



Percent of Residential Population with Views of Water

This EnviroAtlas community map estimates the percent of the population in each census block group that may have a view of water within 50 meters of home. Water bodies include streams, lakes, rivers, and coastal waters.

Why are views of water important?

Water is considered to be one of the most important landscape elements to provide an aesthetic experience.¹ Coastal and freshwater shores are prime vacation destinations; real estate in these settings is typically much more valuable than other nearby land. Humans have a natural affinity for nature, and thus they are generally happier in the presence of aesthetically pleasing and interesting green and blue spaces. Streams, lakes, rivers, and coastal waters are often appreciated for their beauty; they provide appealing settings that encourage people to spend time outdoors. Viewing waterbodies from a window can also be a relaxing and pleasurable experience.

Various studies conducted on the connection between nature and health have suggested that the presence of water may play a role in positive health outcomes. For instance, Ulrich and Lunden (1990) found that open-heart surgery patients who were exposed to simulated natural environments with views of water experienced much less postoperative anxiety than other groups. Though there have been few studies conducted on the direct health effects of surrounding water bodies, it is evident in the literature that water is an important part of a beneficial landscape.²

The presence of water in a landscape may likely provide the same benefits that green spaces provide. For instance, one study found that simply viewing pictures of nature with



water present significantly decreased anxiety.³ Waterside environments have also been found to provide restorative experiences.³ It has been proposed that experiencing nature may cause physiological reductions in stress⁴ or reduce directed attention fatigue.¹ Thus, people who have window views of water may derive enjoyment from those views and benefit from them.

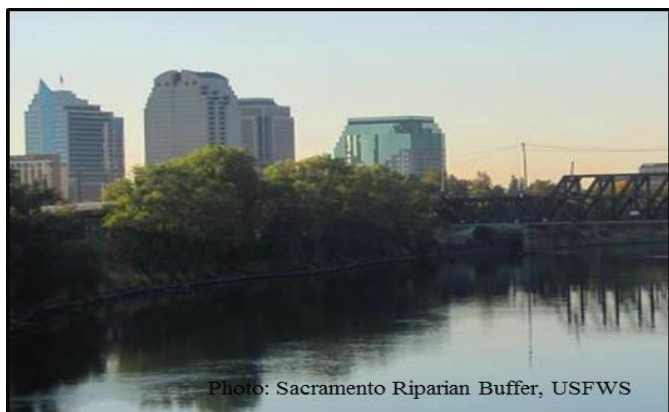
How can I use this information?

The map, Percent of Residential Population with Views of Water, can be used by citizens and planners to identify community areas with the highest potential residential views of water. Overlaid with census demographic data, it can also be used to estimate the types of people who may currently benefit and the demographic groups that may be under-represented in a community's access to views of water from the home.

How were the data for this map created?

This map is based on the [land cover](#) data derived for each EnviroAtlas community. The land cover data were created from one-meter aerial photography through remote-sensing methods. The EnviroAtlas 30-m dasymetric population data also contributed to this map.

The amount of water within 50 meters of every 1-m land cover pixel was calculated and then averaged within each 30-m dasymetric population pixel. If the average percent area of water within 50m for a particular dasymetric pixel was greater than zero, the estimated population in the pixel was considered to have potential window views of water.



The population associated with these pixels was summed to represent the block group population with potential window views of water. This calculation is based on 2010 U.S. Census population data and boundaries.

What are the limitations of these data?

All of the EnviroAtlas community maps that are based on land cover use remotely-sensed data. Remotely-sensed data in EnviroAtlas have been derived from imagery and have not been verified. These data are estimates that are inherently imperfect. The land cover maps used in the community component of EnviroAtlas typically have an overall accuracy of between 80 and 90 percent. This level of accuracy means that there is a probability of at least 80 percent that the land cover reported at any given point on the map is correct.

These data utilize the best available information for the scale and objective of the map layer. However, large datasets often have errors because they are an estimation of the truth. This map layer is not intended to portray precisely the number or characteristics of residents that have window views of water. It is designed to provide an estimation of the distribution of the population that may or may not have window views of water. These layers represent estimations of potential window views. The existence or direction of any windows, the slope of the landscape, and the land cover between the given location and the potentially viewed water body are not taken into account.

Selected Publications

1. Kaplan, R., and S. Kaplan. 1996. [*The experience of nature: A psychological perspective*](#). New York, 340 p.
 2. Volker, S., and T. Kistemann. 2011. [*The impact of blue space on human health and well-being: Salutogenetic health effects of inland surface waters*](#). *International Journal of Hygiene and Environmental Health* 214(6): 449-460.
 3. Ulrich, R.S. 1981. [*Natural versus urban scenes: Some psycho-physiological effects*](#). *Environment and Behavior* 13(5): 523–556.
 4. Korpela, K.M., M. Ylen, L. Tyrvainen, and H. Silvennoinen. 2010. [*Favorite green, waterside and urban environments, restorative experiences and perceived health in Finland*](#). *Health Promotion International* 25(2):200–209.
- Ulrich, R.S.1983. [*Aesthetic and affective response to natural environment*](#). *Human Behavior and Environment: Advances in Theory and Research* 6:85–125.
- Barton, J., and J. Pretty. 2010. [*What is the best dose of nature and green exercise for improving mental health? A multi-study analysis*](#). *Environmental Science & Technology* 44(10): 3947–3955.

The land cover maps will be updated over time; updates may have improved accuracy as data and classification methods improve.

How can I access these data?

EnviroAtlas data can be viewed in the interactive map, accessed through web services, or downloaded. To find the EnviroAtlas 1-meter land cover grids created for each community, enter *land cover community* in the interactive map search box.

Where can I get more information?

A selection of resources on water and window views is below. For additional information on data creation, access the metadata found in the drop-down menu for each map layer listed in the EnviroAtlas table of contents and click again on metadata at the bottom of the metadata summary page for more details. To ask specific questions about these data, please contact the [EnviroAtlas Team](#).

Acknowledgments

The data for this map were generated by Alexandra Sears, EPA Student Services Contractor. The fact sheet was created by Jessica Daniel, EPA Student Services Contractor, and Laura Jackson, EPA.