



# **BOATING IMPACT ASSESSMENT WALLACE BAY**



Prepared for:

Ken Fowler Enterprises

January 2008 (Revised July 2008)



**Michalski Nielsen**  
**ASSOCIATES LIMITED**



# Michalski Nielsen

ASSOCIATES LIMITED

July 25, 2008

Ms. Margaret Walton, M.Pl., MCIP, RPP  
Planscape  
104 Kimberley Avenue  
Bracebridge, Ontario  
P1L 1Z8

**Re: Wallace Bay; Our File 3507**

Dear Ms. Walton:

Michalski Nielsen Associates Limited is pleased to provide you with our report entitled **BOATING IMPACT ASSESSMENT – WALLACE BAY** (January 2008 [Revised July 2008]).

Should you have any questions or comments, please do not hesitate to call.

Yours truly,

MICHALSKI NIELSEN ASSOCIATES LIMITED  
Per:

Michael Michalski

MM/be

Enc.

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## **1.0            Background**

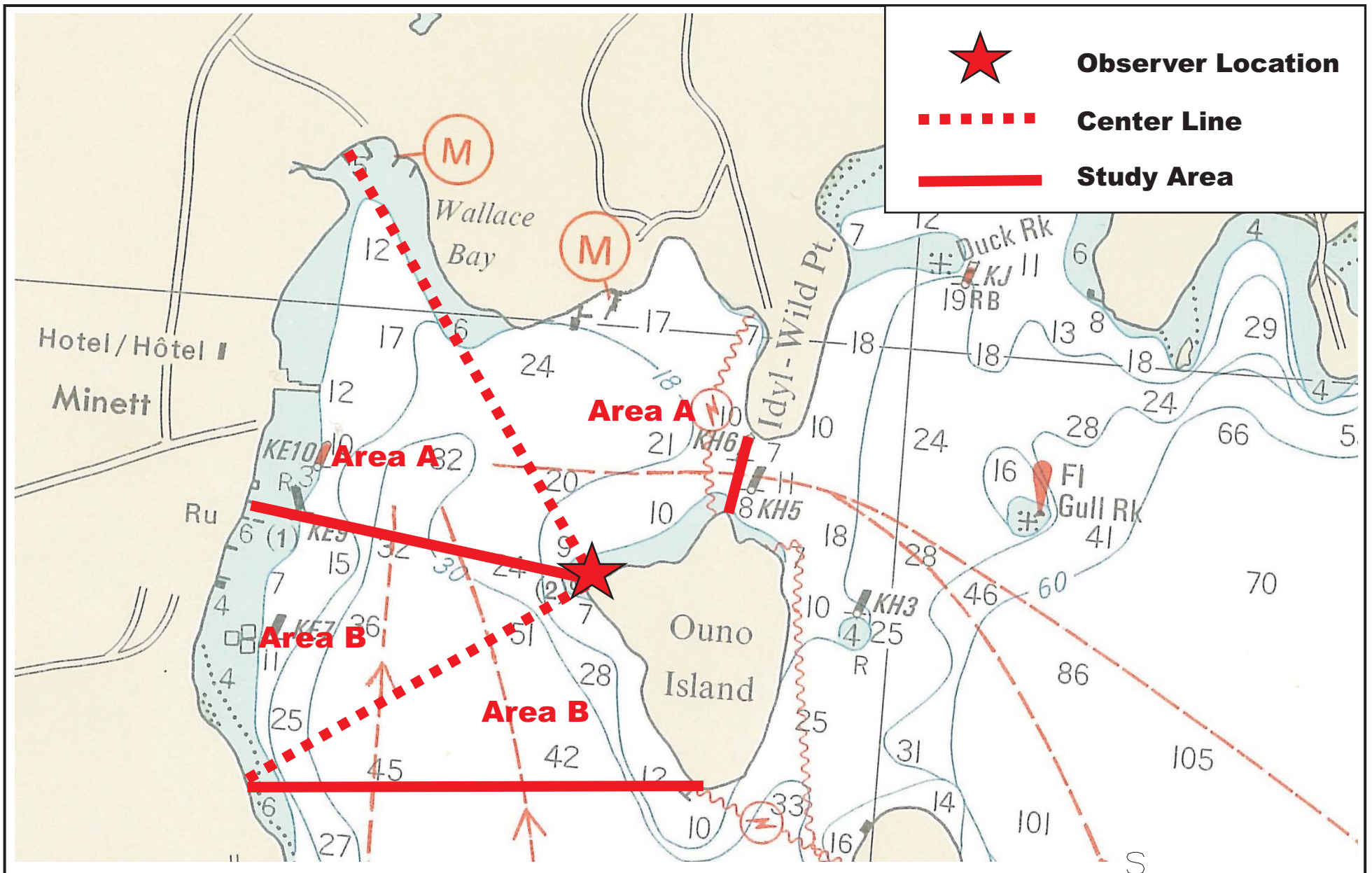
Section F.18.1 of the Township of Muskoka Lakes Official Plan (OP) enables the Township to request a boating impact study as part of a *Planning Act* application. In this regard, it states, “. . . When considering a significant development/redevelopment of land requiring an application under Section 17, 34, or 41 of the *Planning Act* R.S.O. 1990, Council may require the following information/studies . . . ix) Boating impact”. Sections B5.20 and B5-21 of the Official Plan provide guidance/direction on what should be addressed in the study.

Knowing that the impacts of recreational boating are typically a concern of ratepayer groups and adjacent landowners, Ms. Margaret Walton, Planning Consultant, Planscape, on behalf of Ken Fowler Enterprises retained Michalski Nielsen Associates Limited to undertake a boating impact assessment, with a specific objective of ensuring safe and responsible boating. The analysis consisted of determining existing boating activities and patterns of use within Wallace Bay of Lake Rosseau and its contiguous waters southwards and eastwards, typically west of Ouno Island (**Figure 1**), and commenting on potential impacts in relation to potential problems of overcrowding and related stresses. The results of this work are presented in the following paragraphs.

## **2.0            Cumulative Boating Activity**

### **2.1            *Methodology***

A boat count survey was designed to measure boating activity within two observational areas which are shown in **Figure 1**. The areas (i.e., A and B) were selected because they were entirely visible from an observation point immediately west of Ouno Island, as shown in **Figure 1**. Cumulative records of the numbers of boats by type passing across an imaginary centre line of the two observational areas were undertaken between 9:00 a.m. and 6:00 p.m. on four good weather boating days in the summer of 2007. The subject waters were reconnoitered in advance of the first survey so that the observational point could be confirmed, as well as sight and centre lines, all of which are shown in **Figure 1**. The four survey days and their weather conditions (based on observations taken at 9:00 a.m., 1:00 p.m. and 4:00 p.m., at the observation point) are as follows.



**FIGURE 1**

**Boating Study Sight Line and Observer Location, Red Leaves Resort**

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- **Sunday July 1, 2007** – 20% to more than 80% cloud cover, 24°C to 25°C and light to moderate wind.
  - **Saturday, July 21, 2007** – less than 20% cloud cover, 24°C and calm to light wind.
  - **Monday, August 13, 2007** – less than 20% cloud cover, 20°C to 25°C and light to moderate wind.
  - **Sunday, August 26, 2007** – less than 20% to 80% cloud cover, 19°C to 25°C and light to moderate wind.

## **2.2 Findings**

The cumulative count data provide a good indication of the relative activity for the two observational areas. In this regard, **Table 1a** and **Table 1b** show the numbers of boats that passed through the area, and the maximum and average counts per hour for the survey day. The only qualitative observation that can be made is that runabouts constitute the highest numbers of boats, followed by jet skis. This mix of boat type is similar to recent studies in the Muskoka lakes and Honey Harbour areas that indicate a growing importance of jet skis, to the point where these vessels are much more numerous than any other vessel, except for runabouts.

For comparative purposes, data for a number of locations on various river systems in Ontario are shown in **Figure 2**. All data were collected by Michael Michalski Associates, Anthony Usher Planning Consultant or Michalski Nielsen Associates Limited. As indicated, the highest daily average boat passes per hour occurred at three locations in the Honey Harbour area: the Main Channel between Tomahawk Island and Beausoleil Island (197 boat passes/hour, or one boat pass every 18 seconds); the Main Channel at the Delawana Inn (184 boat passes/hour, or one boat pass every 20 seconds); and Big Dog Channel (134 boat passes/hour, or one boat pass every 27 seconds). The maximum values for Study Area A and Study Area B (i.e., 96 boats/hour and 72 boats/hour respectively) occurred on Saturday, July 21, 2007.

**Table 1a.** Total boats, by type, passing through Study Area A between 9:00 a.m. and 6:00 p.m. on four survey days in 2007.

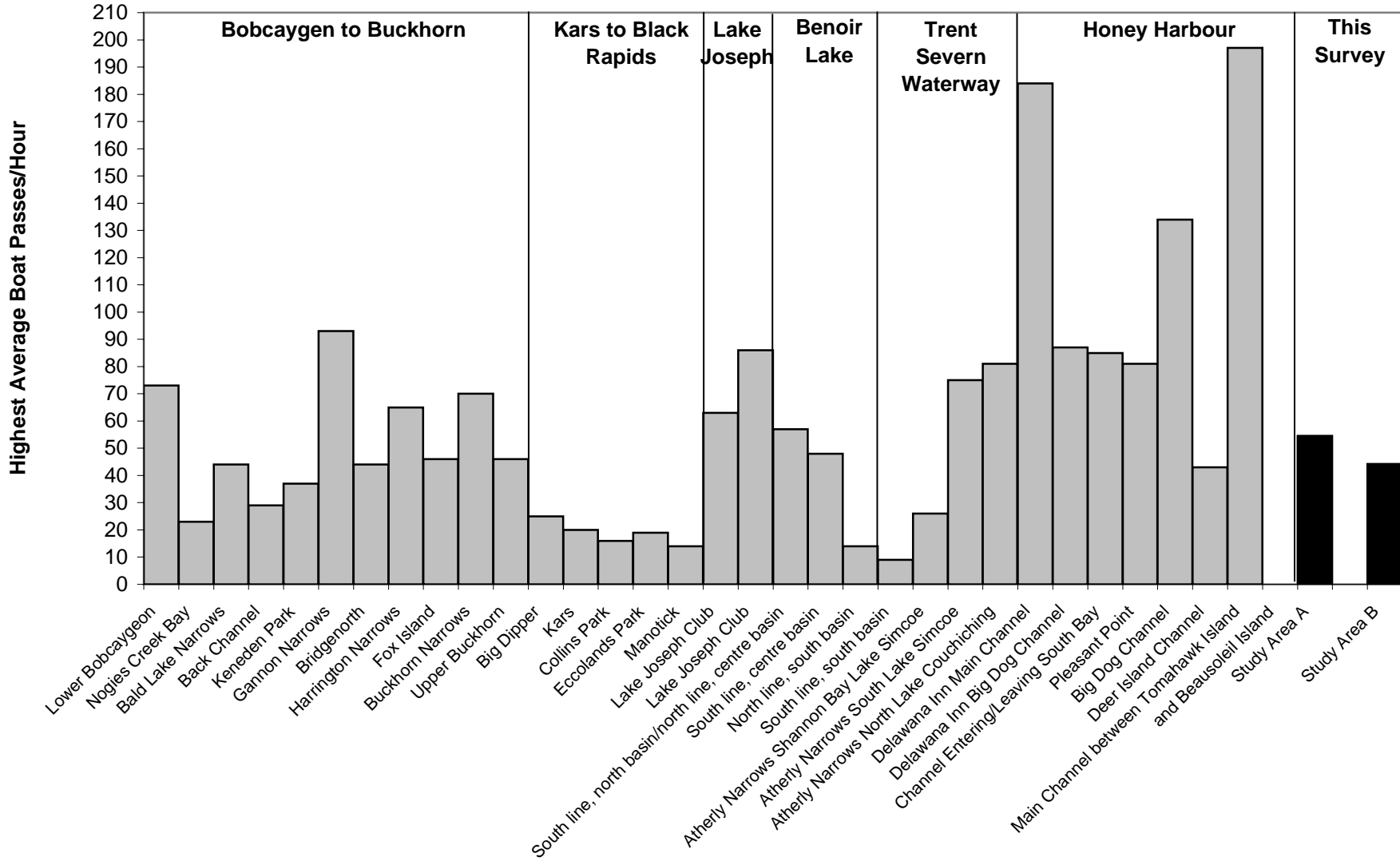
<b>Study Area A</b>					
<b>Type of Vessel</b>	<b>Sunday, July 1</b>	<b>Saturday, July 21</b>	<b>Monday, Aug 13</b>	<b>Sunday, Aug 26</b>	<b>Total</b>
<b>Skiffs</b>	0	11	3	4	18
<b>Runabouts</b>	193	404	170	310	1,077
<b>Cruisers</b>	1	6	4	0	11
<b>Houseboats</b>	0	0	0	0	0
<b>Pontoon boats</b>	1	8	7	9	25
<b>Jet skis</b>	15	71	12	27	125
<b>Other motor boats</b>	0	0	0	0	0
<b>Windsurfers</b>	0	0	0	0	0
<b>Sailboats</b>	0	0	0	3	35
<b>Paddle/oar</b>	17	45	12	6	80
<b>Total</b>	<b>227</b>	<b>545</b>	<b>208</b>	<b>359</b>	<b>1,371</b>
<hr style="border-top: 1px dashed black;"/>					
<b>Boats/hour</b>					
• <b>maximum</b>	40	96	34	71	
• <b>average</b>	22.7	54.5	20.8	35.9	31.9

**Table 1b.** Total boats, by type, passing through Study Area B between 9:00 a.m. and 6:00 p.m. on four survey days in 2007.

<b>Study Area B</b>					
<b>Type of Vessel</b>	<b>Sunday, July 1</b>	<b>Saturday, July 21</b>	<b>Monday, Aug 13</b>	<b>Sunday, Aug 26</b>	<b>Total</b>
<b>Skiffs</b>	1	3	0	0	5
<b>Runabouts</b>	193	336	184	299	1,012
<b>Cruisers</b>	1	9	2	0	12
<b>Houseboats</b>	0	0	0	0	0
<b>Pontoon boats</b>	0	8	5	0	13
<b>Jet skis</b>	23	75	22	22	142
<b>Other motor boats</b>	0	0	0	0	0
<b>Windsurfers</b>	0	0	0	0	0
<b>Sailboats</b>	0	0	0	2	2
<b>Paddle/oar</b>	11	11	4	1	27
<b>Total</b>	<b>229</b>	<b>442</b>	<b>217</b>	<b>324</b>	<b>1,213</b>
<hr style="border-top: 1px dashed black;"/>					
<b>Boats/hour</b>					
• <b>maximum</b>	40	72	46	69	
• <b>average</b>	22.9	44.2	21.7	32.4	31.9



**FIGURE 2.** Highest daily average number of boat passes/hour recorded at eleven locations between Bobcaygeon and Buckhorn (July 8 to Aug 6, 1989), at Atherly Narrows at Orillia (Aug 14, 1993 and July 12 1997), the Delewana Channel in Honey Harbour (June 28, 1997), five sites in Honey Harbour (July 5 and Aug 2, 1998), five sites between Kars and Black Rapids (July 17, 20 and 30, 1988), in Benoir Lake (July 28 and Aug 3, 1996), Lake Joseph Club (Sept. 2, 1995 and June 30, 1996), and in Study Areas A and B, Wallace Bay and its contiguous waters on Saturday July 21, 2007.



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### 3.0 Boating Capacity Analysis

#### 3.1 *Methodology*

The surface area of any lake or river has a limited capacity for recreational boating. When this capacity is exceeded, conflicts may arise among various types of users. These include physical conflicts and hazards within user groups (excessive numbers of power boaters) and between user groups (power boaters and sailors, water skiers and swimmers, fast moving boats and still fishermen, etc.), and psychological conflicts between user groups (shoreline residents and operation of noisy boats).

Additionally, physical damage to a water body, its shoreline, and shore property may result. Motor boats that churn up sediments in shallow bays can disrupt environments by increasing turbidity and destroying potentially excellent fish habitats. Excessive wakes can cause erosion problems, disrupt shoreline habitat, damage properties, facilities, and berthed boats, and undermine public safety.

It is generally accepted that the capacity of a body of water for boating can be determined if information is available as to the numbers of boats on that water body, and if assumptions are made as to:

- (i) the amount of surface area required for each boat; and
- (ii) what parts of the study area may not be useable by most boats.

The **Lakealert** study (Hough, Stansbury + Associates Limited 1972), the pioneering Ontario work in this field, assumed a standard area requirement for all boats. More recent studies have improved on **Lakealert** by defining different standards for different boat types and speeds, and constantly refining the standards on the basis of growing experience in the field. It must be emphasized, however, that all boating capacity standards are approximations to reality, and reflect professional judgement as to what will meet boater expectations of safe and enjoyable recreation in an Ontario context.

Surface water standards for enabling safe recreational boating for different types of boats travelling at different speeds were developed for part of the Rideau Lakes waterway in southeastern Ontario by Michael Michalski Associates and Anthony Usher Planning Consultant (1988). For similar investigations of the Kars to Black Rapids stretch of the Rideau Canal (Michael Michalski Associates and Anthony Usher Planning

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Consultant 1989) and Bobcaygeon to Buckhorn in the Trent-Severn Waterway (Michael Michalski Associates and Anthony Usher Planning Consultant 1990), the Rideau lakes standards were modified to take into account relatively small observational areas, some connected by narrow channels. These latter standards are equally applicable to this investigation because the study areas are not large in terms of surface area. Based on these previous initiatives, the following principles were used in setting the standards (**Table 2**) for this study.

- Boating activity was counted at 10 minute intervals between 9:00 a.m. and 6:00 p.m. This yielded a series of instant counts or “snap shots” of boating activity within the areas, which upon further analyses, can provide an evaluation of these areas ability to sustain safe recreational boating.
- The area required for a boat should reflect both safety and enjoyment needs, and should be large enough to avoid conflict with other boats and other aquatic recreational uses. In this regard, the issue of public safety is typically addressed under Schedule IV of the **Boating Restriction Regulations**, which deal with the establishment of maximum speed limits on certain waters. In this regard, a maximum speed limit is not in place in the study areas or waters contiguous to them.
- The area required for a boat can be thought of as an envelope – a rectangle, ellipse, circle or some other appropriate shape – on the water surface. As a boat moves from stop to slow to fast, the envelope lengthens and to a lesser extent widens. The rate of increase in the area required can be quite substantial. On open water, if the radius of a circular envelope required around a boat doubles, the envelope's area quadruples.
- Stopped boats do not differ significantly in their space requirements, regardless of size. On open water, slow boats differ modestly in their space requirements, and fast boats, more substantially.
- Towing a skier behind a boat would not increase the size of the envelope required around that boat relative to a boat travelling at a fast speed.

To determine what parts of the water surface are and are not usable by most boats, the **Lakealert** practice of excluding from the usable water surface a nearshore area unsuitable for larger craft was followed. In doing so, it was assumed that paddle and oar powered craft have exclusive use of the nearshore area. It was also assumed that individual paddle and oar powers craft do not require any surface area; in other words, they do

**Table 2.** Boat type capacity standards, Wallace Bay (Reproduced from Michael Michalski Associates and Anthony Usher Planning Consultant 1989 and 1990).

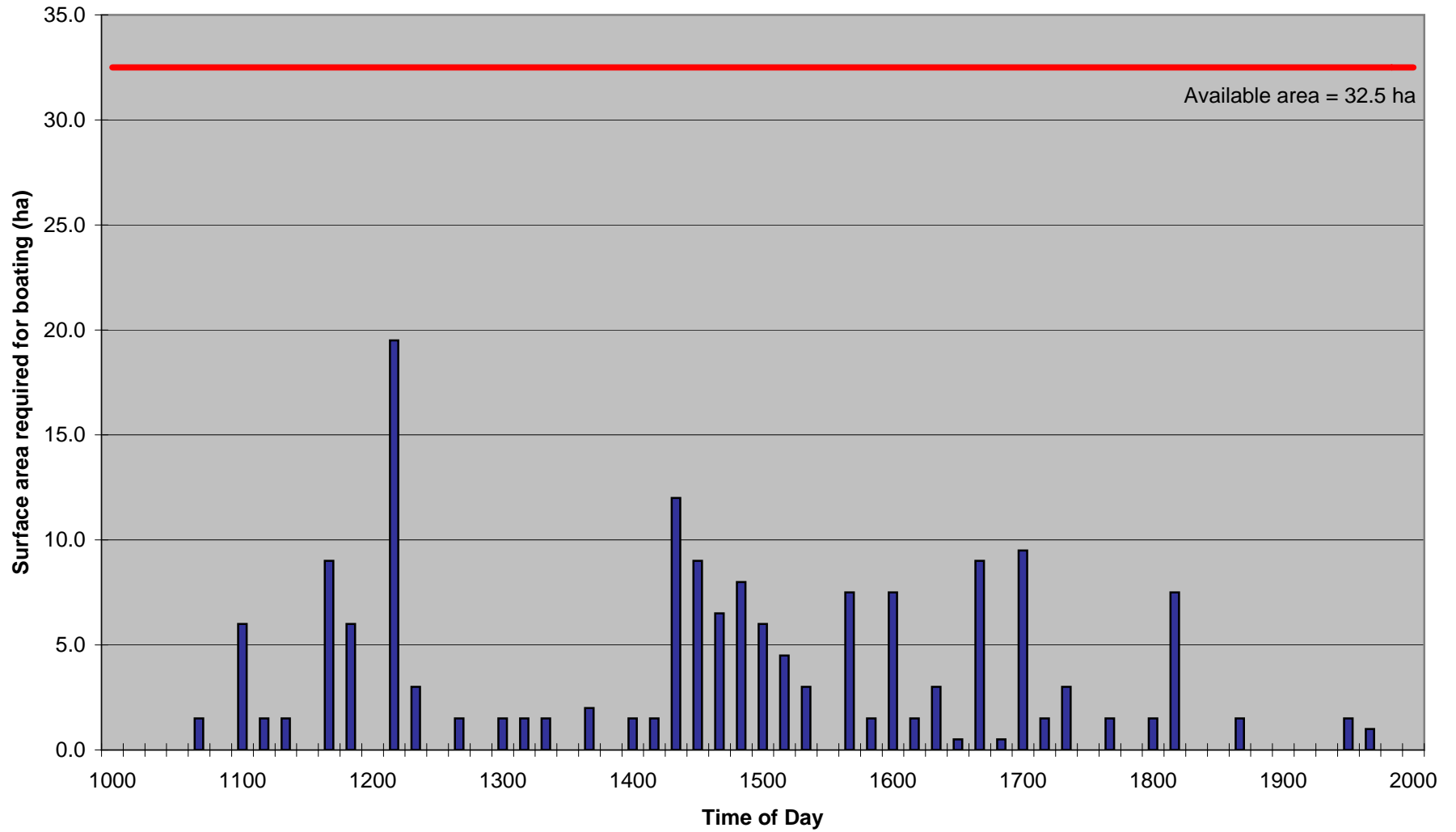
Boat type	Surface area requirement per boat (hectares)			
	stopped	moving		skiers
		slow	fast	
skiffs	0.5	1	3	5
runabouts	0.5	1.5	6	8
pontoon boats	0.5	1.5	1.5	(1.5)
jet ski boats	0.5	1.5	6	6
windsurfers	0.5	1	1	1
sailboats	0.5	1	1	1

**Notes:** – Where values are in parentheses, the boat types given are not normally expected to be encountered in the states given.

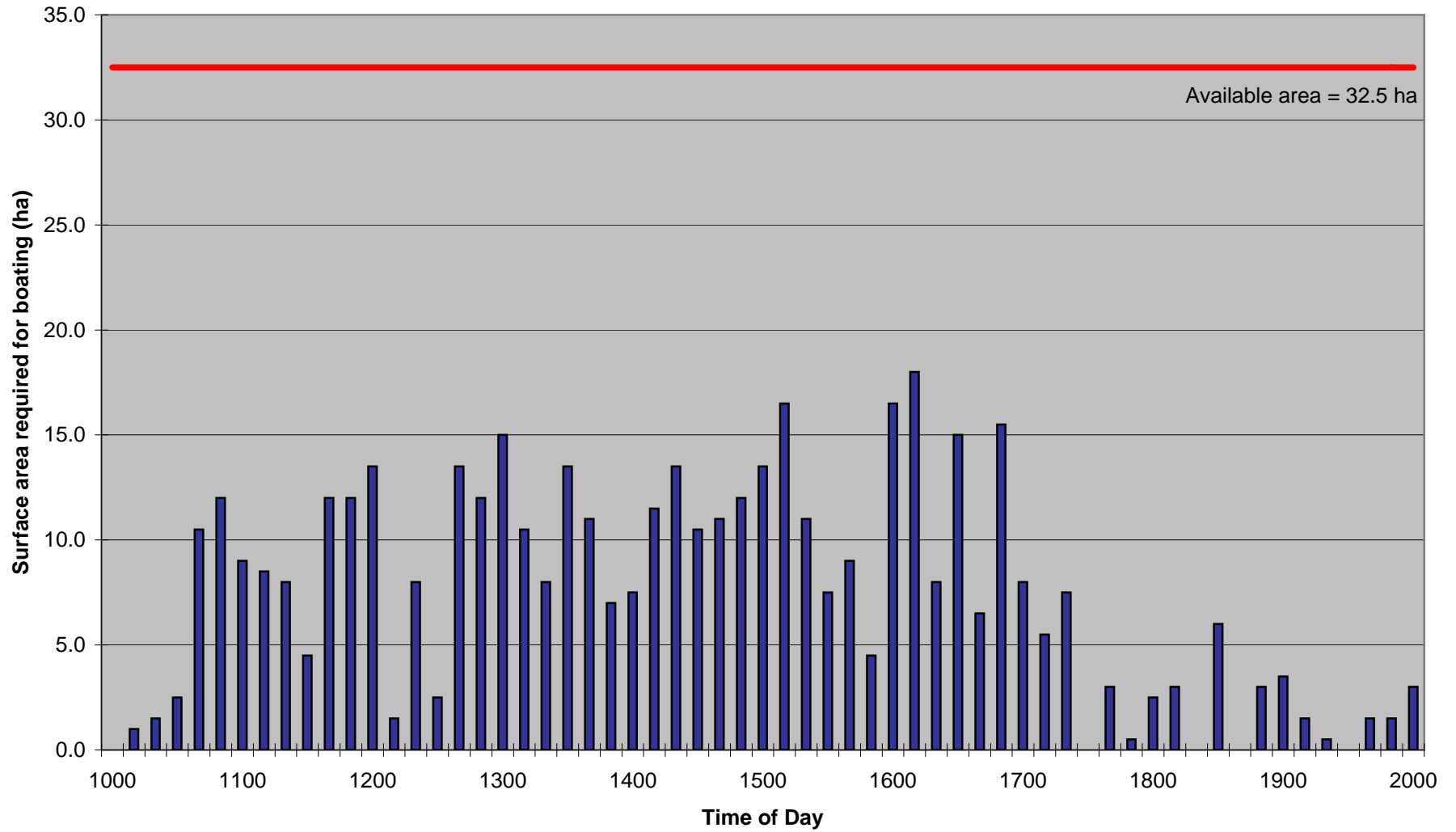
- Paddle or oar powered boats are assumed to consume zero capacity and to use the excluded area.
- The areas required for the various boat types can be visualized as equal to circles or squares with the following dimensions.

area (hectares)	radius of circle (metres)	side of square (metres)
0.5	40	71
1	56	100
1.5	69	122

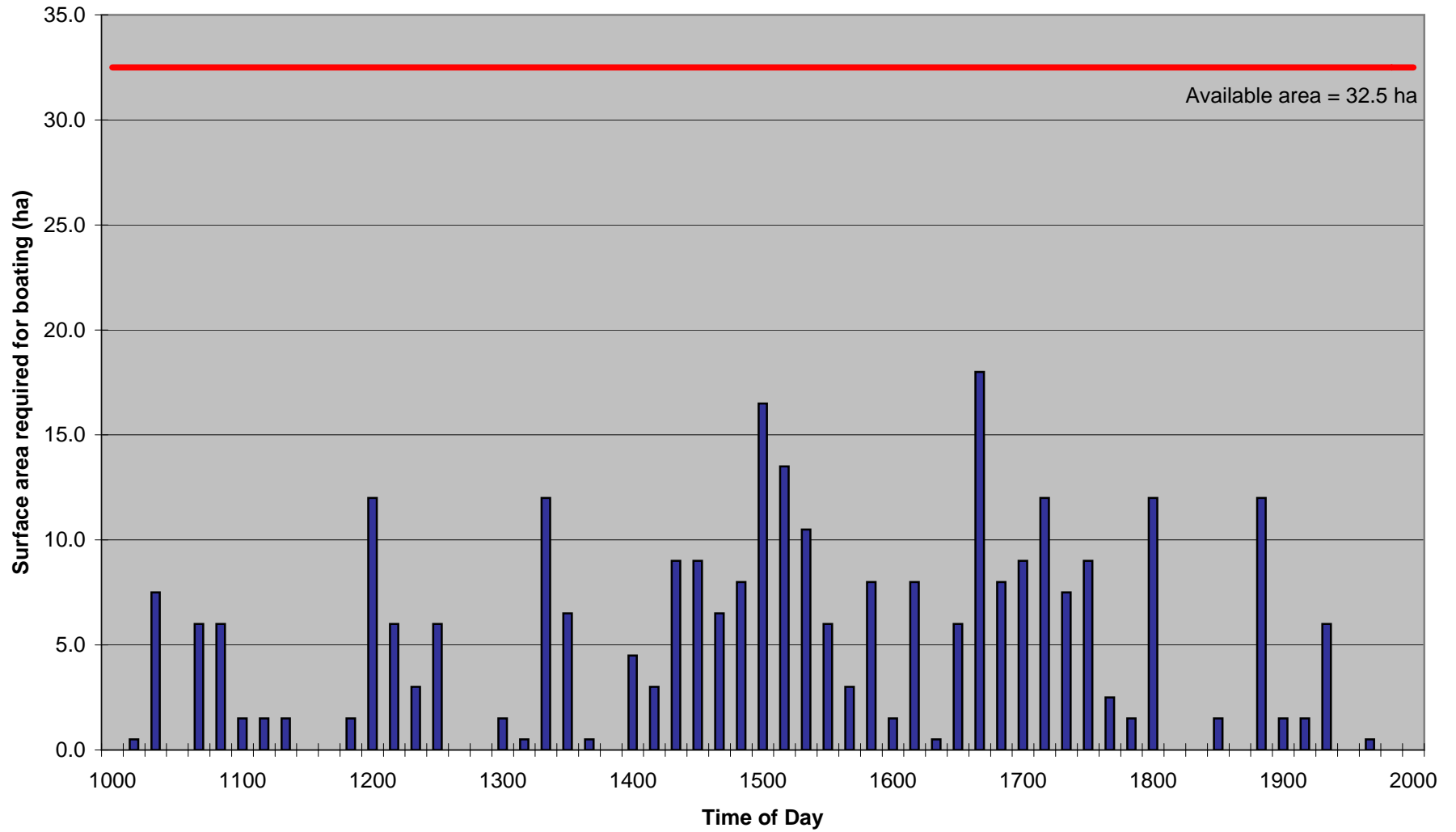
**FIGURE 3 - Wallace Bay Boat Capacity Study 2007  
- Area A - Sunday, July 1, 2007 -**



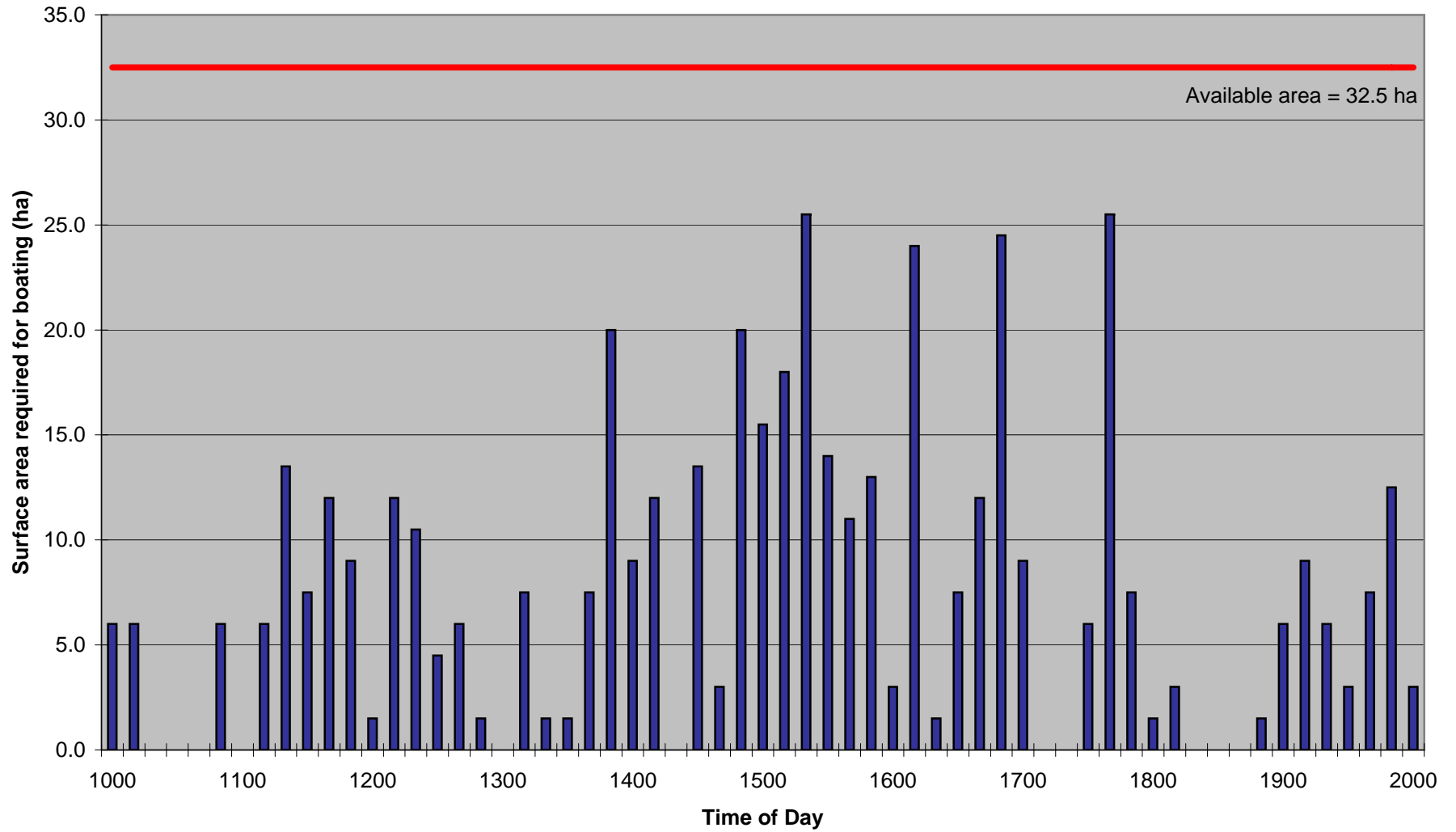
**FIGURE 4 - Wallace Bay Boat Capacity Study 2007**  
**- Area A - Saturday, July 21, 2007 -**



**FIGURE 5 - Wallace Bay Boat Capacity Study 2007**  
**- Area A - Monday, August 13, 2007 -**

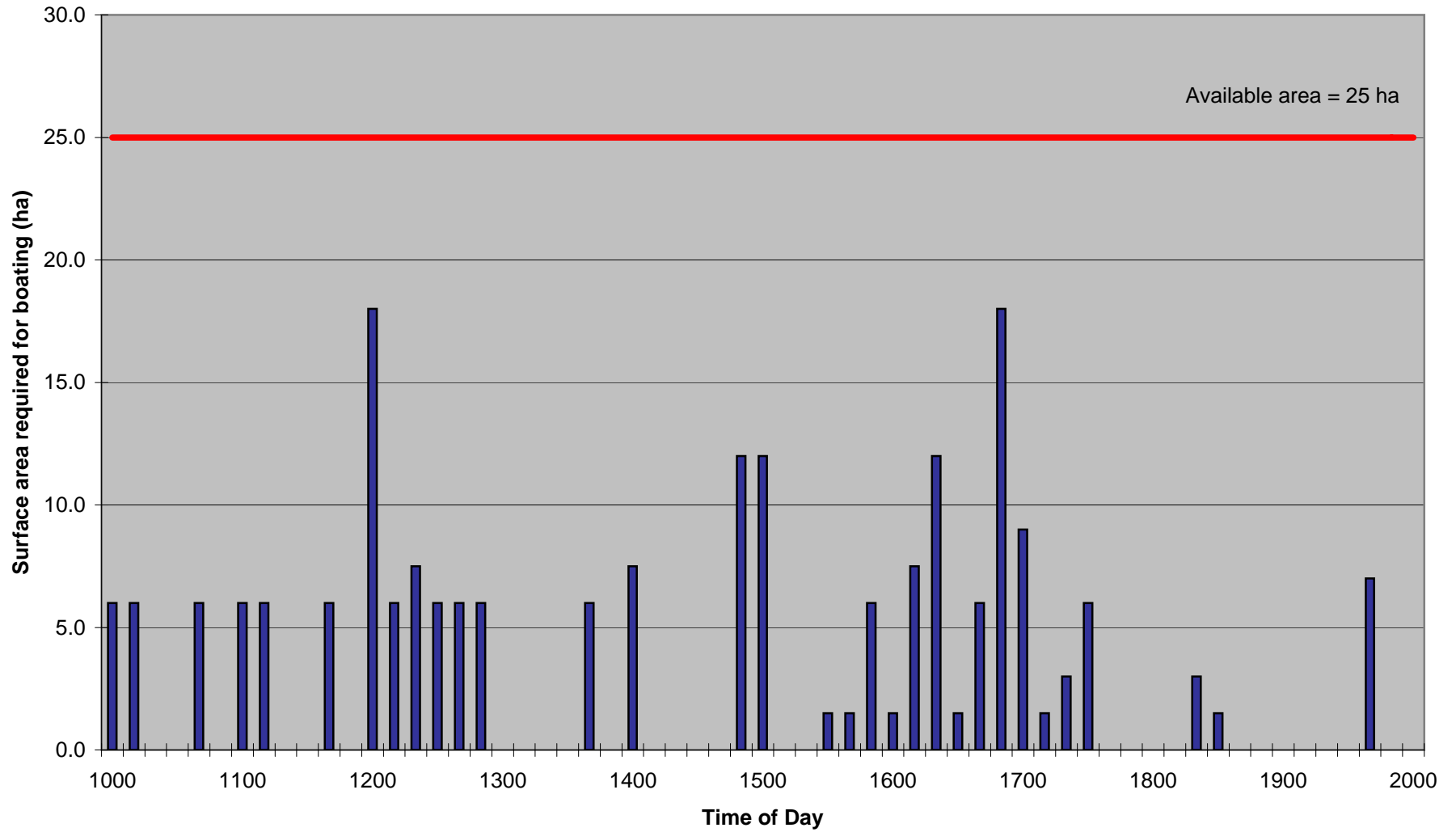


**FIGURE 6 - Wallace Bay Boat Capacity Study 2007**  
**- Area A - Sunday, August 26, 2007 -**

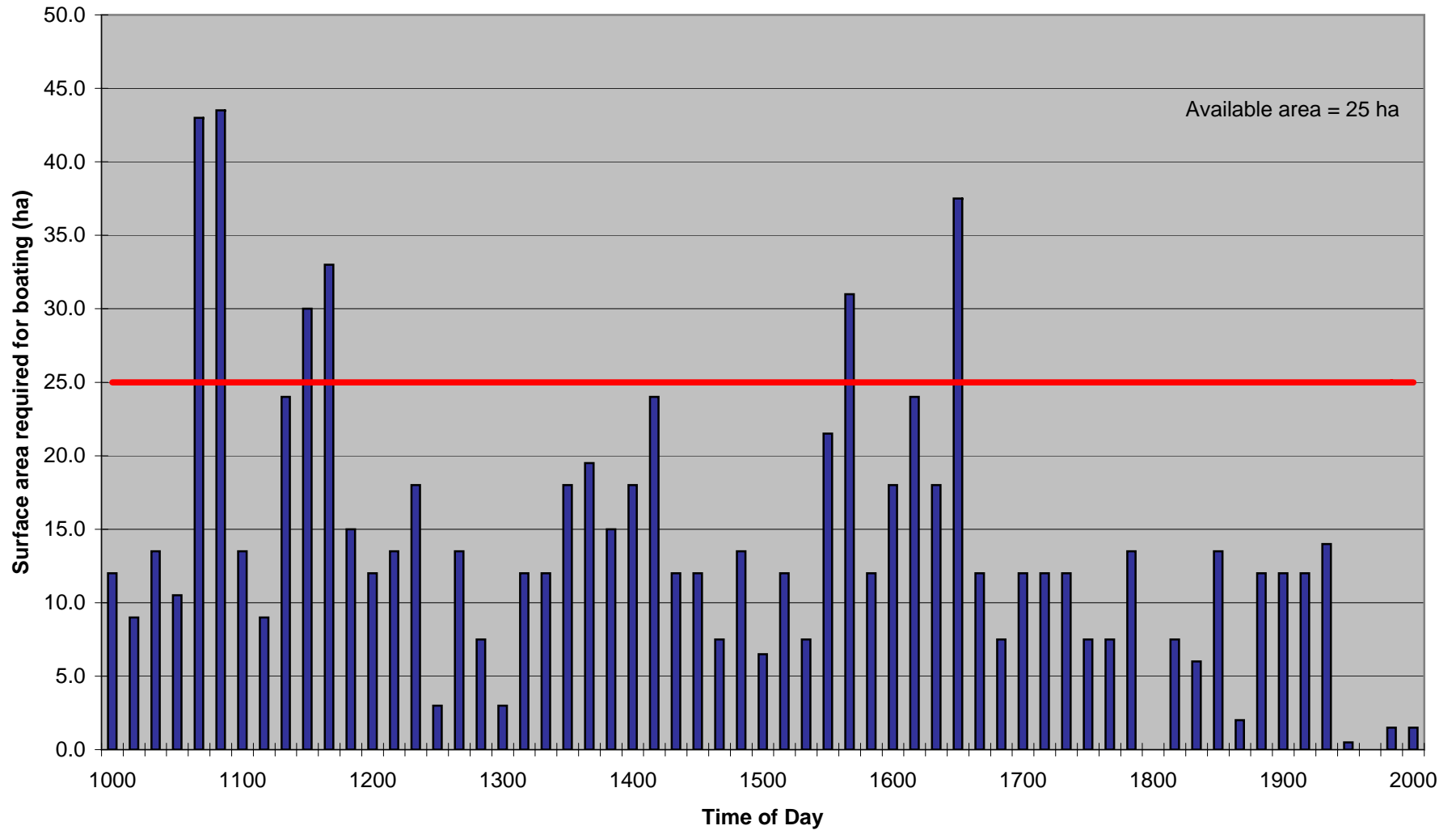




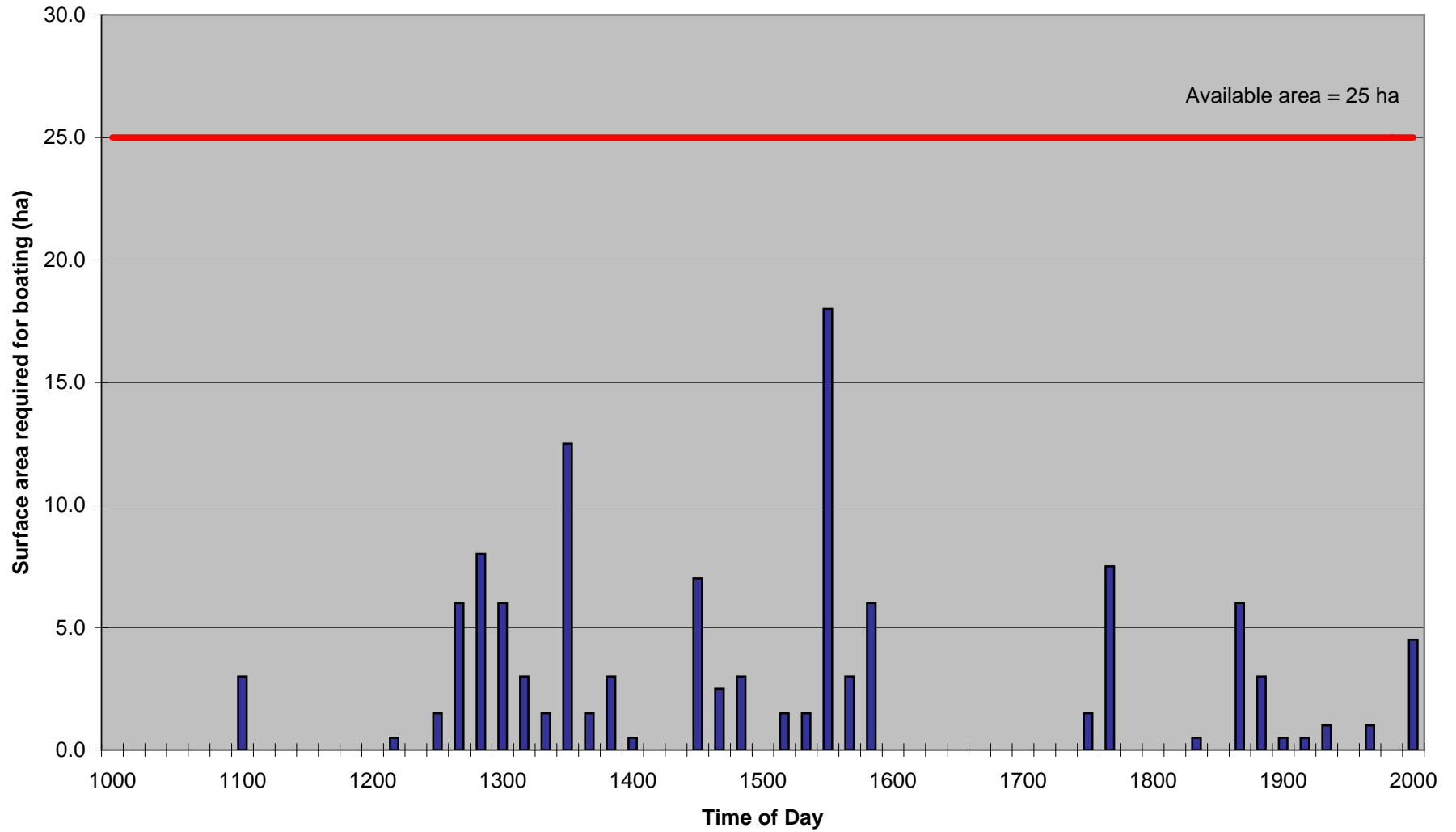
**FIGURE 7 - Wallace Bay Boat Capacity Study 2007  
- Area B - Sunday, July 1, 2007 -**



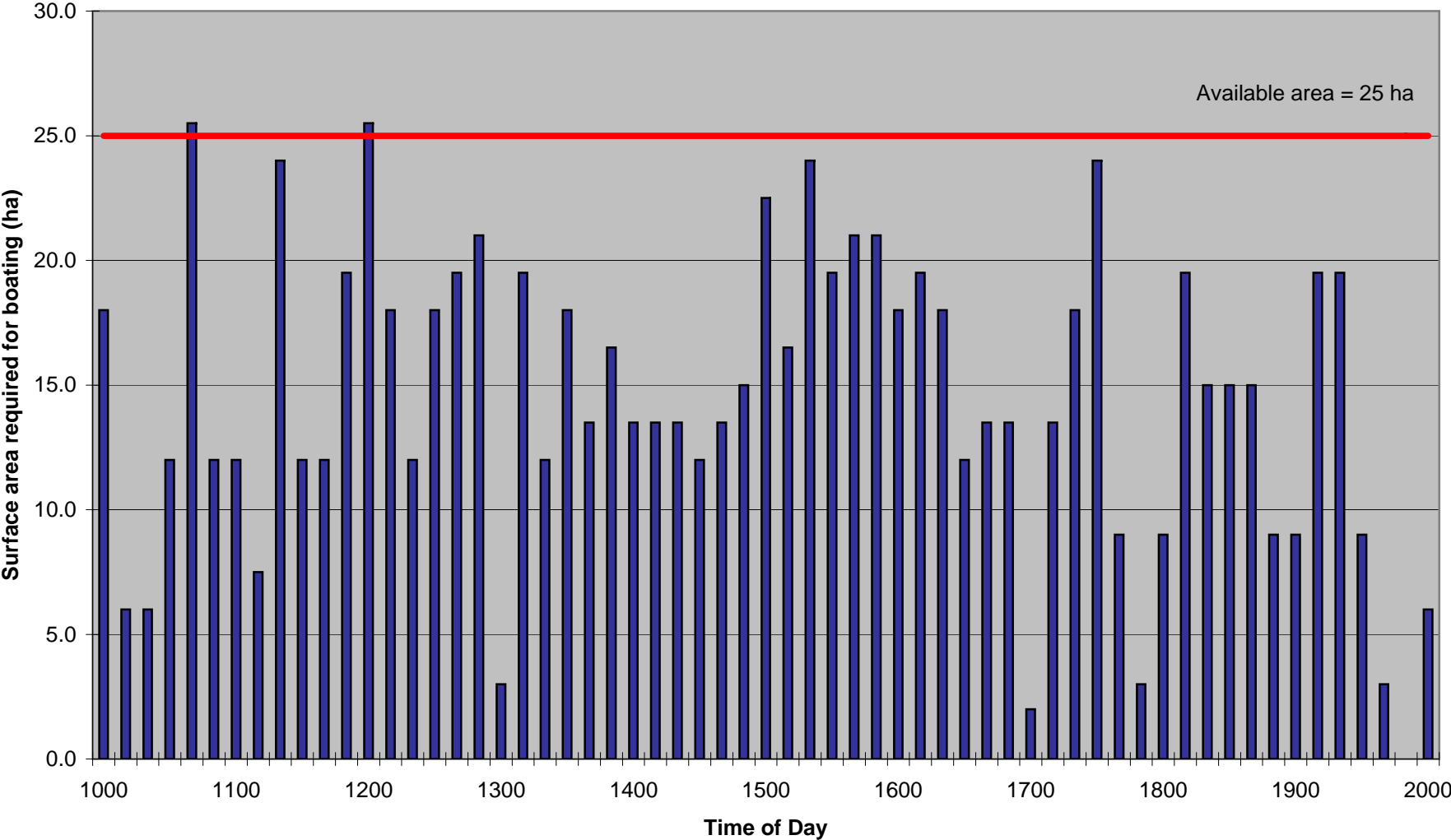
**FIGURE 8 - Wallace Bay Boat Capacity Study 2007**  
**- Area B - Saturday, July 21, 2007 -**



**FIGURE 9 - Wallace Bay Boat Capacity Study 2007**  
**- Area B - Monday, August 13, 2007 -**



**FIGURE 10 - Wallace Bay Boat Capacity Study 2007  
- Area B - Sunday, August 26, 2007 -**



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not consume any capacity. This does not mean, of course, that canoes, rowboats, etc. are the only boats that use the nearshore, or that they never go farther out. However, they are the only craft that can use the nearshore in complete safety, and they usually tend to concentrate there; unlike any other craft, they are both slow and almost instantly maneuverable, and therefore need very little surface area.

The excluded boating area is defined as less than 1.4 m in depth; as a result, the net usable boating water for the observational area is 32.5 ha.

### **3.2 Findings**

As discussed above, the boat surveys involved counts of the total number of boats on the water, by type and speed, every ten minutes within the boundaries of the observational areas. The next step is to translate boat numbers into boating surface area requirements. All boats counted for all time periods were multiplied by the capacity standards provided in **Table 2** to yield the total surface area required for boating at each ten minute time period.

The boat count area requirements were subsequently used to indicate whether and how much of the study areas' capacity was exceeded.

The following key points resulted from the analyses.

- Considerably more boating activity occurs on weekend days than on week days.
- As indicated in **Figure 3** through **Figure 10**, there were no occurrences when Study Area A was overcapacity; however, Area B was overcapacity on six time intervals on Saturday, July 21, 2007 (**Figure 8**), and on two occasions on Sunday, August 26th, 2007.
- There was no distinct and consistent trend in recreational boating activity in terms of set time periods, although boating appears to be more intense late in the morning and in mid-afternoon.
- The main reason for the highest surface water utilization related to more than one fast moving runabout with water skiers or jet boats in the observational areas at one time.

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#### **4.0 Boating Impacts Associated With An Expanded Docking Facility On Wallace Bay**

As indicated earlier, Ken Fowler Enterprises intends to expand the boat docking in Wallace Bay to approximately 335 slips (i.e., 150 slips at Wallace Marina, 130 slips at Clevelands House – main area, 20 slips at Clevelands House – south area, 15 slips for Lakeside Resort, and 20 slips for five shoreline residential lots). Typically, when evaluating impacts of new marina/docking facilities, assumptions are made about the numbers and types of boats entering and leaving the area during the boating day. For example, if a new cottage subdivision was being proposed, it is reasonable to assume that 10% of the boat fleet associated with the new development would be on the water at one time (i.e., **Table 3**). This number would then be added to the busiest of the four boating survey days to determine whether, and to what extent, the observation area(s) would be stressed. However, the combinations of user activities and time preferences with a built out 300 plus slip marina are endless; in the opinion of Michalski Nielsen Associates Limited, any attempt at such an analysis would not be practical nor meaningful.

Given that public safety issues are going to be a primary concern, there are two approaches to alleviating any crowding or overcapacity occurrences that may occur in the observational areas: wake; and speed controls. Experiences elsewhere in Ontario have indicated that wakes are a major concern to both boaters and shoreline property owners, particularly in very narrow stretches (i.e., from less than 30 m to about 50 m). It is well known that the relationship between speed and wake can vary considerably, depending on boat type, and displacement and speed. As a result, speed controls are often of limited value in controlling wakes. Michalski Nielsen Associates Limited is not aware of any Ontario waters where wake controls have been implemented under the Boating Regulation Restrictions of the *Canada Shipping Act*, and the study area is already subject to a 10 kilometre/hour (km/hr) speed limit which is generally applicable within 30 m of shore. However, it is the opinion of Michalski Nielsen Associates Limited that implementation of a specific speed control in the observational areas is warranted to more effectively and comprehensively ensure safe and responsible boating. Accordingly, it is recommended that:

- **Ken Fowler Enterprises and the Township of Muskoka Lakes initiate an amendment to the Boating Restriction Regulations providing for a speed control of 9 kilometres per hour in the two observational areas shown in Figure 1.**

**Table 3.** Proportion of resident boat populations on lakes at peak times, seven Ontario lakes.

<b>Lake</b>	<b>Peak number of boats in the water as a percentage of total resident boat population</b>
Clement	9.1%
Farlain	11.1%
Salmon Trout	9.7%
Scugog	8.0%
Six Mile	8.0%
Soyers	7.9%
Trent River near Campbellford	10.3%

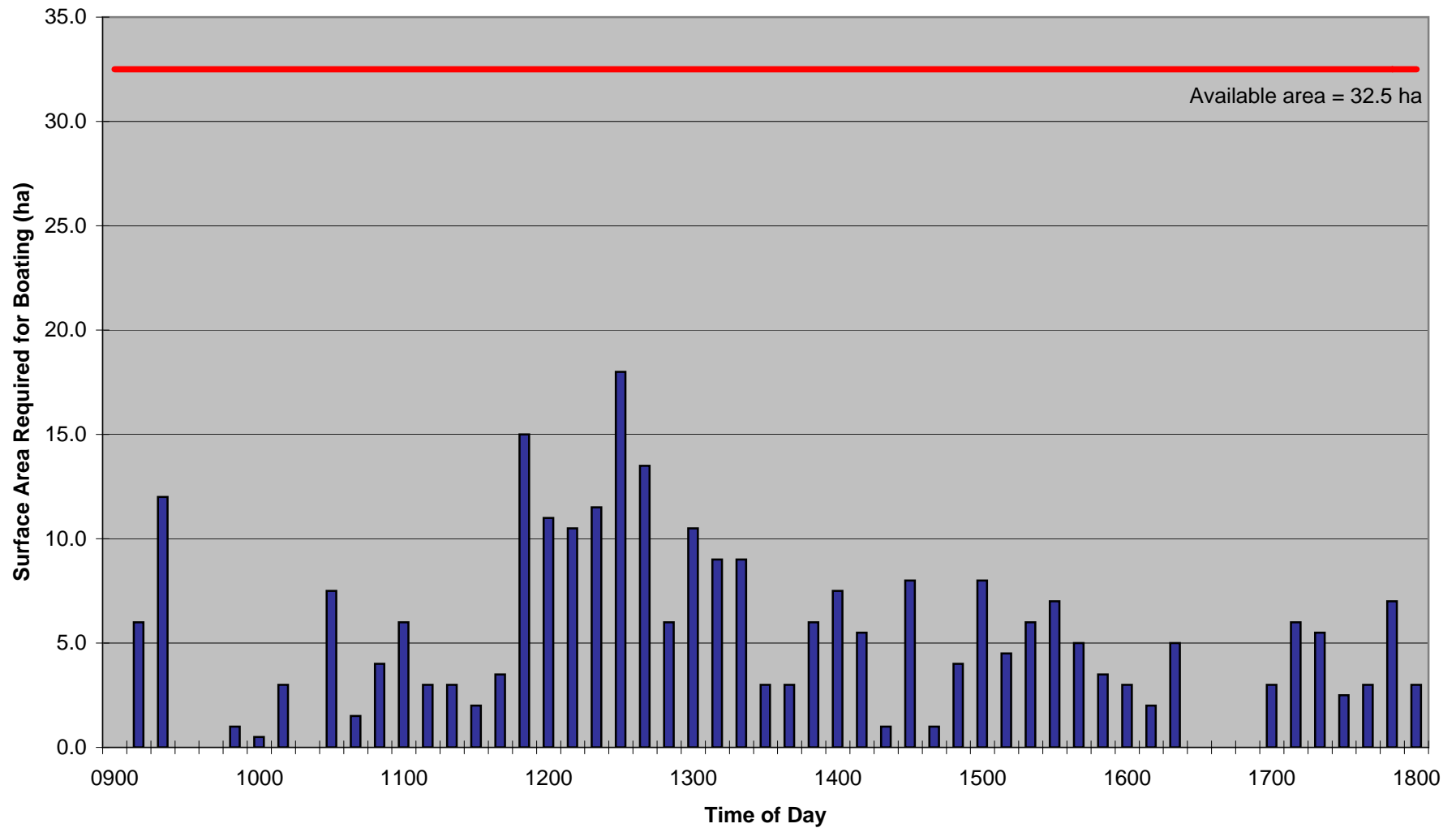
Source: Various surveys undertaken by Hough, Stansbury + Associates Limited and Michael Michalski Associates.

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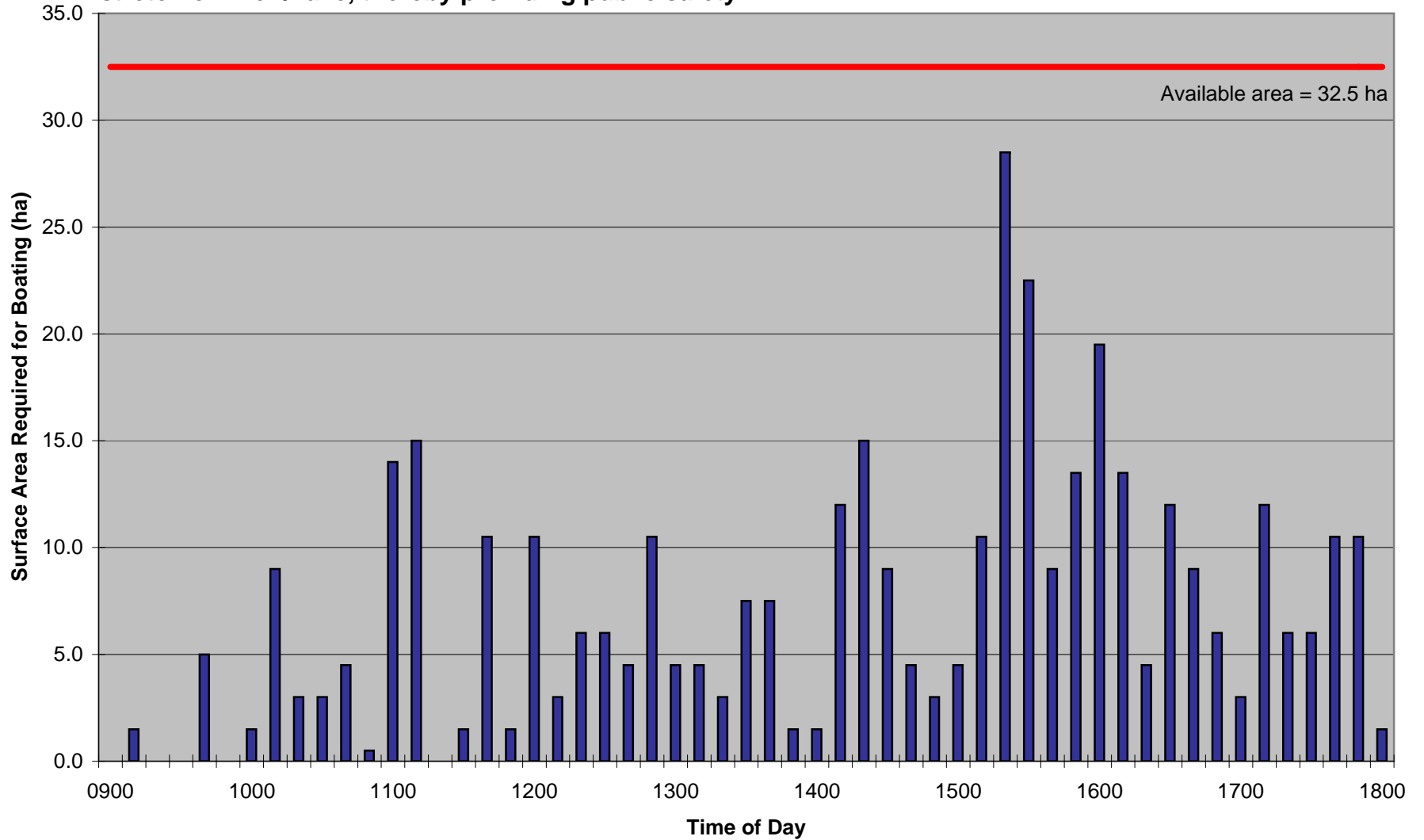
There is no question but that speed controls are effective. In this regard, a 9 km/hour speed control is currently in effect in the Indian River between Lake Muskoka and Lake Rosseau, inclusive of Mirror Lake, as set out in Schedule IV of the **Boating Restriction Regulations**. An examination of boating activities in this waterway on four days in the summer of 2007 revealed that the majority of boaters traveled at slow speeds and within the limit. In this regard, there was not a single overcapacity occurrence (**Figures 11 through 14**). Accordingly, the same benefits can be anticipated in Wallace Bay and its contiguous waters once the proposed docking facility is built out and fully operational.



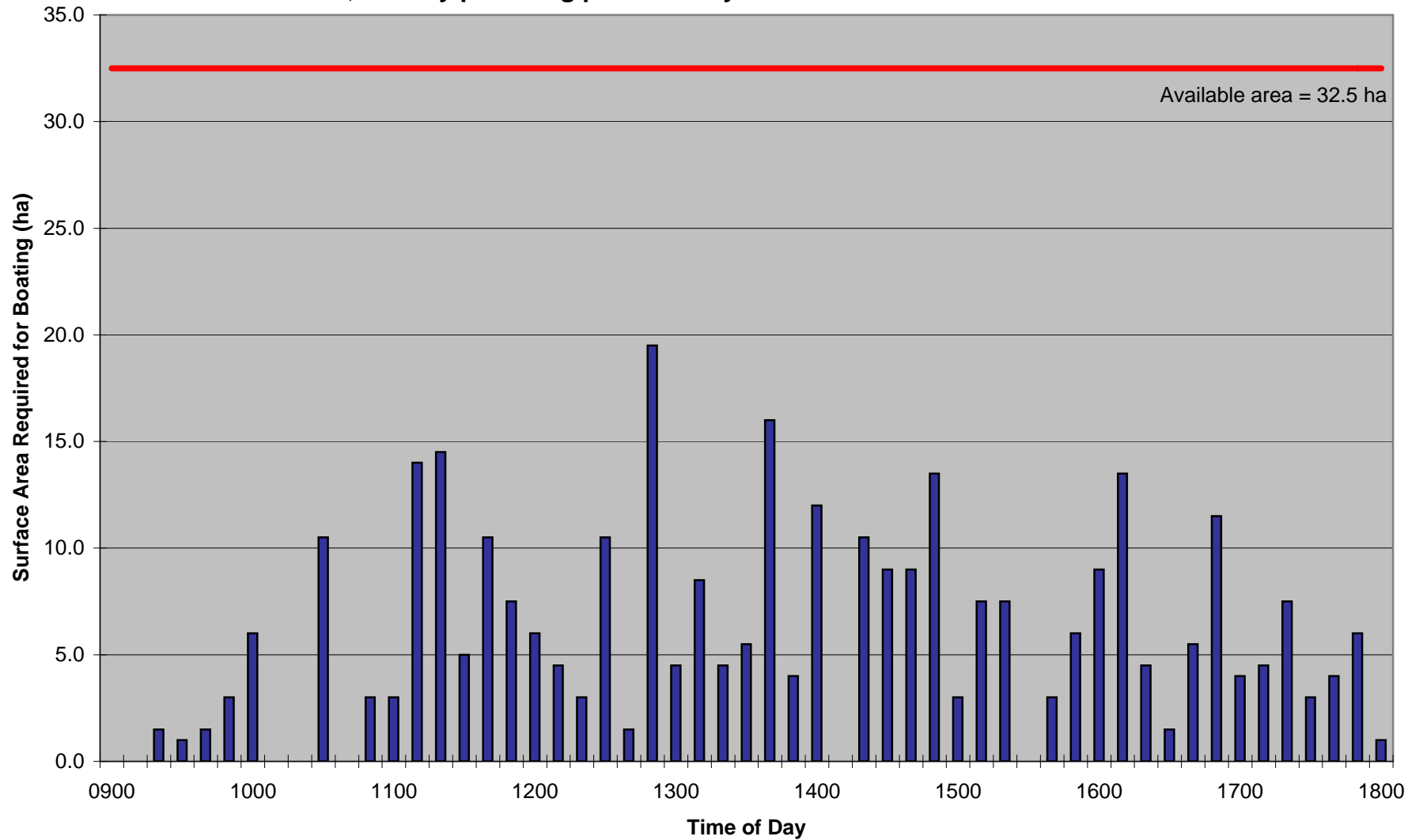
**FIGURE 11 - Indian River/Mirror Lake Boat Capacity Study - Saturday, June 30, 2007. A nine kilometre per hour speed limit is in effect under the Boating Restriction Regulation for this stretch of river / lake, thereby providing public safety.**



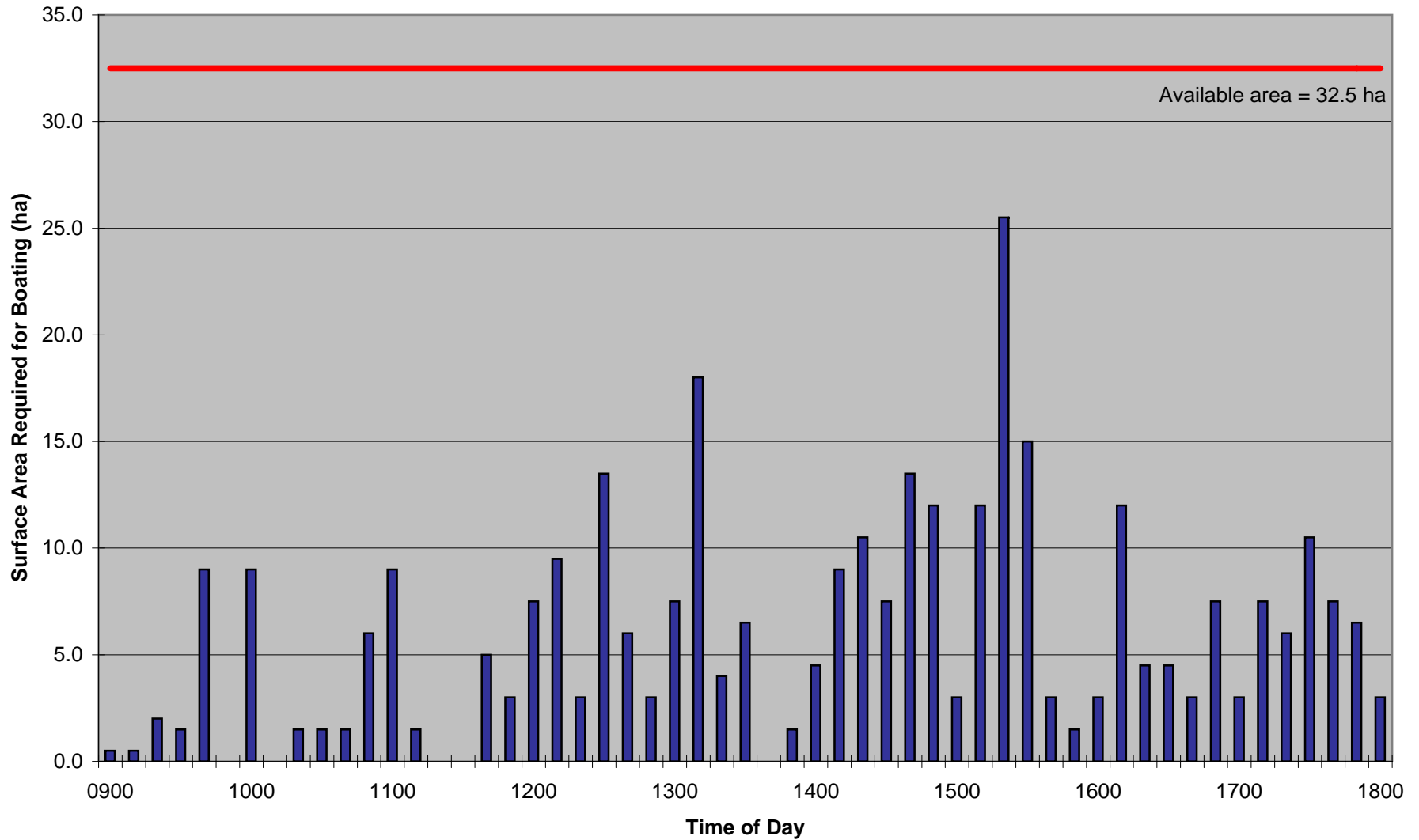
**FIGURE 12 - Indian River/Mirror Lake Boat Capacity Study - Saturday, July 7, 2007. A nine kilometre per hour speed limit is in effect under the Boating Restriction Regulation for this stretch of river / lake, thereby providing public safety.**



**FIGURE 13 - Indian River/Mirror Lake Boat Capacity Study - Saturday, July 28, 2007. A nine kilometre per hour speed limit is in effect under the Boating Restriction Regulation for this stretch of river / lake, thereby providing public safety.**



**FIGURE 14 - Indian River/Mirror Lake Boat Capacity Study - Tuesday, July 31, 2007. A nine kilometre per hour speed limit is in effect under the Boating Restriction Regulation for this stretch of river / lake, thereby providing public safety.**



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## 5.0 References

Hough, Stansbury & Associates Limited.

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