

Beaver Studies,, Isle Royale National Park 1988-89

This reports results of studies conducted by Philip C. Shelton, during the periods September-October, 1988, and 23 May-8 June, 1989. Included in these studies are 96 trap nights of live trapping in fall, 1988, during which 28 animals were handled and released, an aerial survey of the entire island flown October, 1988, in which 200 colonies were found with food piles and with some sign of activity but no food cache. Additional groundwork both in fall and in spring, 1989 included extensive notes on woody food utilization and availability

Live Trapping:

A total of 28 animals were caught, weighed, measured, inspected for parasites, and released at the capture sites. The main purpose of this activity was to assess the physical characteristics of the animals in comparison with animals caught in former years, beginning in 1961 on Isle Royale, and with animals caught in other sites in the regional, especially Voyageurs National Park, Grand Portage National Monument, Apostle Islands National Lakeshore, where Douglas Smith has studied beavers since 1984.

Selection of sites for trapping was primarily a matter of convenience except that extra effort was expended to sample colonies in the 1936 burn south of Moskey Basin that were previously trapped only in 1962 and 1974. No harbor beavers were trapped because there were no live colonies in Rock Harbor in 1988.

Aerial Survey:

Complete aerial surveys of beaver colonies have now been made nine times beginning in 1962. The 1988 count was done from a DeHaviland

Palumbi
~~Plombe~~

Beaver (DHC-2, piloted by Carlo/ of the Superior National Forest, Ely, Minnesota. This is the first count to be flown from a large aircraft. All previous counts were done from two place, tandem seating craft, Cessna Champ, Piper J-3 Cubs, or PA. 18 Supercubs, all on floats.

Although the Beaver is a much larger aircraft, speed and maneuverability is similar to the smaller craft for purposes of this survey. During counting, the Beaver was flown with partial flap setting at 70-75 mph, which is approximately the same as with the craft used in former counts.

A major difference is in the size of the passenger area. The observer rode in the rear seat, on the same side as the pilot. In tandem, two seat aircraft, it is quite easy to look out either side of the plane, and to alternate sides on flight strips so as to always look away from the sun. This was not easily possible in the Beaver, since it would involve awkward seat shifting during turns. The procedures used was to remain on the left side and to use the right side only occasionally by leaning across the empty right seat, when it was necessary for quick checks. This worked reasonably well, and by using overlapping loop patterns coverage was at least as good as flying adjacent strips and alternating sides for observing. Seeing sites from opposite sides has definite advantages.

An even more advantageous feature of the Beaver, not available in any aircraft used previously, was an intercommunications system with high quality head sets and voice activated microphones. This enabled instant and positive communication between observer and pilot which greatly improved efficiency of the operation by allowing the observer

to have the pilot modify the flight path quickly when necessary to improve views of sites.

The flight pattern that has become more or less standard is to fly the island in eight segments, identified on the map as A through H counterclockwise from the north side of the northeast end of the island. Boundaries are as follows:

A-D are north of the Greenstone Ridge;

E-H are south of the Greenstone Ridge.

A: northeast end of the island to McCargoe Cove - Chickenbone Lake;

B: from A southwest to the southwest ends of Hatchet Lake and Todd Harbor;

C: from B southwest to the southwest end of Lake Desor;

D: from C to the southwest end of the island;

E: from the southwest end of the island to the southwest end of Siskiwit Bay;

F: from E northeast to the southwest end of Siskiwit Lake;

G: from F northeast to Lake LeSage, Lake Richie, and Chippewa Harbor;

H: from G to the northeast end of the island.

Section A is the most difficult to count because of the combination of closely spaced steep ridges, mature Birch-Aspen forest with increasing amounts of spruce and fir, creating deep shadows on sunny days. The usual procedure is to use an hour or so of time at the end of the count to recheck this area, both to find missed sites from the first attempt, and to more accurately locate those found the first time. There are usually a few new sites found in this recount.

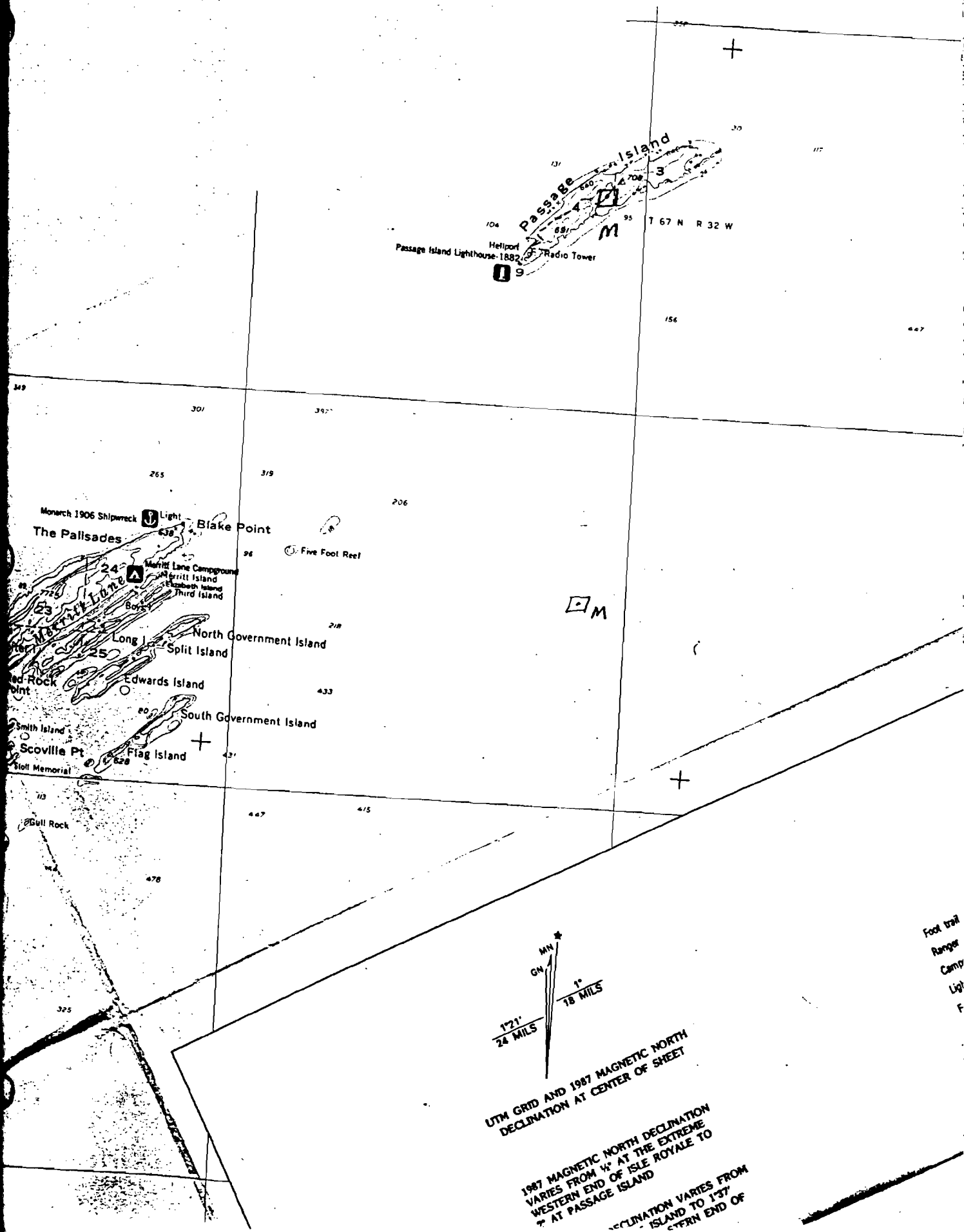
Easiest counting is in the 1936 burn area, where trees are not yet large enough to hide beaver activity and the pattern of ponds are shown quite well on the topographic map.

In 1988 an attempt was made to use a mosaic paste-up image of the island from photocopied aerial photographs. The mosaic constructed proved too unwieldy in the airplane, and the quality of reproduction was too poor to allow the quick and accurate colony location that was hoped for. The map used was a woodland green version of the 1:62500 topographic map of the island, unfortunately not the waterproof 1988 printing, which has many ponds updated from the edition used.

Locations of active sites are shown on the accompanying maps, and results of the 1988 and previous counts are shown in Table 1.

Table 1. Aerial counts of beaver colonies, Isle Royale National Park, 1962-1988.

Year	Colonies with food caches					Sites with fresh house, dam, or cutting	Total active sites
	Total	Number(%) by habitat*					
		Stream	Lake	Harbor	1936 burn		
1962	125	84(67)	26(21)	15(12)	43(34)	-	-
1974	286	251(88)	24(08)	11(04)	102(36)	30	316
1978	129	99(77)	19(15)	11(08)	48(37)	27	156
1980	83	58(70)	17(20)	8(22)	13(22)	39	122
1982	125	93(74)	24(19)	8(06)	31(25)	28	153
1984	151	129(85)	17(11)	5(03)	53(35)	53	204
1986	204	167(82)	26(13)	11(05)	75(37)	36	240
1988	200	164(82)	30(15)	6(03)	81(40)	40	240



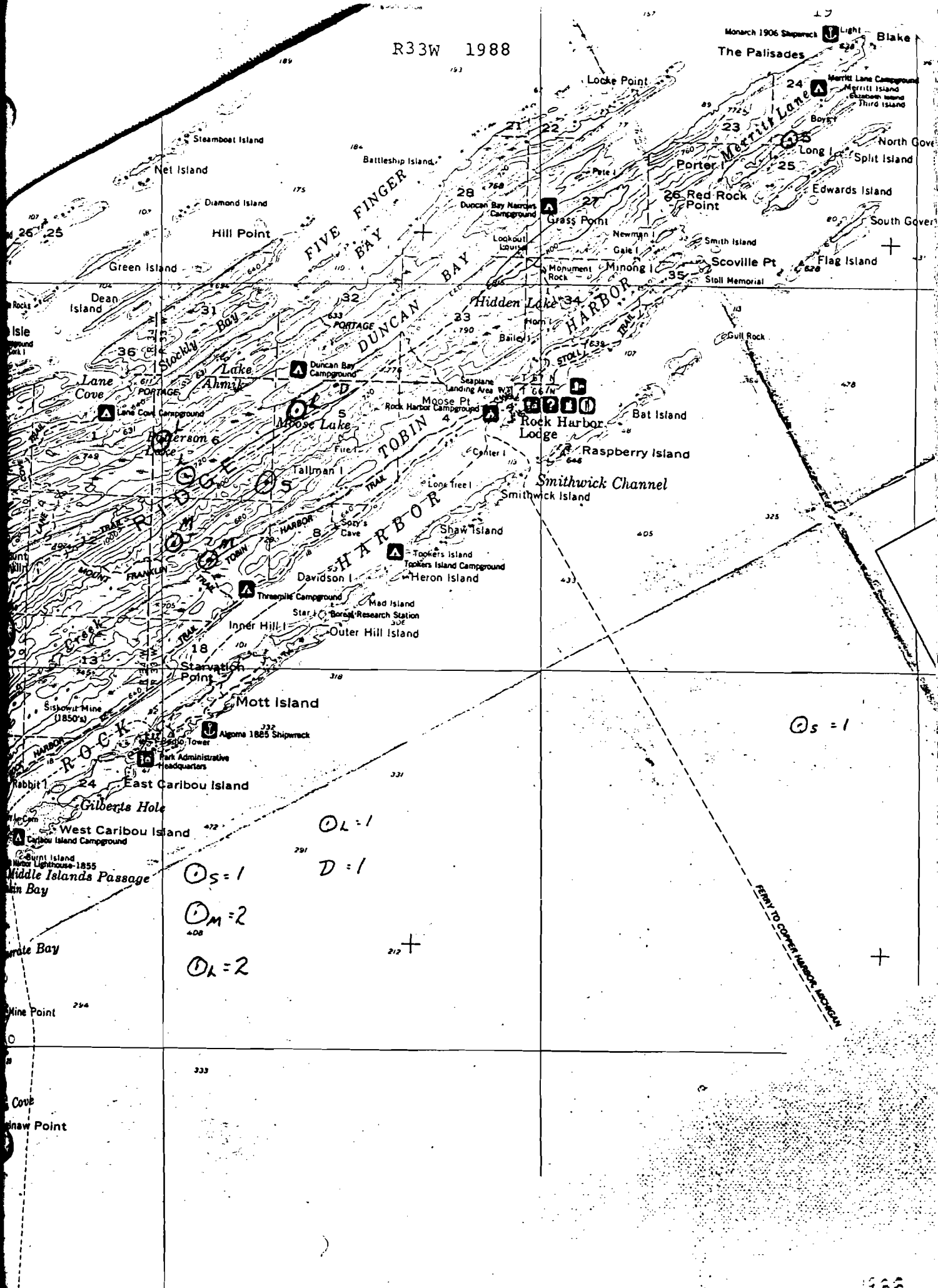
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1987 MAGNETIC NORTH DECLINATION
VARIES FROM 1° AT THE EXTREME
WESTERN END OF ISLE ROYALE TO
2° AT PASSAGE ISLAND

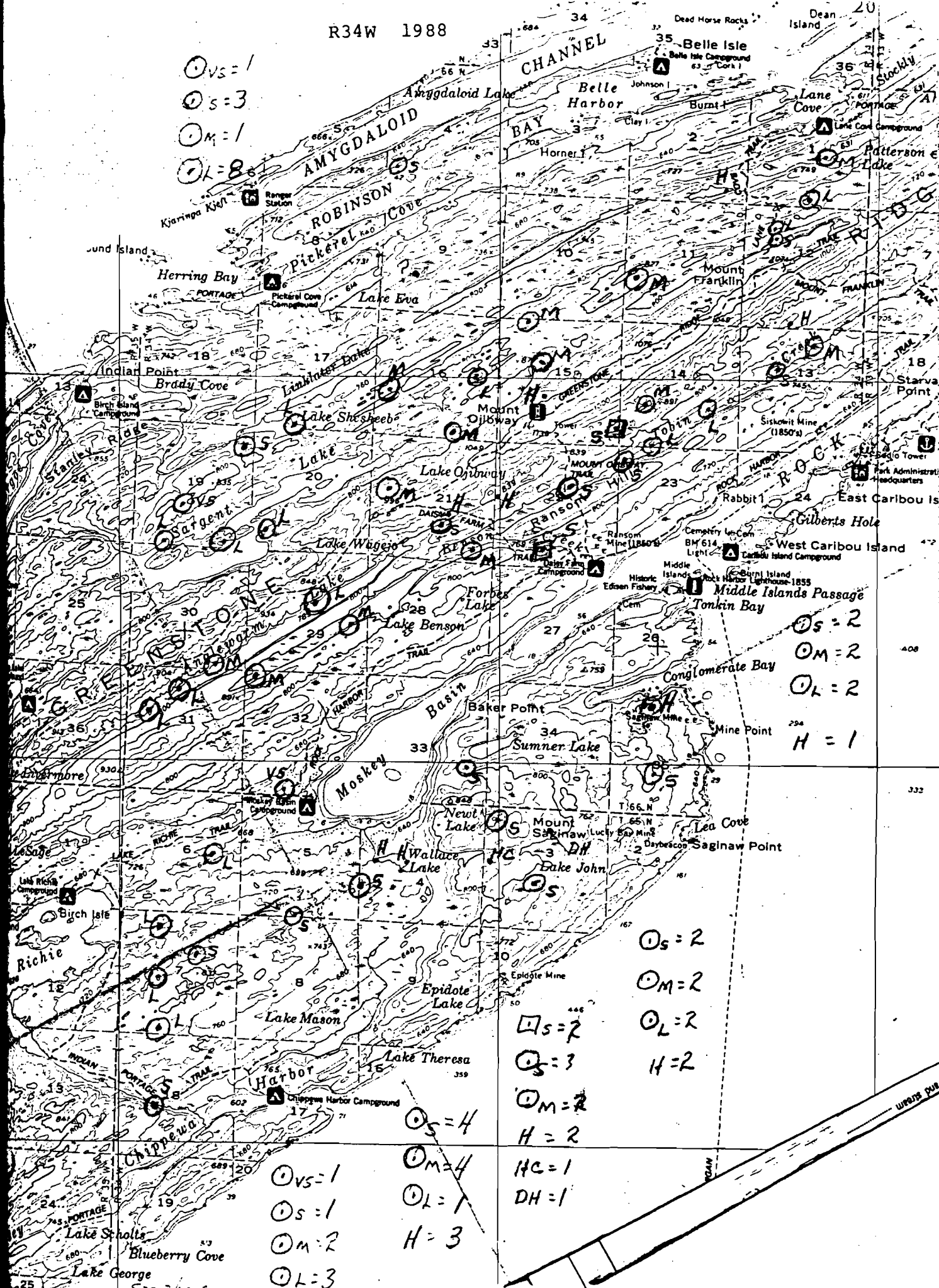
DECLINATION VARIES FROM
1° AT PASSAGE ISLAND TO 1°37'
AT THE EASTERN END OF

Foot trail
Ranger
Camp
Light

R33W 1988



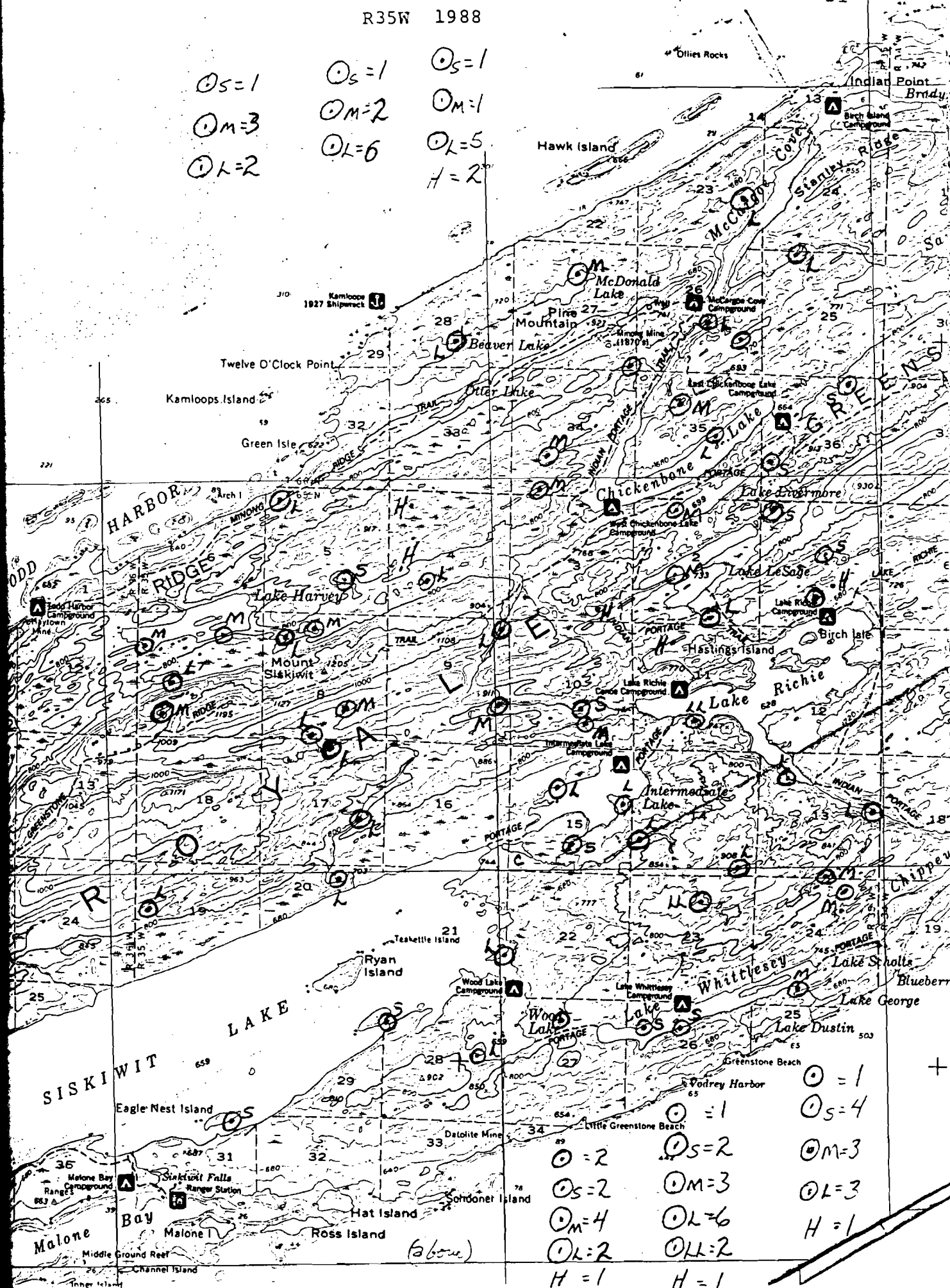
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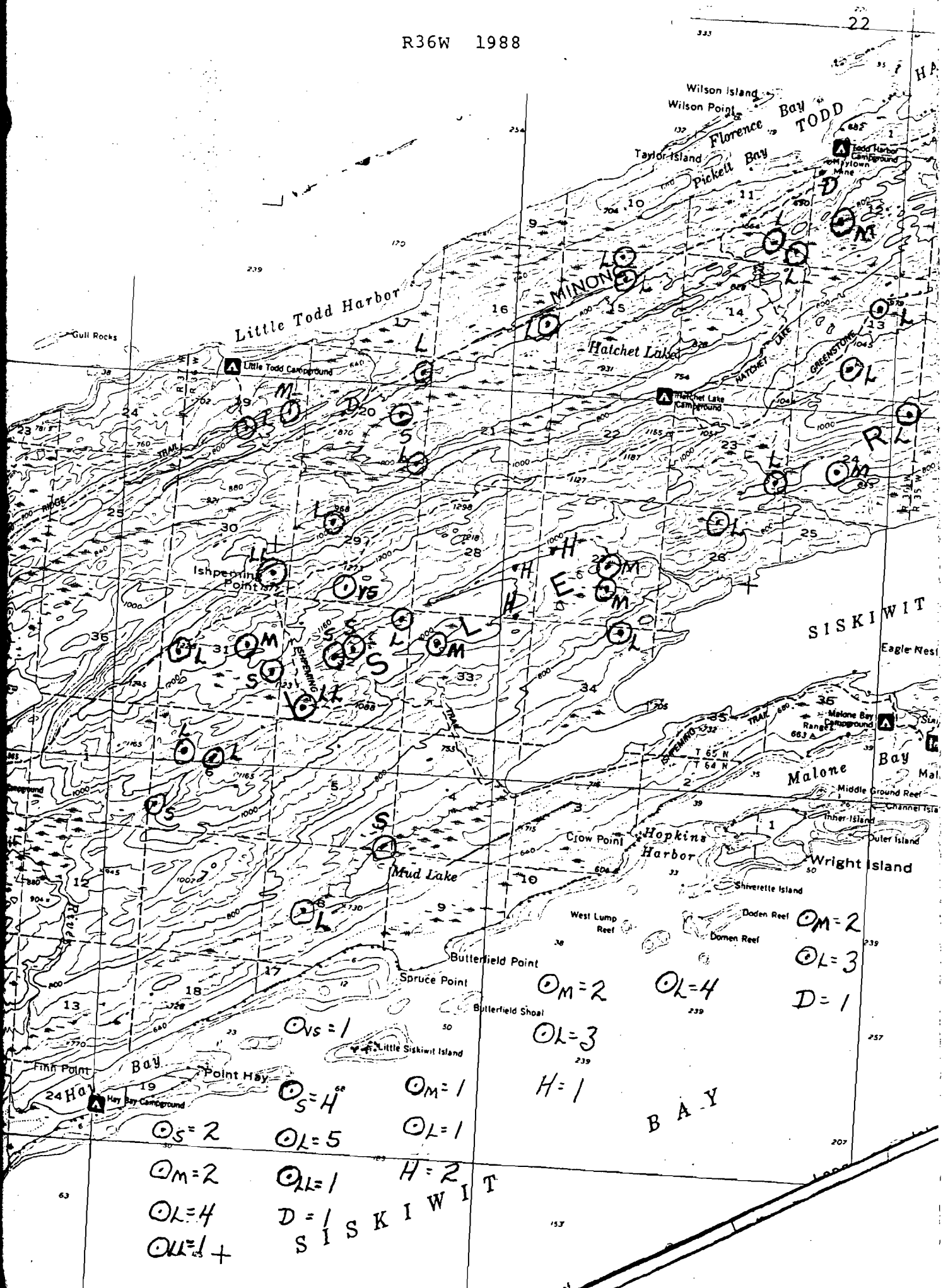


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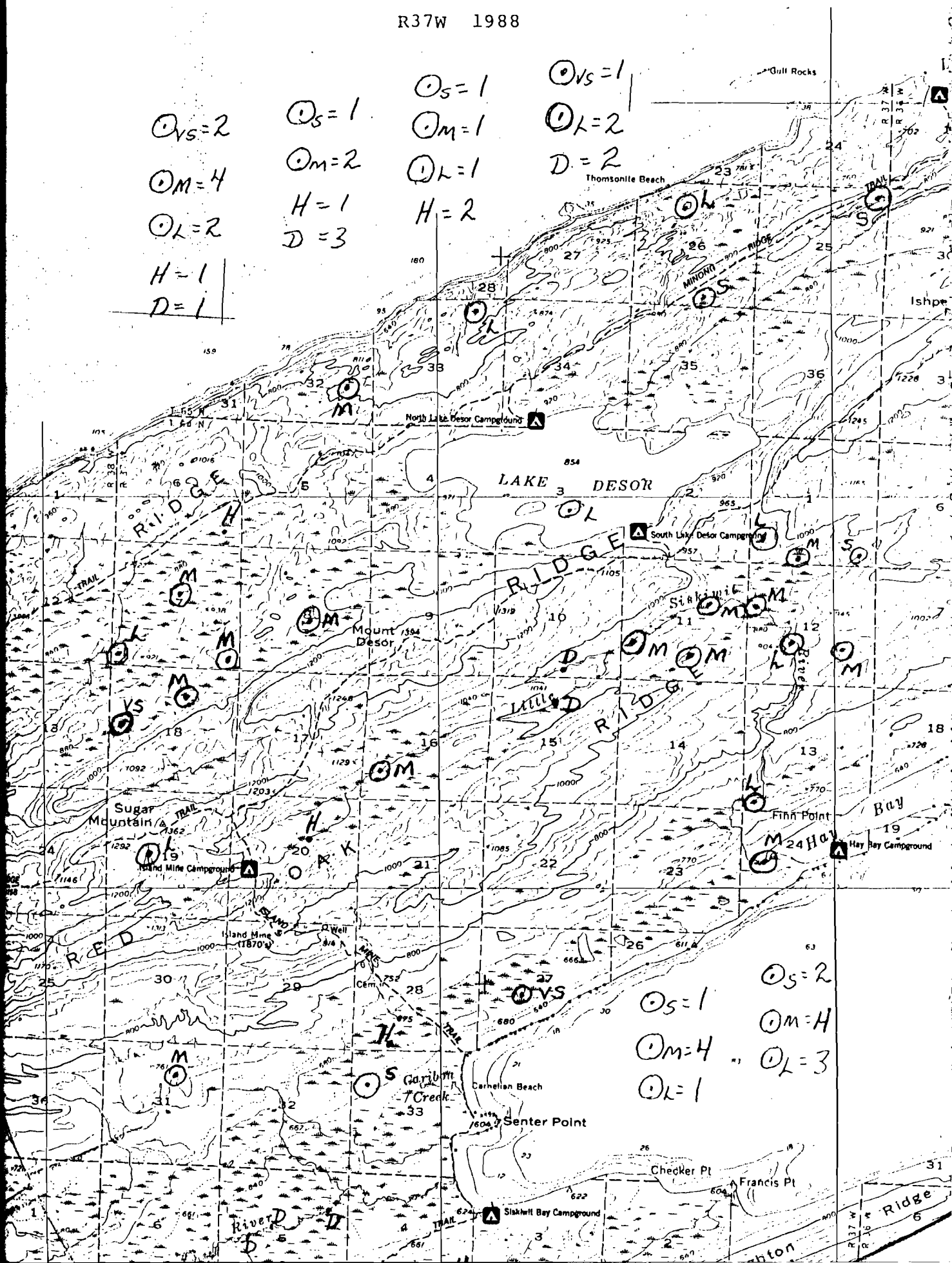
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 $H = 3$

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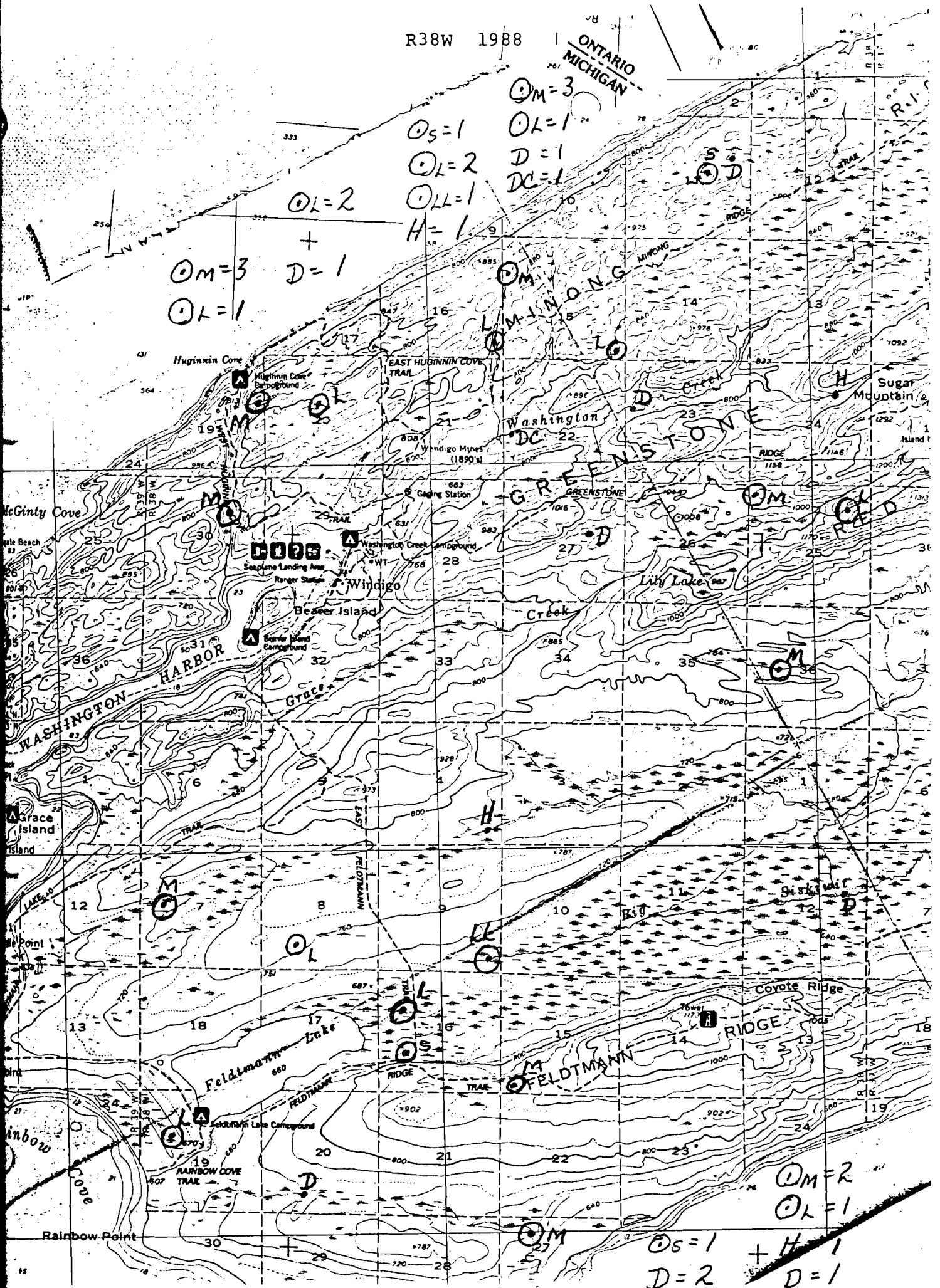


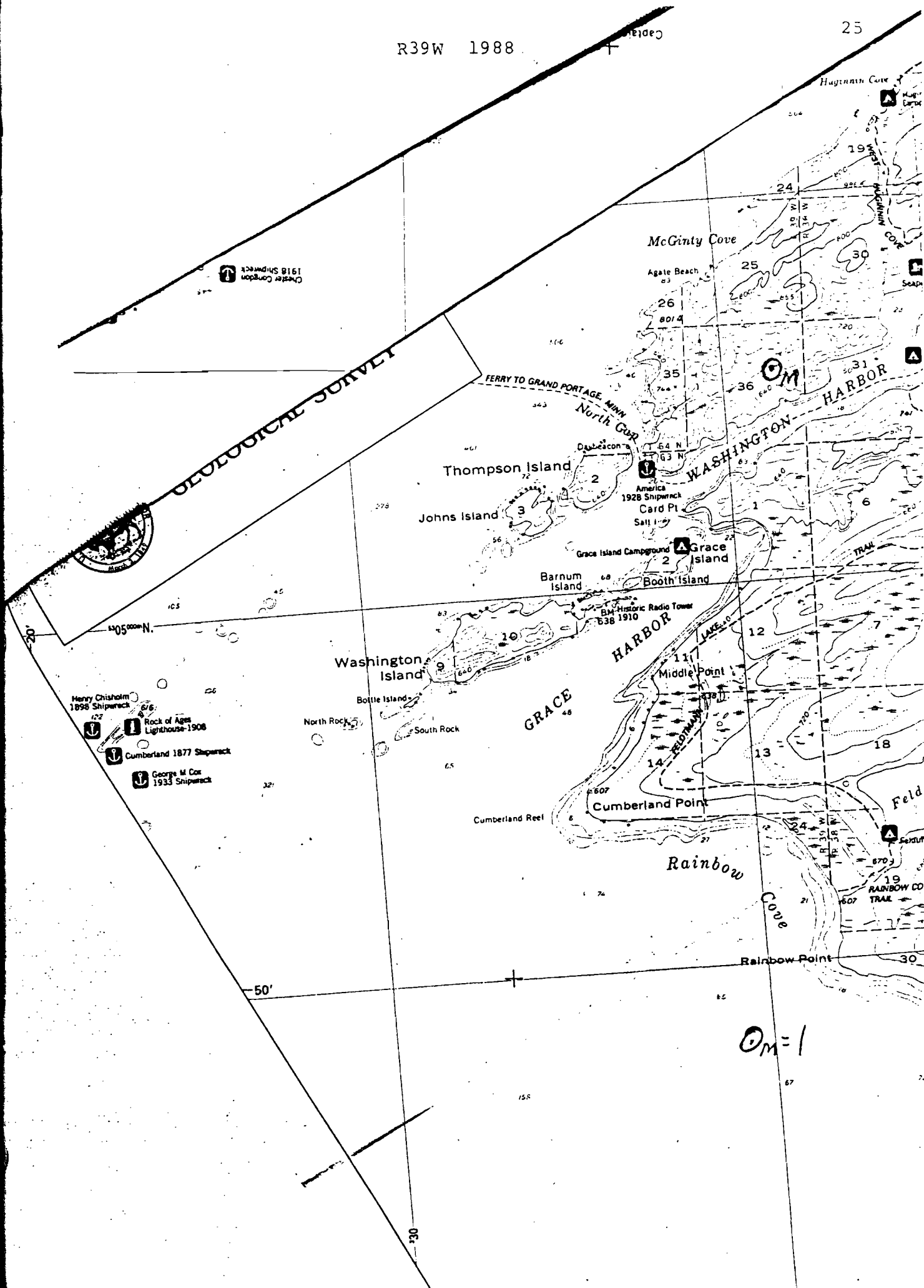
R37W 1988

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R38W 1988

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