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Ocean trash isn't just bad for the environment – it's bad for your state of mind

By **Chris Mooney** July 8

Humanity is badly damaging the oceans. To give just one example, we're filling them with 8 million metric tons of plastic annually, equivalent to "five bags filled with plastic for every foot of coastline in the world," [according to researcher Jenna Jambeck](#) of the University of Georgia.

It's obvious that this harms the oceans and the organisms that live in them. But plastic and other forms of trash also mar shorelines and, thus, the experience of beachgoers. And according to new research, that may actually take a toll on the human psyche — or at least, undermine any psychological benefits that come with going to the beach to begin with.

To understand why, it's important to dip into the fascinating and growing literature on the psychological benefits of natural environments. Recent research has shown that nature walks [decrease harmful mental rumination](#) (a risk factor for depression), that kids who go to schools that feature more greenery [perform better on cognitive tests](#), and that viewing images of a green roof [helps performance](#) on a taxing cognitive task — to name just a few findings.

But it's not just greenery — coastal or water-related scenes also have psychological benefits, [being perceived as](#) "restorative," in the sense of helping unburden the brain by relieving stress and reenergizing us, and just all around making us feel positive. A psychological paradigm called "[attention restoration theory](#)" postulates that these environments positively affect us through a variety of mechanisms, including "being away (psychological distance from everyday stressors)" and "fascination (the ability to capture involuntary attention)," as a recent study in *Environment and Behavior* puts it.

That [study](#), conducted by Kayleigh Wyles of Plymouth Marine Laboratory in the UK, and colleagues of Plymouth University, extends the research on the restorativeness of ocean environments in a new way — by showing that we likely lose this beneficial quality when we muck up these environments with trash and debris.

In three separate studies, the researchers showed that while people tend to rate a photograph of an oceanside scene as being restorative, adding litter to the scene had a strongly negative impact on that assessment. “In addition to environmental costs of marine litter, there are also costs to people,” noted the authors.

When it comes to litter, “we know it has detrimental effects already to the environment and to economics; there’s lots of financial costs and ecological costs,” says Wyles. But the new study demonstrates that “it can have an impact on individuals’ health and well being,” she says.

To show as much, the researchers took photographs of British beach scenes at high and low tide, but then either photoshopped in images of litter or literally moved existing beach debris and trash into the shot (leaving the rest of it unchanged). Then, study subjects were asked to rate the images based on their restorativeness, being asked how much they agreed that “that is a place which is away from everyday demands and where I would be able to relax and think about what interests me,” “that place is fascinating; it is large enough for me to discover and be curious about things,” and so on.

The trash in the foreground only took up about seven percent of the overall image, but it had a big effect on the perceived restorativeness of the landscapes. People found low tides more restorative than high tides, but they also found both scenes to be greatly marred by trash.

“This small amount of litter, which was not explicitly highlighted to the participants, was enough to produce strong and consistent effects,” the researchers noted.

In subsequent experiments, the researchers varied the type of trash seen in the images — sometimes it was common public trash (“drink cans, plastic bottles, sweet and crisp wrappers, and beach toys such as deflated footballs”), but sometimes it was washed up fishing-related litter (for instance, ropes and nets). Individuals rated all the trash scenes as less restorative, but particularly objected to the public trash. These scenes also made the research participants feel “unhappy and less calm,” the researchers reported.

Finally, in a third study, members of the public were directly asked about their reactions to the scenes, and their words were examined for their psychological content. The respondents often said that the litter disrupted or interfered with the pleasingness of the image, and also expressed anger or sadness about it — particularly when referring to the public trash (rather than fishing gear).

“The rocky shore towards the sea has a nice view,” one participant said. “However, the evidence of rubbish on the sandy beach destroys the image.”

“As soon as there’s rubbish there, it’s a cue of urban stressors,” Wyles says of the subjects’ reactions.

One question mark, however, is whether subjective individual ratings of how restorative a landscape appears can easily translate into psychological benefits in the real world. Asked about this, study co-author Sabine Pahl, a psychologist at Plymouth University, commented that the research was “only a small-scale study that shows a new and intriguing finding for the first time. It does need further research.”

However, she added that “people are quite good at knowing and saying what sorts of environments will restore and relax them.” Pahl also pointed out that “we also know that tourism suffers when coasts are littered, from economic data. So taking those two together would suggest that (specific types of) litter have wider impacts beyond our specific study.”

So, if growing research demonstrates the psychological benefits of various types of natural scenes, the new research shows that you can easily take those benefits away by marring the environment. “The main conclusion is that the state of the environment is fundamental when it comes to the psychological benefits that people receive,” says Wyles.

Chris Mooney reports on science and the environment.

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