HARBOUR COMMISSION
MINUTES

Thursday, May 28, 2026
Meeting Room B-8
2000 Main Street
Huntington Beach, CA 92648

CHRIS NIELSEN, Chair
VAN VU, Vice Chair
WILLIAM LARKIN, Board Member
KIMBERLEY MILLIGAN, Board Member
CRAIG SCHAUPPNER, Board Member
MEL WILLIAMS, Board Member
DIANE WOOD, Board Member

COUNCIL LIAISONS
PAT BURNS, Councilmember Liaison
GRACEY VAN DER MARK, Councilwoman Liaison

STAFF
ERIC MCCOY, Fire Chief
TREVOR MCDONALD, Marine Safety Division Chief
KEVIN JUSTEN, Senior Management Analyst

CALLED TO ORDER

Schauppner called the meeting to order at 5:00 p.m.

PLEDGE OF ALLEGIANCE

Schauppner led the Pledge of Allegiance.

ROLL CALL

City Council Members Present: Burns

Commissioners Present: Larkin, Milligan, Schauppner, Williams, Wood

Commissioner Absent: Nielsen, Vu

Staff Present: Justen, McDonald, Villa, Woodruff

PUBLIC COMMENTS

There was one public comment: Amory Hanson reiterated his support for the Harbour Commission's proposed revisions to *Municipal Code Chapters 13.32, 13.36, 13.40, 13.44* as currently written.

APPROVAL OF MINUTES

Approval of Meeting Minutes – March 26, 2026

MOTION: A motion was made by Larkin, seconded by Wood, to approve the March 26, 2026, meeting minutes.

The motion carried by the following vote, 5-0:
AYES: Larkin, Milligan, Schauppner, Williams, Wood
NOES: None

SPECIAL REPORTS/PRESENTATIONS

Shelly Moore, Director of Special Projects, Moore Institute for Plastic Pollution Research

Ms. Moore provided a detailed presentation on microplastics and their impacts, including the activities of the Moore Institute for Plastic Pollution Research.

COMMITTEE REPORTS

1. *Infrastructure Ad Hoc Committee*

Williams reported that the Committee is looking at Public Works Department methods for addressing bulkhead erosion, including meeting with representatives from the City of Long Beach to evaluate measures they use.

2. *Vessels and Watercraft Ad Hoc Committee*

Schauppner said that the Committee is still waiting for an outcome from the Murchinson lawsuit against the City of Newport Beach to continue their evaluation of measures related to permitting for vendors in the Harbour. Justen stated that the suit is a federal civil rights case that has been calendared for October.

3. *Water Quality Ad Hoc Committee*

Merid reported on issues under consideration related to the cutout basin recommended by the Harbour Commission. These include overall costs, the cost and effort to pave the access road, controlling water flow during storm events with a barrier, and the potential for flooding of the basin during high volume runoff.

STAFF COMMENTS

McDonald reported that the Marine Safety Division has been very busy preparing for summer and a new rescue boat operator has been appointed, Marine Safety Captain Dan Kaiahua. He will replace Marine Safety Captain Chris Clarke, who will be retiring in July. There have been some Shark sighting recently, although there is not enough data to determine if it has increased from pervious years. Merid said that there will be a marine flare recycling event at Sunset Aquatics in June and he will provide a flyer to

Commissioners. Villa introduced Woodruff, the new Harbor Master, who gave a brief summary of his background. Justen stated that the Municipal Code revisions that the Harbour Commission recommended should be ready by the June meeting. He also explained the process for replacement of the four (4) Commissioners that will be termed out on December 31, 2026.

Councilman Comment: Burns said that he is putting together a tour of the AES Power Plant and will provide an invitation to Commissioners to attend.

MEMBER COMMENTS

Milligan said that the USS Essex tour was very impressive and thanked those who organized it. Williams said that he received a notice from the Los Angeles Department of Health stating that from June 12th to July 20th there is increased risk of infectious disease due increased travel to Southern California for the World Cup event. He also noted that Anchor QES was the firm that drafted the expedited permit process for the City of Newport Beach. Wood complimented Shelly Moore on her presentation. She also reported that there was good community participation in the recent Oyster Shell String Initiative. Larkin also complimented Moore for her presentation. Schauppner said that the Orange County Coast Keepers is sponsoring an Oyster Palooza event in August that will take place at the Sunset Beach Community Center. He will provide additional information as it comes available. Schauppner also noted that a recent Heal The Bay Report identified three (3) Huntington Beach beaches out of 41 on the honor roll list. These included two (2) in the Harbour.

ADJOURNMENT

MOTION: A motion was made by Williams, seconded by Schauppner, at 6:17 p.m. to adjourn to the regular meeting on June 25, 2026.

The motion carried by the following vote, 5-0:

AYES:	Larkin, Milligan, Schauppner, Williams, Wood
NOES:	None

The next regularly scheduled meeting of the Harbour Commission will be on June 25, 2026, at a time and location to be announced.

The Moore Institute and Microplastics: Tiny Matter, Real Impact

Shelly Moore

MOORE INSTITUTE for Plastic Pollution Research

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Presentation Goals

- Understand what microplastics are
- Learn why scientists and regulators are concerned
- Review California legislation and monitoring
- Discuss impacts to ecosystems and human health
- Highlight the work of the Moore Institute for Plastic Pollution Research

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A Brief History of Plastic

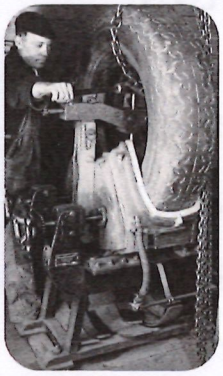
1950s-1970s

1920s – 1940s

1907

1839 - 1869

EVOLUTION OF PLASTICS



Early Plastics

Development of vulcanized rubber and cellulose-based plastics like Parkesine and Celluloid.

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1970s - 2000s

1950s – 1970s

1920s – 1940s

1907

1830s – 1860s

EVOLUTION OF PLASTICS

BAKELITE INVENTED

Marks the birth of modern synthetic plastics; widely used in electronics, appliances, and industrial products

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2010s - Present

1970s – 2000s

1950s – 1970s

1920s – 1940s

1907

1830s – 1860s

EVOLUTION OF PLASTICS

Industrial Plastics Expansion

Plastics become essential in manufacturing, textiles, transportation, and World War II technology

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2010s – Present

1970s – 2000s

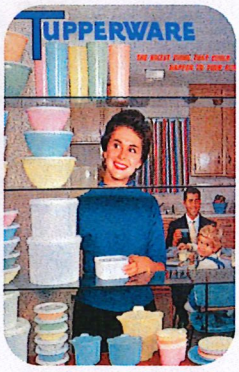
1950s – 1970s

1920s – 1940s

1907

1830s – 1860s

EVOLUTION OF PLASTICS



Disposable Plastic Era

Plastic production explodes globally; convenience culture develops.

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EVOLUTION OF PLASTICS

2010s - Present

1970s – 2000s

1950s – 1970s

1920s – 1940s

1907

Plastic pollution Discovered

Shift from viewing plastics as beneficial materials to recognizing environmental consequences.

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EVOLUTION OF PLASTICS

2010s - Present

1970s – 2000s

1950s – 1970s

1920s – 1940s

Regulation and Sustainability

Governments, universities, and scientists work to reduce plastic pollution and understand impacts on ecosystems and human health.

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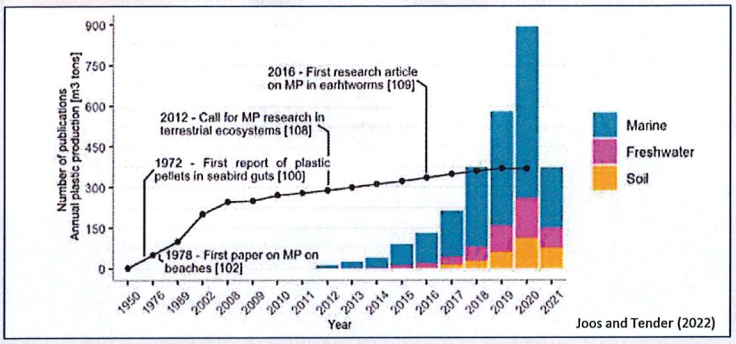
Plastic Pollution Awareness

- 1970s–1980s: marine debris recognized as a growing issue
- 1997: public awareness of the Great Pacific Garbage Patch increased
- Microplastics emerged as a major scientific concern in the 2000s
- Today, microplastics are studied worldwide in water, sediment, air, and organisms



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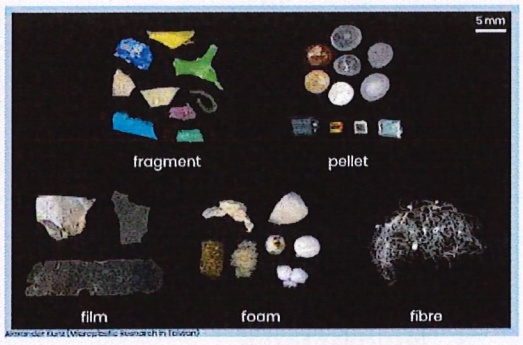
What Are Microplastics?

- Plastic particles smaller than 5 mm
- Often invisible to the naked eye
- Can be primary or secondary microplastics
- Found in oceans, rivers, stormwater, sediment, seafood, and drinking water



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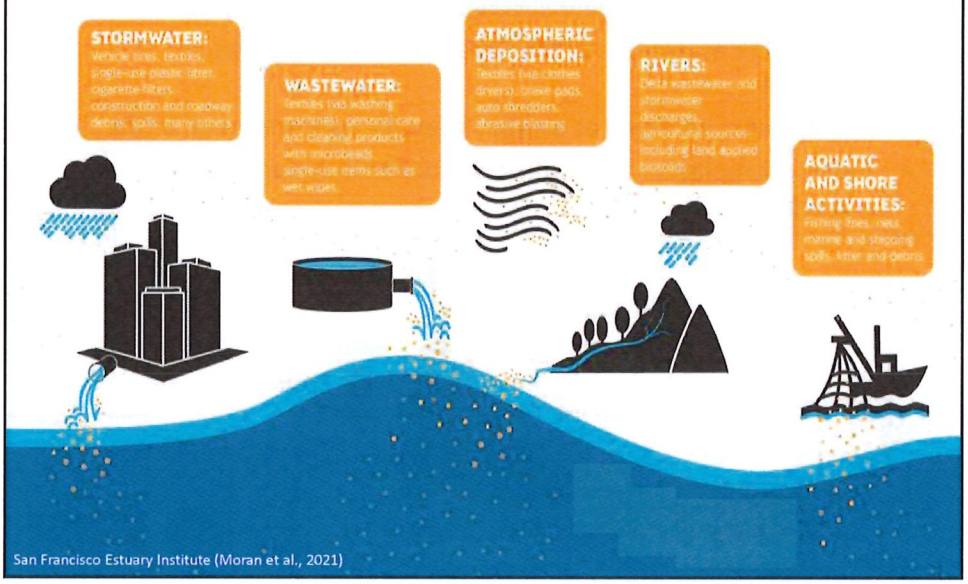
Sources of Microplastics



San Francisco Estuary Institute (Moran et al., 2021)

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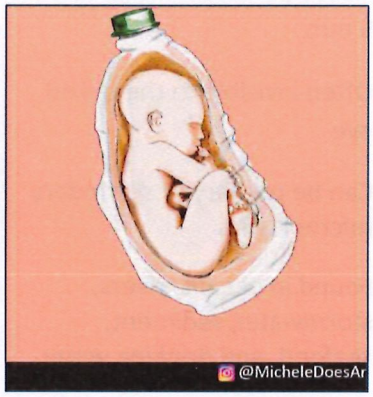
Microplastics in Humans

Microplastics have been detected in multiple human tissues and fluids:

- Human blood (first reported in 2022)
- Human placenta
- Lung tissue
- Human breast milk
- Arterial plaque
- Testicular tissue
- Feces and gastrointestinal samples



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Microplastics in Food

Evidence of Microplastics in Common Food and Beverage Items:

- Seafood (fish, shellfish, mussels, oysters)
- Sea salt
- Drinking water (tap and bottled)
- Beer and wine
- Honey and sugar
- Fruits and vegetables
- Rice and other packaged foods
- Tea bags and food packaging materials

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Microplastics in Drinking Water

PLASTIC FIBERS IN TAP WATER, 2017

orb. one world. one story

PREVALENCE OF MICROSCOPIC PLASTIC FIBERS BY SAMPLE SOURCE LOCATION.

WORLDWIDE	USA	EUROPE	INDONESIA, JAKARTA
83%	94%	72%	76%

INDIA, NEW DELHI	LEBANON, BEIRUT	UGANDA, KAMPALA	ECUADOR, QUITO
82%	94%	81%	75%

Orbmedia.org

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California Leadership on Microplastics

- California is a national leader in microplastics monitoring
- Statewide Microplastics Strategy developed by the Ocean Protection Council (SB 1263)
- Statewide Plastics Monitoring Strategy developed by the Ocean Protection Council and San Francisco Estuary Institute
- **First U.S. state to require drinking water monitoring**

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Key California Legislation

California Senate Bill 1422 (2018)

Water Boards

July 1,2020

- Define 'microplastics'

July 1,2021

- Standard method
- Accredit laboratories
- Health-based guidance level
- Four years of testing

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Need for Research and Analysis

Founded in April 2020

Co-Founders

Charles Moore

★★★★★

Founded Algalita, Discovered the Great Pacific Garbage Patch

Katie Allen

★★★★★

Executive Director, Algalita

Shelly Moore

★★★★★

Executive Director, Moore Institute

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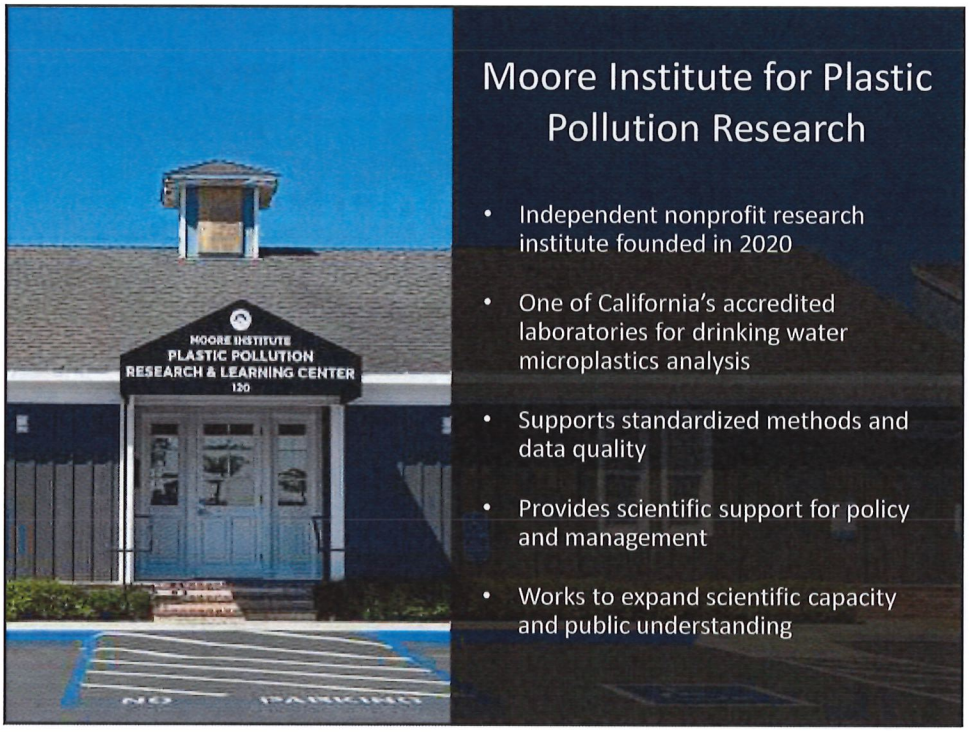

Moore Institute for Plastic Pollution Research

- Independent nonprofit research institute founded in 2020
- One of California's accredited laboratories for drinking water microplastics analysis
- Supports standardized methods and data quality
- Provides scientific support for policy and management
- Works to expand scientific capacity and public understanding

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Mission Statement

Our mission is to expand our knowledge about plastics and how they impact our environment and our health.

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Accreditation for testing microplastics in drinking water using the infra-red method

- Follow approved SOPs for all analyses
- Prevent contamination using strict clean-lab practices
- Run quality control samples and blanks
- Maintain calibrated and validated instruments
- Keep complete, traceable records for audits and review

ELAP
Environmental Laboratory Accreditation Program
STATE WATER RESOURCES CONTROL BOARD

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Data Portal Project

Funded by the Possibility Lab and California 100, this project is to develop an **open source** data portal for microplastics data.
It has three components:

- Validator - for ensuring high quality comparable data
- Microplastic Taxonomy Tool - includes images of thousands of microplastic particles
- Data Analysis - tool for analyzing your data both spatially and temporally

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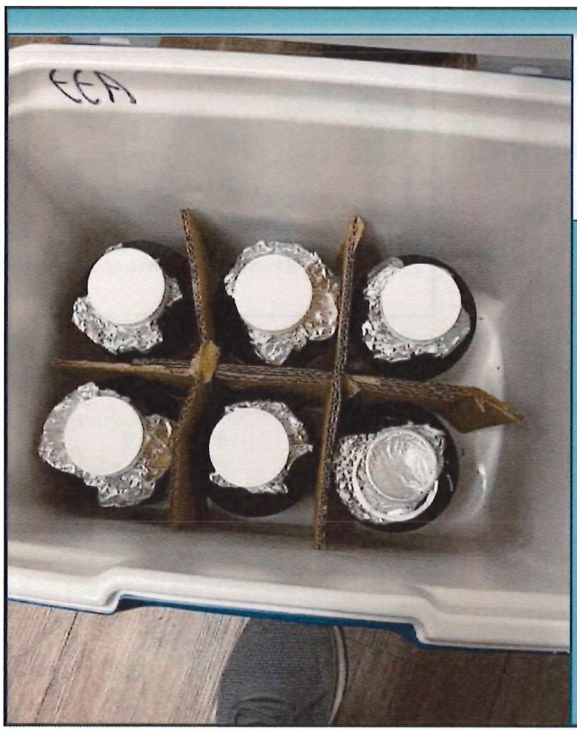

Analyzing Samples

We have had or have projects currently looking at:

- Drinking water
- Stormwater
- Wastewater
- Sediment from the ocean
- Fish tissue
- Whale poop
- Human poop

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Other Projects

- OPC/SeaGrant Trash Capture Device Project w/City of Santa Barbara, UCSB, and San Francisco Estuary
- OPC Monterey Bay Project
- California Compost Macro and Micro-plastics
- North Pacific Gyre – 20-year perspective
- Tobacco Project Waste Methods and App

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Supporting
Student
Research

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Spreading the Word
COURTYARD

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Publications

A growing plastic smog, now estimated to be over 170 trillion plastic particles afloat in the world's oceans — Urgent solutions required.

Marcus Eriksen, **Win Cowger**, Lisa M. Erdle , **Scott Coffin**, Patricia Villarrubia-Gómez, **Charles J. Moore**, Edward J. Carpenter, Robert H. Day, Martin Thiel, Chris Wilcox

The influence of complex matrices on method performance in extracting and monitoring for microplastics.

Leah M Thornton Hampton, Hannah De Frond, Kristina Gesulga, Cindy Matuch, Susanne Brander, Silke Christensen, Cayla R. Cook, Fangni Du, Sutapa Ghosal, Andrew B. Gray, Joanne Hankett, Paul A. Helm, Kay T. Ho, Tinnit Kefela, **Gwendolyn Lattin**, Amy Lusher, Lei Mai, Rachel E. McNeish, Odette Mina, Elizabeth C. Miner, Sebastian Primpke, Keith Rickabaugh, Violet C. Renick, Samiksha Singh

Global producer responsibility for plastic pollution

Win Cowger, Kathryn A. Willis, Sybil Bullock, Katie Conlon, Jorge Emmanuel, Lisa M. Erdle, Marcus Eriksen, Trisia A. Farrelly, Britta Denise Hardesty, Kristiina Kerge , Natalie Li ,Yedan Li, Adam Liebman, Neil Tangri, Martin Thiel, Patricia Villarrubia- Gómez, Tony R. Walker, Mengjiao Wang

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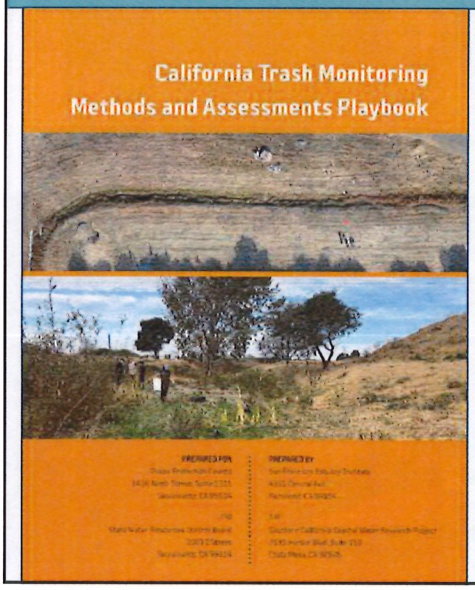
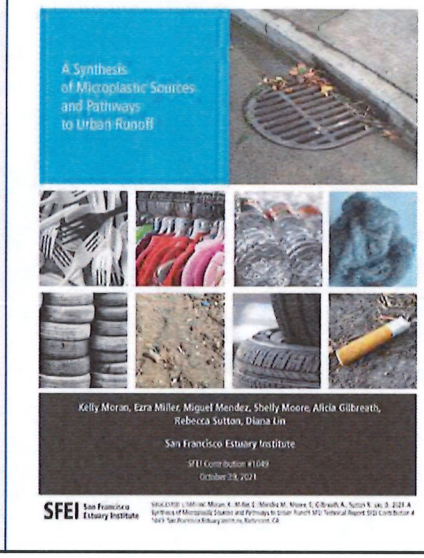
Publications





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6:1 Ratio of Plastic to Plankton by Weight

Pergamon

Marine Pollution Bulletin Vol. 42, No. 12, pp. 1297–1300, 2001

Printed in Great Britain
0025-326X/01 $ - see front matter

PII: S0025-326X(01)00114-X

A Comparison of Plastic and Plankton in the North Pacific Central Gyre

C. J. MOORE†*, S. L. MOORE†, M. K. LEECASTER‡,§ and S. B. WEISBERG‡

†*Algalita Marine Research Foundation, 345 Bay Shore Avenue, Long Beach, CA 90803, USA*

‡*Southern California Coastal Water Research Project, 7171 Fenwick Lane, Westminster, CA 92683, USA*

The potential for ingestion of plastic particles by open ocean filter feeders was assessed by measuring the relative abundance and mass of neustonic plastic and zooplankton in surface waters under the central atmospheric high-pressure cells of the North Pacific Ocean. Neuston samples were collected at 11 random sites, using a manta trawl lined with 333 u mesh. The abundance and mass of neustonic plastic was the largest recorded anywhere in the Pacific Ocean at 334 271 pieces km^2 and 5114 g km^2, respectively. Plankton abundance was approximately five times higher than that of plastic, but the mass of plastic was approximately six times that of plankton. The most frequently sampled types of identifiable plastic were thin films, polypropylene/monofilament line and unidentified plastic, most of which were miscellaneous fragments. Cumulatively, these three types accounted for 98% of the total number of plastic pieces.

Keywords: North Pacific central gyre; neuston; plastics; zooplankton; debris; pollution monitoring.

Marine debris is more than an aesthetic problem, posing a danger to marine organisms through ingestion and entanglement (Day, 1980; Balazs, 1985; Fowler, 1987; Ryan, 1987; Robards, 1993; Bjorndal *et al.*, 1994; Laist, 1997). The number of marine mammals that die each year due to ingestion and entanglement approaches 100 000 in the North Pacific Ocean alone (Wallace, harm to the animal. Less well studied are the effects of ingestible debris on fish, and no studies have been conducted on filter-feeding organisms, whose feeding mechanisms do not permit them to distinguish between debris and plankton. Moreover, no studies have compared the amount of neustonic debris to that of plankton to assess the potential effects on filter feeders.

Concerns about the effects of neustonic debris in the marine environment are greatest in oceanographic convergences and eddies, where debris fragments naturally accumulate (Shaw and Mapes, 1979; Day, 1986; Day and Shaw, 1987). The North Pacific central gyre, an area of high atmospheric pressure with a clockwise ocean current, is one such area of convergence that forces debris into a central area where winds and currents diminish. This study compares the abundance and mass of neustonic debris with the amount of zooplankton in this area.

Materials and Methods

Eleven neuston samples were collected between August 23 and 26, 1999, from an area near the central pressure cell of the North Pacific sub tropical high (Fig. 1). Sampling sites were located along two transects: a westerly transect from 35°45.8′N, 138°30.7′W to 36°04.9′N, 142°04.6′W; and a southerly transect from 36°04.9′N, 142°04.6′W to 34°40.0′N. Location along the transect and trawl duration were selected randomly. Samples were collected using a manta trawl with a

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Trash on the Shoreline

1998 Orange County Beach Debris Study

- 43 random sites
  - Stratified by sandy beach versus rocky shoreline
  - Sampled from August 2 through September 18, 1998
- 25-yard segment was surveyed at each site
- Sieve was used in addition to beach combing
- Amounts of debris were estimated using a weighted mean over all sites

Pergamon

Marine Pollution Bulletin Vol. 42, No. 3, pp. 241–245, 2001

Printed in Great Britain

PII: S0025-326X(00)00140-X

Composition and Distribution of Beach Debris in Orange County, California

S. L. MOORE†*, D. GREGORIO‡, M. CARREON§, S. B. WEISBERG¶ and M. K. LEECASTER¶

¶*Southern California Coastal Water Research Project, 7171 Fenwick Lane, Westminster CA 92683, USA*

‡*Southern California Marine Institute, 320 South Seaside Avenue, Terminal Island CA 90731, USA*

§*Divers Involved Voluntarily in Environmental Rehabilitation and Safety, P.O. Box 1241, Fullerton CA 92831, USA*

Many studies have quantified debris collected on beaches around the world. Only a few of these studies have been conducted in the United States, and they are largely limited to semi-quantitative efforts performed as part of volunteer clean-up activities. This study quantifies the distribution and composition of beach debris by sampling 43 stratified random sites on the Orange County, California coast, from August to September 1998. We estimated that approximately 100 million items, weighing 12 metric tons, occur on Orange County beaches. The most abundant items were pre-production plastic pellets, foamed plastics, and hard plastics. Debris density on the remote rocky shoreline was greater than that on high-use sandy beaches for most debris items. This finding partially reflects the periodic clean-up of high-use beaches by local municipalities, and also indicates that a high percentage of the observed debris was transported to the site from waterborne sources.

Keywords: beaches; debris; plastics; pellets; southern California; pollution monitoring.

Beaches along the southern California coast are used extensively for a variety of recreational purposes, attracting about 150 million visitors annually (Schiff *et al.*, 1999). Recreational uses such as boating, swimming, surfing, sunbathing, and picnicking generate debris along the shoreline including food items and wrappers,

More than an aesthetic issue, debris can threaten marine mammals, birds, and turtles through ingestion and entanglement (Bjorndal *et al.*, 1994; Fowler, 1987; Robards, 1993; Ryan, 1987). Marine debris is also becoming a regulatory focal point. The Los Angeles Regional Water Quality Control Board recently implemented legal limitations, through the total maximum daily load (TMDL) process, on the amount of trash that local governments can allow to enter the ocean through storm drains.

Many studies have enumerated the types and amount of marine debris on beaches (Corbin and Singh, 1993; Garrity and Levings, 1993; Golik, 1997; Golik and Gertner, 1992; Lucas, 1992; Ross *et al.*, 1991; Robie *et al.*, 1997; Walker *et al.*, 1997; Willoughby, 1986), and a few studies have quantified subsurface nearshore debris (June, 1990; Moore and Allen, 2000). Most of the debris data for beaches outside of the United States have been collected through systematic, scientifically rigorous studies, while most of the information within the United States has been derived from volunteer beach cleaning efforts. Although cleaning efforts are valuable for removing debris from beaches, they provide only semi-quantitative estimates of debris. Here we present the first study to quantitatively assess the types and amount of debris on the California coast, with a secondary objective of describing how debris differs among shoreline types.

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What Did We Find?

Debris Type	Abundance	Weight (lbs)
Pre-production plastic pellets (nurdles)	105,161,101	4,780
Foamed plastics	742,296	1,526
Hard plastics	642,020	7,910
Cigarette butts	139,447	344
Paper	67,582	870
Wood	27,919	4,554
Metal	23,500	3,015
Glass	22,195	1,944
Rubber	10,742	817
Pet and bird droppings	9,388	17
Cloth	5,949	1,432
Other	10,363	401
Total	106,862,502	27,611

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NURDLES

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Estimated Abundances by Brand Name

- Cigarette Products
- Candy Products
- Fast Food Products
- Beer Products
- Drink Products

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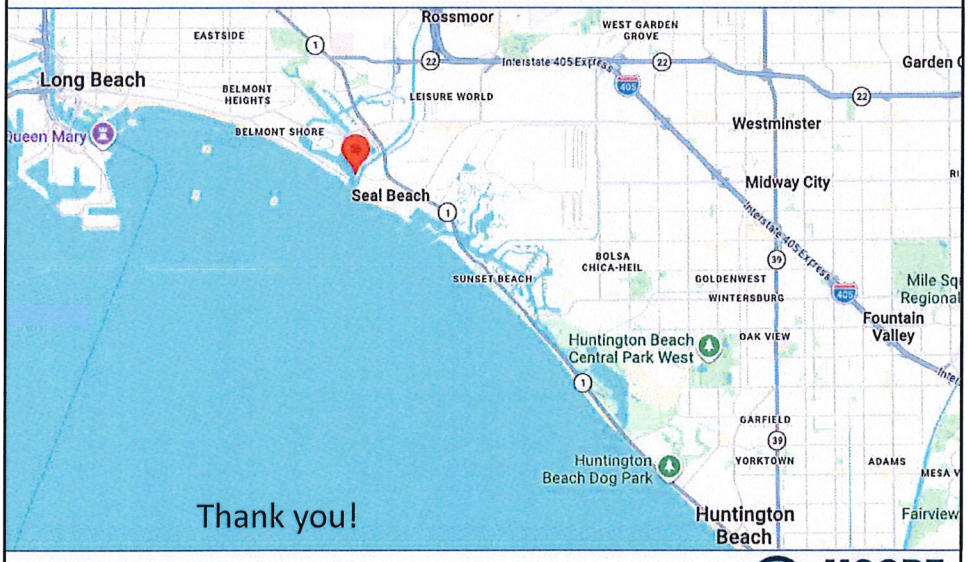
Questions and Invitation



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