Oreti River Flood Statistics

The reliability of annual exceedance probabilities increases as additional data is collected. Design specifications for banks, dams and other infrastructure are based on data available at the time and the level of protection required eg 20 year return period.

The latest statistics include the February 2020 flood. The bank design in cumecs has been inserted into the following tables (from upstream to downstream of Winton) to give an indication of the level of protection compared to actual events.

It should be noted that the Oreti River at Centre Bush is not a continuously flow rated site. Flood peak flows have been estimated off a small number of gaugings and the relationship of the site compared to Lumsden and Wallacetown.

Oreti River at Lumsden Cableway

Date	Peak Flow	Return Period	
	1145	100	
	1100		**Bank Design**
	1066	50	
31-May-78	1023	35.4	
	948	20	
17-Nov-99	943	19.2	
26-Aug-80	906	14.8	
27-Jan-84	891	13.3	
	848	10	
26-Apr-10	846	9.9	
4-Feb-20	835	9.2	
30-Oct-77	810	7.8	
10-Jan-13	784	6.7	
10-Mar-87	778	6.4	
19-Sep-02	755	5.6	
13-Jan-83	742	5.2	
	735	5	
20-Feb-94	712	4.4	
2-Dec-79	699	4.1	
23-Feb-12	689	3.9	
11-Aug-07	667	3.5	
12-Sep-88	665	3.4	
16-Aug-91	642	3.1	
7-Feb-98	638	3	
30-May-95	584	2.4	
Mean Annual Flood	581	2.33	

Oreti River at Centre Bush

Note - This site is not rated continuously and has few high flow gaugings

Date	Peak Flow	Return Period	
	1699	100	
	1511	50	
	1260	20	
17-Nov-99	1247	19.1	
1-Jun-78	1207	16.5	
26-Aug-80	1207	16.5	
	1200		**Bank Design**
30-Oct-77	1176	14.7	
28-Jan-84	1080	10.5	
26-Apr-10	1076	10.3	
	1067	10	
4-Feb-20	1061	9.8	
11-Mar-87	1041	9.1	
21-Feb-94	963	7	
10-Jan-13	919	6	
13-Jan-83	902	5.7	
	865	5	
16-Aug-91	840	4.6	
12-Jan-97	675	2.8	
29-Mar-89	644	2.5	
23-Dec-93	634	2.4	
7-Aug-98	618	2.3	
Mean Annual Flood	617	2.33	

Oreti River at Wallacetown

Date	Peak Flow	Return Period	
	2123	100	
	1776	50	
18-Nov-99	1434	23.1	
	1376	20	
26-Aug-80	1371	19.7	
28-Jan-84	1306	16.8	
	1300		**Bank Design**
15-Oct-78	1291	16.1	
11-Mar-87	1285	15.9	
27-Apr-10	1282	15.8	
5-Feb-20	1279	15.7	
	1110	10	
31-Oct-77	1054	8.6	
14-Jan-83	1006	7.5	
21-Feb-94	985	7.1	
11-Jan-13	920	5.9	
16-May-79	886	5.3	
	866	5	
17-Aug-91	798	4.1	
20-Sep-02	743	3.5	
12-Aug-07	696	3	
23-May-82	640	2.6	
13-Jan-97	635	2.5	
Mean Annual Flood	607	2.33	

Climate change predictions

In the Southland climate change impact assessment report from NIWA, it is noted that "floods (characterised by the Mean Annual Flood) are expected to become larger everywhere, with increases up to 100% in some locations by the end of the century." It is also noted that "the annual maximum daily rainfall on the Oreti Catchment increases by 0 to 30 mm in the four climate change scenarios."

This indicates that the level of protection based on the current design flows will be exceeded more frequently under future climate scenarios, putting property and infrastructure at greater risk.