In 2014, the project “Danish seine – Ecosystem effects of fishing” got initiated in order to establish a better scientific understanding around Danish anchor seining and its effects on the environment. By comparing catch profiles of Danish seiners and demersal otter trawlers, we could show that the Danish seine is an efficient gear to catch flatfish, but is not as flexible as trawlers in terms of fishing areas because it is restricted to relatively flat areas. Furthermore, selectivity characteristics of the codend and other parts of the gear were investigated. We attached a large cover around the codend and a novel arrangement of 12 small mesh bags on different parts of the seine net to collect fish and invertebrates that would escape under commercial conditions. By doing so, we could estimate codend selectivity parameters for relevant species, which were relatively similar to estimates for trawls, and found that the majority of fish attempted to escape through the seine codend. For invertebrates, we observed high escapement rates from gear parts forward of the codend, indicating that there are effects that are ignored in conventional selectivity studies which primarily focus on codend catches. In another set of sea trials, we attached GPS loggers and various self-invented observation systems to the gear to monitor and describe the fishing process in detail. Animations showing the fishing operation with a Danish seine were created, including information about net opening, net spread, tensile forces between net and ropes and rope behavior. We documented that the majority of fish enters the seine net very late, that fishermen can conduct efficient seine fishing although they do not use any gear monitoring sensors, and that impacts of seine ropes on the sea floor were limited to slight smoothening effects. The PhD project increased the basic scientific understanding of Danish seining and developed methods and equipment than can be used to collect more detailed information in the future. The broad information established here provide data that is of high relevance for tomorrow’s discussions about the fisheries in European waters including the implementation of the new Common Fisheries Policy and its landing obligation.