

CHAPTER 11

PARKS AND RECREATION

11-1. General.

a. Potential recreational uses of dredged material disposal sites are practically unlimited. They range from projects as simplistic as fill for a recreation access road to projects as complex as the 4,500-acre Mission Bay development in San Diego, California, supporting both public and private commercial and noncommercial recreation facilities.

b. Of all types of beneficial uses, recreation on dredged material containment sites is one of the most prevalent land uses in actual acres. It is not surprising to find many examples of such use since there is such a demand for recreational sites in urban areas where much dredging occurs. It requires sound, careful planning to accomplish; financial investments will vary from project to project and could be quite expensive on large complex sites. The nature of recreation sites with requirements of a lot of open space and light-weight structures is especially suited to the weak foundation conditions associated with fine-grained dredged material. Recreational land also is generally for public use, and high demand for public water-oriented recreation encourages the development of recreational land use projects on dredged material. Finally, legislation relating to wetlands, coastal zone management, and flood control is biased in favor of this type of use. The recreational land use of dredged material containment sites is one of the more promising and implementable beneficial uses of dredged material, but is heavily dependent on financial backing at the local level.

c. There are many factors that influence the potential use of dredged material disposal sites for recreational purposes. Important ones that must be considered include the local or regional demand and need for recreational facilities, the interest and capability of local sponsors to participate in development and operation, and available access. Local and regional planners, State Comprehensive Outdoor Recreation Plans, and public participation programs are all sources of information about public demands and needs. Local and regional planners are also good sources of information on potential project sponsors.

11-2. Case Studies.

a. East Potomac Park. A non-commercial recreational development at East Potomac Park in southwest Washington, D.C., is located astride the confluence of the Anacostia and Potomac Rivers. Disposal operations completed in 1912 created 329 acres from fine-grained clays and organic materials dredged from the Potomac main channel. By 1925 the park reached full recreational development, and since 1939 ownership and operation of the facility have been in the hands of the National Park Service. The site currently offers four

nine-hole golf courses and a snack bar, driving range, and clubhouse. Other recreational facilities include a swimming pool, indoor and outdoor tennis courts, eight baseball fields, and fields for field hockey, football, and polo. Buildings on the site include the National Park Service offices, a maintenance building, a comfort station, and several other minor structures. Use of the park open space for recreation has increased to the extent that the conversion of a portion of golf course land to open space is being considered. The park serves a regional need for recreation of residents of the District of Columbia, Arlington County, and the City of Alexandria, Virginia, as well as for area commuters. In 1975, the North Atlantic Division placed the value of the park at \$94 million.

b. Patriots Point. The Patriots Point Project, a 450-acre commercially oriented recreational site immediately across the Cooper River, 1 mile east of Charleston, South Carolina, was built on an old disposal site. The site, formerly known as Hog Island, was used for disposal of maintenance and new channel dredged material--primarily mixed sandy silt and clay--from 1956 to 1970; dikes were constructed of heavy clay. In the early 1970's, a quasi-state agency, designated the Patriots Point Development Authority, was established to plan and develop a recreational complex. The focal point of the development is a Naval and Maritime Museum with the aircraft carrier Yorktown, moored at the site in early 1976, as the principal attraction. The Authority's master plan includes an 18-hole golf course, a 150-room motor inn with convention facilities, a 375-slip marina, and a 300-space recreational vehicle park. Long-range plans include construction of an oceanarium, aquatic theatre, amphitheater, restaurant, man-made lakes, and permanent mooring for at least three more classes of decommissioned naval ships as the vessels become available. A dike-top tour route around the site has been constructed. The project will ultimately attract 1.5 million visitors annually. Structures at the site will be supported on pilings due to the compressible nature of the fine-grained dredged sediments and underlying organic material. An overburden of sand will be added to provide suitable drainage and foundation conditions for light structures and parking areas. Topsoil, including some dredged material, will also be placed in portions of the site to encourage vegetative growth, particularly in designated buffer zones. Figure 11-1 depicts the master plan for Patriots Point.

c. Kalawa Recreational Area. A large marina, fishing pier, and water sports complex was built on sandy dredged material in the Columbia River at Kalawa, Washington (Figure 11-2). The area was armored with riprap to prevent current erosion. It also contains park areas, a heliport, a recreational center, and baseball fields.

d. North Central United States. Numerous recreation sites such as riverside picnic areas, water parks, marinas, and other river-related sites have been built on dredged material, both by the CE and by private sponsors along the Upper Mississippi River and its tributaries. In the Great Lakes, parks, marinas, fishing piers, and other recreation facilities have been built



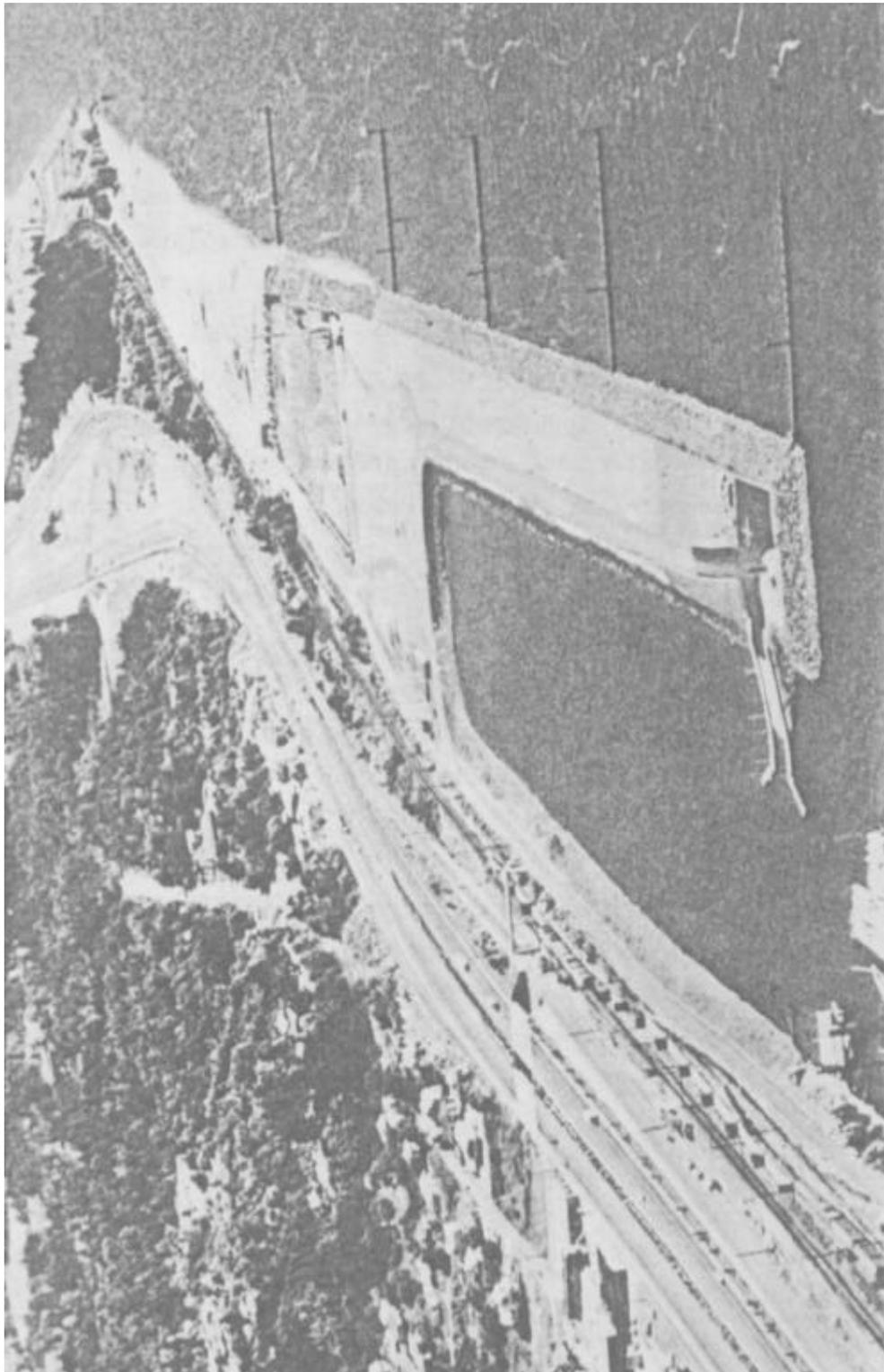


Figure 11-2. This riverside recreational area at Kalawa, Wash., was built on material dredged from the Columbia River

on dredged material in western Lake Erie, Lake St. Clair, Duluth Harbor, and a number of other urban areas.

e. Others. A total of 136 examples of recreational use of dredged material are listed in Appendix C.

### 11-3. Recreation Activities and Facilities.

a. Certain types of private recreation facilities, while they are on dredged material disposal sites, are normally provided by private enterprise. Although the CE does not participate in the provision of these types of facilities, they should be regarded as potential beneficial uses since they occur on disposal sites. These sites often provide cost-feasible and socially acceptable disposal alternatives. There are also many opportunities for providing recreation opportunities at disposal sites. Disposal sites in coastal and riverine areas have highly diverse recreation potential, especially for water-oriented activities. These sites are especially attractive for shoreline recreation development such as swimming beaches, boat launching ramps, and fishing piers. When areas are of sufficient size, campgrounds, marinas, outdoor sport facilities, and hiking and nature trail systems may be constructed. Recreation development potential of these areas is quite high when authority, funds, and land area are all of sufficient amounts, and the public interest is best served by such development. The types of activities and facilities that can be provided on dredged material sites are included in Table 11-1. Recreation planning and design criteria for specific recreation facilities are provided in EM 1110-2-400. While high site recreational use is generally dependent on facilities development, undeveloped disposal lands also attract a segment of the public for activities appropriate for those areas, such as nature study, primitive camping, hiking, hunting, and beach-combing. Provision for access to these areas is one of the minimal requirements. These undeveloped sites are also used as trails for off-road vehicular recreation.

b. Dredged material disposal islands are also used extensively for recreational purposes. They provide a base for such water-based activities as hunting, fishing, boating, waterskiing, swimming, and camping. In many river and estuarine systems, dredged material islands and beaches are the only available sandy beaches, and there is often danger of site use conflict between wildlife, especially nesting colonial birds and turtles, and humans. The recreation experience and enjoyment of the users can be affected by the development and design of the disposal sites and by the timing of disposal operations. Variations in size, proximity, and level of development of camping sites can provide a diversity of recreation experiences.

c. Development of facilities and vegetation on these islands should preserve the more primitive conditions of naturally occurring point or island bars. A study of recreation users on the Upper Mississippi River noted preferences for undeveloped islands composed of mostly open sand with some trees and grass; islands with riverine vegetation were not favored. Extensive vegetation of disposal islands is therefore not required nor desired for

Table 11-1

Types of Recreational Activities and Facilities Found on Dredged  
Material Disposal Sites

<u>Activities</u>	<u>Required Facilities</u>
Beach-combing	Beach
Bicycling	Trails or roads
Bird watching	Undeveloped natural areas
Boat launching	Ramps, parking area, marina
Camping	Campground
Dining	Restaurants and snack shops
Fishing	Water access
Hiking	Trails
Hunting	Undeveloped natural areas
Motorcross and dirt biking	Trails
Nature study	Undeveloped natural areas
Outdoor games	Athletic fields and playgrounds
Picnicking	Tables, trash receptacles
Sunbathing	Beach
Swimming	Beach
Viewing	Scenic overlook or observation tower

recreational use. The use of a given dredged material island or sandbar was influenced by the presence of sandy beach areas, adequate water depth for boats, and uncrowded conditions which gave users relative isolation from other campers.

d. Proper location of dredged material islands and access points can also reduce boating congestion in locks and navigation channels. Many boaters in the Upper Mississippi River survey noted that they used the locks only to reach their favorite disposal sites. Development of multiple launching points and/or the location of specifically designed disposal sites near population centers could eliminate some of the recreation blockages and the traffic congestion in navigation channels.

e. The recreation potential of both shoreline and island disposal areas can be enhanced by management of fish and wildlife habitat. Fish and wildlife habitat development can be an authorized purpose and secondary goal of navigation projects involving dredging. Wildlife enhancement and mitigation may also be required to offset habitat losses due to project construction. In such cases, lands are generally purchased or long-term easements obtained, and detailed habitat management plans developed and implemented. However, in a number of areas where dredging occurs, disposal sites are limited, and a well-developed long-range management plan is usually lacking for disposal sites. In these instances it may be more practical to manage for nongame species and nonconsumptive recreational use rather than the more traditional game management for sport hunting. A variety of songbirds and other small animals are appreciated by the public, and with proper habitat management (nest boxes, food and cover plantings, etc.), these species can be encouraged around picnic, camping, and other recreation areas.

f. When fishing is a recreational goal at a disposal site, some basic management techniques to maintain high populations and harvests of game fishes may be required by developing and maintaining ponded areas in disposal sites. Spawning beds and water level manipulation to enhance reproduction, reefs, and piers to attract and concentrate fish, and a sound plan for dredged material disposal will contribute to a healthy sports fishery in a given area.

#### 11-4. Recreation Carrying Capacity.

a. Proper design of recreation developments on dredged material disposal sites can ensure that recreation use does not exceed the recreation carrying capacity of the resource. Carrying capacity is the maximum potential level of use which avoids social overcrowding and resource overuse. A number of methods are available to estimate recreation carrying capacity of projects (item 79). Proper project design of structures, facilities, and access points decreases the likelihood of overuse or underuse. Overuse of recreational resources results in overcrowding of recreation users and degradation of the dredged material resource.

b. Sandbars, beaches, and other disposal sites can be strategically located to further disburse recreation use to areas able to support the use. Barriers and screens such as ditches, fences, and berms can be placed adjacent to environmentally sensitive areas and hazardous locations at disposal sites such as those where incremental dredging is still occurring and where recreation use is not desired. On such sites still in active use, serious consideration must be given to liability from accidental or purposeful human intrusion onto the active disposal portion of the site. The density concentrations of boating, boat fishing, and waterskiing can be affected in part by the number, location, and distribution of boat launching, docking, and servicing facilities built throughout an area. Providing multiple launching and docking facilities at disposal sites tends to reduce density concentrations and distribute recreation use more evenly.