

# CHAPTER 16

## Water Based Recreation Evaluations

Questionnaire surveys of beach users carried out during the Okanagan Study and reported on in Chapter 7 have indicated that shoreline recreation is a major factor in the economic and social life styles of Okanagan residents and tourists. High quality water and the availability of clean, un-crowded beaches were identified as the key factors contributing to the enjoyment of beach recreation. Consequently, careful management of both the water quality and shoreline land resources will be necessary to ensure future demands for this important recreational activity will be satisfied.

This chapter discusses future demands for shoreline recreation and boating in the Okanagan over the next fifty years and examines the capability of shoreline land resources around the main valley lakes to cater for these demands. For each of the four economic regions, areas with high potential for shoreline recreation are identified and additional beach and boating facilities required to meet regional demands indicated.

### 16.1 PROJECTIONS OF DEMAND

#### 16.1.1 Beach Recreation

Projections of demand for beach recreation for both visitors and residents were developed from anticipated growth in tourist and resident populations. In 1972, visitors frequented Okanagan beaches on average for 60% of all visitor days in the valley, while each resident was estimated to visit beaches on an average of 20 days during the summer months. Demand for beach recreation to 1980 was simply calculated by applying these participation rates to the estimated tourist and resident populations for 1980.

Two projections of growth in beach recreation days between 1980 and 2020 were developed, one high and one somewhat lower to provide a range of demands in keeping with the concept of providing alternative economic growth projections to improve the capability of the framework plan to meet a range of future conditions. The high demand for beach recreation assumed increasing resident participation rates and the high growth in resident population prepared for Projection II. Because visitors are already experiencing a very high average participation rate, no increase in this rate was forecast and current rates were applied to projected tourist populations. In the lower growth projection, 1972 participation rates for both visitors and residents were applied to the Tow population forecasts of Projection III. Regional distribution of beach-days for these projections was assumed to reflect the regional distribution of tourist and resident

populations as most shoreline recreation occurs close to places of stay and residence.

Projections of shoreline recreation demands are presented in Table 16.1. Visitor participation is expected to increase 41% between 1970 and 1980, rising from 1.7 million to over 2.3 million beach days and by 2020 could range between 5.4 million and 4.5 million beach days for Projection II and III respectively. Resident participation, totalling 2.3 million beach days in 1970 is estimated to increase 40% to 3.2 million in 1980 and to range between 5.8 and 8.6 million by 2020. Total participation by both visitors and residents is expected to rise from almost 4 million beach days in 1970 to 5.6 million in 1980 and could reach between 10.3 million and 14 million beach days by 2020.

TABLE 16.1 PROJECTIONS OF SHORELINE RECREATION

HIGH PROJECTION

Beach Days	1970	1980	2000	2020
Beach Days	1970	1980	2000	2020
Resident	2,290,800	3,240,000	4,740,000	5,800,000
Visitor	1,678,900	2,358,800	3,178,400	4,477,000
Total	3,969,700	5,598,800	7,918,400	10,277,000
Growth Index	100	141	199	259
1970 Visitor Beach Days = 42.3%			2020	= 43.6%
Resident Beach Days = 57.7%				56.4%

LOW  
PRO

JECTION

Current patterns in the regional distribution of shoreline recreation demand is expected to continue over the next decade (Table 16.2). Kelowna, the major population centre and Penticton, the major tourist centre accounted for over two-thirds of beach days in 1970, while Vernon and Oliver-Osoyoos accounted for 25% and 10% respectively. Beyond 1980, Kelowna's share of shoreline recreation could increase substantially due to the anticipated high growth rate of resident population and the possibility of more direct transportation links with Vancouver and the Lower Mainland area of British Columbia.

TABLE 16.2  
PROJECTIONS OF BEACH DAYS BY SUB-REGION 1970-2020

Sub-Region		1970	1980	High Projection		Low Projection	
				2000	2020	2000	2020
Oliver-Osoyoos	Visitors	198,100	274,100	437,100	593,400	357,000	503,000
	Residents	173,000	220,000	322,100	475,200	292,000	320,000
	Total	371,100	494,100	759,200	1,068,600	649,000	823,000
Penticton	Visitors	671,300	936,900	1,494,400	2,076,800	1,237,800	1,759,700
	Residents	553,600	720,000	1,068,000	1,597,200	966,000	1,078,000
	Total	1,224,900	1,656,900	2,562,400	3,674,000	2,203,800	2,837,700
Kelowna	Visitors	447,800	638,100	1,033,900	1,554,100	899,800	1,259,900
	Residents	1,003,200	1,548,000	2,710,000	4,787,200	2,452,000	3,228,000
	Total	1,451,000	2,186,100	3,743,900	6,341,300	3,351,800	4,487,900
Vernon	Visitors	361,700	509,700	801,800	1,155,400	683,800	954,400
	Residents	561,000	752,000	1,140,000	1,742,400	1,030,000	1,174,000
	Total	922,700	1,261,700	1,941,800	2,897,800	1,713,800	2,128,400
<b>BASIN TOTALS</b>							
	Visitors	1,678,900	2,358,800	3,767,200	5,379,700	3,178,400	4,477,000
	Residents	2,290,800	3,240,000	5,240,100	8,602,000	4,740,000	5,800,000
	Total	3,969,700	5,598,800	9,007,300	13,981,700	7,918,400	10,277,000

### 16.1.2 Boating Days

Projections of boating day demands for both the high and low projections are shown in Table 16.3. In absence of any other data, it was assumed that participation in all forms of recreational boating for each region would grow at the same rate as general beach recreation in the region. To the extent that residents and tourists will become relatively more affluent and spend relatively more on boat purchases, these projections may be underestimated. Few tourists bring boats to the valley at present however, and as increasing resident participation rates are built into the high growth projection, this factor should not be significant.

As growth rates in boating days are based on beach day projections, somewhere between a three and four-fold increase in boating days is anticipated over the next fifty years. The vast majority of future boating activity will probably continue to occur on Okanagan Lake. It is also realistic to assume that the Central portion of Okanagan Lake will capture an increasing share of boating days, as the Kelowna area is predicted to contain the most developed economic base in the valley.

TABLE 16.3

PROJECTIONS OF BOATING DAYS IN THE MAIN VALLEY LAKES 1970 to 2020

Region	1970	1980	High Projection		Low Projection	
			2000	2020	2000	2020
Oliver-Osoyoos	23,500	31,000	48,000	67,000	41,000	52,000
Penticton	77,000	104,000	160,000	231,000	140,000	180,000
Kelowna	85,000	133,000	220,000	350,000	200,000	260,000
Vernon	76,000	104,000	160,000	230,000	140,000	175,000
<b>TOTAL</b>	<b>261,500</b>	<b>372,000</b>	<b>588,000</b>	<b>878,000</b>	<b>521,000</b>	<b>667,000</b>

Whether these projected demands will actually occur will depend partially on the availability of shoreline recreation facilities and the existence of other constraints such as accommodation and traffic congestion which could affect the tourist industry in the basin.

16.2 SHORELINE CAPABILITY TO SUPPORT RECREATIONAL DEMANDS

Shoreline capability to support future demands was assessed through an examination of Canada Land Inventory maps of the region. Areas with high or moderately high recreation potential were mapped (See M11 to M14 map section), though these maps should be interpreted with care because the CL1 classification system only includes natural sites and yet there are several areas where high quality beaches can be developed through clearing and transporting sand. Also, the classification system is based on the ability of an area to support intensive recreational use. Consequently secluded, but attractive sites which may only support a limited number of beach users could be rated with a low or moderate capability, yet such sites are highly valued by those recreationists who prefer quiet, uncrowded conditions. The analysis of shoreline recreation capability was restricted to the main valley lakes. Although the headwater Takes have limited potential for intensive shoreline recreation, their development for angling, hiking and other water-oriented activities could help reduce pressures on the beaches around the main valley lakes.

More detailed analyses of the capability of shoreline resources to support projected beach and boating demands were undertaken for each economic region in the basin. This analysis was supported by detailed maps of shoreline landuse and tenure patterns as well as recreation capability information, all of which are appended to Technical Supplement VIII. A summary matrix of shoreline recreation management requirements is presented in Table 16.4.

### 16.2.1 Oliver-Osoyoos Region

Beach and boating day demands in this region are expected to nearly triple by 2020, reaching about 1 million beach days and around 65,000 boating days. As a significant proportion of this increase is due to growth in tourism, private recreation developments (campsites, motels, marinas) will likely be developed, probably at the north end of Osoyoos Lake and on Indian Lands on the east side of the lake. Because of flood plain zoning requirements (see Chapter 14), future developments should be set back from the lake. Public access points should be clearly marked and developed to allow maximum use of available foreshore.

Assuming that the Osoyoos Community beach is fully committed for recreation and that private resorts will be developed on Indian Lands and on other available lands near Osoyoos, it appears that future recreation demands in this region can be satisfied. At least four new boat ramps may be required to meet the increasing demands for power boating and angling, especially as the fishing in this lake may be improved in the future due to improved water resource and fishery management in the basin. These ramps should be constructed to accommodate the extreme range of Osoyoos Lake fluctuations probably up to 921 feet and down to 909 feet (G.S.C.).

### 16.2.2 Penticton Region.

Penticton area is presently well-endowed with high quality shoreline recreation at Penticton and Sun-Oka beaches on Okanagan Lake and Skaha and Christie beaches on Skaha Lake. These beaches are expected to accommodate the anticipated doubling of beach-day demands by 2000, providing both Penticton and Skaha beach areas are fully developed. After 2000, with the increasing urban populations of Summerland and Naramata, beaches and public access points in these areas may have to be improved and expanded. Reclamation of shallow bays in the Summerland basin could provide high quality recreational areas and also avoid unsightly exposure of lake bottom in the event of a severe drought (Chapter 14).

Assuming that the fishery in the southern section of Okanagan Lake will be rehabilitated through the construction of artificial spawning facilities on one of the tributary streams, increases in boating days can be anticipated in this part of the lake. Additional public boat launching facilities may therefore be required around Summerland and Naramata as well as at Skaha Lake, where water-skiing, fishing and sailing activities will likely have a three-fold increase. These boat ramps should be constructed to accommodate the expected variations in Okanagan Lake levels as outlined in Chapter 14.

Generally speaking, there appears to be available recreational space to meet anticipated demands, though beach crowding at the major beaches will almost certainly increase during the summer months. Other constraints such as traffic, parking, accommodation availability and urban crowding may limit tourist growth in this region. Some of these are already becoming apparent during holiday weekends.

**TABLE 16.4**  
**DEVELOPMENT OF SHORELINE RECREATION FACILITIES BY SUB-REGION**  
**1970-2020**

OLIVER-OSOYOOS REGION										
Year	Projected Demands	Public Beach Access				Public Beach Area		Public Boat Ramps		Comments
		Requirements		Additional to Present		Requirements	Additional to Present	Required	Additional to Present	
		No.	Feet	No.	Feet	Feet	Feet			
1970	371,100 beach days 23,500 boating days	10	250	-	-	12,000	-	2	-	Present Facilities generally adequate to meet demand Boat ramps crowded during summer months
1980	494,100 beach days 31,000 boating days	12	300	2	45	13,500	1,500	3	1	2,400 feet of beach north of Osoyoos Community Beach has high potential capability. Small private developments on Indian Lands also have moderate and high potential. Improved public access required both north and south of Osoyoos.
2000	649,000-759,000 beach days 41,000-48,000 boating days	15	400	4	100	20,000	9,000	4	2	Full development of potential recreation sites on Tugulnuit Lake plus development of 3 public access points Full development of potential recreation sites around Osoyoos. Continued expansion of facilities on Indian Lands.
2020	823,000-1,068,600 beach days 52,000-67,000 boating days	20	600	10	350	20-25,000	14,000 -19,000	4-6	2-4	Full development of recreation sites on private land around North Osoyoos Lake and on Indian Lands Full development of public sites around Osoyoos Maximum potential recreation demands probably sustained through development of existing public and private lands

PENTICTON REGION										
Year	Projected Demands	Public Beach Access				Public Beach Area		Public Boat Ramps		Comments
		Requirements		Additional to Present		Requirements	Additional to Present	Required	Additional to Present	
		No.	Feet	No.	Feet	Feet	Feet			
1970	1.2 million beach days	20	1150	-	-	31,000	-	6	-	Present range of facilities more than adequate to meet demands. Additional development of Pentiction Beach on Okanagan Lake in progress.
1980	1.7 million 104,000 boating days	20	1150	-	-	35,000	4,000	6	-	Continued development of Pentiction Beach towards Pentiction Marina. Small expansion of private camping facilities around Vaseux Lake Limited availability of public access points
2000	2.2-2.6 million beach days	25	1400	5	250	45,000	14,000	8	2	Development of public access around Summerland and Naramata
	140,000-160,000 boating days	25	1400	5						Beach development at N-E corner of Skaha Lake and at Naramata Additional Boat Ramps at Summerland and on Skaha Lake as sport fishing improves.
2020	2.8-3.7 million beach days 180,000 to 231,000 boating days	30	1750	10	600	45-55,000	14-24,000	10	4	- Large increase in resident demand will require more public beaches at Summerland, Naramata. Extensions of beach on Skaha Lake, possibly involving shoreline reclamation may be required. Due to increase sport fishing opportunities in S.Okanagan, more launching facilities may be req'd at Pentiction, Summerland and Naramata.

**TABLE 16.4 (cont'd)**  
**DEVELOPMENT OF SHORELINE RECREATION FACILITIES BY SUB-REGION**  
**1970-2020**

VERNON REGION		Public Beach Access				Public Beach Area		Public Boat Ramps		Comments
Year	Projected Demands	Requirements		Additional to Present		Requirements	Additional to Present	Required	Additional to Present	
		No.	Feet	No.	Feet					
1970	0.9 million beach days 76,000 boating days	22	1800	-	-	10,000	-	10 <sup>e</sup>	-	Recreation potential in Vernon Arm inhibited by low water quality and need growth. No public recreation sites on Wood Lake.
1980	1.3 million beach days 104,000 boating days	25	2000	3	200	12,000	2000	10	-	Development of Cozens Bay at N.E. end of Kalamalka Lake. Improvement to Kin Beach on Vernon Arm through weed harvesting and upgrading sewage treatment. Improved beach access.
2000	1.7-1.9 million beach days	30	2500	8	700	14,000	4000	12	2	Full development of Cozen's Bay as a public recreation site. Full development of beach access points to Wood and Kalamalka Lakes (additional 40 and 240 feet respectively). Development of beach access around Vernon Arm.
2020	2.1-2.9 million beach days 175,000 -230,000 boating days	38	2900	15	1100	15-20,000	5-10,000	14	4	Full development of all public access points to all main lakes in the region. Maximum development of public recreation sites in region. Additional launching facilities at Cozen's Bay, Vernon Arm and Ellison Area.

KELOWNA REGION		Public Beach Access				Public Beach Area		Public Boat Ramps		Comments
Year	Projected Demands	Requirements		Additional to Present		Requirements	Additional to Present	Required	Additional to Present	
		No.	Feet	No.	Feet					
1970	1.4 million beach days 85,000 boating days	22	2200	-	-	21,400	-	10 <sup>e</sup>	-	Boat launching facilities in immediate vicinity of Kelowna appear to be inadequate  Beach area adequate at present
1980	2.2 million beach days 133,000 boating days	25	2500	5	300	25,000	3,600	11	1	Beach access in Kelowna area developed, improved and clearly identified  Additional beach area developed in Kelowna and to support rapid population growth. At least one more boat ramp near Kelowna
2000	3.4-3.7 million 200,000-220,000 boating days	30	3000	10	800	30,000	8,600	12	2	Additional beach area available near Westside on Indian Reserve Lands. Improved access to beaches at Okanagan Center and around Kalamoier Park  Additional boat ramp required on West side of lake
2020	4.5-6.3 million	40	4000	10	1800	30-40,000	8-18,000	15	5	Maximum development of public access points due to large increases in resident demands. Development of all beach potential, both public beaches near urban centres and quiet bays. All potential recreational lands should be reserved for recreation

<sup>e</sup> Estimated

16.2.3 Kelowna Region

Because of the rapid urban growth in this region, additional beach area and

boat launching facilities will be required over the next ten years. These should be developed near Kelowna, as most recreationists place a high value on proximity of shoreline recreation. As there appear to be few natural sites with undeveloped recreation potential in the immediate vicinity of the city, beaches may have to be created by clearing land or through reclamation of shallow foreshore areas. There are some areas near Kelowna where over 1,000 feet of lake bottom would be exposed should Okanagan Lake be drawn down three feet below the normal low water elevation. Filling in some of these areas and developing them for recreational purposes could produce the dual benefit of meeting recreation demands and reducing potential aesthetic problems associated with lake drawdowns.

Immediate attention should be given to improving public access points in the Kelowna region. Many are almost hidden by residential developments, and should be cleared and plainly identified to provide the growing urban population access to the foreshore.

Additional natural beach potential lies on Indian Reserve Land on the west side of the lake and near the smaller communities such as Okanagan Centre and Gellatly Bay. Because of the shortage of natural beaches in this region, all undeveloped areas with recreational potential should be reserved for public use.

#### 16.2.4 Vernon Region

At present, the only major public beach supporting high quality shoreline recreation in the Vernon region lies at the head of Kalamalka Lake. The other major recreation area at Kin Beach on Vernon Arm of Okanagan Lake is affected by heavy weed growth. Future demands in the region should be accommodated by cleaning up Vernon Arm and through the development of Cozens Bay on Kalamalka Lake. Indeed, these are the only areas in the neighbourhood of Vernon where there is potential for high density public recreation. Secluded bays on Okanagan Lake should be reserved for public use where possible to allow people to enjoy access to less crowded conditions.

#### 16.2.5 Summary

In summary, it appears that both high and low projections of recreation demands could be satisfied provided that all natural sites are exclusively reserved for public or private recreation and that the appropriate authorities are willing to develop some foreshore areas in the Kelowna and Penticton regions where natural sites are lacking. Attention must be given to clearing public access points around all main valley lakes and to providing more launching facilities as boating demands increase. For Okanagan and Osoyoos Lakes such ramps should be constructed to accommodate maximum expected lake level fluctuations.

### 16.3 EVALUATION OF ALTERNATIVES

A proper evaluation of the shoreline management measures discussed above would require a comparison of the costs of providing the facilities and the benefits associated with the increased number of beach days. The costs of providing recreational facilities involve the investment required to reclaim and develop the shoreline or the net benefits foregone from alternative use of the shoreline land resources. Because of the need for flood plain zoning up to two & eight feet above normal high water on Okanagan and Osoyoos Lakes respectively, opportunities for land development apart from recreation would appear to be limited. No cost estimates of shoreline reclamation are available for this report.

Net economic benefits associated with beach recreation are related mainly to tourist expenditures, as residents spend little money in their pursuit of this form of recreational experience. Estimates of total future net income derived from summer holiday tourism was provided by the economic model presented in Chapter 13. As tourists on average spend approximately 60% of visitor days on the beaches, maximum net economic benefits accruing to beach recreation was obtained by multiplying future net income from tourist expenditures by 0.6. These results are presented on Table 16.5(a).

In addition to these economic benefits, which contribute to the economic growth goal, considerable social values were placed on shoreline recreation by both residents and visitors. These values were estimated from survey questionnaire (Chapter 7) at \$5.50 and \$5.00 per beach day for residents and visitors respectively, and are shown for both high and low projections in Table 16.5.

TABLE 16.5a

ANNUAL NET ECONOMIC VALUE ATTRIBUTED TO SHORELINE RECREATION 1970-2020  
X 1000 - (Constant 1970 Dollars)

Year	High Growth Projection II	Low Growth Projection III
1970	\$ 4,500	\$ 4,500
1980	7,400	7,400
2000	15,500	12,500
2020	27,400	23,600

TABLE 16.5b

SOCIAL VALUES ASSOCIATED WITH SHORELINE RECREATION. 1970-2020

X 1000 - (1970 Constant Dollars)

Year	High Growth Projection			Low Growth Projection		
	Visitors	Residents	Total	Visitors	Residents	Total
1970	8,500	11,100	19,600	8,500	11,100	19,600
1980	11,800	17,800	29,600	11,800	17,800	29,600
2000	18,800	28,800	47,600	15,900	26,000	41,900
2020	26,900	47,300	74,200	22,400	31,900	54,300

The economic and social benefits discussed above represent maximum benefits associated with beach recreation and should be discounted to represent present values at a rate of 7% per annum. Thus, the total potential value to the year 2020 of shoreline recreation in 1970 dollars is estimated at 128 million dollars in economic terms and 470 million dollars in social values. Only a portion of these benefits should be compared with costs of shoreline management. This factor would be equivalent to the number of projected beach-days which would not occur because of crowded conditions.

Unfortunately, this proportion is almost impossible to determine because of changing and diverse public attitudes towards beach crowding. There is evidence that users accept increasingly crowded conditions provided these occur gradually and are accompanied by other experiences in crowding in urban environments or in traffic. In addition, as some beach users avoid certain beaches or the Okanagan completely due to crowded conditions, their place is taken by others who place less emphasis on crowding as a negative feature of shoreline recreation. Finally, other constraints such as limited accommodation, parking and traffic congestion could be important factors restricting potential demands.

To provide some idea of the value of providing additional shoreline facilities, it was assumed that in their absence there would be a gradual but increasing reduction in projected demands resulting in an overall loss of 10% in the present worth of such activities. Accumulated economic and social values of such a reduction to 2020 would amount to 12.8 million dollars and 47 million dollars respectively. In view of the important values associated with beach recreation, it appears that the costs of providing additional facilities to accommodate future demands is well justified.