1. Mann-Kendall mutation and significance test of the inflow and outflow of Erhai Lake from 1990 to 2019.

Table S1 M-K test of the inflow and outflow of Erhai Lake

Variable	Z	Mutation year	Trend	Significance
Inflow	1.40	2004	Downtrend	Not significant
Outflow	1.33	2004	Downtrend	Not significant

Note: When the absolute value of Z is greater than 1.96, it means that the trend has passed the significance level test of 95%.

2. Mann-Kendall mutation and significance test of the water level of Erhai Lake from 1990 to 2019.

Table S2 Mann-Kendall test of the water level of Erhai Lake

Variable	Z	Mutation year	Trend	Significance
Water level	3.96	2005	Uptrend	Significant

3. PCA method was used to extract the eigenvalues and variance contribution rate of each principal component that affect the water level change of Erhai Lake in different periods.

Table S3 The eigenvalues and variance contribution rates of principal components in different periods

Period	Component	Eigenvalue coefficient	Contribution percentage of variance (%)	Cumulative contribution percentage (%)
1990–2004	1	2.85	47.495	47.495
	2	2.33	38.826	86.321
2005–2019	1	2.591	43.188	43.188
	2	2.074	34.562	77.75
1990–2019	1	2.85	47.495	47.495
	2	2.33	38.826	86.321

Note: Extract the components with eigenvalue coefficient greater than 1in this study.