

Summary

Leisure boat use in Norway

Accidents and safety attitudes

TOI Report 1547/2017

Authors: Astrid H. Amundsen and Torkel Bjørnskau

Oslo 2017 79 pages Norwegian language

Most leisure boat users in Norway behave safely at sea, and follow the safety measures. Running the boat aground is the most common accident type (35 percent) in Norway, partly due to the fact that many of the shallows are not marked on a map or indicated by buoys. Most accidents while boating in Norway only result in light property damages. The risk of accident while using leisure boats is higher than for cars, but lower than for using cycle and motorcycle. The speed of the boat is slightly higher in accidents causing personal injuries, than in accidents only causing property damages. The implementation of new PFD (Personal Floating Device) regulation in 2015, have resulted in an increased use of PFD use among leisure boat users in Norway. In Norway inflatable lifejackets are common, but quite a few forget to maintain these inflatable lifejacket correctly.

Accidents involving leisure boats

Approximately 30 persons die each year in leisure boat accidents in Norway. More than 90 percent of these persons are men, and a majority of the victims were not wearing PFD (personal floating devices). Most of the accidents happens during the summer months, when the boats are in more use.

The number of fatalities among leisure boat users have not had the same positive development as the number of fatalities on the Norwegian roads, see Figure E.1.

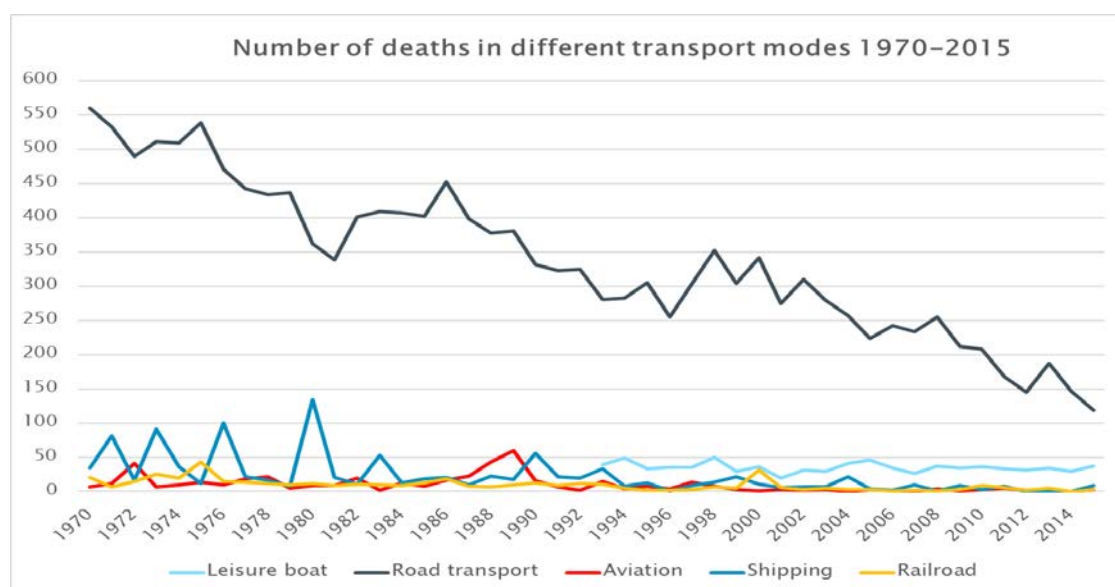


Figure E.1: Number of fatalities in different transport modes in Norway from 1970-2015. Source: Statistics Norway/ Norwegian Maritime Authority/ Norwegian Public Roads Administration.

About seven 7 percent of boat owners in our sample (of about 11 000 boat owners) are annually involved in an accident/incident. Most of these accidents/incidents only involve

property damages, with a limited amount of damage. Of those who have been victims of an accident/incident, running the boat a ground is the most common cause of the accident/incident, see Table E.1.

“Engine breakdown” and “object in the propeller” is also common accident types in Norway. Only three percent of the accidents were reported to the police, while 32 percent were reported to an insurance company. This indicates that most accidents that happens when using leisure boats in Norway, does not cause major damages on persons or on the boat.

Table E.1: Description of the last accident/incident the boatowner was involved in. Percent. N= 2 427.

Type of accident/incident*	Percent
The boat ran aground (touched ground)	35.0
The boat started to take in water	4.8
The boat capsized	1.0
Collision with other boat	3.7
Collision with object in the water	3.6
Collision with wharf/quay	4.8
Fire/smoke development	1.4
Engine breakdown	17.7
Engine fuel leakage	1.4
Person fell (overboard)	1.4
Person fell (on board)	0.5
Person injured (when trying to leave the boat, when anchoring, on board)**	1.4
Object in the propeller (rope/line, fishing net, etc.)	15.3
Other	17.4

* It was possible to indicate more than one cause/accident type.

** This do not include all the injuries to boaters, some injurie on persons may also occur in the other accident types.

Risk of accidents with leisure boats

In our sample, the risk of insurance-accidents was calculated to be 11 per million boat-kilometers. By comparison, it is estimated that passenger cars (<3.5 tonnes) in Norway have a risk of insurance-accidents of 7.4 per million vehicle kilometers.

The risk of an accident with injury to persons while using a leisure boat was estimated to be higher than the risk of an injury accident with a passenger car. However, there is a higher risk of being injured while bicycling or motorcycling than when using leisure boat. If we include self-reported injuries, both by bicycle and leisure boat, the risk of personal injury is around 30 times higher for cyclists than for leisure boat users based on our survey.

Factors influencing the risk of accident

When we look at incidents¹ in general, boaters with little experience have been somewhat more exposed to incidents than experienced boaters, but when we look at the more serious accidents (those reported to insurance companies) there are no significant differences regarding the boatman's experience as boaters. Regarding the risk of an incident, this was not significantly affected by the use of the boat (exposure), but for accidents reported to the insurance company there was a clear correlation between accident and exposure. The same was true of the boat's engine power, which had a marginal connection with the risk of involvement in an incident, but a clear connection with the insurance-accidents.

In our sample, sailboats were more prone to incidents than other boats, which may be due to several factors. The sailboats reach deeper in the water and the possibility of grounding is higher. Sailing requires more activity - activity on deck with regard to handling of sails etc. There is also a correlation between boat length and accident, especially the boats over 26 feet are overrepresented both in case of incidents and insurance reported accidents. In the case of the insurance-accidents, boat length and engine power were more decisive than the type of boat in terms of accident involvement.

We found no clear connections between incidents/accidents and training or membership in various boating associations. On the other hand, we found a clear connection between the use of navigation equipment and accidents. Somewhat unexpectedly, we found that those who had navigation equipment were more prone to accidents than those who did not. This also applied when we looked exclusively on accidents involving grounding. This may possibly be partly due to the type of boat that has navigation equipment. Navigation equipment is most commonly used on larger boats and sailboats, which are more prone to accidents than other boat types, and are more commonly used on long journeys in unknown waters. Possibly, the use of navigation equipment may also be a distraction for some boaters.

The speed of the boats was somewhat higher in the accidents involving personal injuries, than in the accident only involving property damages.

Use of leisure boats in Norway

Leisure boats are not unexpectedly mostly used during the months of June, July and August in Norway. The boats in our survey were used on average 12.5 days in July and 8-9 days in June and August. The boat owners in our sample were out in a boat on average 47 days a year. This is quite a lot more than indicated in a previous Norwegian survey from 2011, where respondents stated that they used leisure boats on average 34 days a year. The differences in annual boat use in the two surveys are mainly due to sample differences. In our survey participants (approximately 11 000 boat owners) were all recruited from a national register² of leisure boat owners (Småbåtregisteret), while the respondents in the 2011 survey were recruited from a representative sample of all Norwegians who lived in a household that owned a leisure boat. Compared to the 2011 survey, our sample is underrepresented when it comes to the small (mostly non-motorized) open leisure boats,

¹ Incidents – an accidents involving either damage to the boat or injury to person. Usually only minor damages to the boat.

² It is voluntary to be registered in the «Småbåtregisteret», but it is recommended by insurance companies, and for safety reasons.

especially kayak, canoe and not-motorized dinghies. Our sample is also somewhat overrepresented when it comes to enclosed or partially enclosed motorboats compared to the overall fleet of leisure boats in Norway. About two percent of boat owners in our survey used the boat as their primary dwelling, and some used their boat for fishing trips almost all year around.

There is no exact overview of the number of leisure boats in Norway, but it is estimated that about 750 000 leisure boats are in usable conditions.

Most boat trips in Norway, are day trips of varying duration. The sailboats are more often used on longer trips, compared to other boats. The boat is mostly used in connection with vacation and leisure travel, while many of those with open or partially enclosed motorboats also use their boats for fishing trips. Sail boats are also partly used for race/training purposes (seven percent of the owners of sailboat specified racing/training as the purpose of the last trip).

In the open motorboats, the skipper was alone in the boat at 17 percent of the trips. At around 70 percent of the trips, there were 1-3 occupants in addition to the skipper.

Use of PFD

In the spring of 2015 a new regulation for the use of PFDs (personal floating device) in leisure boats was introduced in Norway. It is now *mandatory to use PFD* for everybody *aboard leisure boats less than eight meters (= 26 feet and under)*. In August/September 2015 we asked boat owners how often they wore PFDs when they were using their boats. Most boatowners with boats 26 feet and under stated that they always used a PFD (see Figure E.2).

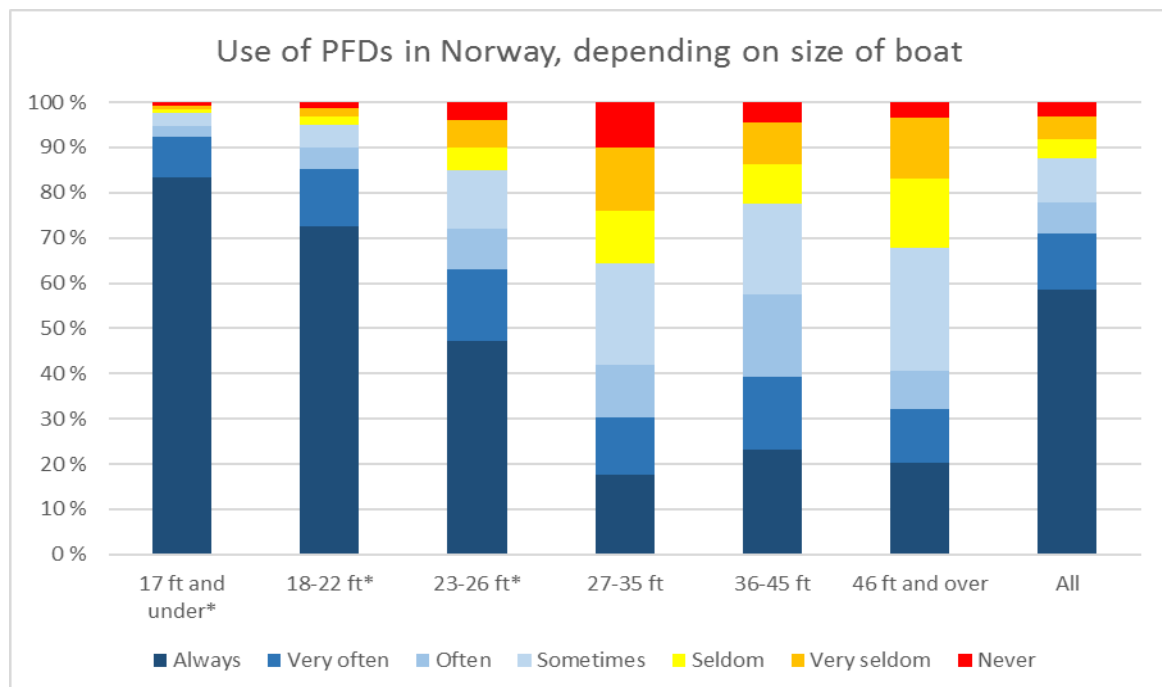


Figure E.2: Use of PFDs in Norway, depending on the size of the leisure boat. * Required by Norwegian law to always use PFD. N= 10 505.

But there is still a portion, especially among those with boats from 23 to 26 feet, who are not always wearing PFD. Among the owners of open motorboat (regardless of size), 80

percent stated that they always wore a PFD. Even if everyone is not always wearing a PFD, about 96 percent said they always had PFD for every person on board available in the boat (see Figure E.3).

Inflatable lifejacket is now common among users of leisure boats in Norway. In order to maintain the flowability of these jackets, regular monitoring/servicing is important. 45 percent of those who owned a inflatable lifejacket that was over a year old, stated that they did not have service/control of the lifejacket during the last three years.

Most Norwegian follow the safety regulations at sea

About 45 percent of boatowners have at some time consumed alcohol immediately before or during a boat trip, see Figure E.3. The blood alcohol limits at sea is not as severe as in road traffic (0.08 vs 0.02), so even though many have been drinking alcohol at least once while driving a boat, this not necessarily mean that they have been driving with an illegal blood alcohol level.

Most boat owners say they always use lantern/lantern when driving in the dark and that they never drive the boat with more occupants than the boat is registered for. A majority have at least once run over allowed speed limits close to land. The elderly boatowners are somewhat better at following the rules than the younger boat owners.

Older boat owners are also somewhat more positive to the introduction of additional measures to improve safety at sea. Improved markings of shallow waters/reefs are measures most boat owners agree on. Measures as:

- stricter blood alcohol limit,
- requirement of Boatmanship test for all boat owners,
- stricter speed limits at sea,

are measures that are more controversial among boatowners in Norway.

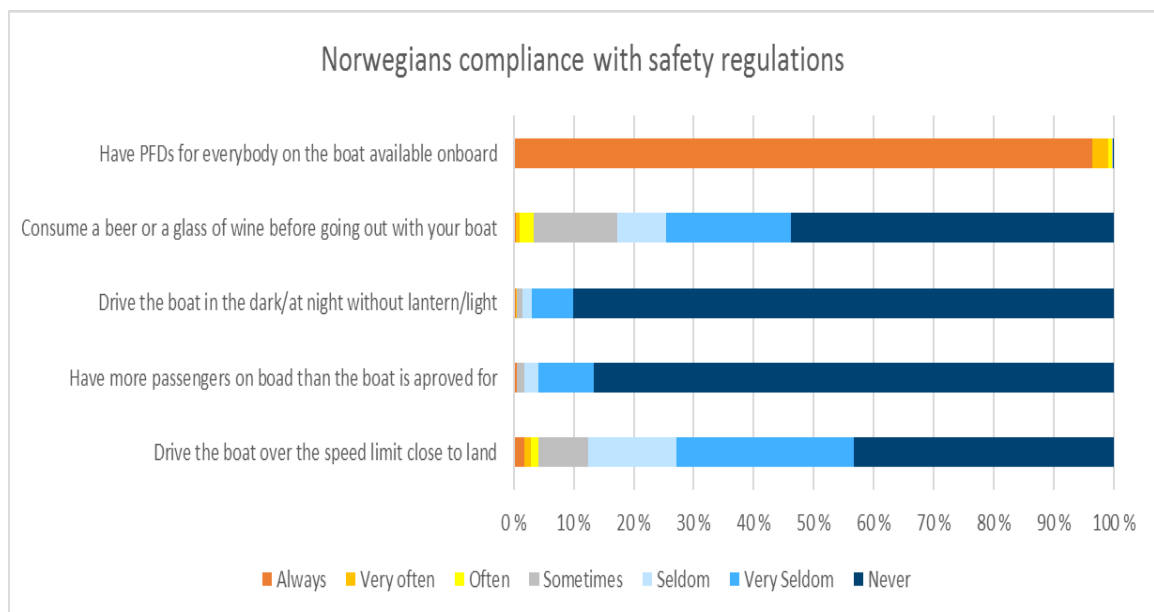


Figure E.3: Norwegians boat owners safety behavior at sea. N= 10 788.

Education and experience

In our survey 45 percent of the respondents had a Certificate of boatmanship (see Table E.2). In Norway it is now mandatory for all drivers of boats born in 1980 or after to have the certificate (if the boat is eight meters or over/or have an engine power over a certain limit).

Table E.2: Education in the use of leisure boats. Percent. N= 11 122.

	Proportion that have:
Certificate of boatmanship (Båtførerbevis)	44.8
Leisure boat shipmaster certificate	4.4
Costal shipmaster certificate	3.6
Other education/courses in boat and boat use	8.5

How improve safety at sea for leisure boat users in Norway?

About 30 people are killed annually using leisure boats in Norway, and accidents involving leisure boats have not had the same positive trend as serious accidents in road traffic. As in road traffic, a high number of the fatalities at sea involve driving in high speed, at night (with low visibility), being influenced by alcohol, and without wearing a PFD. In addition to the fatalities, a number of less serious accidents also happen while using leisure boats.

One possible way to reduce the number of accidents is more visible policing and increased surveillance at sea. Better marking of shallows and reefs could also help to reduce many of the accidents.

In most of the accidents involving a fatality, the deceased did not wear a PFD, so an increased focus on the importance of always using a PFD is important. It is also important to focus on that the inflatable lifejackets need regular servicing to maintain its floatability.

Adaptation of speed to the conditions and how familiar one is in the area will also improve safety.

Information about safe behavior at sea is important, and courses in navigation, how to behave safely at sea, and give way rules can help new boat operators to improve interactions at sea and reduce the number of "beginner mistakes".

The survey

The survey was conducted in August/September 2015. The respondents were randomly selected from the Norwegian register of leisure boat owners (Småbåtregisteret) administered by the Norwegian Society for Sea Rescue. Around 11 000 boat owners answered a web survey.

The survey was financed by the Norwegian Research Council, under the TRANSIKK research program.