Table 3. The direction of the shifts in the CWSC due to the long-term meteorological drought for the catchments in southeastern Australia.

Magnitude	Change direction	Percentage (Number of catchments)
Significant change	Downward (Smaller CWSC than the previous estimation suggests)	8.3% (12)
	Upward (Larger CWSC than the previous estimation suggests)	27.6% (40)
Non-significant change	Slight increase	12.4% (18)
	Slight decrease	9.0% (13)
Dissatisfy the criteria of the minimum NSE performance, the maximum performance degradation and the robustness requirement		42.8% (62)
All (catchments with a sustained meteorological drought)		100% (145)

Table S1. Catchments with the long-term meteorological droughts.

FID	Station ID	Drought start	Drought end	drought anomaly	Complete
1	143107	2000	2007	-19.67%	97.03%
2	145010	1993	2009	-10.41%	97.71%
3	146095	1991	1998	-11.24%	96.91%
4	201001	1991	1998	-9.64%	97.44%
5	203005	1991	2007	-11.66%	95.62%
6	203010	1991	2007	-11.84%	96.41%
7	204017	1991	2007	-9.95%	97.77%
8	204025	1991	2007	-12.37%	95.47%
9	204037	1991	2005	-9.15%	97.17%
10	204039	2000	2009	-13.66%	82.96%
11	204041	1991	2006	-12.39%	96.80%
12	204906	1991	2007	-12.71%	97.12%
13	208004	1991	1997	-12.47%	96.94%
14	208005	1991	1998	-10.85%	97.13%
15	208019	1991	1998	-13.11%	80.26%
16	210016	2001	2007	-10.13%	88.07%
17	210031	2001	2007	-9.50%	94.67%
18	210040	2001	2007	-11.87%	96.51%
19	210052	2001	2007	-8.63%	83.18%
20	210093	2001	2007	-12.36%	86.06%
21	211009	1993	2006	-15.08%	96.97%
22	211014	1993	2006	-14.82%	95.30%
23	212040	2000	2009	-12.27%	84.80%
24	215002	2000	2009	-16.58%	89.43%
25	215008	1999	2009	-14.45%	96.36%
26	217002	2000	2009	-19.67%	97.20%

FID	Station ID	Drought start	Drought end	drought anomaly	Complete
27	218001	2002	2009	-16.00%	98.32%
28	218005	2002	2009	-16.37%	97.73%
29	218007	1996	2009	-11.64%	97.79%
30	218008	2002	2009	-16.56%	93.60%
31	219003	1998	2009	-13.85%	97.36%
32	219006	1998	2009	-15.14%	98.27%
33	219017	2002	2009	-21.36%	97.78%
34	219022	1998	2009	-15.71%	97.35%
35	220003	1998	2009	-12.20%	97.78%
36	220004	1996	2009	-12.28%	97.03%
37	221010	1996	2009	-9.23%	82.23%
38	222007	2002	2009	-13.72%	98.28%
39	222016	2002	2009	-12.26%	96.52%
40	222017	1996	2009	-9.98%	89.46%
41	222202	2002	2009	-10.32%	95.67%
42	222206	2002	2009	-10.76%	91.82%
43	222213	2002	2009	-12.23%	91.39%
44	222217	2002	2009	-10.15%	98.81%
45	223202	2002	2009	-13.78%	91.54%
46	224201	2002	2009	-13.64%	98.46%
47	224206	2002	2009	-13.44%	91.88%
48	224213	2002	2009	-15.64%	95.80%
49	224214	2002	2009	-14.36%	99.51%
50	225218	2002	2009	-9.03%	100.00%
51	225219	1997	2009	-11.70%	91.47%
52	226204	1997	2009	-10.91%	96.30%
53	226209	1999	2009	-11.47%	100.00%
54	226220	1997	2009	-10.43%	85.57%
55	226226	1999	2009	-8.73%	99.95%
56	226402	1999	2009	-11.51%	100.00%
57	227202	1997	2009	-9.88%	95.68%
58	227219	1997	2009	-10.50%	92.34%
59	227227	1997	2009	-10.56%	92.09%
60	227231	1997	2009	-10.34%	92.30%
61	227236	1997	2009	-9.31%	83.12%
62	228209	1999	2009	-10.75%	80.24%
63	229661	1997	2009	-11.23%	82.54%
64	231225	1997	2009	-13.26%	100.00%
65	233223	1997	2009	-11.90%	92.68%
66	234200	1997	2009	-10.64%	84.79%
67	234201	1997	2009	-10.33%	94.83%
68	234203	1997	2009	-9.19%	96.24%
69	235203	1997	2009	-6.89%	91.44%

FID	Station ID	Drought start	Drought end	drought anomaly	Complete
70	236205	1994	2009	-6.52%	92.62%
71	236212	1997	2009	-7.22%	91.93%
72	237202	1993	2009	-6.36%	92.05%
73	237205	1993	2009	-6.20%	92.21%
74	237206	1993	2009	-6.05%	96.41%
75	237207	1993	2009	-6.16%	92.04%
76	238204	1997	2009	-9.65%	89.94%
77	238229	1997	2009	-7.83%	92.24%
78	238231	1997	2009	-9.63%	82.82%
79	238235	1993	2009	-5.95%	92.05%
80	239523	1993	1999	-7.96%	99.72%
81	239531	1997	2009	-8.64%	98.30%
82	401012	2002	2009	-14.08%	99.13%
83	401013	2001	2009	-17.54%	98.17%
84	401203	2001	2009	-15.90%	99.86%
85	401208	2001	2009	-17.18%	99.98%
86	401212	2002	2009	-15.96%	99.87%
87	401217	2002	2009	-15.21%	99.87%
88	405205	1997	2009	-13.26%	99.99%
89	405209	1997	2009	-13.07%	99.95%
90	405215	1999	2009	-12.49%	99.84%
91	405217	1997	2009	-13.27%	100.00%
92	405219	1997	2009	-11.16%	99.87%
93	405227	1997	2009	-11.61%	99.86%
94	405229	1997	2009	-14.97%	99.15%
95	405230	1997	2009	-14.79%	100.00%
96	405231	2001	2009	-16.24%	99.87%
97	405241	1997	2009	-13.62%	100.00%
98	405245	1997	2009	-15.99%	99.78%
99	405263	1997	2009	-10.61%	99.87%
100	405264	1997	2009	-11.14%	99.87%
101	406214	1997	2009	-14.23%	99.86%
102	406224	1997	2009	-14.08%	100.00%
103	407214	2001	2009	-16.19%	99.40%
104	407215	2001	2009	-17.73%	99.47%
105	407220	2001	2009	-18.39%	98.77%
106	407230	2001	2009	-17.92%	99.92%
107	408200	2000	2009	-18.03%	99.92%
108	408202	2001	2009	-14.66%	99.54%
109	410024	2001	2009	-19.20%	98.01%
110	410026	2000	2009	-13.19%	97.94%
111	410033	2001	2009	-12.11%	97.38%
112	410038	2001	2009	-20.49%	95.84%

FID	Station ID	Drought start	Drought end	drought anomaly	Complete
113	410044	2001	2009	-20.21%	94.64%
114	410047	2001	2009	-17.73%	94.48%
115	410057	2001	2009	-19.32%	98.13%
116	410061	2001	2009	-19.12%	97.02%
117	410062	2002	2009	-14.90%	95.29%
118	410088	2001	2009	-17.90%	98.27%
119	410091	2001	2009	-17.43%	82.48%
120	410097	2001	2009	-17.25%	87.34%
121	410107	2001	2009	-19.39%	87.74%
122	410141	2000	2009	-14.70%	80.53%
123	410705	2000	2009	-14.97%	100.00%
124	410713	2001	2009	-19.65%	98.40%
125	410730	2000	2009	-15.05%	99.75%
126	410731	2000	2009	-14.82%	97.75%
127	410734	2000	2009	-14.43%	99.43%
128	412028	2001	2009	-16.98%	95.86%
129	412050	2001	2009	-12.92%	88.11%
130	412066	2001	2009	-15.27%	96.69%
131	412080	2001	2009	-14.72%	81.02%
132	415201	2000	2009	-13.22%	99.86%
133	415207	2001	2009	-15.09%	99.54%
134	415220	2000	2009	-18.01%	99.29%
135	415226	2000	2008	-16.44%	99.40%
136	415237	1997	2009	-10.91%	97.17%
137	415238	2000	2009	-17.31%	97.51%
138	418027	2000	2009	-7.76%	95.20%
139	419032	2001	2009	-10.40%	91.78%
140	419035	1991	1997	-8.99%	80.84%
141	420003	2001	2007	-17.20%	95.01%
142	420017	2001	2007	-15.46%	86.20%
143	421042	2001	2007	-12.01%	97.50%
144	421055	2001	2007	-17.33%	80.79%
145	421076	2001	2009	-14.83%	80.21%