INTRODUCTION

In Western Europe barge tourism has been a popular way of spending holidays for many years. It has been favoured by well kept inland waterways and regulations. In most countries of Western Europe a person doesn’t need to be licensed to drive a recreational boat unless it is longer than 15m (Carbuch, 2010) [2]. Additionally, barges usually cruise at a gentle pace and are easy to operate. Nevertheless, it is obligatory for a boat crew before being allowed to drive the boat and setting out on a cruise, to undergo a special training (which includes also manoeuvring). Polish regulations concerning boat driver’s licence has been liberalized over the last few years which can contribute to the growth of barge tourism. In Poland at present you can steer a boat without a special licence if it is shorter than 13m, moves no faster than at 15km/h and the engine power is 75kW. An indisputable European leader offering comfortable and luxurious boats and barges to tourists is France. It is followed by Germany, then Great Britain, Holland, Belgium, Ireland and last but not least Italy (Venice). In countries like Greece, Spain and the Czech Republic you can also have a holiday on a barge, however in these countries it is not a mass tourism.

Barge tourism may be described as a kind of motor yachting. It is actually a modern type of water tourism which first appeared in Western Europe at the end of XX century. In Poland it has just started to develop. With the present chartering base, the equipment and facilities available it is at the early stage as a branch of water tourism. The advantage of barge tourism over others is caused by its accessibility to tourists since no qualifications are required to steer the boat. Barge chartering in Poland in the full sense of this word takes place mainly in the Masurian Lake District (Górski, 2008) [4]. However, it is steadily beginning to appear in other regions as well, e.g. Gdańsk or Żuławy Region. Undoubtedly, this branch is going to develop due to the fact that Poland has exceptionally attractive and extensive inland waterways adequate for barge tourism. Additionally, Poland has rich sailing traditions which made the country a successful manufacturer of recreational vessels. These traditions had also influence on the improvement of infrastructure of waterway routes and on people’s lives preparing them from the early years of childhood for water tourism.

In contrast to motor yachts, barges cruise at a gentle pace, often slower than 10km/h. Therefore, planing of a barge is impossible and cruising is safe since it is a displacement boat (Adelt, 1985) [1]. Additionally, the safety is ensured by the solid construction and waters of its navigation which most often are canals, calm sections of rivers and lakes on which high waves are not likely to appear. Barges offer enormous deck that enables to take bicycles, allows for safe moving around, and diminishes side drift excluding the risk of capsizing. Barges being quite small vessels are very comfortable. With separate bedrooms, a toilet, a bathroom, kitchen equipment and furnishing, whether long or short, a cruise on it becomes a pleasant experience.

With all the facilities, every day operation of the barge is undoubtedly a complex and demanding physical activity. Moving around on the deck demands attention due to sometimes limited space and construction elements. Manoeuvring by the banks, going through locks or mooring involves concentration and physical effort. Continuous providing everyday products and doing daily maintaining activities are energy consuming as well. Visiting local attractions is an inherent element of barging. Therefore, sightseeing whether on foot or bicycles is a several-hour effort. It is a barge that
offers enough space for taking bicycles which can be used every day to keep fit. And the last form of activity available when cruising on a barge is swimming. It will be hard not to stop and have a swim while cruising on numerous attractive waters. The above examples prove that barging is a form of tourism adequate for people of different ages (Rogacka, 2008) [5]. Due to the comfort provided by dimensions of the rooms, facilities and stability of the barge, even disabled people can take part in a cruise. They can as well engage in one of the forms of activities to improve their health, fitness and to feel better (Solarska, 2008) [6]. Boating holidays turn out to be pleasant, safe, and comfortable and simultaneously an active pastime enabling different age and profession groups and people with motor disability sustain or develop their psychophysical efficiency (Gołębiewska, 2008) [3].

Safety is an essential element of any form of recreation if it is to be practiced massively, especially by children, the elderly or the disabled. Barging is a form of pastime open to families with children, the elderly, and sometimes even the disabled. It is not exclusively professionals’ leisure. Tourists without a boat’s licence and experience are allowed to operate and drive the boat, therefore the safety is the top priority here. In the years 2007-2010 a questionnaire (included in the research) on safety on boats was completed by boaters, chartering companies, inland search and rescue stations and harbour authorities. The opinions are presented below.

1. MATERIAL AND RESEARCH METHODS

The aim of this work is to explain which of the small recreational vessels (sailing yacht, motor yacht or barge) is the safest when sailing on inland waterways. The following hypothesis was formulated: A barge is the safest recreational vessel navigating on inland waterways.

To present this subject widely the author has decided to use a set of research methods to collect factual information and empirical material for its scientific analysis. Applying of the following methods allowed achieving the aims and justifying the research hypotheses. Before starting the research, a critical analysis of literature was made.

The following research methods were applied:
- structured interview
- qualitative data analysis
- field research

Interviews have been conducted with:
- harbour authorities of the main marinas in Masurian Lake District
- search and rescue stations of Masurian Lake District
- selected chartering companies
- boaters

An interview means face to face conversation conducted in a systemized way. During such a conversation also other additional information not always concerning the question asked appeared. These pieces of information have also been included in the material. The intention was to collect information and opinions on specific issues in order to compare them. The aim was to question as many chartering companies in Poland, search and rescue stations and ports authorities in Masurian Lake District as possible. Therefore, the exact number of the subjects was known after having completed the research, and it was: boat manufacturers – 19, chartering companies – 13, marinas’ authorities – 16, rescue stations – 5. The number of tourists questioned was 100. They all were sailing on various kinds of vessels.

1.1 Data analysis

The preparation for the research included studying literature about safety on water and analyzing barge tourism (and its requirements) as a relatively new form of tourism. A natural step was comparison of a tourist barge with a sailing yacht and motor yacht. The core issues were: safety, comfort, operation and feelings of tourists. Such comparative analysis helped to distinguish the features that ensure safety on a barge, make her unique, attractive and therefore, mass appealing.
1.2 Field research

In order to compare and verify the results and finally conclude the research, techniques of direct observation and structured interview have been used. Open observation is an activity during which information and data are gathered spontaneously. Structured interview is a conversation with respondents or a respondent according to early prepared rules.

The field research included personal visits to the events connected with barging:
- Boatshow Fair, Poznań 2008,
- Wind and Water Fair, Warszawa 2009,
- Wind and Water Fair, Gdynia 2009,
- marinas,
- search and rescue stations of the Masurian Lake District,
- boaters
- boats producers,
- chartering companies offices,
- waterway routes and their hydro technical objects.

2. RESEARCH RESULTS

2.1 Research results – tourists opinions concerning the safety on barges:
1. Which cruise vessel, in your opinion, seems to be the safest on inland waterways?

![Safety assessment on barge compared to yachts](image1)

Fig. 1. Safety assessment on barge compared to yachts

2. Which cruise vessel, in your opinion, ensures the highest safety level for children? Justify your opinion.

![Children’s safety on barge compared to yachts](image2)

Fig. 2. Children’s safety on barge compared to yachts
2.2 Research results – harbours staff opinions concerning the safety on barges.

3. What is the manoeuvrability of tourist barges compared to motor yachts and sailing yachts?

4. What do you think is the collision risk of barge manoeuvring in ports and its consequences compared to sailing yachts and motor yachts (compare passengers safety)?

Fig. 3. Figure 2 justification.

Fig. 4. Barges manoeuvrability compared to yachts.

Fig. 5. Collision risk of barge manoeuvring in ports and its consequences compared to sailing yachts and motor yachts.
2.3 Research results – search and rescue stations staff opinions concerning safety on barges

1. What is the level of manoeuvrability of a barge compared to motor yachts and sailing yachts?

![Fig. 6. Barge manoeuvrability compared to yachts.]

2. What do you think is the collision risk of a barge manoeuvring in ports and its consequences compared to sailing and motor yachts (compare passengers safety)?

![Fig. 7. Collision risk of a barge manoeuvring in ports and its consequences compared to sailing yachts and motor yachts.]

3. Compare the safety level of boaters on barge with the safety level of boaters on sailing yacht and motor yacht. Take into consideration difficult weather conditions (strong wind, big waves).

![Fig. 9. Safety level of boaters on barge in difficult weather conditions (strong wind, big waves) compared to yachts.]

2.4 Research results – boat chartering companies' opinions concerning the safety on barges

4. Compare the safety level of boaters on barge with the safety level on sailing yacht and motor yachts. Take into consideration difficult weather conditions (strong wind, big waves).

![Polar Area Diagram](image1)

*Fig. 10. Safety level of boaters on barge in difficult weather conditions (strong wind, big waves) compared to yachts.*

![Polar Area Diagram](image2)

*Fig. 11. Justification of the expression „barge the safest”.*

![Polar Area Diagram](image3)

*Fig. 12. Justification of the expression ”barge the least safe”:

5. Compare the safety level of boaters on barge with the safety level on sailing yacht and motor yacht in case of collision caused by skipper's error or in case of accidental collision.

![Polar Area Diagram](image4)

*Fig. 13. Boaters’ safety on barges in case of collision compared to safety on sailing yachts and motor yacht.*
Tab. 1. Research results concerning the barge safety (source: author’s analysis).

<table>
<thead>
<tr>
<th>Subjects Questions</th>
<th>Chartering companies %</th>
<th>Ports %</th>
<th>SAR stations %</th>
<th>Tourists %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which of the vessels analysed here is the safest in case of collision?</td>
<td>Barge, 92</td>
<td>Barge, 50</td>
<td>Barge, 80</td>
<td>-</td>
</tr>
<tr>
<td>Which of the vessels analysed here is the safest in bad weather conditions?</td>
<td>Barge, 61</td>
<td>-</td>
<td>Barge, 60</td>
<td>Barge, 85</td>
</tr>
<tr>
<td>Which of the vessels analysed here is the easiest to operate and does not require professional skills to sail it?</td>
<td>Barge, 69</td>
<td>Barge, 82</td>
<td>Barge, 40</td>
<td>Barge, 77</td>
</tr>
<tr>
<td>Which of the vessels analysed here has the best manoeuvrability?</td>
<td>-</td>
<td>Barge, 38</td>
<td>Barge, 100</td>
<td>-</td>
</tr>
</tbody>
</table>

CONCLUSIONS

On the base of the above results we can say that a barge seems to be the safest of all small vessels cruising on inland waterways. In general, barges are built with safety, easiness of operation and comfort being the top priorities. Obviously, they are not the safest in every aspect and in any weather conditions. Constructions of vessels are so diverse that, none of them will ever have advantage over the others.

Respondents agreed that a tourist barge is a very safe means of transport on inland waterways in the following aspects:
- It cruises at low speed (10km/h), with its displacement construction possible collision or its consequences would be minimal compared to planing yachts or sailing yachts;
- Contrary to a sailing yacht a barge has a great maneuverability due to bow thrusters (in modern barges), which are especially important in port, and additionally a solid construction of the hull ensures safety in case of a collision;
- Gummed sides and non-detachable fenders diminish the effects of a collision;
- Contrary to a sailing yacht, a barge will not capsize in strong wind, nor is its rigging likely to be damaged and cause danger;
- Holiday makers, especially children and disabled people, may spend the time inside the spacious interior of a barge, they are not confined to deck where they run the risk of being hurt, falling, or falling out (as it is on sailing yachts);
- A barge because of the easiness of operation and its construction is a safe means of transport on inland waterways for tourists with low skills or not licensed for driving a boat. Motor yachts and especially sailing yachts demand from the skipper and the crew special theoretical knowledge and skills to operate the rigging;
- Due to the slow pace of a barge it is not a threat to people swimming in water.

For the constructors and designers of sailing yachts the top priority is sailing enjoyment, for those building motor yachts the top priority is speed. Those two features are to give the users adrenalin which does not necessarily means safety. Barges, however, are to provide relax and tranquility during holidays. There are no riggings and sails that can be damaged or that can cause dangerous leans or increase the hazard of injuring people moving on board. Barges are not built to travel fast. Their average speed is 10km/h – it is a safe speed. They have solid construction, gum sides and fenders. They are resistant to collisions, to big waves and strong wind. Sailing yachts have more fragile hull with a center board that may be damaged or cause other danger during a collision with the bottom. Motor boats that plane when high waves and strong wind are not safe. Their hull can be damaged and the passengers may be injured. When motor boats move at low speed in difficult weather conditions it is impossible to steer them so they are unstable. So again the passengers are put at risk. Considering the above examples, a barge seems to be the safest for passengers, especially children, the elders or the disabled because of the spacious interior and deck and lack of rigging. Another issue adding to the safety of barges is the waters it cruises on which are mainly canals. They are safe to navigate since there are no strong winds, waves or drifts. In France tourist navigate mainly canals, in Poland they...
navigate mainly lakes or rivers. Only part of their cruise will take place on canals. The barge must be safe because she will be very often driven by inexperienced and not licensed holiday makers. A kind of protection for tourists is ban from cruising when the wind is stronger than 4ºB. It is due to the assumed poor skills of the driver. There is one situation when safety of barges may be questioned and it was signalized by respondents. It concerns self-constructed private barges. If it is a caravan or a container put on floating chambers it would best for it to move only on canals. Such vessels are unlikely to resist the wind or big waves. These of course are not “real” barges you can charter. Charter barges are mass-produced and universal, built with precision and with application of all safety regulations. However, self-constructed barges using ship’s boats are resistant to wind and big waves, due to their primary function. They also are equipped with low speed engine of high torque and profiled propeller, which help to swim against wind and wave keeping the same slow pace. English barges – narrowboats are very long and narrow not hydrodynamic but solid in construction. These barges as well as box-like houseboats seem to perform better when in canals than in open lake fighting against wind and waves. Recreational barges are not designed to cruise during extreme weather conditions. Recreational boating usually takes place in summertime in good weather when it is actually attractive and ensure relax.

Construction of a vessel influences the safety of the people on board. Therefore, for respondents the key issue for safety is skills of a skipper and his/her reason. If a skipper knows the construction of the boat, knows on what waters he shouldn’t cruise and he will not take unnecessary risk to fight the nature in bad weather conditions. Concluding the subject matter: a barge is the safest of all small recreational vessels, however there are situations when common sense, boat’s capabilities and skills of a skipper and the crew cannot be disregarded.

Abstract

The aim of the research is to show which of the small recreational vessels (a sailing yacht, motor yacht or barge) is the safest on inland waterways. During the research conducted in the years 2007-2010 which included a field research and structured interview, opinions of tourists, boat chartering companies, inland waterways search and rescue stations and harbour authorities have been collected and presented in this work. The conclusion is: a barge is the safest of all small recreational vessels, however there are situations when common sense, boat’s capabilities and skills of a skipper and the crew are priority and cannot be disregarded.

BIBLIOGRAPHY
