDNR licensed aquaculture facilities.
- Work with Law Enforcement on random inspections and other legal matters

Strategy 2: Issue VHS and Salmonid Importation Permits, Restricted Species Transportation/Stocking Permits, fish stocking letters, and other fish importation and possession permits.

- Review health certifications for appropriate pathogen testing and review facility inspection history prior to issuing VHS and Salmonid Permits.
- Review ploidy certifications and stocking locations, particularly related to Restricted Species Transportation/Stocking Permits for Triploid Grass Carp.
- Review applications for importation of Restricted Species other than Triploid Grass Carp (e.g. *Tilapia spp.* and Barramundi)
- Review other requests for controllable movements of water and evaluate the risk of moving ANS, aquatic diseases, and other controllable agents that could be deleterious to Illinois aquatic resources.

Objective 3. Communicate and disseminate information about aquatic nuisance species risks, impacts, and management to the public

Strategy 1: Incorporate all media outlets available, including TV, radio, newspapers, magazines, and ILDNR publications.

Strategy 2: Staff attendance at relevant conferences and meetings, giving public talks and slide presentations to user groups

Strategy 3: Maintain contacts with universities, colleges and other educational institutions to encourage research that addresses pressing management needs, and to garner up-to-date invasive species research results

Strategy 4: Coordinate communications and messaging through BE A HERO initiative, partnering with Illinois Indiana SeaGrant as necessary.

Goal 11. Fish Hatchery Production

Produce fish stocks necessary to restore, establish, or sustain sport fish populations in lakes and rivers and Lake Michigan in order to diversify sport fishing opportunities through supplemental production and stocking of hatchery reared fish. Develop a plan to incorporate non-game fish and Unionid mussel culture into the

existing schedules and structures of the fish hatcheries for potential use in supplementing declining native fish and mussel resources in rivers and streams across the state.

Objective 1. Contribute toward the sustainability of naturally produced native fish and mussel populations through the responsible use of hatcheries and hatchery-produced fish and mussels.

Strategy 1. Foster and sustain opportunities for sport and other native fisheries consistent with the conservation of naturally produced fish.

Strategy 2. Maintain genetic resources of native fish and mussel populations spawned or reared in captivity.

Objective 2. Restrict the introduction, amplification, or dissemination of disease agents in hatchery produced fish and in natural environments

Strategy 1. Control egg and fish movements and by prescribing a variety of preventative, therapeutic and disinfecting strategies to control the spread of disease agents in fish populations in the state.

Objective 3. Disseminate information and communicate effectively with other fish producers, fisheries managers and the public.

Strategy 1. Conduct meetings throughout the state to set annual fish production goals for all state hatcheries. These meetings involve the participation of fisheries research, management and fish culture staff.

Objective 4. Maintain the Hatchery Information Management System (HIMS), a computerized system to collect, report, summarize and analyze hatchery production data.

Strategy 1. Record fish stocking activities for all state hatcheries and disseminate stocking information to the public by means of the internet websites maintained by the Illinois Department of Natural Resources.

Strategy 2. Use HIMS as a production control at all hatchery management levels

Goal 12. Fish Health Management

Fish health management encompasses the measures that minimize the impact of fish diseases on the state's fish resources. The primary objective of fish health management programs at IDNR fish hatcheries is to produce healthy fry and fingerlings that will contribute to the fishery. Equally important is the prevention of the introduction, amplification or spread of fish pathogens that might negatively affect the health of both hatchery and naturally reproducing stocks.

Objective 1. Disease Control

Strategy 1. Identify cause of fish kills throughout Illinois by performing necropsies of diseased, dead, and moribund fish

Strategy 2. Prescribe appropriate treatments and remedies to disease outbreaks. This includes recommending modifications in fish culture practices, when appropriate, to alleviate disease-contributing factors.

Strategy 3. Conduct applied research on new and existing techniques to control disease epizootics.

- Strategy 4. Staff Division of Fisheries with Pathologist, lab, and appropriate assistance to protect Illinois resources and inform fish management and culture goals in response to Disease detection.
- Strategy 5. Implement Best Management Practices or those identified by Hazard Analysis and Critical Control Points (HACCP) to inform written Hatchery Plans to minimize disease spread when detected.

Objective 2. Disease Prevention

- Strategy 1. Routinely perform examinations of live fish in culture to assess health status and detect problems before they progress to clinical disease or mortality.
- Strategy 2. Implement disease preventative strategies in all aspects of fish culture to produce a high quality, healthy fish. This includes prescribing the optimal nutritional needs and environmental conditions in the hatchery rearing container based on historical disease events. It also involves the use of vaccines or antibiotics in order to avoid a disease problem.
- Strategy 3. Use a disease prevention policy that restricts the introduction of stocks into a facility (e.g. AFS Bluebook or OIE Aquatic Animal Health Code).
- Strategy 4. Use sanitation procedures that prevent introduction of pathogens into and/or within a facility.
- Strategy 5. Conduct applied research on new and existing disease prevention
- Strategy 6. Use hatchery pond management strategies to help optimize the quality of the aquatic environment and minimize fish stress that can be conducive to infectious and noninfectious diseases.
- Strategy 7. Staff Division of Fisheries with Pathologist, lab, and appropriate assistance to protect Illinois resources and inform fish management and culture goals in response to Disease prevention.

Objective 3. Control the spread of fish and aquatic diseases, ANS, and other controllable agents that could be deleterious to Illinois aquatic resources.

- Strategy 1. Staff Division of Fisheries with Pathologist, and appropriate aquatic life health specialist to recommend and draft appropriate regulations to importation, possession, and release of organisms in the State of Illinois to minimize pathogens and diseases from infecting hatcheries and feral populations of fish. Regulations will consider human health and minimizing spread of diseases/pathogens/vectors as necessary.

FISHERIES IMPLEMENTATION PLAN

Fisheries and Aquatic Resource Conservation Activities

The Illinois Department of Natural Resources' Fisheries Implementation plan will strive to meet the goals outlined in the Division of Fisheries Strategic Plan and to sustain fishing, fish populations, and the aquatic habitats upon which they depend. A top priority of the Fisheries Division is to manage fish populations to ensure sport-fishing demands are met through natural production of fish species and/or supplemental stocking of hatchery produced fish when necessary. A wide range of research projects and other information-gathering activities are also included to support management functions.

Illinois citizens are aware that natural resources are dwindling at an alarming rate. Illinois' large population has created a greater need for recreational outlets, more so than ever before. This increased population is placing greater demands on our natural resources for activities such as fishing. Satisfying these needs requires the best technical and managerial skills from the IDNR Fisheries Division. Challenged by the continuing evolution of this state's physical and biological environment, current management emphasizes the protection of existing resources from further degradation and/or depletion, enhancement of those resources which have been degraded, and providing for public enjoyment of those resources which are available. Globalization of our society also increases the need to fight invasive species to maintain quality recreational opportunities.

Fisheries management activities primarily involve habitat manipulation and enhancement, conducting fish population surveys and assessments, creel censuses, water quality analysis, monitoring chemical contamination of fish, evaluating management strategies, aquatic vegetation and invasive species management, manipulating water levels, stocking proper sizes and species of fish, and setting harvest regulations. Completion of these activities by the Division of Fisheries staff is essential to maintain and enhance the public fishery resources of Illinois.

In order to effectively manage our public waters for quality fishing, we need information about the fish populations, quantity and quality of the habitat that supports them, and quantity and quality of fishing they provide. We also need information about the results of past management actions (stocking, regulations, habitat improvement, etc.) in order to refine techniques, adjust management plans, and take appropriate management actions on similar waters in the State. Fish community and angler use assessments provide the background information needed to develop or update lake management plans, basin inventory and assessment reports, and management plans for resource rich aquatic areas and priority waterbodies.

In areas where sufficient fish habitat exists but natural production is insufficient to meet angling demands, fish stocks may be rebuilt through stocking with hatchery produced fish. Wherever possible, appropriate wild fish stocks will be evaluated and utilized in suitable habitat. Hatchery put-grow-and-take and put-and-take programs are primarily used in heavily fished, altered habitats to provide recreational fishing opportunity. Emphasis is given to those areas that will allow a high proportion of hatchery produced fish to be caught by anglers. A variety of length limits and harvest regulations are used on different waters to provide a mixture of quality sport fishing opportunities. As feasible, new fishing opportunities will be developed through reclamation of damaged habitats and development of new fishing areas.

Lake Michigan is a large, predominantly cold-water lake that presents unique challenges in fisheries management. The lake provides angling opportunities for salmon, trout, yellow perch and lake whitefish that can be found nowhere else in Illinois. Specialized training, boats and assessment gears are necessary to safely monitor fish stocks and, more so in recent years, assessment data are incorporated in complex models used to inform science-based management decisions. While many techniques used on inland waters are applied to manage Lake Michigan fisheries (e.g., monitoring with gill nets and electrofishing gear, fish stocking, habitat enhancement, closed seasons, protective refuges and harvest limits and quotas), there are unique opportunities to rehabilitate native sport and prey fish populations (e.g., lake trout and cisco) and recover declining populations (e.g., yellow perch) that have historical and economic significance. Managing invasive species

remains challenging in the Great Lakes. An essential component of Lake Michigan fisheries management is partnership with other state, federal and tribal natural resource management agencies because many of the lake's commercial, sport and prey fish stocks contribute to multijurisdictional fisheries. Effectively management of these fish populations of mutual concern is accomplished through participation in the Joint Strategic Plan for the Management of Great Lake Fisheries, which is facilitated by the bi-national Great Lakes Fishery Commission.

The results of the Fisheries Implementation Plan projects will enable the Division of Fisheries to implement wise, sustainable sport fish management activities which will conserve and preserve the fisheries resources for present and future generations in Illinois waters.

Implementations Projects:

1. Sport Fish and Habitat Management Implementation Projects

Sport fish and habitat management projects involve applied sport fish survey activities and management evaluations on more than 300 state and public lakes, Lake Michigan, about 15 public river systems, three inter-state rivers, and three U.S. Army Corps of Engineers Reservoirs. Annual assessments of sport fish populations and angler harvest provide information for effective management of fisheries in support of inland lakes, rivers, and streams.

a. Biological Surveys and Inventories

Biological surveys and inventories are the general studies, investigations, and fish population surveys for Illinois waters including selected sport fish and forage species. Fish community surveys provide the background information needed to develop or update management area plans, basin inventory and assessment reports, or management plans for resource rich aquatic areas and priority waters.

b. Lake, River, and Stream Management Reporting

Management reporting for lakes, rivers, and streams involves the scientific evaluations and assessments of the fisheries resource needs within the State and provide the necessary documentation to implement fisheries projects to address those needs. Management reporting measures the progress toward meeting the needs and evaluates the effectiveness of the Division of Fisheries programs.

c. Habitat Enhancement

Habitat enhancement projects are used to develop better reservoir, river, and lake habitat areas. Aquatic vegetation manipulation activities on lakes are also conducted to control undesirable and nuisance aquatic vegetation.

d. River Basin Fish Surveys

River basin fish surveys are conducted in conjunction with the Illinois Environmental Protection Agency for the assessment and monitoring of fish populations covering entire rivers basins at selected river and stream sampling stations.

b. Management Investigations

Management investigations are conducted to answer specific management questions and meet specific information needs that cannot be completely addressed by the previously described inventory and monitoring activities or standard/routine survey work. The findings of management investigations are used to evaluate current management efforts or develop management recommendations for the areas on which the work is conducted.

c. Fish Creel Surveys

Fish creel surveys involve angler utilization surveys used to determine the knowledge, behavior, needs, and expectations of the state's anglers and citizens in general. These surveys are developed and conducted for specific waters using interview, mail-in cards, and web based reporting techniques.

d. Fisheries Management Planning

Fisheries management planning is conducted periodically to prepare Lake and River Management Plans, Fish Species Management Plans, and various fishing reports for selected waters.

2. Recreational Fishing Opportunities Implementation Projects

This project is intended to provide opportunities for people to access and enjoy the public waters of the State for fishing and other forms of water-based recreation. The Division of Fisheries will do so through acquisition and development of new fishing access sites, the management of existing sites and recreation use, and through the protection of the public's right to access streams and other public waters.

a. Fishing Access Assessment

Fishing access assessments on selected waters (state and public lakes, Lake Michigan, public river systems, inter-state rivers, and U.S. Army Corps of Engineers reservoirs) include general surveys for fishing access, new water bodies, and aid in identification of new potential fishing access areas.

b. Fishing Access Development

Fishing access development provides special recreation opportunity areas in urban settings and allows for the management of existing and establishment of additional quality and trophy fishing waters.

c. Land Acquisition

Land acquisition involves the procurement of land rights or easements on private areas identified for fishing access or water body construction and development.

d. Cooperative Agreement Development

Cooperative agreement development provides more fishing access to public, private and organizational waters by using co-op agreements, easements, and tax incentives and helps develop partnerships with other state, public, private, and federal agencies.

e. Havana Field Operations

Manage the public access at Havana Fisheries Field Station and provide field support, aquatic chemical and equipment needs, and assist with public access postings to fish biologists.

f. Illinois Catchable Trout Fishing Program

The catchable trout fishing program concentrates put and take rainbow trout stockings in urban areas to provide a unique fishing opportunity to select areas within the State of Illinois.

g. Media Development and Use

The use and development of media as an avenue of outreach to the general public through the continued development and presentation of the ifishillinois.org website provides maps, brochures, booklets, and disseminates fishing information and guides to anglers. The website also provides fishing conditions and access to weekly fishing reports, and summarizes the results of surveys and investigations conducted by Division of Fisheries biologists and fish stocked into Illinois waters.

3. Native Fish Conservation and Aquatic Habitat Restoration Implementation Projects

Fish thrive in diverse, healthy aquatic ecosystems. Good fish habitat consists of three essential elements: 1) water quantity—adequate water flow in streams throughout the year and satisfactory water levels in lakes and reservoirs to sustain healthy aquatic communities; 2) water quality—water of suitable quality for sustaining healthy populations of fish and other aquatic life; and 3) physical habitat features—landscape features such as streambeds and banks, riparian areas, and cover that, together, when functioning properly, provide a favorable environment for fish and other aquatic life to carry out all essential phases of their life cycles. All of the above require maintenance of a functioning floodplain, as well as judicious land management practices throughout the watershed, including upland areas.

a. Resource Guidance

Resource guidance is primarily focused on providing site specific fisheries management expertise for rivers, streams, and lakes to public agencies outside IDNR. Fisheries Division staff complete environmental reviews and restoration planning activities on rivers and streams for U.S. Army Corps of Engineers and Federal Energy Regulatory Commission construction and hydropower projects and other federal and state sponsored projects.

b. Technical Guidance

Fisheries Division staff provide information and technical guidance to private landowners for private water fisheries management. This most often involves completing fisheries management plans, providing fish stocking guidance, and providing technical assistance to organizational and private lakes and ponds.

c. Professional Coordination

Fisheries Division staff conduct professional coordination through activities that are not applicable to a specific fisheries management project, but are aimed more at water body management projects. Staff provide oral or written correspondence and attend meetings dealing with policy, studies, or activities carried out with persons outside the Rivers, Reservoirs, and Inland Waters Fisheries Management Program.

d. Commercial Fishery Management

Commercial fishery management requires the regulatory, and management activities necessary to complete native fish, commercial fish, mussel, and caviar conservation on Illinois rivers and streams. Those activities include fishing regulations, issuing of permits, conducting special surveys, and interstate cooperative management studies.

e. Fish Contaminant Monitoring

The objectives of the Illinois Fish Contaminant Monitoring Program are to investigate and detect the presence and build-up of toxic and potentially hazardous substances in fish, encompassing both fish toxicity and public health implications. Activities are conducted that are associated with fish contaminant samples taken from selected waters that include field collection, sample preparation, and delivery.

f. Fish Kill Investigations

Reports of fish kills and water pollution problems on streams and public lakes are treated as emergencies and investigated immediately. Fisheries Division staff conduct all activities regarding fish kill reports received by the Department statewide including: field investigations, coordination of inspections, fish kill counts, report preparation, testifying, coordination with IEPA and Law Enforcement.

4. Fish Management Planning, Scientific Evaluations, and Administration Implementation Projects

Through the planning process, we identify and involve partners and stakeholders; identify issues, problems, and opportunities; gather and organize information; evaluate the results of past efforts, establish goals and objectives; develop strategies and work schedules; communicate needs and intentions; and monitor progress. We have a wide range of resource management plans that include watershed inventory and assessment reports, lake and river management plans, and fish species management plans.

a. Project Administration

Project administration involves the preparation and monitoring of the Division of Fisheries budget and Federal Aid Projects. Administration determines the need for project jobs and evaluates the effectiveness and efficiency of project jobs for operational as well as investigation projects.

b. Administrative Reports, Plans, and Information Responses

The Division of Fisheries has a wide range of resource management plans that include watershed inventory and assessment reports, lake and river management plans, and fish species management plans. Existing plans need to be updated periodically, and review and evaluation of resource plans, scientific evaluations, and reports must be conducted for efficiency and effectiveness of fisheries management activities providing quality angling opportunities to the public.

5. Lake Michigan Implementation Projects

The Department's Lake Michigan Program manages fish stocks in the 1,526 square miles of Lake Michigan located within the Illinois border. Annual assessments of sport, commercial and prey fish populations and angler harvest provide information for effective management of fisheries in support of the Lake Michigan Management goal. Native species restoration (lake trout) and recovery (yellow perch) are being pursued through collaboration with other state, federal, and institutional entities. Evaluations of the effectiveness of the stocked salmon and trout fishery and near shore, non-salmonine sport fishery are essential for balancing available resources with societal demand. Assessments of fish recruitment and predator-prey interactions in the near shore community are integral to effective planning in management decisions. Long-term planning is guided by the *Fish-Community Objectives for Lake Michigan* and coordination with other jurisdictions is accomplished through the Lake Committee structure under the aegis of the Great Lakes Fishery Commission.

a. Sport and Prey Fish Population Assessments and Investigations

Fish population assessments and investigations include annual biological surveys of selected sport and prey fish species found in the Illinois portion of Lake Michigan and short-term investigations to answer specific management questions that cannot be solved with annual survey data. These assessments and investigations provide population demographics and other data used to inform fishery management decisions (e.g., fish stocking, harvest regulations and habitat protection and enhancement).

b. Understanding Recruitment Dynamics of Sport and Prey Fish Species

Recruitment success is essential for sustained fisheries and recruitment has been highly variable for many Lake Michigan fishes. Research on abundance, survival and competitive interactions of selected juvenile sport and prey fish is conducted to determine mechanisms affecting recruitment dynamics, which helps guide effective management actions for better fishing outcomes.

c. Sport Fish Harvest Surveys

A contact creel survey of boat and shore anglers fishing the Illinois portion of Lake Michigan is conducted annually and sport fishing charter operators submit monthly harvest reports as part of their permit requirements. These surveys provide angler effort, harvest and direct economic expenditure data for the Lake Michigan sport fishery in Illinois and inform fishery management decisions.

d. Integrative Lake Michigan Fishery Management

Effective fishery management in large, multijurisdictional waters, such as Lake Michigan requires coordination among state, federal and tribal management authorities and science partners. As a signatory to the Joint Strategic Plan for Management of Great Lakes Fisheries, IDNR and Lake Michigan Program biologists and managers follow the Joint Plan strategies of consensus decision making, accountability, ecosystem management and information sharing and participates in the lake committee management structure facilitated by the Great Lakes Fishery Commission.

6. *Illinois Urban Fishing Implementation Projects*

The Illinois Urban Fishing Program was initiated in Chicago in 1985. Programs are held in city parks and consist of summer educational fishing sessions which are followed by fishing at a nearby stocked lagoon. The summer clinic program has been expanded to additional parks but the original format remains the same.

a. Fishing and aquatic environmental educational programs

These educational programs are held in schools, with senior groups, at day care facilities, and in parks on weekends. An important goal of these programs is getting individuals interested in fishing so that they might develop it as a hobby in future years. If someone is to develop fishing as a hobby, it is most important that they actually go fishing when learning the sport.

b. Fishing Clinics and Fish Stocking

First started in 1985 at Marquette, Gompers, and Columbus Parks, this program was expanded and now fishing clinics and/or fish stockings take place at Auburn, Columbus, Douglas, Garfield, Gompers, Humboldt, Jackson, Lincoln Park South, Marquette, McKinley, Riis, Sherman, and Washington parks. Each year about 500 fishing clinics are held for more than 12,000 participants, and about 30,000 pounds of catchable-sized channel catfish and nearly 60,000 hybrid sunfish are stocked.

c. Special event clinics

Clinics are conducted on weekends, after school, or times when the structured clinic schedule and/or site could not be used. Special events clinics can be held for groups such as special education and special recreation groups, block clubs, school groups, senior citizens, park districts, and others that had expressed an interest. Nearly 3,000 participants take part in special event programs each year.

7. *Aquatic Outreach Implementation Projects*

The primary objectives of this project are to help students develop awareness and appreciation for the fish and aquatic resources in Illinois, help students develop an interest in fishing and outdoor recreation, teach safe and responsible outdoor skills, and help teachers develop skills and interest in teaching natural resource topics. Students take part in a variety of activities, both inside and outside the classroom. The role that families and parents play in teaching their children about fishing and fostering a lifetime interest in the out-of-doors cannot be over stated. To help facilitate and develop these interests and values, the Division of Fisheries implements activities to provide fishing opportunities for children and families.

a. Partnership with Recreational Boating and Fishing Foundation (RBFF)

The RBFF Promotes recreational fishing and boating in Illinois through increasing license sales. The program may help to provide mailings to fishermen to remind them to purchase fishing license each year, or radio and TV advertisements to promote fishing in Illinois.

- b. Special Event Clinics**

Special event clinics are similar to regular summer clinics, but are held on weekends, after school, or at different locations where lakes with a suitable fish population are available. Several ice fishing clinics are also held in northern Illinois. Special event clinic participants (nearly 40,000 kids and adults) are also provided with fishing oriented literature packets.
- c. Volunteer Instructor Fisheries Clinics**

More than 1,500 structured fishing clinics are held by volunteer individuals, by employees of state or local parks, recreation department employees, and are held at waters where quality fishing is available. The volunteers are trained and provided with Urban Fishing Clinic Program educational materials and with fishing equipment to about 40,000 participants annually.
- d. Fishing Expos**

Fishing Expos are large fishing clinics where each topic of the Program is taught at a separate station by trained instructors. After completing each instructional station, attendees then went fishing. These events are normally sponsored in part or entirely by local fishing clubs, service clubs, and/or private businesses. Expos are one-day events and are designed to accommodate between 100-500 participants.
- e. Fishing Derbies**

Fishing Derbies usually involve a larger group of anglers (40-200 people), and included fishing without the educational part of the summer clinic program. Educational sessions are not practical due to large group size, participants arriving at different times, and time constraints.
- f. Hooked on Fishing, Not on Drugs Program**

The nationally acclaimed Hooked On Fishing-Not On Drugs (HOFNOD) Program combines angling skills along with actual fishing, ethical care of the environment, and positive life skills such as self-esteem issues, decision making, goal setting, helping others, etc. into one curriculum. Many of our fishing programs qualified as a HOFNOD Program. Illinois teachers also contacted the HOFNOD office in Washington, D.C. to request information and fishing programs for their school. HOFNOD then passed their request to our Department for us to handle, which made it possible to introduce fishing to additional schools.
- g. School Classroom Programs**

The School Classroom Programs are conducted throughout the state. Programs typically discuss lake ecosystems and related topics and then allowed students to pick up and handle live fish and other aquatic animals. Other programs included fish related presentations followed by question and answer periods. The Trout in the Classroom program continues each year with fish provided by the state hatchery system in cooperation with Trout Unlimited.
- h. Outdoor Recreation Shows**

Outdoor Recreation shows are held indoors during the winter and are generally commercial expos of vendors selling fishing and outdoor products. Our activities promote our various summer fishing programs, provide fisheries management expertise, and give away aquatic and fish related literature.
- i. Conservation Field Day Programs**

Conservation Field Day Programs consist of presentations about fish and general aquatics and are usually held outdoors at state parks for school groups on field trips. Student groups can participate in information exhibits held at multiple stations on site.
- j. Access to Fishing Program**

The Illinois Access to Fishing - fishing pole loaner program began in 1997 and remains a unique way of allowing anglers to try fishing without having to buy equipment. Fishing poles which have been purchased by or donated to IDNR are placed in establishments such as libraries, lake-side

concession stands, bait stores, etc. This equipment is available to be borrowed at no cost, and handled much like checking out and returning a library book. Tackle packets (containing hooks, sinkers, a bobber, etc.) and instructional fishing literature are also available at no cost for users to keep when equipment is borrowed.

k. Illinois State Fair

The Illinois State Fair is conducted each year and many thousands of Illinois residents as well as nonresidents participate. Many of state fair goers pass through the Division of Fisheries exhibit tent and fishing pond to see the live and interactive fish displays and let kids catch fish and receive fish ecology, invasive species, and ethics talks.

l. Illinois High School Association Bass Tournament

The Illinois High School Association (IHSA) sponsors bass fishing as part of their supported competitive activities. The Division has partnered with the IHSA from the inception of the bass fishing tournaments in 2009. Each year 2500-3000 students enter the competition which culminates with the Sectional tournaments and the state Final held on lakes throughout the state.

m. Media Development and Use

The use and development of media as an avenue of outreach to the general public through the continued development and presentation of the ifishillinois.org website provides maps, brochures, booklets, and disseminates fishing information and guides to anglers. The website also provides fishing conditions and weekly fishing reports, and summarizes the results of surveys and investigations conducted by Division of Fisheries biologists and fish stocked into Illinois waters. A mobile device application will be developed and released for public information acquisition in 2017.

8. Aquatic Nuisance Species and Aquaculture Management Implementation Projects

The primary objectives of this project are to manage and monitor aquatic nuisance species and pathogens, and to regulate with minimal but necessary oversight the aquaculture, fish importation, transportation, trade, and stocking in order to protect fish health and diversity in Illinois waters.

a. Manage and monitor aquatic nuisance species

Coordinate and monitor the implementation of a Statewide Aquatic Nuisance Species Management, Prevention, Control and Abatement Strategy. In collaboration with IDNR biologists, county, state, and federal officials manage and monitor the implementation of a statewide aquatic life diversity program. Coordinate projects with other state, federal, city and county agencies and other interested organizations. These efforts include:

- o Support of the Illinois State Comprehensive Management Plan for Aquatic Nuisance Species <https://anstaskforce.gov/State%20Plans/ilansplan.pdf>
- o Support of the Asian Carp Monitoring and Response Plan www.asiancarp.us
- o Support of the Upper Mississippi and Ohio river Asian Carp Action Plans www.asiancarp.us

b. Regulate Aquaculture, Fish Importation, Restricted Species Transportation and Stocking, and other fish possession, transportation, and stocking activities.

Issue Aquaculture Permits, VHS and Salmonid Importation Permits, Restricted Species Transportation and Stocking Permits, and other fish stocking permits to control the spread of fish disease, aquatic nuisance species, and other controllable movements of water and aquatic life in Illinois. Support an Invasive Species Unit, in whole or in part to assist in enforcing and evaluating the efficacy of regulations to protect water and aquatic life in Illinois.

c. Provide Public Outreach and other Educational and Professional Presentations

Communicate and disseminate information about aquatic nuisance species management programs to the public, other agencies and DNR employees by writing letters, memos, technical reports and magazine articles; gives public talks, makes slide presentations and participates in radio and TV interviews; attends conferences and give speeches to interest groups and organizations; maintain contacts with universities, colleges and other educational institutions.

9. Fish Hatchery System Implementation Projects

In order to diversify, sustain, restore or establish sport fishing opportunities in reservoirs, lakes, rivers and Lake Michigan, supplemental fish stocking will be necessary.

a. Statewide Fish Production and Distribution

Stock about 25 million fish produced from the State Fish Hatchery System.

b. Fish Species Reintroductions

Evaluate potential new fish species (re-)introductions and stock if appropriate.

c. Rearing Pond Fish Production

Manage satellite rearing ponds for fish production and stocking.

d. Hatchery Information Management System

Complete the Fish Stocking data set for Illinois waters and integrate with the Fish Sampling and Creel data with the assistance of the Illinois Natural History Survey.

10. Fish Health Implementation Projects

The introduction of potentially harmful fish pathogens and disease into both captive and wild fish populations within Illinois can have long-lasting, detrimental effects. The goal of the fish health program is to prevent the introduction and spread of these dangerous organisms both into and within the state, and to help better understand and reduce the impacts of these diseases where they are present. In order to minimize those risks, hatchery fish are routinely screened for certain pathogens to reduce the likelihood of moving them. Hatchery fish are tested before being moved to other waters, and all state, federal and private hatcheries are tested annually. Live fish imports from out of state are reviewed and import permits are issued to help reduce the risk of introducing pathogens with imported fish. The Fish Health project manager reviews management actions that are considered high risk for spreading harmful pathogens. Diagnostic examinations are conducted where problems do occur to determine and document the cause and extent of the problem.

a. Statewide Expertise in Fish Health

Maintain a fish pathologist to evaluate and support hatchery operation, evaluation of fish kills, advise on management needs in waters statewide. Conduct/supervise fish health checks in the three State Fish Hatcheries each year to maintain an environment favorable for maximum fish production. Maintain OIE farm certification at Jake Wolf Hatchery. Maintain AFS Bluebook or OIE certifications at La Salle and Little Grassy Hatcheries

b. Enhance Fish Health Quality at Hatcheries

Routinely and in response to field needs perform examinations of live fish to assess health status and detect problems before they progress to clinical disease or mortality. Implement disease preventative strategies in all aspects of fish culture to produce a quality fish. This includes prescribing the optimal nutritional needs and environmental conditions in the hatchery rearing container based on historical disease events. It also involves the use of vaccines or antibiotics in order to avoid disease problems.

c. Biosecurity Planning

Provide disease prevention planning for each hatchery that considers the introduction of stocks, water, and pathogens into a facility. This will help avoid or identify pathways for disease problems and fish pathogens not previously found at the site. Conduct applied research

on new and existing disease prevention techniques. Utilize pond management strategies to help optimize the quality of the aquatic environment/production and minimize fish stress that can be conducive to infectious and noninfectious diseases.