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## National Report of Germany

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Within the federal system of Germany, responsibilities for waters are divided between national authorities and those of the federal states, the *Länder*. For coastal waters there are two federal agencies, which are involved in water and environmental issues. Both are scientific institutions ranking as supreme federal agencies. The Bundesamt für Seeschifffahrt und Hydrographie –*Federal Maritime and Hydrographic Agency of Germany*- (*BSH*) as a maritime partner for industry, science, and environmental organisations. The *BSH* offers a with range of services such as: - prediction of tides, water levels, and storm surges, - monitoring of the marine environment, - prosecution of environmental offences, - improvement of the knowledge of the oceans.

The Bundesanstalt für Gewässerkunde –German Federal Institute of Hydrology- (*BfG*) is responsible for the German waterways in federal ownership. In this position it has a central mediating and integrating function. The *BfG* advises federal ministries, such as the Federal Ministry of Transport, Building and Urban Affairs (*BMVBS*), and the Federal Waterways and Shipping Administration (*WSV*) in matter regarding the utilisation and management of the German federal waterways.

In this context the *WSV* operates a network of gauging stations both in coastal and inland waters. Moreover, the federal states and some harbour authorities have their one tide gauges.

This report deals with the tide gauge network of the *WSV* on the North Sea and on the Baltic Sea. There are about 160 TGs along the coasts of Germany. About 100 TGs are located on tidal rivers such as the Elbe, the Weser, and the Ems. Figure 1 gives an overview of all coastal TGs.

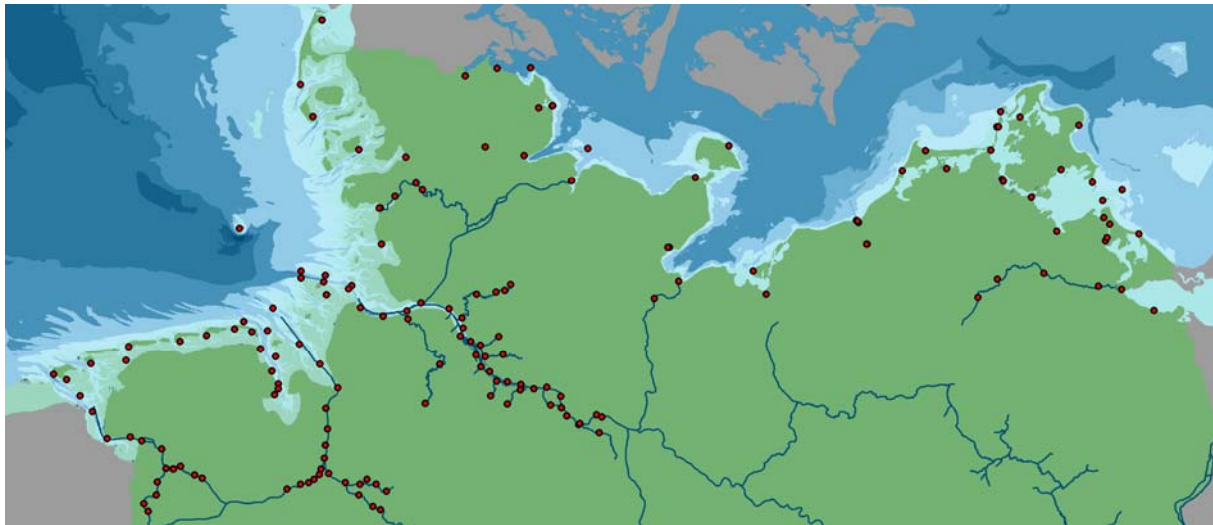


Figure 1.: German coastline and tide gauges on federal waterways

### Selected list of stations

Station Nr.	Station name	Latitude N	Longitude E	Agency
North Sea				
9510095	Büsum	54.12222	8.85917	WSA Tönning
9510070	Helgoland	54.17889	7.89	WSA Tönning
9530020	Husum	54.47222	9.02472	WSA Tönning
9570070	List	55.01667	8.44056	WSA Tönning
9570050	Hörnum, Hafen	54.75806	8.29611	WSA Tönning
9570010	Amrum, Hafen (Wittdün)	54.63166	8.38389	WSA Tönning
5970055	Brunsbüttel	53.8875	9.12583	WSA Cuxhaven
5990020	Cuxhaven, Steubenhöft	53.86777	8.7175	WSA Cuxhaven
9510050	Großer Vogelsand, LT	53.99556	8.47667	WSA Cuxhaven
9510010	Zehnerloch	53.95555	8.65833	WSA Cuxhaven
9510063	Scharhörnriff, Bake A	53.98444	8.31528	WSA Cuxhaven
9510066	Großer Vogelsand, Bake Z	54.01361	8.31472	WSA Cuxhaven
9510060	Scharhörn	53.97	8.46805	WSA Cuxhaven
9510132	Mittelgrund	53.94194	8.63611	WSA Cuxhaven
5990010	Otterndorf	53.83416	8.86889	WSA Cuxhaven
5970095	Osteriff	53.85528	9.02944	WSA Cuxhaven
5970050	Brokdorf	53.86278	9.31611	WSA Hamburg
5970035	Glückstadt	53.78444	9.40944	WSA Hamburg
49900108	Bremerhaven, Alter Leuchtturm	53.545	8.56806	WSA Bremerhaven
94600400	Alte Weser, Leuchtturm	53.86333	8.1275	WSA Bremerhaven
94600200	Dwarsgat, Unterfeuer	53.71861	8.3075	WSA Bremerhaven
94600100	Robbensüdsteert	53.63917	8.44528	WSA Bremerhaven
49700400	Nordenham, Unterfeuer	53.46445	8.48806	WSA Bremerhaven
49700300	Rechtenfleth	53.38111	8.50056	WSA Bremerhaven
94200300	Wangerooe, Langes Riff	53.80639	7.92917	WSA Wilhelmshaven
94200200	Wangerooe, Ost	53.76722	7.985	WSA Wilhelmshaven
94200100	Mellumplate, Leuchtturm	53.77167	8.0925	WSA Wilhelmshaven
94300300	Schillig	53.69889	8.04694	WSA Wilhelmshaven

94300200	Hooksielplate	53.66917	8.14861	WSA Wilhelmshaven
94300100	Voslapp	53.61083	8.12278	WSA Wilhelmshaven
94300400	Wilhelmshaven, Ölpier	53.55861	8.1675	WSA Wilhelmshaven
94200400	Wangerooge, West	53.77639	7.86806	WSA Wilhelmshaven
93400200	Borkum, Fischerbalje	53.5575	6.74778	WSA Emden
93600100	Norderney, Riffgat	53.69667	7.15778	WSA Emden
94100100	Spiekeroog	53.74917	7.68194	WSA Emden
93900100	Langeoog	53.72306	7.50139	WSA Emden
93500100	Memmert	53.625	6.90722	WSA Emden
93400300	Borkum, Südstrand	53.57694	6.66139	WSA Emden
39900200	Dukegat	53.43361	6.92611	WSA Emden
93400100	Emshörn	53.49361	6.84111	WSA Emden
39900100	Knock	53.32722	7.03056	WSA Emden
Baltic Sea				
96100107	Flensburg	54°47,704'	09°25,981'	WSA Lübeck
96100151	Langballig	54°49,396'	09°39,248'	WSA Lübeck
96100253	Schleimünde Seepegel	54°40,364'	10°02,202'	WSA Lübeck
96100457	Eckernförde	54°28,483'	09°50,161'	WSA Lübeck
96100355	Kappeln	54°39,865'	09°56,276'	WSA Lübeck
96100504	LT Kiel	54°29,976'	10°16,396'	WSA Lübeck
96100661	Kiel-Holtenau	54°22,326'	10°09,423'	WSA Lübeck
96100708	Heiligenhafen	54°22,378'	11°00,340'	WSA Lübeck
96100752	Marienleuchte	54°29,798'	11°14,333'	WSA Lübeck
96200859	Travemünde	53°57,482'	10°52,331'	WSA Lübeck
96100209	LT Kalkgrund	54°49,476'	09°53,280'	WSA Lübeck
9650024	Althagen	4527355.09	6027525.45	WSA Stralsund
9650040	Barhöft	4567107.70	6034923.95	WSA Stralsund
9650030	Barth	4547129.47	6027625.98	WSA Stralsund
9650072	Greifswald Eldena	4594749.14	5997350.75	WSA Stralsund
9670050	Kloster	4571978.85	6051723.59	WSA Stralsund
9690093	Koserow	5434695.2	5993242.4	WSA Stralsund
9670063	Lauterbach	5402726.44	6024979.75	WSA Stralsund
9670046	Neuendorf Hafen	4570931.92	6044996.58	WSA Stralsund
9690077	Ruden	5419989.51	6009501.50	WSA Stralsund
9670065	Sassnitz	5412239.24	6043779.57	WSA Stralsund
9690077	Thießow	5416089.58	6018068.17	WSA Stralsund
9640002	Warnemünde Tonnenhof	4506878.99	6004961.83	WSA Stralsund
9690078	Greifswalder.-Oie	5428881.62	6013470.98	WSA Stralsund
9690085	Karlshagen	5422138.74	5998722.37	WSA Stralsund

All TGs measure the water level with a floatsystem in a stilling well. The mechanical signal of the float is transformed by an angle decoder into electrical signals to make them ready for data transmission.

The stations Saßnitz, Warnemünde, and Kiel Holtenau, which are located on the Baltic Sea are equipped with GPS. The North Sea tide gauges Hörnum, Helgoland, and Borkum Fischerbalje are also equipped with GPS. All these TGs are ESEAS stations.

The raw data are available in 1-minute intervals via the Internet <http://www.pegelonline.wsv.de> . These data are also used by the BSH for predicting tides, water levels, storm surges, and currents. Hydrological data processing is done by the local authorities, who are also responsible for operating and maintaining the tide gauges.