June 4, 2007 Asilomar, CA
Advanced Topics in Environmental Enforcement

"Plastics Pollution and Its Impact On Our Oceans"
Captain Charles Moore

Thank you John (John Fentis) for your active support of Algalita Marine Research Foundation on our Board of Directors and your facilitating my speaking here today. I often like to introduce myself like my friend Rick Anthony does. He has been voted Recycler of the Year in California several times and is founder of the California Resource Recovery Association. He says: "My life is garbage--but lately I've gotten into recovery." My life, though, is also that of a sailor and captain of the first hybrid research vessel to navigate the entire Pacific Ocean--.that's really what keeps me going; for the rewards of sailing the seas on a small, versatile research vessel include that scarcest of modern commodities, disconnectedness, being unplugged from the mesmerizing modem of modern industrial society enough to ponder generalities. I think of myself as a "deep generalist." Grappling with the whole of our situation may seem futile, given its complexity but I believe the whole is comprehensible as something more and other than the sum of its parts. In discussing my presentation today with John, he suggested you might like to hear the story of how I created and built two non-profit organizations and elevated the level of urgency surrounding the issue of marine debris. Well that's great because it lets me off the hook. What I've discovered, since our story hit the media, is that there's an abundance of story- tellers out there who want to tell your story for you if it has any chance of catching the attention of a media-bombarded public that has pretty much seen and heard it all.

In my case, I think the first national media to get our issues before the public did the best and most concise job. The Osgood File aired the day before Christmas in 2002 and people heard it in their cars and campers driving around on Christmas Eve.

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The *Osgood File*, December 24, 2007 Charles Osgood on the CBS radio network:

Osgood: In a Texas- size patch of ocean between Seattle and Hawaii, scientists have found a soup of floating plastic, more plastic than plankton in fact. Could this plague of plastic end up in you? Standby. In 1997 ocean researcher Charles Moore was sailing in the North Pacific Gyre, the great circular current between California and Japan, and what he found there amazed him.

Moore: Every time I went out on deck, I saw bottle caps floating by, toothbrushes, pieces of plastic, and I said to myself, you know, one time I should be able to come out into this giant, huge ocean and see nothing

Osgood: How bad was this plastic pollution? Moore, the founder of Algalita Marine Research Foundation in Long Beach, California went back with a special net designed to catch zooplankton, tiny creatures essential to the ocean's food chain.

Moore: We were completely shocked; we found 6 lbs. of plastic for every 1 lbs. of zooplankton in the surface waters.

Moore: The sea was a soup of plankton- sized plastic fragments. Seattle oceanographer Curt Ebbesmeyer is a specialist in tracking ocean debris. He says plastic never biodegrades, but sunlight breaks it down into microscopic particles. Those particles soak up pollutants like DDT and PCBs, becoming poison pills for any creature who eat them including, he believes, human beings.

Ebbesmeyer: "That's the working hypothesis that I have, that the plastic that goes up through the marine food web winds up in people. I suspect that nothing that comes out of the ocean can be considered organic."

Osgood*:* "To date, Moore's foundation is focused on visible plastic eaten by marine creatures. It hasn't been proven yet, but Moore also believes the toxic micro-particles are also being consumed; and he says the stuff never goes away."

Moore*:* " If Columbus sailed to America with plastic dinnerware we would still be finding traces of it on the beaches of the Atlantic. "

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In summary, plastics pollution is similar in many ways to other types of pollution. Industry markets the most profitable products until environmental and social consequences compel change. Then alternative products and practices, which cost more but cause less harm, are mandated by law. This metaphor for development appears a model of rationality. It allows for a creativity and growth since an innovation can expect to recoup its development costs before its "bad side effects" take center stage. But a word here about side effects: When a pharmaceutical company creates a drug for condition x, it is said to have y side effects because the maker wishes it dealt with only condition x. As a matter of fact, all of the drug's effects are its direct effects. They are not somehow on the side, or outside the normal effects. They are the direct effects of the drug as much as the intended ones, and it doesn't matter if they only affect a certain percentage of the users; the beneficial effects only work on a certain percentage anyway.

All of any technology's effects are its direct effects on people and the environment, and our potential as believers in a system of laws that help propel society to a brighter future is to create and apply laws that liberate us from a sort of servitude to perpetual cleanup and remediation of our growing economy's side effects.
Evidence of our ability to do this, however, is lacking. Far from decreasing, the amount of CO_2 we pump into the atmosphere has tripled since the year 2000. And plastic in the oceans is increasing exponentially as it becomes the lubricant of globalization. Futurism, an ideology based on technological developments that will eliminate pollution have been fantasies, but the fantasy future is where our best and brightest love to live.

Carl Pace sent Algalita a $2000 unsolicited contribution after being exposed to our work by the media. He desperately wants to find a technofix to plastic pollution of the ocean. When I warned him the entire mixed layer of the North Pacific is awash in

small and medium- sized plastic bits that no technology can access, millions and millions of cubic kilometers of ocean are affected, and it would not be possible to create a profit sieving them, he replied "You mean 'no existing technology can access.' That's just a challenge to me. I specialize in exploiting the one useful resource on the planet that gets 35% cheaper every year, and has done so for 70 years and probably will for the next 70 years, which is your namesake Gordon Moore's law: working in computer science is a lot like being a kid in a candy store--where candy gets 35% cheaper every year. Are you willing to bet that 10 years from now it would be impossible to build an automated plastic kayak with a solar panel and a pump that sails around in circles removing plastic from seawater using a filter on its propulsion? I think one could also have a smart robotic excluder for living things. Whenever its belly is full it would plan a rendezvous with an automated cargo barge…"

This is pure hubris from a species whose developmental trajectory has remained unchanged since ancient Rome. We need to apply our creativity to not putting CO_2 into the atmosphere or plastic into the ocean, not getting it out once it's there. We can no longer make a plausible case for not knowing what the effects of our economy and its industrial practices will be. Our history and current research are readily available on the internet, in spite of manufactured uncertainty and deliberate misinformation. Plastic pollution highlights, as nothing else can, the central contradiction of our times. An economy based on constant growth demands a material that lasts forever be consumed as a throwaway that may last only seconds. Whereas reason would use such a material to liberate mankind from its current servitude to the society of constant maintenance, by creating products that get the essential work of modern civilization done cleanly and efficiently-- and with no need for a replacement—for a long, long time.

Thank you!