DOWNLOAD PDF BOAT IMPACT STUDY

Chapter 1 : Boat Motors and Water Quality

Lake Country Council has received a report on a Boat Impact Study for Kalamalka and Wood Lakes. The study looks at the need to create a meaningful balance between protecting the lakes and recreational activities.

Boating Impacts â€" compilation by Gwen White including: Hill who has consulted on the impacts of prop wash on eelgrass habitat and conducted field experiments on lakebed disturbances due to passing boats. The wave height required to dislodge sediment will be a strong function of the characteristics of the bank ex: A number of studies have suggested that near-bank wave heights of approximately 0. On a shoreline that is simultaneously subject to large boat wakes and large wind-driven waves, the impacts of the intermittent boat wakes are likely to be negligible compared to the much more sustained lading of the wind waves. For boats operating in six feet of water, the boat speed corresponding to this worst-case scenario is approximately 9. Past and present engineering studies of boating in lakes have proven valuable. Some familiarity with results of previous studies combined with, if possible, site-specific studies will enable regulatory agencies to enact reasonable and prudent limits on near-shore use. Water clarity is important for a number of reasons. It affects the ability of fish to find food, the depth to which aquatic plants can grow, dissolved oxygen content, and water temperature. Water clarity is often used as a measure of trophic status, or an indicator of ecosystem health. Water clarity is important aesthetically and can affect property values and recreational use of a waterbody. How might boats affect water clarity? Propellers may disturb the lake or river bottom directly, or indirectly through the wash or turbulence they produce, especially in shallow water. This may affect water clarity by increasing the amount of sediment particles in the water or may cause nutrients that are stored in the sediments, such as phosphorus, to become available for algal growth. Waves created by watercraft may contribute to shoreline erosion, which can cloud the water. Yousef and others is the most often cited publication on motor boat impacts. Turbidity, phosphorus, and chlorophyll a chl a were measured. Maximum increases in turbidity and phosphorus occurred within the first two hours of boating activity. Turbidity declined at a slower rate after boating ceased, taking more than 24 hours to return to initial levels. What do we know? Boats have been shown to affect water clarity and can be a source of nutrients and algal growth in aquatic ecosystems. Shallow lakes, shallow parts of lakes and rivers, and channels connecting lakes are the most susceptible to impacts. Depth of impact varies depending upon many factors including boat size, engine size, speed, and substrate type. Few impacts have been noted at depths greater than 10 feet. What can we do about it? No-wake zones in shallow areas of lakes and rivers could help to reduce impacts on water clarity, both by reducing the overall amount of boat activity in these areas and by limiting impacts from high-speed boats. In certain cases it may be beneficial to restrict boat activity altogether, such as in extremely shallow waters where boats can disturb the bottom even at no-wake speeds. What factors affect shoreline erosion? Shoreline erosion is affected by two main factors: Water currents, waves, and water levels are the primary agents that cause shoreline erosion, although overland runoff can also erode shorelines. Nanson and others Most of the measurements of the boat waves were positively correlated to rates of bank recession. Transects resurveyed in indicated 28 ft. On average, the riverbank is eroding at a rate of 3 feet per year. The surveys suggest that foot-traffic trampling and boat waves are major contributing influences to shoreline erosion in the study area. In the summer of , additional investigations of off-peak and peak boating days included the measurement of maximum wave heights, number and type of boats, and shoreline sediment mobilization erosion and resuspension. The study results confirmed that wave heights below 0. However, the more boat waves 0. Likewise, the larger the maximum wave height in a minute monitoring period, the greater the amount of sediment mobilized. Of all the boat types recorded, runabouts and cruisers had the highest correlation to the measured maximum wave heights, amount of sediment mobilized, and number of waves greater than the sediment mobilization threshold 0. Wind-generated waves above the threshold were not recorded during the study period. Waves or wake produced by boats is the primary factor by which boats can influence shoreline erosion. Small lakes are likely to be most influenced by boat-induced waves, as boats may operate relatively close to shore and wind-induced waves are reduced. Shoreline erosion has been documented in river systems

and has been attributed to frequency and proximity of boat traffic. It is unclear what effect boat waves have on shoreline erosion or bank recession in lake or still water environments. All studies to date have been on river systems. Also unknown is the cumulative impacts that boat waves can have on shorelines, especially in combination with wind-induced waves. While equations exist to predict how much of a wake a given boat can produce, very little information is available to suggest how much boat traffic a given shoreline can sustain. Also, individual boat waves may dissipate quickly, but boat traffic often mixes waves from several boats and can create much bigger waves that persist for longer periods of time. No-wake zones are designed to minimize boat wake, so the obvious solution would be to use no-wake zones to limit shoreline erosion, particularly in channels or small sheltered lakes i. Maintaining and restoring natural shorelines would help reduce the impacts of all types of waves on shoreline erosion. They are usually divided into three categories: Why are aquatic macrophytes important in aquatic ecosystems? Aquatic plants perform many important ecosystem functions, including habitat for fish, wildlife, and invertebrates; stabilization of lake-bottom sediments and shorelines; cycling of nutrients; and food for many organisms. What factors affect aquatic macrophytes? Eutrophication, boat traffic, controlled or raised water levels, shoreline development, invasive species can all have in impact upon aquatic plants, either through changes in abundance or species composition. How might boats affect aquatic macrophytes? Boats may impact macrophytes either directly, through contact with the propeller and boat hull, or indirectly through turbidity and wave damage. Propellers can chop off plant shoots and uproot whole plants if operated in shallow water. Increased turbidity from boat activity may limit the light available for plants and limit where plants can grow. Increased waves may limit growth of emergent species. Finally, boats may transport non-native species, such as Eurasian water milfoil, from one body of water to another. Several researchers have documented a negative relationship between boat traffic and submerged aquatic plant biomass in a variety of situations. The primary mechanism appears to be direct cutting of plants. Where frequent boat use has created channels or tracks, it was noted that these scoured areas persist for several years. No-wake zones and restricted motor areas effectively reduce the impact of boats on aquatic plants see Asplund and Cook Limiting boat traffic in areas with sensitive species or where a large proportion of the plant material is floating or emergent may be a good way to guide boat activity to more appropriate parts of a waterbody. While no-wake zones do not prevent all impacts, they do serve to reduce the overall amount of boat activity in a given area. Basing no-wake zones on water depth or the maximum depth of plant growth may be more useful than those based upon fixed distances from shore. The study also includes a section on boating impacts on fish and aquatic wildlife waterfowl, shorebirds, herons, eagles, turtles, frogs. The results are to be expected greater distances, slower moving boats etc. Summary Section Potential mechanisms by which boats impact aquatic ecosystems and the effects that they can have on the aquatic environment.

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Chapter 2 : Okanagan Collaborative Conservation Program - Kalamalka and Wood Lake: Boat Impact Stud

About the Study Guide. You are looking at a preview of what's in the timed Boat Indiana Course. Feel free to look around, but you'll need to register to begin progress toward getting your Indiana Boater Education Certificate.

Two studies were conducted as part of our collaboration: Following this, a more specific study was carried out focusing on the energy consumption of the Class40 during the race with the aim of minimising the carbon impact. Identifying each of the environmental consequences, their origins, as well as the risks to the environment, health or the economy. This analysis, both precise and technical, follows rules carried forward in the ISO LCA principles and framework and ISO LCA requirements and guidelines standards and is intended to communicate on the energy performance of a product, but also to assist in the piloting of an eco-design approach. It is important to note that, as a general rule, there is very little attention focused on the overall environmental impact of vessels. However, when the manufacturing, operating and the end-of-life of the boats are considered, even the most simple sailboats have a massive energy footprint. It was therefore essential to carry out a complete analysis of the life cycle of the boat. Thanks to this innovative study, Leyton hopes to contribute to a greater general awareness and provide an example to the yachting industry. To study the impact of the Class40 in the life cycle approach, it was necessary to cover the different stages of its life cycle in as much detail as possible: The manufacture of raw materials: The construction of the Class The use of Class In particular the course chosen for the Route du Rhum The end of life of the boat Main results of the study Manufacturing The manufacturing of the Class40 generated roughly 25 tons of CO2, equivalent to the average emissions produced by 3 European citizens on per year, the same as travelling , km by car, or seven Paris to New York flights. The LCA study showed us manufacturing a Class40 had a massive energy cost and significant environmental impact. For example, raw materials are made up of elements with significant toxicity levels. These, mostly made in China, have to be transported to the shipyard in Quiberon Bay, which significantly increases the carbon footprint. And the end of life in all this? Unfortunately, we find that recycling options are poorly developed within the nautical industries. Each year in France, more than 20, vessels that arrive at the end of life often end up in wrecks when abandoned, when at the same time, the majority of the 1, commercial boats are sent to Asia to be dismantled under shady conditions and following low standards. Even worse, some boats are simply sunk, which has disastrous consequences for the environment. There are, however, companies specialised in the deconstruction and de-pollution of out-of-use pleasure crafts BPHU , of which about 20 are approved by the APER Association for Eco-responsible yachting , and deconstruct boats with respect to the environment. A greater recovery of waste from the deconstruction of ships should be attained, for example by reusing it as raw materials for the construction of new vessels. Leyton is committed to fully compensating this carbon debt, particularly through reforestation projects. Whilst the planting of trees and reforestation can undoubtedly be part of the solution to combat climate change, such actions cannot suffice alone. These solutions are part of a framework of compensation, of reparation, where it is necessary to be part of a ethos of prevention.

Chapter 3 : Boating & Marine Industry Marketing Statistics Publications

The Fort Lauderdale International Boat Show had an estimated $ million in economic output in South Florida and $ million statewide, a new economic impact study shows.

Chapter 4 : Boat Impact Study For Kalamalka & Wood Lakes | Beach Radio Vernon

The results of this study demonstrate that boats operating at high speed have no greater impact on the lake bed than boats traveling at idle speeds. The greatest impact is seen when boats are traveling at 'near-plane' speeds.

Chapter 5 : Boating Impacts | WACF | Wawasee Area Conservancy Foundation

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OCCP is pleased to announce the release of the Kalamalka and Wood Lake Boat Impact Study on Source Waters. Growth in the Okanagan region and an increase in boating activity has generated an interest and a need for a comprehensive and scientific analysis of the potential impacts of boating activity on water source protection.

Chapter 6 : Honolulu District | Civil Works Projects | Ala Wai Canal

Boat Motors and Water Quality. As Minnesotans, we love cruising along the lakes in our watercraft. Whether we are heading to our favorite fishing spot, waterskiing, or taking a sunset cruise, not much can top the feeling of taking in the fresh lake air.

Chapter 7 : A study of the environmental impact of Arthur Le Vaillant's Class40 -

Cumulative Impact Analysis discussed the status of the river's natural resources, restated the Federal and State agencies' multiple-use management goals, and listed numerous concerns regarding the growing number of recreational boats on the river.

Chapter 8 : NMMA CANADA RELEASES NEW CANADIAN RECREATIONAL BOATING INDUSTRY ECO

Note: Citations are based on reference standards. However, formatting rules can vary widely between applications and fields of interest or study. The specific requirements or preferences of your reviewing publisher, classroom teacher, institution or organization should be applied.

Chapter 9 : Sun Sentinel - We are currently unavailable in your region

The first economic impact study on Australia's superyacht industry has revealed a high value niche sector, which contributed a total of $ billion to gross domestic product (GDP) in the financial year.