

Paper Title

Ohio's Watercraft Access Facilities: Spatial Analysis for Planning and Communication

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Paper Abstract

Public input identified boating access as a statewide priority issue for the Ohio Division of Watercraft. In 2004, the Division undertook a major update of the Watercraft Facility Database, a comprehensive boating needs inventory assessment project. More than 800 public access sites were field inventoried in the summer of 2004, and qualitative and quantitative data were gathered concerning the condition of and amenities adjacent to the facilities. Coordinates were collected at each site using Magellan and Garmin GPS units, and in turn, these coordinates were rendered into a geographic information system layer (shapefile) using ArcGIS.

Spatial data analysis associated with the 2004 inventory update is used in support of the Division's planning initiatives to improve boating access and water-based recreation in Ohio. The development of interactive, web based mapping (using ArcIMS) to communicate facility access information provides value-added benefits to our boating customers.

Background

The Ohio Department of Natural Resources (ODNR) Division of Watercraft is a customer-centered state agency that provides information, resources and access to Ohioans who want to participate in the boating experience. The Division of Watercraft's strategic plan, *A Strategic Plan for Ohio Boating*, presents a common vision that enables the Division to provide programs and services that benefit Ohio's boaters. As requested by boaters, the majority of the Division's efforts, funding and resources are dedicated to implement four major strategic issues. The first strategic issue is:

"Develop new, and maintain and upgrade existing boating access and facilities to enhance boating opportunities."

Likewise, the recently developed strategic plan for the Ohio Department of Natural Resources, *Strategy for Stewardship 2004*, indicates the following objective under the outdoor recreation theme:

"Establish priorities to develop and improve access by five percent to Ohio's waterways, including Lake Erie and the Ohio River, by December 2006."

The Boating on Ohio Waterways Plan, completed in 2004, included a thorough, step-by-step process that incorporated input and assistance from interested citizens, boaters, organizations and agencies. Aspects of boating in Ohio that boaters and waterway managers felt needed improvement consisted of the first step in the plan development process. Data gathered through focus group meetings, customer satisfaction surveys, recreational trends reports, Census Bureau databases and comments received by the division were used to make recommendations. The plan

assessed boater wants and needs; assessed the ease of boating access to Ohio lakes and rivers via launch ramps, marinas and put-in areas; assessed current regulations; and assessed opportunities to create a more favorable boating environment.

One of the main programs within the Division of Watercraft is the Cooperative Boating Access Facility Grants (CBFG) Program. Cooperative Boating Access Facility grants are made available through the Ohio Waterways Safety Fund, which is comprised of a portion of the state motor vehicle fuel tax, watercraft registration and titling fees and funding from the U.S. Coast Guard. The grants are awarded on a competitive basis and are administered by the Division of Watercraft to improve public boating access for the state's estimated 3 million recreational boaters. This year, \$3.2 million was awarded to local communities across the state. Many of the funded projects are sponsored by local political subdivisions that have identified a need and interest in increasing access to Ohio's waterway by improving existing or building new boating facilities.

The Resource Planning Section (RSPL) within the Division of Watercraft, charged with administering the CBFG program, regularly visits ways to make improvements to programs such as the CBFG program. Recently, the RSPL section developed draft recommendations to implement to improve internal processes and program efficacy. One of those recommendations is to:

Project "target areas" – develop an "upfront" effort to solicit potential grantees in target areas as noted in the Boating on Ohio Waterways (BOW) Plan and in the recommendations of the Comprehensive Boating Facilities Analysis.

The use of a geographic information system (GIS) and spatial analysis, in development of the Boating on Ohio Waterways (BOW) Plan, Comprehensive Boating Facilities Plan (for power boating) and public information materials, increases the efficacy and efficiency of the Division of Watercraft in pursuit of its mission. Watercraft staff will continue to harness the power of GIS in future pursuits, as illustrated in Figure 1.

Geographic Information System Products and Services

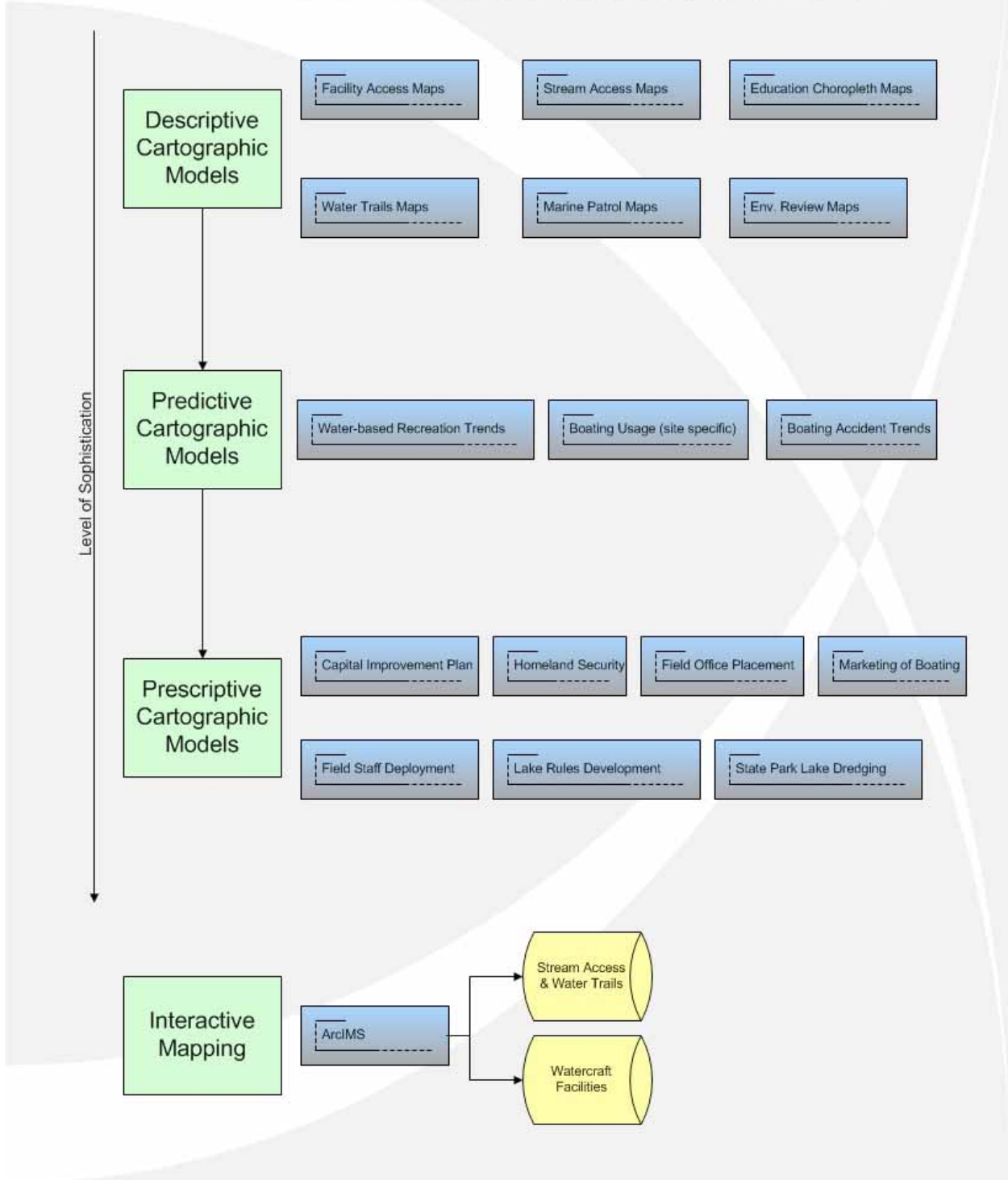


Figure 1: Ohio Division of Watercraft's GIS Products and Services.

Watercraft Facilities Update

Before development of a Comprehensive Boating Facilities Plan in 2005 could occur, the Watercraft Facilities Database needed updating, and a shapefile (and FGDC-compliant metadata) of watercraft facilities was needed.

The Watercraft Facilities Database was created to assist the ODNR Division of Watercraft with planning for capital improvement and facility upgrade projects and to develop publications for boaters. In 1997, the Division chartered a Goal Group to address this issue. The Boating Access Site Survey (BASS) team was launched in January 1998. Thus, the database/inventory was established over six years ago and needed updated. All existing sites in the database were visited in the summer of 2004. Various databases and spreadsheets available from other entities (Divisions of Wildlife and Parks and Recreation and MARCS) were reviewed for sites not captured in the database previously. These sites were visited during the 2004 field season, were added as new sites during the database update and were assigned the next sequential identification number available for that county. The Division of Watercraft's CBFG funded sites (new builds) were also added to the database. Sites that had gone out of business were deleted from the database, unless it was thought that the site had the potential to be re-developed in the future (such as the case with bankrupt marinas). Sites along Lake Erie that used to be marinas, but were converted to private docks for associated condominium development, were also deleted. Traditional, hand powered launch sites on rivers and streams were not assessed, unless it was determined that the access site could afford reasonable personal watercraft or small powerboat launching. Over 100 fields of information are contained within the database, including whether the site is accessible under American with Disabilities Act requirements, whether additional amenities exist at the site (such as potable water, food, phone, camping, etc) and the number and condition of the launches, docks and associated parking areas.

Garmin and Magellan handheld GPS units were used to capture each facility's location, and each latitude/longitude reading was recorded on the field sheet (and then entered into the Microsoft Access facility database. The Microsoft Access facility database was exported to a DBase 4 table, for use in ArcView 8.3 software to perform spatial analysis of the data. In ArcView, the table was added as a layer, and x/y coordinate events were generated from the latitude/longitude fields. The generated x/y coordinates were exported to ArcView shapefile format, using the coordinate system of the data frame, State Plane South NAD 83. Finally, staff created FGDC-compliant metadata for the layer.

Comprehensive Boating Facilities Plan

The recently completed Comprehensive Boating Facilities Plan serves as a five-year, approximately \$30 million proposed capital improvement project listing of waterbodies that require construction of new launch ramps, transient/seasonal moorage or marinas or upgrades to existing infrastructure to meet boater demands in the future. Population projections by county (2030) were used in the spatial analysis, in conjunction with the updated Watercraft Facilities Database, to ascertain specific need. Population projections were obtained from the Office of Strategic Research (Ohio Department of Development, 2005).

Boaters' Need for Access to Accurate Information

Ohio's boating public deserves superior customer service from the Division of Watercraft and merits high-value, water-based recreational experiences. Certainly, access to quality watercraft facilities is important; so too is the access to accurate information regarding where to boat in Ohio. GIS use in support of mapping initiatives for public consumption in the Division of Watercraft is increasing. Based on the facility database information collected in 2004, staff used existing data layers within the ODNR to create the Ohio Boat Launch Areas map and guide in May 2005. Staff exported the GIS layers in Adobe Illustrator format for Watercraft electronic design specialists to use to develop a six-fold, 26x35 inch map showing locations of medium to high quality launch ramps. The backside of the map references each launch location and presents information relating to facility amenities and waterbody horsepower limits (See Figure 2). Additionally, the Division of Watercraft's web site features the Ohio Boating Destinations Tour, which allows web users to hear an audio clip describing facilities and activities available at select waterbodies. Information obtained from the facility database and GIS was used during the Destination Tour development so that users would receive the most accurate information available regarding an access facility (See Figure 3).



Figure 2: "Ohio Boat Launch Areas" six-fold map.

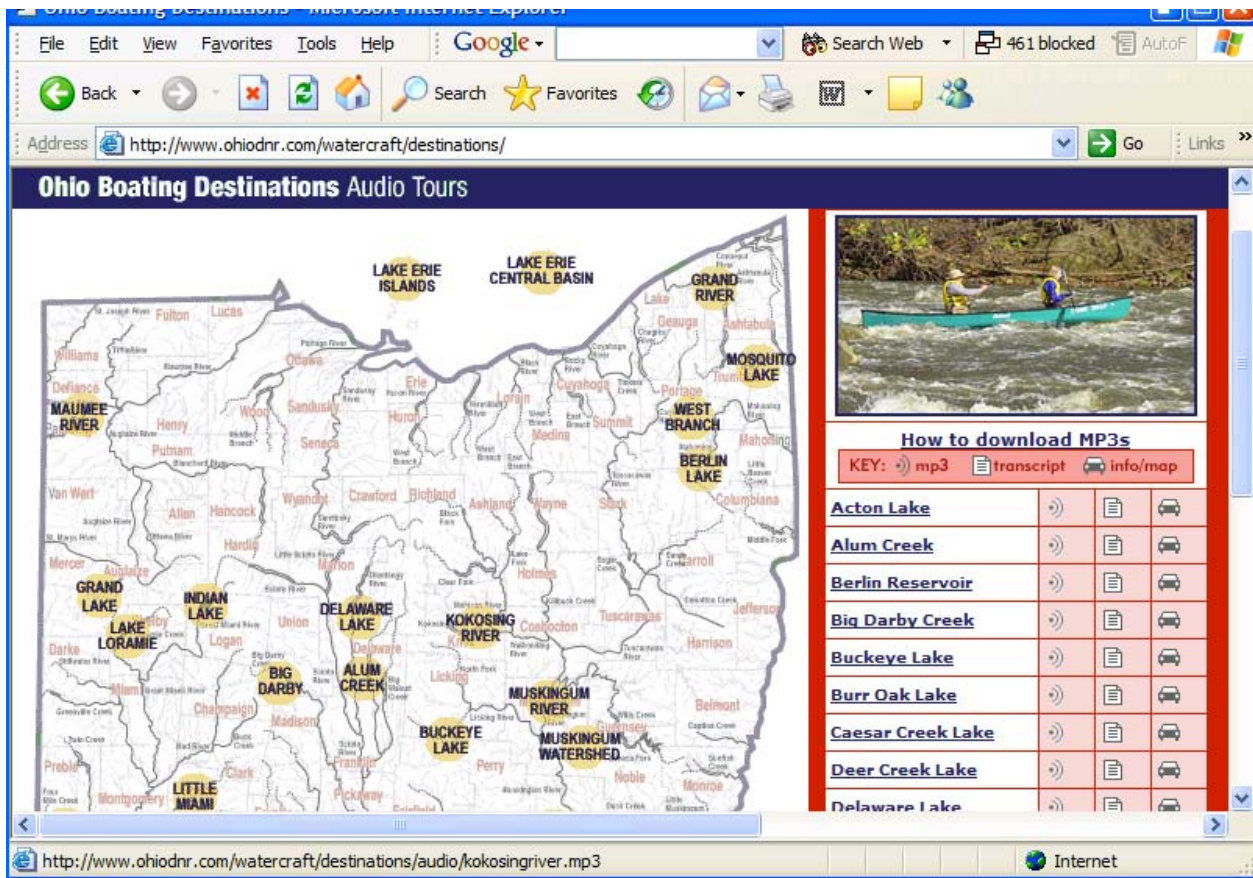


Figure 3: "Ohio Boating Destinations Audio Tour" web page.

Interactive Mapping and Ohio's Boating Public

An exciting new initiative within Division of Watercraft regards the use of ArcIMS services to display access facility information. All facilities found in the Watercraft Facilities Database have been added to the HTML-based Watercraft Access ArcIMS site so that boaters can make more informed decisions regarding boating destinations and access sites (See Figure 4). Other ArcIMS services are planned, including serving paddling/kayaking maps of Ohio's rivers, as data collection/refinement and shapefile development occurs (See Figure 5).

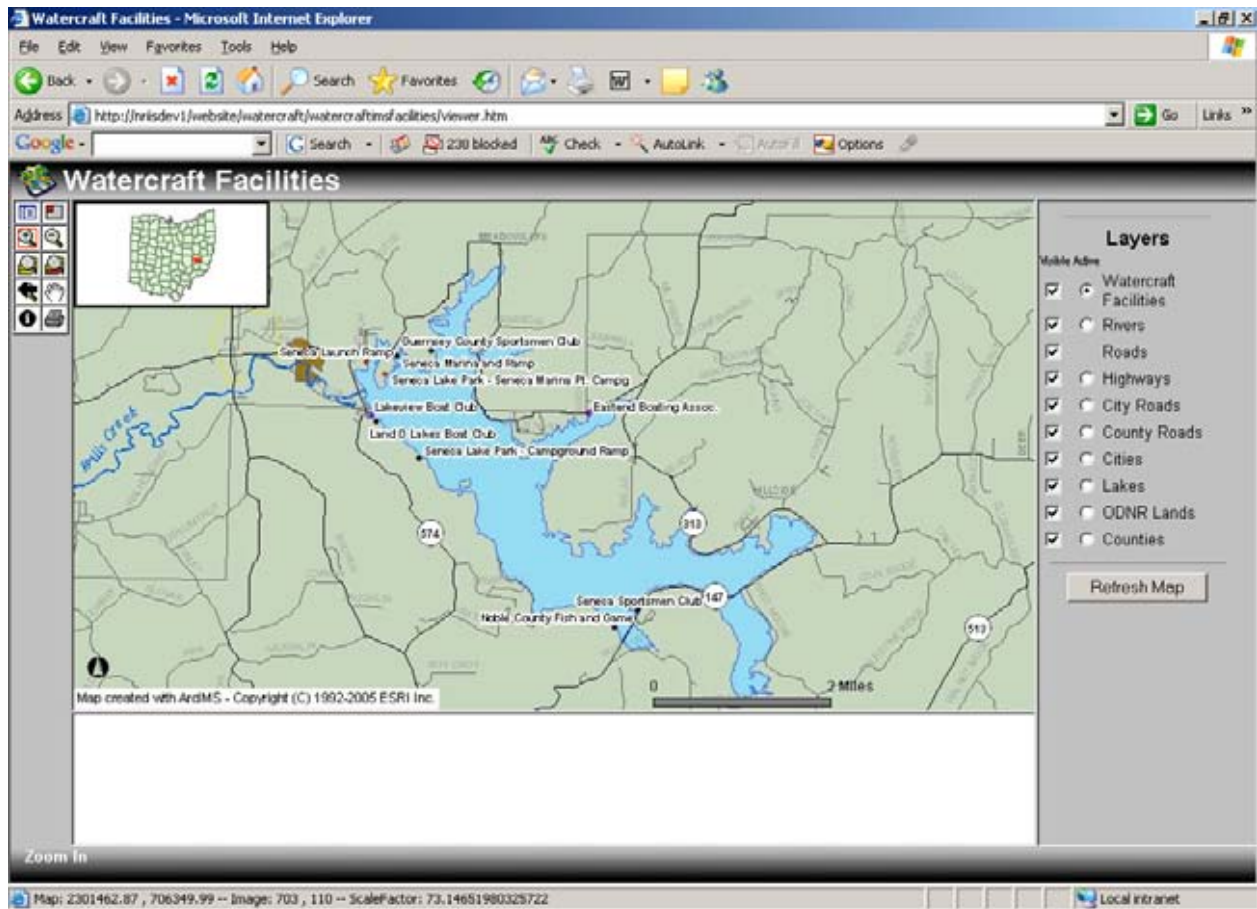


Figure 4: Watercraft Facilities Access ArcIMS Site.

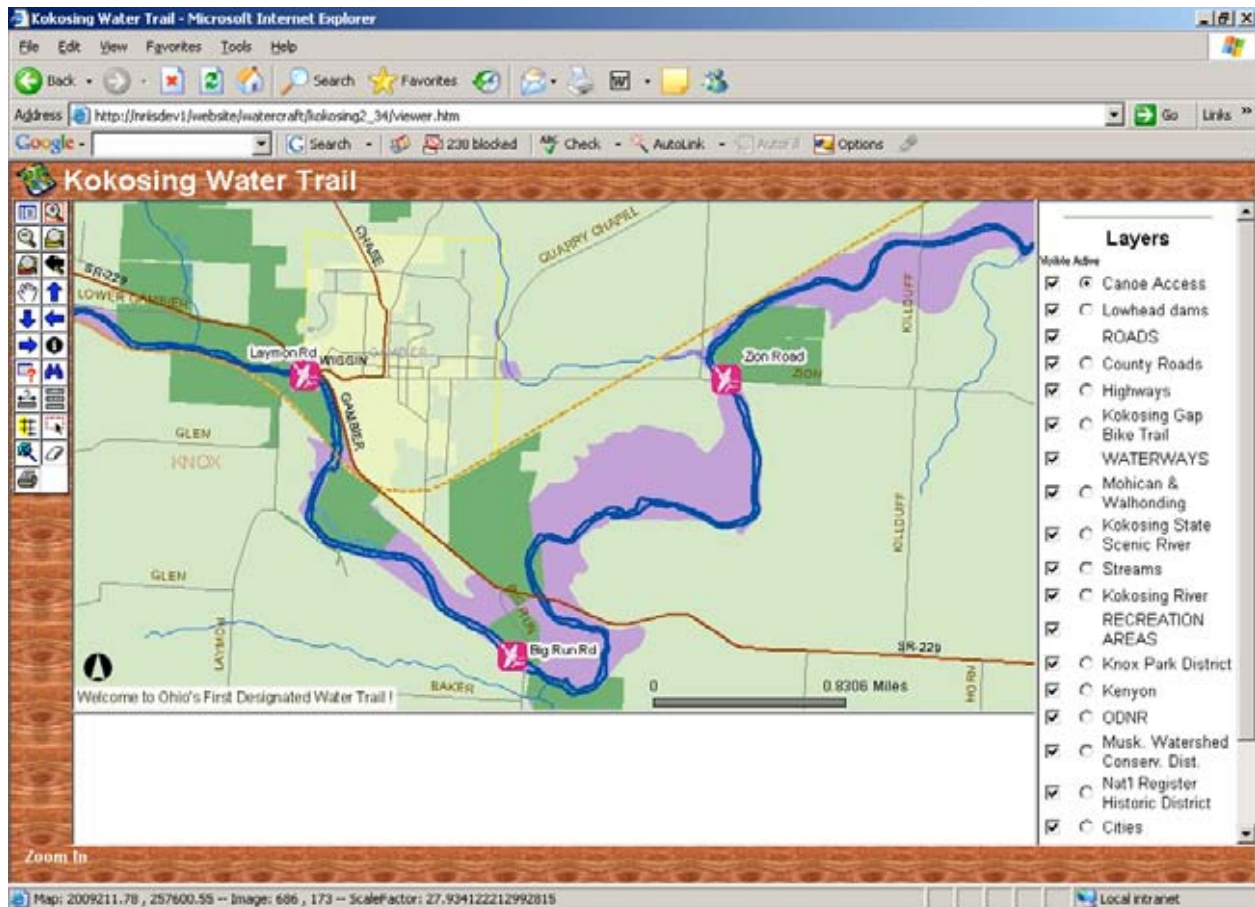


Figure 5: Kokosing Water Trail ArcIMS Site, a paddler's guide to floating the Kokosing State Scenic River.

Conclusion:

The Ohio Division of Watercraft has taken advantage of GIS technology, since practically all aspects of managing and maintaining boating access, recreational opportunity and boater safety deal with geography. Special needs dealing with operational and logistical management of watercraft field patrols, demographic analysis of boating trends, emergency preparedness and response and dissemination of boating information are administered better with a robust geographic information system.

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