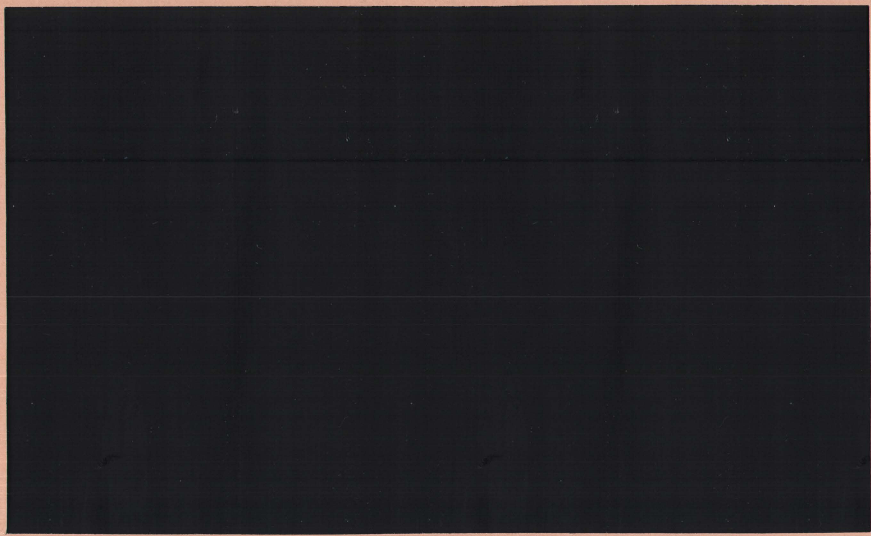
MARINE SCIENCES RESEARCH CENTER
STATE UNIVERSITY of NEW YORK
STONY BROOK, N.Y.

ON THE IDENTIFICATION OF STRATEGIES TO ELIMINATE THE CAUSES OF FLOATABLES ON BEACHES

**Results of a Workshop
Held On
22 March 1990**



ON THE IDENTIFICATION OF STRATEGIES TO ELIMINATE THE CAUSES OF FLOATABLES ON BEACHES

Results of a Workshop
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22 March 1990

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Co-Sponsored by the
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J.R. Schubel, Director

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INTRODUCTION

The "Foes of Floatables and Medical Type Waste" met in a workshop at the Marine Sciences Research Center on 22 March 1990.

The workshop was sponsored by the Marine Sciences Research Center's Coastal Ocean Action Strategies (COAST) and Waste Management Institutes of the University at Stony Brook. The meeting was a follow-up to the Floatables Management Plan (MSRC 1989a) and the October 24, 1989 Workshop (MSRC 1989b).

GOAL

The primary goal of the Workshop was to identify strategies to eliminate the fundamental causes of floatable and medical-type wastes on the region's beaches. The agenda for the workshop is contained in Appendix A and the list of participants in Appendix B. The paper presented by Arnoldo Valle -- "The Great Hecksher State Park Swimming Pool Experiment" -- is included in Appendix D.

PROCESS

Most of the day was spent in a brainstorming session designed to identify, evaluate and refine long-term solutions to the problems on floatable waste -- including medical type waste -- on the region's beaches. The first phase of the brainstorming session was to develop as many ideas as possible in response to the question: "In How Many Ways Can We Reduce The Probability of Recurrence of Major Floatable Events?" There are four basic ground rules in brainstorming:

1. Quantity is what counts.
2. No value judgements are permitted.
3. Participants are asked to look for connections among ideas.
4. Wild ideas are encouraged.

The question and the ground rules were posted on the wall, and for approximately one hour, ideas were generated as fast as possible in response to the question. The ideas were recorded on large sheets also posted on the wall. When the flow of ideas was exhausted, along with the participants, Mr. Valle made his presentation. Following that presentation each of the participants was given 10 colored dots to be placed next to those ideas developed during brainstorming that he or she thought would contribute most to achieving the objective of reducing the probability of recurrence of major floatable events. Each participant was instructed that he or she could cast as many of the 10 votes as desired on a single item or could spread them over a maximum of 10 items.

Although wood constitutes more than 90% of the total weight of floatable material removed from the region's waters and although it represents a hazard to swimmers and to boats, it is not the category of floatables of greatest concern to the public. Therefore, the workshop gave wood only minor consideration.

The complete list of ideas generated during the brainstorming along with the number of votes that each idea received are listed in Appendix C along with the number of votes each item received.

Following voting, the items that received five or more votes were aggregated into eight broadly defined categories to facilitate discussion. Those categories were:

1. Source Reduction
2. Medical Waste
3. Education
4. Publicity and Public Relations
5. Oil
6. Regional Solutions
7. Deposits
8. Legislative Actions

Teams of participants formed working groups for each of these categories and spent approximately 30 minutes refining and expanding the ideas. Each working group leader presented the conclusions and recommendations to the entire group for discussion. The expanded conclusions and the recommendations for each of these eight categories are described below.

RESULTS

Source Reduction

Brainstorming Ideas:

2. Special attention should be given to source reduction of all floatable waste.

3. A program of education should be implemented with proper instruction to diabetics on how to dispose of needles.

8. Involve industry in the development of new packaging materials.

26. Ban plastic serviceware at all public places.

Public acceptance must be obtained for the success of an aggressive program of source reduction. In general, a "Madison Avenue" type campaign is needed to shape public opinion (like the anti-smoking campaign). Public acceptance will lead to legislative action. Reduction of the use of plastics would require a change in lifestyle; this will come through education and economic incentives and disincentives.

Municipalities and public agencies should lead by example in the battle of source reduction; e.g., New York State parks have banned the use of plastics on park grounds.

Find or create and sustain markets for materials made from recycled goods. New York should encourage development of these industries in the State.

Determine and publicize the real cost (including cost of disposal) of recyclable and non-recyclable materials. This would encourage the greater use of recyclable and biodegradable materials in packaging.

Educate the public on the proper disposal of medical waste. There should be a legal requirement that all syringes come with labeling that specifies proper disposal methods.

Funds from fines and increased deposits could be used to finance these campaigns.

<u>Medical Wastes</u>

Brainstorming Ideas:

5. Encourage the reuse and recycling of plastic medical supplies.

6. Reintroduce glass recyclable units into medical practice.

Recommendations:

The public has questions and concerns about the performance and safety of incinerators in burning municipal solid waste and is particularly averse to the use of these incinerators for incineration of medical wastes. Most New York medical waste is being burned in some 20 hospital incinerators in New York; the rest is burned in medical waste incinerators in other states. As expenses for hauling medical waste off Long Island continue to soar, the disposal method of choice may be incineration on Long Island. But, the public will need to be convinced that incinerators used to burn medical wastes meet all regulations to protect the public health. At present, municipal solid waste incinerators operate under more stringent regulations than do medical waste incinerators. We should

(a) Educate the public about incineration in modern incinerators and the risk to human health and the environment relative to other disposal methods.

(b) Improve enforcement of good performance of incinerators.

(c) Consider changing the laws to make enforcement for violations easier to implement.

Brainstorming Ideas:

83. Require better identification on individual medical items for easier tracking back to the originators of wastes washed up on beaches.

Recommendations:

For many items individual identification would not be practical; it would not identify the items narrowly enough to permit tracking back to their source. For other items it might be useful. We should

- **a. Encourage adding serial numbers on syringes and needles.**
- **b. Add serial numbers on blood vials.**
- **c. Increase enforcement of proper disposal methods.**
- **d. Increase public awareness, using a public hot line.**

Education

Brainstorming Ideas:

3. Diabetics need to be educated regarding proper needle disposal.

12. Develop innovative and effective educational programs concerning municipal solid wastes, floatables and medical-type wastes that are appropriate for children and adults.

14. Educate the public of all ages concerning the connection between personal practices, littering and floatables on our beaches.

Recommendations:

- **a. Launch education campaigns with identifiable personalities such as Michael Jordan or Patrick Ewing slam dunking disposables in trash receptacles.**
- **b. Hold environmental awareness contests; for example, poster contests and award certificates to the winners.**
- **c. In school curricula, emphasize the link between the person and pollution; encourage "table talk" at home to include parents.**
- **d. Organize an adopt-a-beach or shoreline program.**
- **e. Organize a program similar to the Town of North Hempstead's which uses an "A" Team for Environmental Awareness to talk to school children about conservation, recycling, composting and the S.T.O.P. (Stop Throwing Out Pollutants) program.**
- **f. Run public service announcements that encourage the public to be part of the solution. Use celebrities.**
- **g. Educate the medical community about disposal of wastes.**

h. **Label needles and other medical items with instructions for proper disposal.**

i. **Enlist a personality with diabetes to discuss proper needle disposal in public service announcements.**

Public Relations and Publicity

Brainstorming Ideas:

18. Involve personalities such as Kevin McReynolds of the New York Mets, Bobby Nystrom of the New York Islanders, Billy Joel, Debbie Gibson, Bruce Springsteen, Pete Seeger, Ronald McDonald, Paul Newman and Katherine Hepburn, in a campaign to fight litter.

Recommendation:

Send a brief proposal for public service announcements and posters to the NYS Division of Tourism I Love New York campaign people.*

Brainstorming Ideas:

78. Put attractive, multiple item recycling facilities at all beaches and parks with instructive signs about litter and recycling.

Recommendations:

Since the Department of Parks does not have money to purchase recycling receptacles, the following strategies were suggested:

a. **Get school children to donate a can (barrel with wooden box around it) and inscribe the name of the school and the grade**

b. **Have school art departments and shop classes design and construct recycling receptacles using novel ideas; this could be part of a contest.**

c. **Have prisoners (some are now used by the Bronx Parks Department) make metal waste bins from existing designs, since these are less expensive.**

d. **Get information on the five plastic recycling firms on Long Island. They may be willing to build the more expensive igloo type multiple item recycling stations out of recycled plastic with some advertising credit for the donation.**

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*Letter proposal is included in Appendix E

Oil

Brainstorming Ideas:

72. Develop better oil spill prevention and response procedures and practices.

75. Put the burden of preventing and quickly cleaning up oil spills on the oil companies.

Recommendations:

Approximately 42,000 metric tons of oil enter the Hudson/Raritan Estuary annually. This is 5,000 metric tons more than the nation's largest oil spill caused by the EXXON VALDEZ. The input of oil and grease to the Hudson-Raritan Estuary is the result of a combination of spills, runoff from streets where people dispose of used oil, sloppy practices of service stations and dumping of oil and grease into the sewage system. The pubic must be educated on the proper disposal of waste gas and oil. Better enforcement of illegal dumping down storm drains is necessary.

Since January 1, 1990 there have been at least a half dozen spills of oil or gasoline in the New York Harbor area, primarily in Arthur Kill, and one in Long Island Sound. Four of these spills totaled over 16,619 tons of fuel. Park and beach managers attending this workshop expressed new concerns that oil slicks washing up on bathing beaches were now replacing floatable wastes as a major threat to beaches and would be a major threat to beach attendance should these spills occur during summer months. As a result of this concern, several participants suggested actions concerning oil spill readiness and responsibility.

Better emergency response plans to oil spills are needed. Oil poses an increasing threat to the region's coastal environments and their living resources. Oil companies should be prepared to be more assertive in preventing spills and in responding to spills when they occur. A comprehensive set of coordinated, published contingency plans is needed. Responsibility for clean-up of spills must be specified unambiguously; the closest locations of clean-up equipment should be documented with current lists of names and 24-hour phone numbers. There should be oil spill prevention and contingency legislation that would require booms around the ships while they are off-loading (one is pending). Equipment should be ready at locations where the potential for oil spills is high -- major off-loading sites, for example. In case there is a spill, reaction time must be short. The first few hours are critical.

Funds are needed for increased frequency of inspections of equipment to ensure proper maintenance. There should be more frequent checks to guard against chronic leaks and spills. Better supervision and training of operators, particularly night crews, is needed. Funds might come from fines put into a dedicated fund. The Coast Guard should check <u>all</u> piping of hazardous materials. Currently, they check only piping over a certain diameter. Better preventive maintenance, simulations and response drills

would reduce the probability of error. Local advisory teams should be formed to back up NOAA scientific support.

Regional Solutions

Brainstorming Ideas:

16. Redesign storm drain traps so that they will collect litter more effectively -- and clean them out!
34. Develop regional incinerators for municipal solid waste and medical waste.
39. Develop the facilities and the social climate that would make it possible to burn medical waste in municipal solid waste incinerators.
41. Catch litter in storm drains before it enters our aquatic environment.
49. Enhance and maintain street cleaning efforts in New York City.
56. Expand the use of prisoners to clean up beaches, NYC streets and other areas.

Recommendations:

All disposal options would be less expensive with significant source reduction. Reducing the total number of incinerators by having fewer, larger incinerators instead of many smaller ones has advantages. It could promote better air pollution control devices, better enforcement, more and better monitoring and better maintenance. Larger incinerators would be more cost effective and efficient. They also have disadvantages, particularly political disadvantages.

The total capacity of incinerators in a region should not be so large that it discourages recycling. If medical wastes could be burned in regional MSW incinerators, the economic incentive for illegal dumping of medical wastes would be eliminated. And, MSW incinerators are more tightly regulated than medical waste incinerators.

Use political pressure to clean up streets in New York City and back bay areas. Encourage student and volunteer groups and the National Guard. Also, New York should follow New Jersey by using more minimum security prisoners in environmental clean-up programs.

Street cleaning in NYC and in other municipalities served by storm drains must be maintained. Store owner/operators are legally responsible for keeping store frontage clean by local law, but the law is rarely enforced. Violations for failures to exercise proper street cleaning should be enforced. Redesign storm drain traps to collect litter so floatables do not enter the system. These traps require frequent cleaning so they don't clog.

Deposits on Containers

Brainstorming Ideas:

27. Increase the deposit on bottles...at least to 10 cents, preferably to 25 cents.

28. Extend the bottle bill to include deposits on all bottles not now covered.

31. Install automated bottle and can return machines at parks, beaches and other public places.

33. Require all enforcement agencies to enforce the bottle bill. This would require a change in the law to extend this authority to them.

43. Dedicate the revenue from uncollected deposits to environmental programs; for example, for controlling floatables in the marine environment.

Recommendations:

As a greater incentive to return deposit containers, the deposit should be increased and extended to other containers. The recent precipitous drop in returns of deposit cans from 85% to 60% clearly indicates the need to increase the deposit. Deposits should be extended to all drink containers including juice, liquor, milk, etc.

Deposit programs help the homeless. Many homeless people collect containers in public areas and cash them in. This helps to reduce litter while the homeless make money.

Make all law enforcement agencies responsible for enforcement of the bottle bill.

Investigate requirements as to who takes containers back so that deposit machines can be installed in more public places where drinks are sold in metal, glass and plastic containers.

Dedicate a fund from uncollected deposits for environmental programs.

Legislative Initiatives

Brainstorming Ideas:

27. Increase the deposit on bottles; at least to 10 cents, preferably to 25 cents.

28. Extend the bottle bill to include deposits on all bottles not now covered.

43. Dedicate revenue from uncollected deposits to environmental programs; for example for controlling floatables in the marine environment.

Recommendations:

a. **Bills already exist for increasing the deposit from 5 cents to 10 cents on soda and beer bottles and to start a 25 cent deposit on wine and liquor bottles. These bills should be enacted.**

b. **The bill to dedicate revenue from uncollected deposits to environmental improvement appears to be dead. It should be revitalized with the revenues going to specific environmental projects. The control of floatables would be a good candidate for those revenues.**

Brainstorming Ideas :

The largest class of floatables by weight is driftwood, according to findings from the driftnet collections in New York Harbor and its back bays.

33. Establish liability for abandoned boats and marina structures.

Recommendations:

a. **Laws already exist; state or local agencies can enforce them.**

b. **The state should establish a revenue return to local agencies enforcing liability for these boats and structures.**

c. **Adopt a local law of no prohibition against this practice.**

Brainstorming Idea:

88. Offer a state tax abatement for companies that develop their own in-house waste management and recycling programs.

Recommendation:

Offer state tax abatements to companies that develop in-house waste management and recycling programs.

REFERENCES

Marine Sciences Research Center. 1989a. Floatables Management Plan. COAST Institute and Waste Management Institute, State University of New York at Stony Brook. Special Report 86, Reference number 89-4.

Marine Sciences Research Center. 1989b. Floatables an Medical-Type Wastes on the Region's Beaches: 1989 vs. 1988. What were the differences and their causes? Working Paper 37, Reference number 89-10.

APPENDIX A

Foes of Floatables and Medical-Type Wastes

22 March 1990

Marine Sciences Research Center
Challenger Hall
Room 165

AGENDA

0900	Coffee, Donuts, Registration	
1000-1130	Brainstorming Session to Identify Possible Solutions to the Fundamental Causes of the Floatable and Medical-Type Waste Problems in the Region Part I: Generation of the Ideas and Sorting Them Into Categories	J.R. Schubel, Facilitator
1130-1200	The Great Hecksher State Park Swimming Pool Experiment	Arnoldo Valle R. Lawrence Swanson
1200-1245	Lunch and Voting on Solutions Generated in Part I	
1245-1430	Brainstorming, Part II. Selecting the Best Ideas and Integrating Them Into a Strategy	J.R. Schubel, Facilitator
1430	Adjourn	

APPENDIX B

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Absent but needs follow-up material.

APPENDIX C

Complete, unedited "List of Ideas Developed During Brainstorming of the Question: In How Many Ways Can We Reduce the Probability of Recurrence of Major Floatable Events?" The ideas are listed in the order presented. The number of votes each item received is recorded in brackets.

1. [03] Legislation should be enacted to put a deposit on syringes.

2. [14] Special attention should be given to source reduction of all floatable waste.

3. [17] A program of education should be implemented with proper instruction to diabetics on how to dispose of needles.

4. [01] Create friendly processes to involve marina operators in the collection of trash at marinas.

5. [11] Encourage the reuse and recycling of plastic medical supplies.

6. [07] Reintroduce glass recyclable units into medical practice.

7. [05] Forbid products which direct people to dispose of by flushing them down the toilet.

8. [13] Involve industry in the development of new packaging materials which are amenable to recycling.

9. [04] Include on all labels proper disposal methods.

10. [01] Engineer products properly to facilitate disposal or recycling.

11. [01] Put a deposit on tires.

12. [14] Develop innovative and effective educational programs concerning municipal solid wastes, floatables and medical type waste that are appropriate for children and adults.

13. [04] Develop and implement financial rewards to fishermen to recover floatable materials from back bay areas.

14. [10] Educate the public at all ages concerning the connection between personal practices, littering and floatables on our beaches.

15. [05] Involve recreational boaters in picking up floatable material from coastal waters.

16. [10] Redesign storm drain traps so that they will collect litter more effectively -- and clean them out!

17. [07] Increase fines and penalties for litterers and others who discharge wastes into the marine environment and consider criminal charges.

18. [20] Involve well-known personalities in public service announcements concerning floatable and medical type wastes.

19. [07] Increase the number of litter baskets at beaches and parks.

20. [02] Require litter baskets on all charter boats.

21. [03] Develop technologies and markets for pressure-treated woods.

22. [11] Impose fines for environmental offenders and use the funds collected for better enforcement.

23. [01] Develop and promulgate requirements for waste disposal for all concessionaires at parks, beaches and other public places.

24. [05] Empty litter baskets on beaches more often so they won't overflow.

25. [0] Make litter baskets fun to use.

26. [10] Ban plastic serviceware at all public places.

27. [10] Increase the deposit on bottles...at least to 10 cents, preferably to 25 cents.

28. [13] Extend the bottle bill to include deposits on all bottles not now covered.

29. [0] Restrict bottle deposits only to sin drinks and soda.

30. [01] Return to using glass renewable containers.

31. [06] Install automated bottle and can return machines at parks, beaches and other public places.

32. [03] Establish liability for abandoned boats and marine structures.

33. [05] Require all enforcement agencies to enforce the bottle bill.....this would require a change in the law to extend this authority to them.

34. [09] Develop regional incinerators for municipal solid waste and medical waste.

35. [02] Streamline permitting requirements for construction and operation of incinerators.

36. [01] Create a climate of credibility about safety of municipal solid waste and medical waste incinerators.

37. [07] Develop long-term stable funding for implementation of the regional floatables action plan.

38. [02] Accelerate and expand the CSO abatement program.

39. [14] Develop the facilities and the social climate that would make it possible to burn medical waste in municipal solid waste incinerators.

40. [01] Ban the excessive use of plastics in packaging materials.

41. [07] Catch litter in storm drains before it enters the aquatic environment.

42. [0] Institute programs for regular garbage pickup from moored boats.

43. [07] Dedicate the revenue from uncollected deposits to environmental programs, for example, for controlling floatables in the marine environment.

44. [01] Reward those who report environmental offenders, for example those who throw waste into the marine environment.

45. [06] Create environmental crimes divisions in Nassau and Suffolk Counties.

46. [06] End CSO's as soon as possible.

47. [05] Develop and implement better cleanup of shorelines by homeowners and others.

48. [04] Provide more and better media coverage on what has been accomplished in creating a cleaner environment particularly a cleaner coastal environment.

50. [02] Provide support for the development of biodegradable packaging materials.

51. [01] Implement an adopt-a-block program by City schools and give them a major role in keeping that block clean.

52. [0] Give school children a day off to clean-up beaches and back bay areas.

53. [02] Provide better education for health care workers, particularly concerning the use and disposal of medically related waste.

54. [04] Conduct more research of survivability in the marine environment of medically important organisms from clinical medicine practice research.

55. [0] Restart and refund the Youth Conservation Corps.

56. [13] Expand the use of prisoners to clean up beaches, NYC streets and other areas.

57. [01] Require identification on all commercial fishing gear.

58. [01] Create the equivalent of an environmental Oscar awards program for different categories (EPA has one -- perhaps it could be expanded and be better publicized).

59. [05] Develop fact sheets about needles and their proper disposal for distribution by doctors, clinics, etc.

60. [01] Use people on welfare to clean up beaches, parks and other public areas.

61. [05] Separate the combined sewers, redirect and recharge storm water into sole source aquifer areas, thereby saving water and facilitating treatment of the remainder.

62. [01] Design realistic needle exchange programs and study their effectiveness.

63. [0] Distribute driftwood collected from the harbor and coastal waters to artists, perhaps to create a public sculpture park.

64. [0] Develop a long-term educational program on natural versus anthropogenic events in coastal waters.

65. [01] Include street cleaning as part of SPEEDES permitting of municipalities.

66. [02] Develop a public education program concerning what an individual should do if he or she finds medical-type waste.

67. [01] Ban disposable diapers.

68. [01] Foster a sense of environmental stewardship and a sense of community among people and their responsibilities to each other and to the environment.

69. [03] Keep the definition of regulated medical waste as narrow as possible.

70. [0] Make the definition of regulated medical waste as broad as possible.

71. [0] Provide better education for landfill operators.

72. [14] Develop better oil spill prevention and response procedures and practices.

73. [01] Get state agencies to reimburse hospitals for the real costs of disposal of medical waste.

74. [0] Keep available locally all materials and supplies needed for the clean up of small spills.

75. [09] Put the burden of preventing and quickly cleaning up oil spills on the oil companies.

76. [04] Have formal and periodic review of all oil companies' disaster plans.

77. [05] Develop regional teams for response to medical waste spills.

78. [09] Develop attractive, multiple item recycling facilities at all beaches, parks and other public places with permanent educational signs to reduce the need for paper flyers.

79. [0] Require source separation by hospitals to remove materials that can be recycled.

80. [01] Pick up styrofoam cups, paper and other litter before cutting the grass in public places.

81. [01] Replace plastic fishing gear with biodegradable gear.

82. [0] Offer charter boat operators incentives for complying with anti-litter programs by giving them a discount when re-registering their vessels.

83. [06] Require better identification on individual medical items for easier tracking back to the originators of wastes washed up on beaches.

84. [01] Develop incentives for commercial ships to dispose of waste on land.

85. [0] Develop mechanisms to facilitate the disposal of waste from cruise liners (many islands that are visited by these cruise liners cannot accommodate their wastes, therefore encouraging disposal at sea).

86. [02] Develop the technologies for on-ship incinerators for commercial ships and cruise liners.

87. [0] Develop an international business persons association with local chapters to promote sustainable development.

88. [05] Offer state tax abatements for companies that develop their own in-house waste management and recycling programs.

89. [0] Fine those companies that do not develop their own in-house waste management/recycling programs.

90. [0] Promote research to make environmental responsibility profitable.

APPENDIX D

Wind-induced Scattering of Medically-Related [1] and Sewage-Related Floatables

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Keywords: *medically-related floatables; sewage-related floatables; floatable speed and direction; wind speed and direction; area exposed to the wind*

A set of seven experiments was carried out in the freshwater swimming pool at the Heckscher State Park, NY in order to study the wind-induced sorting of objects floating at the air-water interface. The execution of the experiments was motivated by the desire to understand the mechanism that stranded medically-related and sewage-related floatable wastes on the coasts of New Jersey and southern Long Island during the summers of 1987 and 1988. Items studied in the experiments included pill vials, syringes, and tampon applicators. Drift cards were used as controls.

A direct relationship was found between the relative area of the floatable item exposed to the wind and its speed through the water. An empirical equation that depicts this relationship is suggested. The large pill vials, with the greatest surface area exposed to the wind, moved the fastest. Drift cards were the slowest. It was also observed that the degree of scattering exhibited by each item was directly related to the percentage of their area exposed to the wind. The large vials scattered more relative to the wind direction. The drift cards essentially drifted with the wind.

[1] Contribution Number XXX of the Marine Sciences Research Center, SUNY, Stony Brook,

INTRODUCTION

The southern coast of Long Island and the coast of New Jersey (Fig.1) have experienced undesirable events of floatable material washing ashore when appropriate wind conditions prevail. Such conditions, consisting of persistent southerly and south-southwesterly winds for the southern coast of Long Island, and easterly to southeasterly and south-southeasterly winds for the coast of New Jersey, occur mainly during the summer months. The stranding of medically-related wastes, in particular, drove many visitors away from the coast of New Jersey in the summer of 1987, and from the coast of Long Island in the summer of 1988. This situation translated into considerable damage to local economies (Swanson and Zimmer, 1990).

The medically-related and sewage-related wastes found on the beaches of Long Island and New Jersey were comprised mainly of used syringes, pill vials, surgical masks, hypodermic needles, and tampon applicators. The sources of these materials and their general mode of transport have been described by Swanson and Zimmer (1990) and Swanson and Valle-Levinson (in press). However, there is little information on how specific products are transported. In the case of syringes, no one had considered whether they floated or not. From the sighting on the beaches, it appeared that some objects had been sorted by the wind, traveled at different speeds and arrived at the coast in groups of items. With all the uncertainties concerning the transport and distribution of these materials we designed and executed a set of experiments to test the effect of wind on medically-related and sewage-related objects floating in a large swimming pool.

Wind-induced surface speed of a floating object has been determined in the laboratory by several authors and is often expressed as a percentage of the mean wind speed. Keulegan (1951) found that the speed of the floatables grew asymptotically reaching a value of 3.3% of the wind speed as Reynolds number increased. In his experiments he used neutrally buoyant particles as speed tracers. Wu (1975), employing slightly buoyant spherical particles and thin circular disks found values as high as 5.2% and an asymptotic value, with an increased fetch, of 3.5%. Lin and Gad-El Hak (1984) using paper disks arrived at a value of 3.2%. Tsuruya *et al.* (1985) experimenting with thin circular papers punched from computer cards published a figure of 3.8%. In a work that intended to predict oil spill movements in the ocean, Hardy *et al.* (1975), monitoring the speed of drift cards over the New York Bight, found a value of 3.9 ± 1.6% of the wind speed.

In the study of wind-induced water currents, it has been noted that the wind blowing on the water surface causes a drift current that moves in the same direction as the wind. This transport produces a windward depression in the water level and a downwind elevation, the so-called wind set-up (Hellström, 1941). This water surface tilt builds up a pressure gradient that induces a restoring flow in the bottom layers that moves in the opposite direction to the wind (Tsanis, 1989). For the case of 2-D flows, conservation of water assures zero net flux of mass in the vertical direction. For open water 3-D flows, the wind-driven flux of mass takes place through a flow pattern associated with Langmuir cells and with Ekman flow (Weller and Price, 1988). For enclosed or semi-enclosed flows, boundary friction effects are responsible for energy dissipation that weakens the restoring bottom flow and creates a circulation around the domain boundaries.

DESCRIPTION OF THE EXPERIMENTS

Groups of floatable medically-related and sewage-related items were released at one end of the Heckscher State Park fresh water swimming pool (Fig.2) and their wind-induced motion was monitored throughout their approach to another pool boundary. A list of the items used in each of the seven experiments is presented in Table 1.

The swimming pool has an approximate length of 68 m with an orientation of 94°T, a width of 30.5 m with an orientation of 4°T and a depth of 1.2 m. It has an adjoining deeper, squared diving basin (15 m per side). The experiments were carried out exclusively in the shallow, rectangular area. Hence, the water depth to width ratio was 1.2/30 = 0.04. The water pumps and drains of the pool were shut off to reduce non-wind induced currents.

A reference grid for the swimming pool was marked on its fringes at intervals of 2.1 m (7 feet). The 'x' axis coincided with the eastern width (4°T orientation), while the 'y' axis matched the southern length (94°T orientation). This grid facilitated the reproducibility of the point of release and the positioning of the floatables at the time of their retrieval (maximum error in the positioning was 3%). An anemometer was located 1 m above the water surface and 1 m away from the northern edge of the pool, halfway between the eastern and western sides (Fig.2). This location maximized the fetch, reduced edge effects and facilitated reading of the instrument. For the first six experiments, the group of floatable objects was released at the first grid point (x = 2.1 m, y = 2.1 m) with the aid of a pool net skimmer. The floatables were left to drift with the wind and retrieved, with the same device, at the time when they crossed the last 'x' line (x = 27.9 m), before they reached the northern wall. Thus, the variables recorded for each floatable were the grid coordinates (x,y) and the time of recovery after release (t). The wind speed and direction were logged at the time of release and every 5 minutes thereof. The direction indicator of the anemometer did not work as desired and the wind directions had to be approximated. This was done by aligning the anemometer vane with the compass of a surveyor's transit.

Bottom drifters were tossed to the mid-ranges of the pool at the beginning of experiment No.1 in order to observe the water movement at the lower layers of the pool. For experiment No.5, 1 ml of rhodamine dye with a concentration of 0.2 ppt was injected at a depth of 15 cm, at the time (t=0 s) and grid coordinates of floatables release ($x = 2.1$ m, $y = 2.1$ m). For experiment No.6, 3 ml of the same dye (0.2 ppt) were introduced at 30 cm below the surface also at the time and grid coordinates of the floatables release. From experiment No.1 through No.6, the drift cards were used as a control since their behavior under the wind stress had been described (Hardy *et al.*, 1975). For experiment No.7, which was exclusively a dye experiment, 10 ml of rhodamine dye with a concentration of 1 ppt were injected approximately 2 cm below the surface. The behavior of the dye was logged and recorded with a video camera. This experiment was useful for examining the velocity vertical shear in the system.

RESULTS

The wind blew unimpeded diagonally across the pool throughout the seven experiments. The trajectories of the floatables in experiment No.1 are presented in Fig.3. The resultant wind speed was 10 $km \cdot hr^{-1}$ toward 315°T. The floatables traveled paths between 298°T and 305°T and their mean speed was 3.7 ± 1.4% of the resultant wind speed. The items that moved fastest were the large vials and the slowest were large syringes and drift cards. For experiment No.2 (Fig.4) the resultant wind blew with a speed of 10 $km \cdot hr^{-1}$ towards 319°T. The floatables moved at an average rate of 3.1 ± 1.2% of the wind speed and their direction varied from 309°T to 326°T. The large vials traveled fastest while drift cards, gloves, and surgical masks were slower. For experiment No.3 (Fig.5), the wind had a resultant direction toward 322°T and a resultant speed of 10.1 km·hr^{-1}. The floatables described trajectories between 303°T and 324°T and their average speed was 3.5 ± 1.5% of the resultant wind speed. The large vials moved the fastest while the slowest items were small syringes, gloves and masks.

Experiments Nos.4, 5 and 6 consisted on the deployment of only drift cards, small and large syringes, and tampon applicators. For experiment No.4 (Fig.6), the wind blew with a resultant component toward 323°T and a resultant speed of 11.8 km·hr^{-1}. The floatables were driven at 2.4 ± 0.4% of such resultant speed and toward a region ranging from 307°T to 310°T. The items moved at comparable speed although they scattered throughout their route. The syringes led the group, followed by the applicators and then the drift cards. In experiment No.5 (Fig.7) the dye injected 15 cm below the surface moved at a rate of 0.5% of the wind speed in the same wind direction (320°T) before it diluted completely and could not be traced any longer. Throughout the experiment, the wind blew with a resultant component of 13.9 km·hr^{-1} toward 324°T. The floatables drifted over a range of directions between 315°T and 321°T and moved at 2.0 ± 0.5% of the resultant wind speed. The items' behavior in terms of their speed and scattering was similar to the previous experiment. Experiment No.6 was in agreement with the previous two in relation to the items' scattering and speed. Their direction of movement (Fig.8) ranged between 323°T and 329°T, driven by a wind with resultant direction of 327°T. Their mean speed was 2.5 ± 0.6% of the resultant wind speed which was 14 km·hr^{-1}. The dye introduced 30 cm below the water surface did not show any advective motion; it simply diffused.

Experiment No.7 consisted of the introduction of dye at a very small distance (approx. 2 cm) below the water surface. Immediately after the dye injection, a very strong vertical current shear was observed. The dye at the surface moved with the wind at an average speed of nearly 1.3% of the wind speed and it responded accordingly to wind direction shifts (Fig.9). The dye that diffused to the lower layers moved gradually slower as it went deeper indicating a very strong vertical shear. Below mid-depth the dye drifted very slightly to the right of the wind direction. This evidenced the presence of a very weak return flow that is accounted for by conservation of water in the basin.

The bottom drifters deployed during the first experiment did not move from their initial position during the duration of the experiments (more than 3 hours of continuous wind). A summary of the wind speeds and directions during experiments Nos.1 through 6, as well as the speeds (as percentage of wind speed) and directions of selected medically-related and sewage-related floatables is presented in Table 2. The floatables appeared to travel generally to the left of the wind direction for every experiment. This is presented in Fig.10 where the behavior of each item was examined individually and where the vectors show only direction (their magnitudes are not scaled). The items of most interest are the vials, the syringes, and the tampon applicators since they were the most frequently found items on the beaches (the drift cards were used as control). Hence, special attention has been paid to the behavior of these objects. The vials' behavior was determined from experiments Nos.1,2 and 3, while the behavior of the tampon applicators was calculated from experiments Nos.4, 5 and 6. The behavior of the rest of the items was determined from experiments No.1 through No.6. Within experiments, the large syringes showed the same mean deviation from the wind direction as the small syringes; very similar to the mean deviation exhibited by the tampon applicators and the drift cards; and not very different to the deviation displayed by the vials (approximately 3° more to the left).

The average range of directional scatter D (°) for each item varied as a function of the percentage of the area exposed by the item to the wind A (Fig.11*a*). In general, the lower the percentage of area exposed, *i.e.*, the larger the portion of the object submerged, the less the range of scatter. The degree of scatter increased progressively from the drift cards, to the syringes and applicators, to the smaller vials, to the larger vials. This increase is described empirically by the linear relationship ($R^2 = 0.94$) obtained from all the values observed (experiments Nos.1 through 6):

$$D = 0.78 + 0.09A.$$

Thus, the small directional scatter shown by the drift cards means that they tend to line up under the wind action. Perhaps this indicates that the wind is more noisy than the response it causes in the water.

The average speed at which the floatables moved with respect to the wind speed also changed as a function of the percentage of the area of each item exposed to the wind (Fig.11*b*). Thus, the drift cards, with a small area exposed, were the slowest items with an average value of 2.0 ± 0.3% of the wind speed. The average value increased for the large syringes (2.2 ± 0.2% of the wind speed) the tampon applicators (2.2 ± 0.4% of the wind speed), the small syringes (2.3 ± 0.2% of the wind speed), the small vials (3.8 ± 0.7% of the wind speed) and the large vials (5.5 ± 0.4% of the wind speed). An empirical function was developed from every value observed (experiments Nos.1 through 6), in order to depict this dependence of the average floatable speed (as a percentage of the wind speed) S, in terms of the percentage of the object area exposed to the wind A:

$$S = 1.645 * 10^{0.0055A}.$$

This yielded a very good fit ($R^2 = 0.94$). The larger deviations observed in the directional scatter and speed of the small vials is due to the fact that small vials were of varied sizes and they could not be differentiated at the time of logging. Figure 11*a,b* shows that the speed and directional scatter experienced by the floatables is a direct function of the percentage of the surface area exposed to the wind.

DISCUSSION

This type of experiment offers a useful approach to the understanding of the interaction of the wind on the air-water interface. Several advantages can be pointed out in contrast to experiments carried out with drifting objects in the ocean. In the ocean, the rate of item recovery is not greater than 50% (Hardy *et al*, 1975), in contrast to the pool experiments where the rate of retrieval was 100%. The trajectory of the drifting objects in the ocean is not known and the time and position of recovery is uncertain. Wind variability near coastal areas, both in space and time, is great; the location of recording instrument(s) customarily reflect local wind patterns and does not reveal actual oceanic wind conditions since speeds are often underestimated (Schwing and Blanton, 1984). Thus, the determination of the water and floatables speed as a percentage of the wind speed, as well as their directional scatter is more reliable in the pool experiments since the variables involved (wind speed and direction, position of floatable retrieval) are more readily and accurately measured.

Some other advantages can be indicated in comparison to experiments performed in the laboratory. The calibration of reduced physical models is not a straightforward process. The scaling of floatable objects represents another complication. In many cases there are empirical relationships that must be used in order to translate model results into reality. Additional problems reside in the reproduction of wind direction changes in two-dimensional (2-D) tanks that are not wide. Furthermore, a model generally simulates 2-D flows for which the mass balance occurs in the vertical, *i.e.*, the surface flow is laterally uniform and is compensated by a bottom flow that moves in the opposite direction. For the pool experiments, these obstacles are overcome since neither calibration nor scaling are required; actual wind variations are the ones that drive the floatables; the 3-D mass balance allows the observation of scattering due to lateral shear in the surface flow. In fact, the flow in the pool can be considered as nearly horizontal since the compensating bottom flow is almost indistinguishable as suggested by the immobilization of the bottom drifters throughout the experiments.

There are some limitations, however, to the execution of experiments in a swimming pool. Wall effects produce a 3-D mass balance by generating a secondary horizontal flow that travels around the pool perimeter. Although such wall effects are minimized by a small depth to width ratio (1:25), their slight influence on the floatables' trajectory in this set of experiments is measured by the dominant drift of the items to the left of the wind direction (Fig.10). Another limitation is that the path of the floatables is restricted to a relatively short course compared to their drift in the ocean. Such a short course may not reflect a fully developed flow in the pool and may slightly underestimate the influence of the wind on floatables.

From a very practical point of view, the direction of prevailing winds may not align well with the geographic orientation of the pool or there may be physical barriers around the pool that distort a reasonable representation of wind stress on the pool surface. A shortcoming in this particular experiment that should not represent a serious concern to the general results, is that of using a freshwater pool rather than using salt water. The floatation of the objects considered does not change a great deal from fresh water to salt water (less than 1%) and the surface response to the wind depends, through the wind stress, on the eddy viscosity at the surface. For practical purposes, the eddy viscosity of the freshwater surface is the same as that of the surface of salt water (Sverdrup *et al.*, 1942). Therefore, the response of the floating objects to the wind in both environments is comparable.

The major advantage of this experiment is that of learning about the behavior of a contaminant (medically-related and sewage-related wastes) in an aquatic system. Most drift studies are done to understand the behavior of the ocean itself -- not foreign objects in it or on it. Considering the tremendous public outrage to the wash ups of these materials and the efforts now being put in place to reduce the occurrence of future events (see for example Marine Sciences Research Center, 1989) it is important to know how these materials are actually transported.

CONCLUSIONS

Floatable medically-related and sewage-related waste that escape into the marine environment are transported and dispersed by a variety of mechanisms. They have been observed along oceanic fronts, convergence zones, as part of Langmuir cells, and free floating (Swanson and Zimmer, 1990). Based on our experiments, when free floating, they scatter along and across their course of motion according to the fraction of their cross-sectional area A exposed to the wind. Thus, items with larger relative areas above the air-water interface travel faster and disperse more. This explains the scattering mechanism exhibited by medically-related floatables when being stranded on the beach. The objects with the larger average directional scatter D were the large vials (9°± 2°) and the ones with the smaller scatter were the drift cards (1.2° ± 0.9) according to the relationship:

$$D = 0.78 + 0.09A.$$

The fastest moving objects were the large vials with an exposed surface area of 84% and a speed of 5.5 ± 0.4% of the wind speed. The slowest moving objects, which reflect more closely the surface water current, were, as expected, the drift cards, with 9% of their area floating above the water and moving at a rate of 2.0 ± 0.3% of the wind speed. The suggested empirical relationship:

$$S = 1.645 * 10^{0.0055A},$$

where A is the percentage surface area of an object exposed to the wind and S is the average speed of the object as a percentage of the wind speed reflects these observations. Of course, to estimate surface currents the most reliable results will be obtained using a slightly negative buoyant object that stays at the interface but that does not have any portion exposed to the wind. By extrapolation of the relationship arrived at by using objects with different proportional areas exposed to the wind (A vs S), it can be suggested that the air-water interface moves at a speed of approximately 1.5% of the wind speed. This is a similar value to the one observed in the dye experiment (No.7).

With regard to the plastic medically-related and sewage-related wastes, it is clear that under certain circumstances, if introduced into the marine environment from a single source such as a combined sewer outfall, they can be sorted as a function of size and percent surface area exposed to the wind. This may explain that on occasions, these types of materials have been observed washing up on the beach in groups -- such as dozens of syringes at a particular location and particular time.

It is more likely, however, that medically-related and sewage-related wastes are transported by a variety of wind driven surface transport phenomena including those along fronts and convergences, with the Langmuir cells, and as individual floating objects.

ACKNOWLEDGEMENTS

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FIGURE CAPTIONS

Figure 1. New York Bight area showing the coasts of Long Island and New Jersey.

Figure 2. Location of Heckscher State Park pointing out the swimming pool site, as well as the dimensions and orientation of the pool, along with the location of the anemometer. Each mark on the border of the pool equals 5 m.

Figure 3. Trajectories followed by the different items during experiment No.1, based on their position of deployment and retrieval. The average speed shown was calculated using every item involved in the experiment. The wind vector displayed is the resultant throughout the experiment. V-vials, S-syringes, C-drift cards, B-glass bottles, A-bags, G-gloves, T-tubing, M-masks.

Figure 4. Same as Figure 3, but for experiment No.2.

Figure 5. Same as Figure 3, but for experiment No.3.

Figure 6. Same as Figure 3, but for experiment No.4. Only syringes, drift cards and tampon applicators (P) were used.

Figure 7. Same as Figure 6, but for experiment No.5.

Figure 8. Same as Figure 6, but for experiment No.6.

Figure 9. Dye experiment (No.7) showing the progression of the dye blotch and its change of direction as a response to the wind shifts. The shape of the blotch is approximate.

Figure 10. Trajectories of selected items (dotted line) as compared to the wind direction (bold line) for each experiment. The arrows only indicate direction, they are not scaled to the magnitude of each variable. Note that the floatables constantly traveled to the left of the wind direction suggesting weak wall effects.

Figure 11. Average range of direction scatter (°) for experiments Nos.1 through 6 (a) and semilogarithmic plot of the average speed as percent of wind speed for experiments Nos.1 through 6 (b) for selected items as a function of the percentage of their area exposed to the wind stress. a) The spread of the large vials is contrasted to the alignment of the drift cards. The large directional variation featured by the small vials is due to the different sizes included in that category of

items. The continuous line represents the fit: Avg. scatter = 0.78 + 0.09 Area. b) The average speed of the items increases with the relative area exposed above the water surface. The continuous line represents the fit: Avg. speed = $(1.645)(10^{0.0055 Area})$.

Table 1. Items used for each experiment

	Experiment No.						
	1	2	3	4	5	6	7
Large Vials	5	5	5				
Small Vials	5	6	6				
Large I.V. Bags	2	2	2				
Small I.V. Bags	2	1	3				
Surgical Masks	2	1	3				
Tubing	1	1	1				
Gloves	2	6	6				
Glass Bottles	3	4	5				
Large Syringes	16	12	24	9	15	29	
Small Syringes	26	18	26	16	26	28	
Tampon Applicators	0	0	0	5	18	28	
Drift Cards	4	10	10	10	9	15	
Bottom Drifters	Deployed - - - - - - - - - - - - - Did not Move - - - - - - - - - - - - - - - -						
Rhodamine Dye	No	No	No	No	1 ml	3 ml	10ml

Table 2. Summary of Experiments Nos.1 through 6 for selected items.

Exp. No.	Item	Wind Speed (Km/hr)	Direction (º) (º)	Floatable Speed (% of W.S.)	Floatable Dir. Range (º)
1	All items	10	315	3.7 ± 1.4	298-305
	Large Vials	11	305	5.9±0.8	300-302
	Small Vials	11	305	4.3±0.5	299-301
	Large Syringes	10	325	2.3±0.3	298-302
	Small Syringes	10	325	2.5±0.2	299-301
	Drift Cards	10	325	2.3 ±0.0	301
2	All items	10	319	3.1 ±1.2	309-326
	Large Vials	8	325	5.2 ± 0.3	317-324
	Small Vials	8	325	3.5 ± 0.5	324-326
	Large Syringes	11	315	2.2 ± 0.1	308-315
	Small Syringes	11	315	2.2 ± 0.1	308-315
	Drift Cards	11	315	1.8 ± 0.0	311
3	All items	10	322	3.5 ± 1.5	303-324
	Large Vials	10	320	5.7 ± 0.3	313-324
	Small Vials	10	320	4.2 ± 0.6	308-319
	Large Syringes	10	315	2.3 ± 0.2	311-315
	Small Syringes	10	315	2.4 ± 0.3	311-315
	Drift Cards	10	315	2.0 ± 0.1	311-313
4	All items	12	323	2.4 ± 0.4	308-310
	Large Syringes	13	325	2.2 ± 0.2	308-310
	Small Syringes	13	325	2.4 ± 0.1	308-310
	Tampon Appl.	13	325	2.2 ± 0.1	308-310
	Drift Cards	13	325	2.1 ± 0.1	308-310
5	All items	14	324	2.0 ± 0.5	315-321
	Large Syringes	16	315	2.1 ± 0.2	315-317
	Small Syringes	16	315	2.2 ± 0.1	315-317
	Tampon Appl.	16	315	1.9 ± 0.2	315-319
	Drift Cards	16	315	1.7 ± 0.2	315-317
6	All items	14	327	2.5 ± 0.6	323-329
	Large Syringes	13	335	2.3 ± 0.1	323-324
	Small Syringes	13	335	2.4 ± 0.1	323-324
	Tampon Appl.	13	335	2.4 ± 0.5	323-329
	Drift Cards	13	335	2.2 ± 0.2	323-324

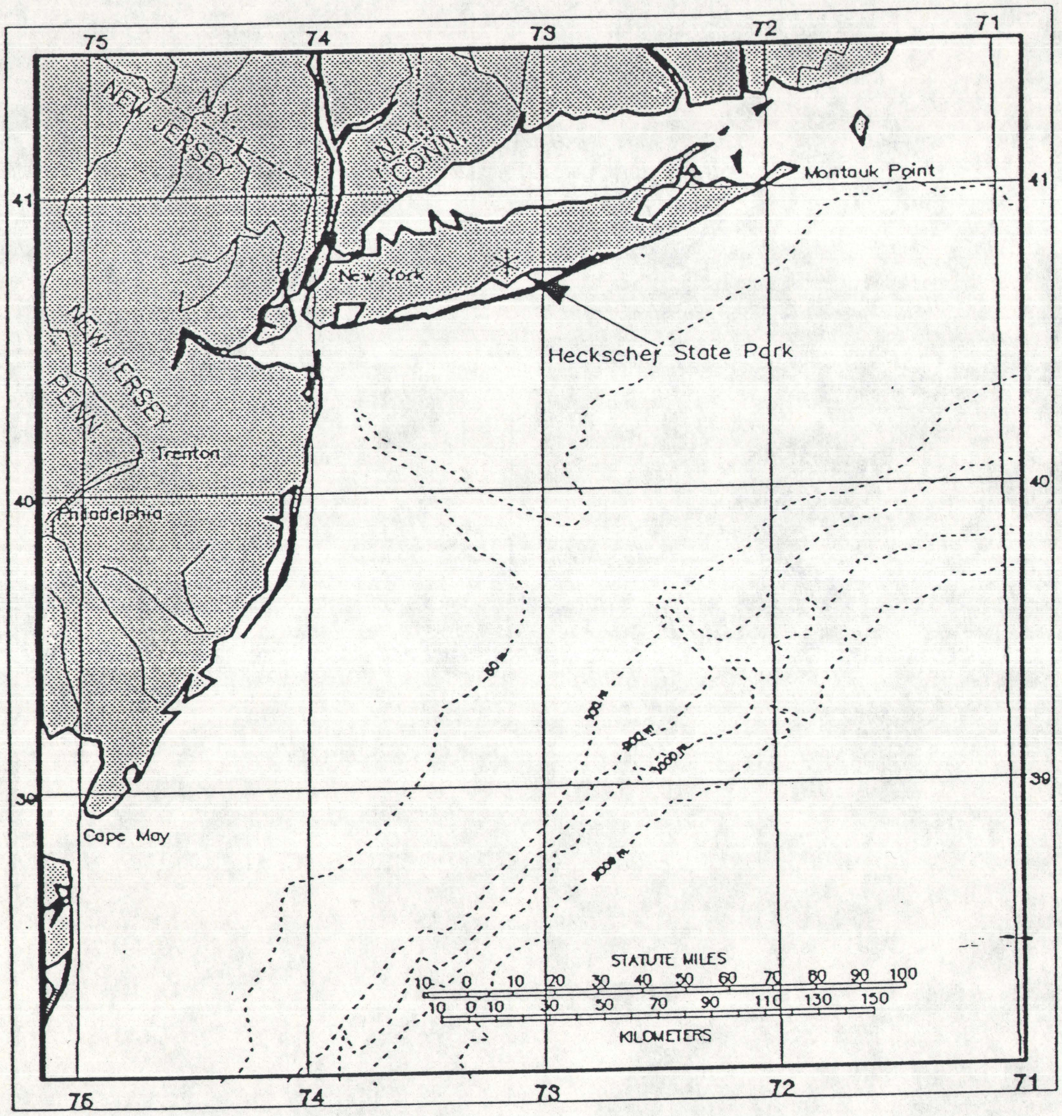
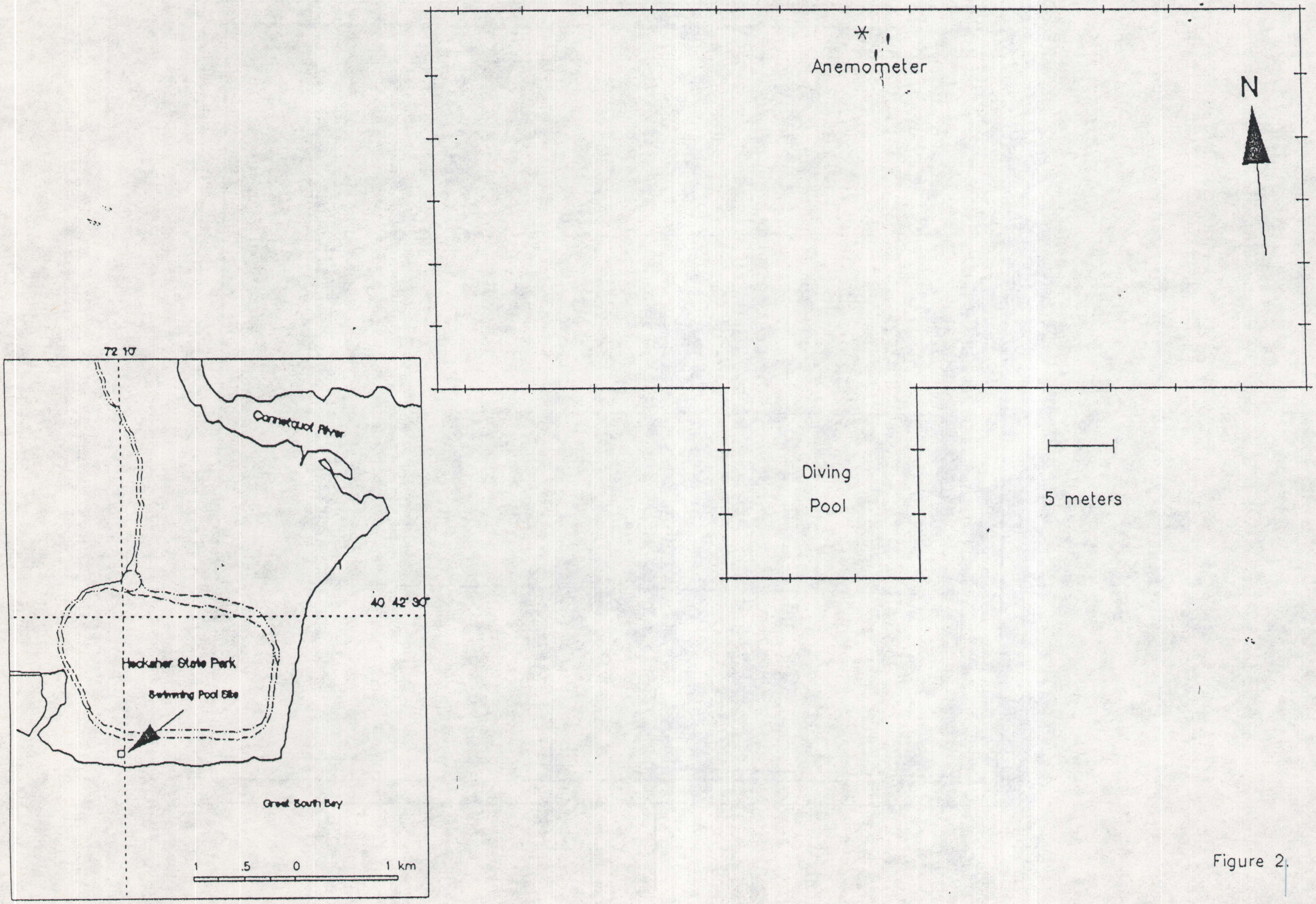
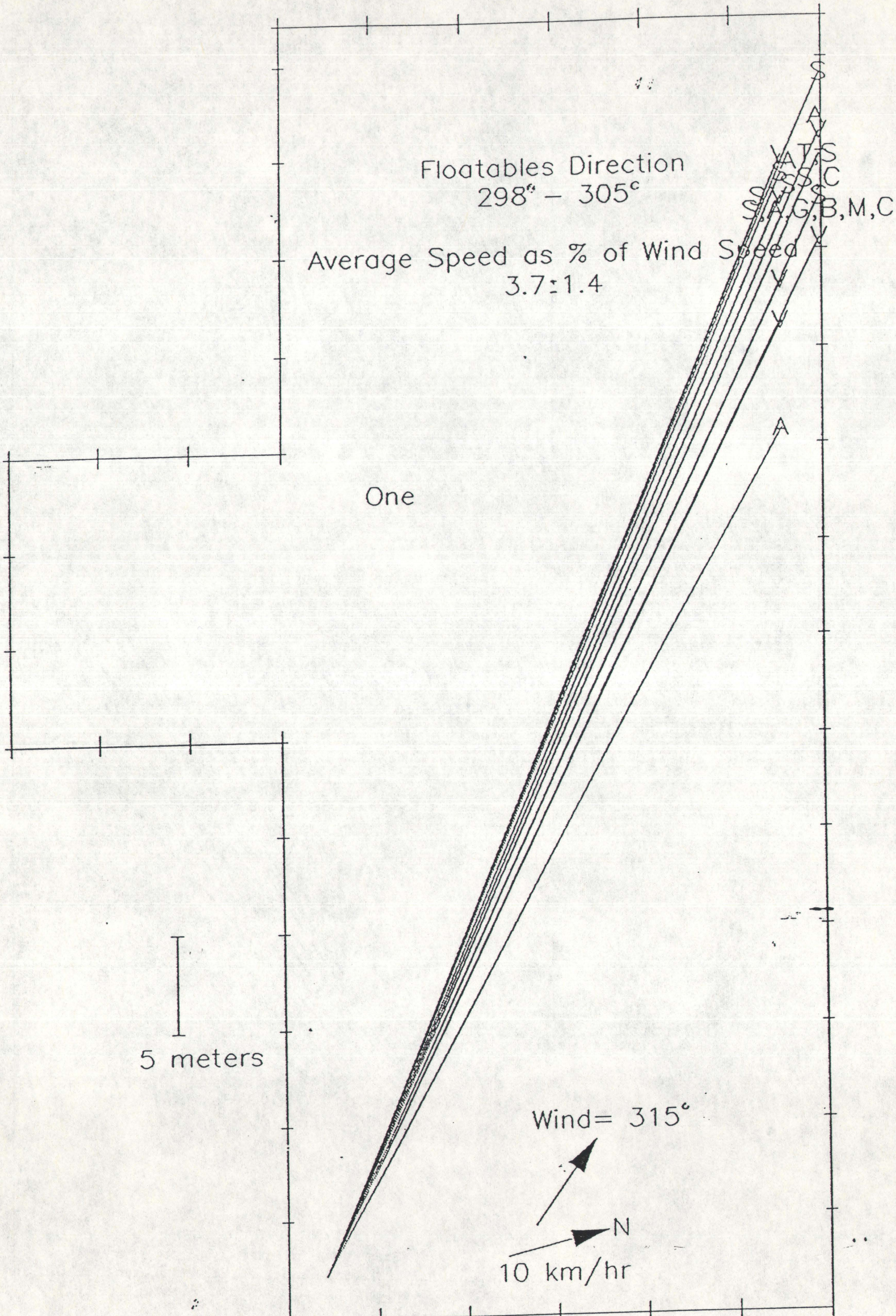

75
74
73
72
71
N.Y.
NEW JERSEY
N.Y.
CONN.
Montauk Point
41
New York
Heckscher State Park
NEW JERSEY
PENN.
Trenton
40
Philadelphia
39
Cape May
STATUTE MILES
10 0 10 20 30 40 50 60 70 80 90 100
10 0 10 30 50 70 90 110 130 150
KILOMETERS

Figure 1



Anemometer
N
Diving
Pool
5 meters
72 10'
Connetquot River
40 42' 30"
Heckscher State Park
Swimming Pool Site
Great South Bay
1 .5 0 1 km

Figure 2.



Floatables Direction
298° – 305°
Average Speed as % of Wind Speed
3.7±1.4
S
A
Y
Y,A,T,S
B,S,C
S,S
S,A,G,B,M,C
Y
Y
Y
A
One
5 meters
Wind= 315°
N
10 km/hr

Figure 3

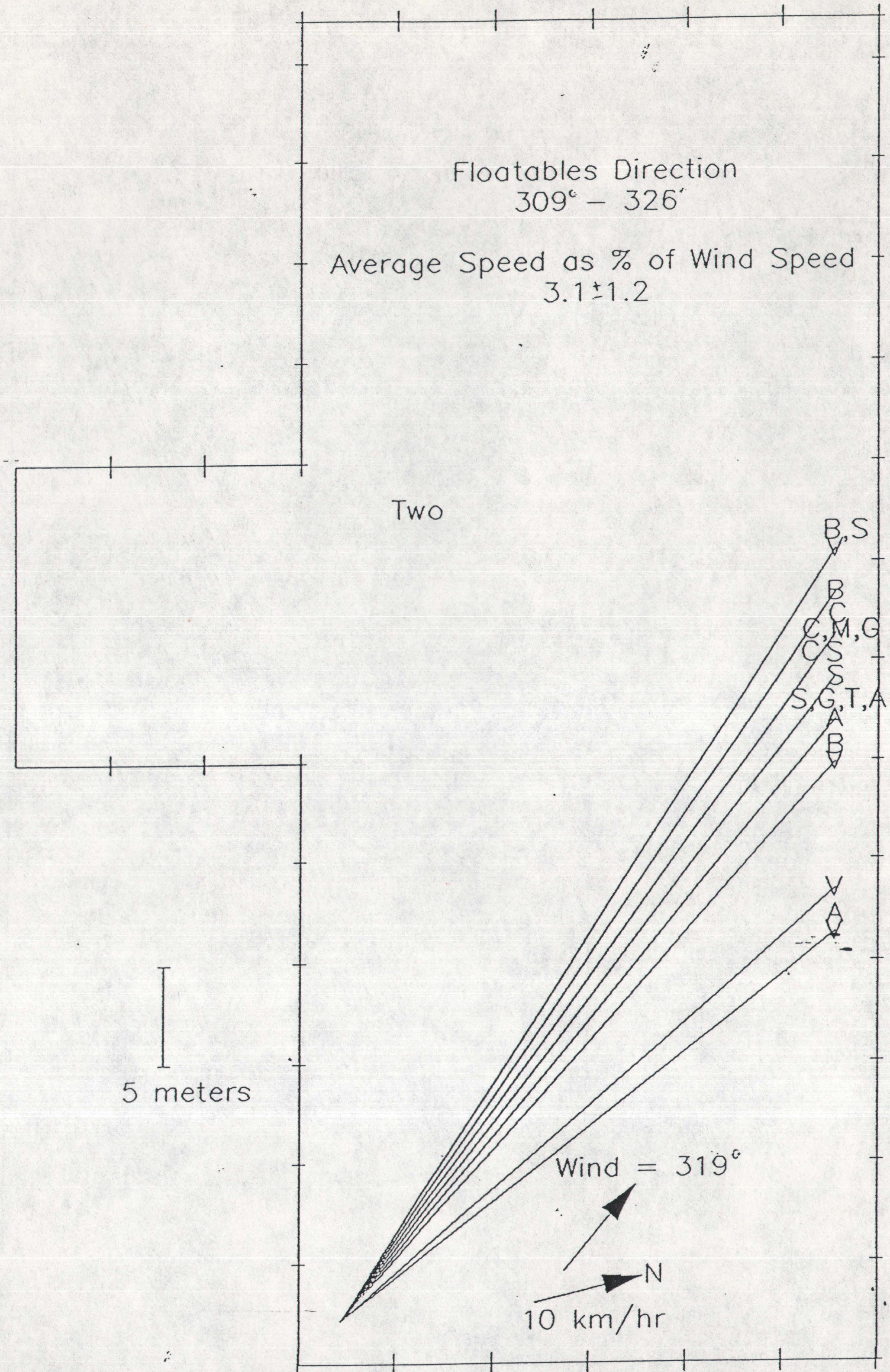

Floatables Direction
309° – 326°
Average Speed as % of Wind Speed
3.1±1.2
Two
B,S
B
C
C,M,G
C,S
S
S,G,T,A
A
B
V
A
V
5 meters
Wind = 319°
N
10 km/hr

Figure 4

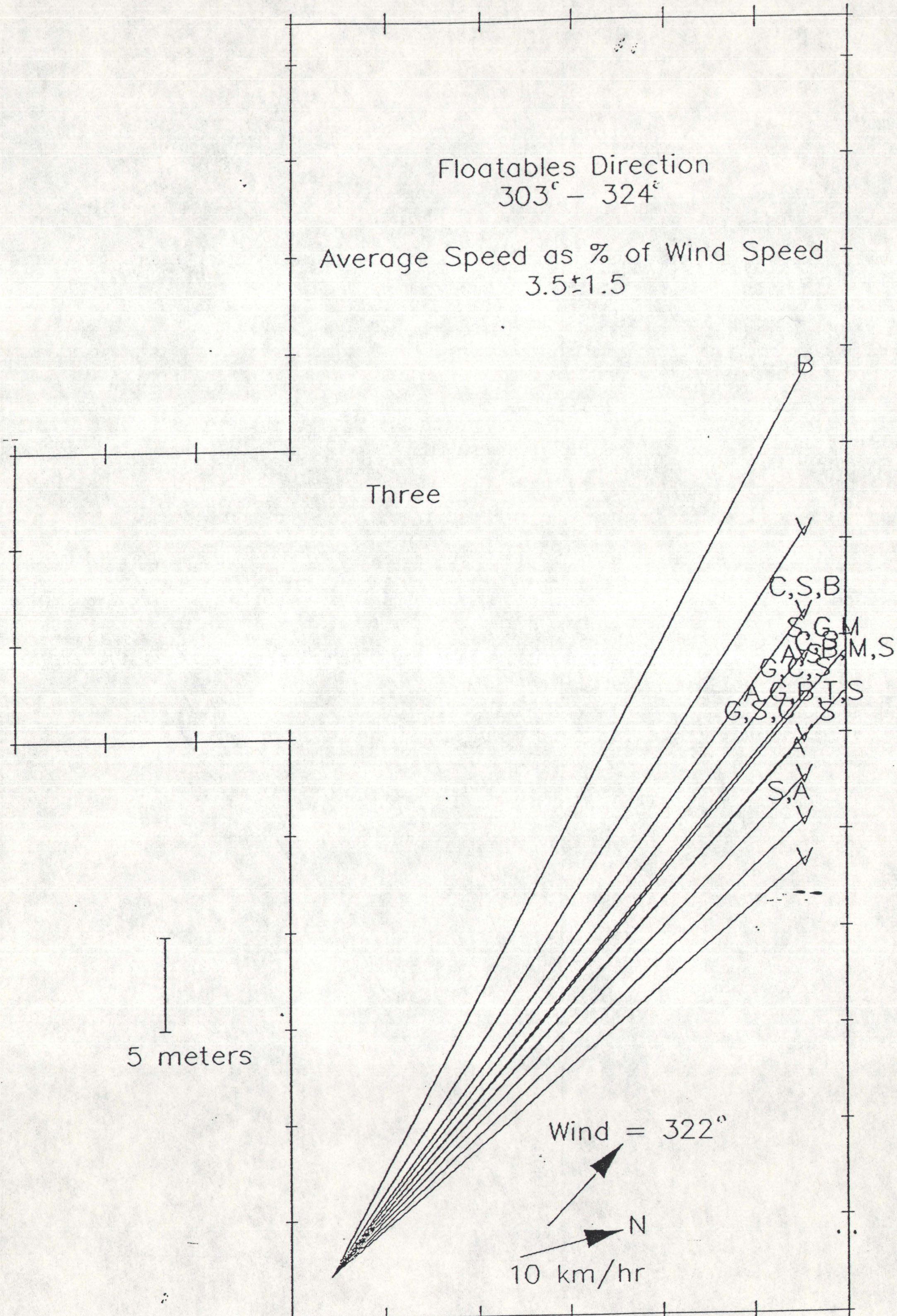

Floatables Direction
303° – 324°
Average Speed as % of Wind Speed
3.5±1.5
Three
B
V
C,S,B
S,G,M
A,C,B,M,S
G,C,S
A,G,B,T,S
G,S,C,S
A
S,A
5 meters
Wind = 322°
N
10 km/hr

Figure 5

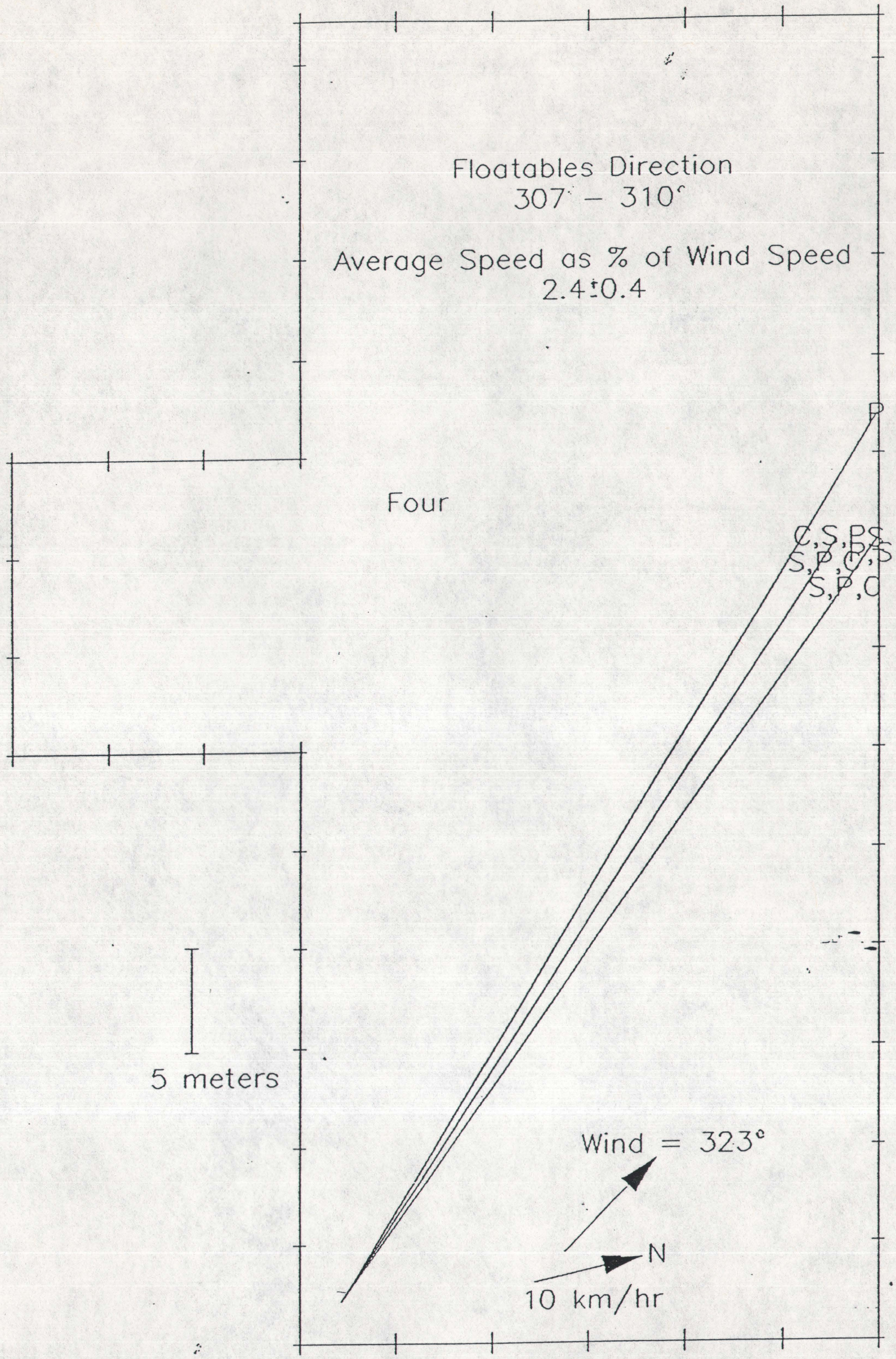
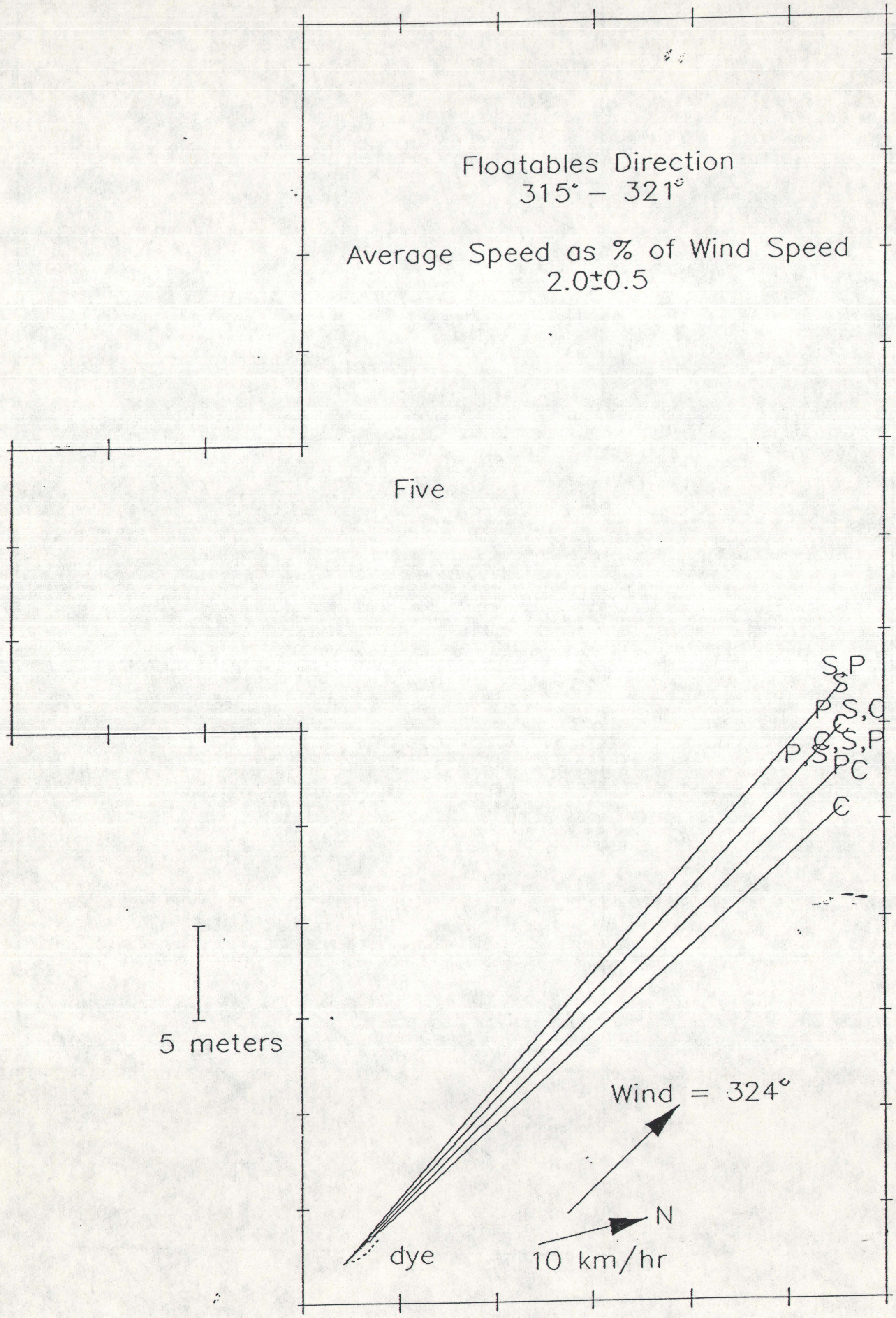
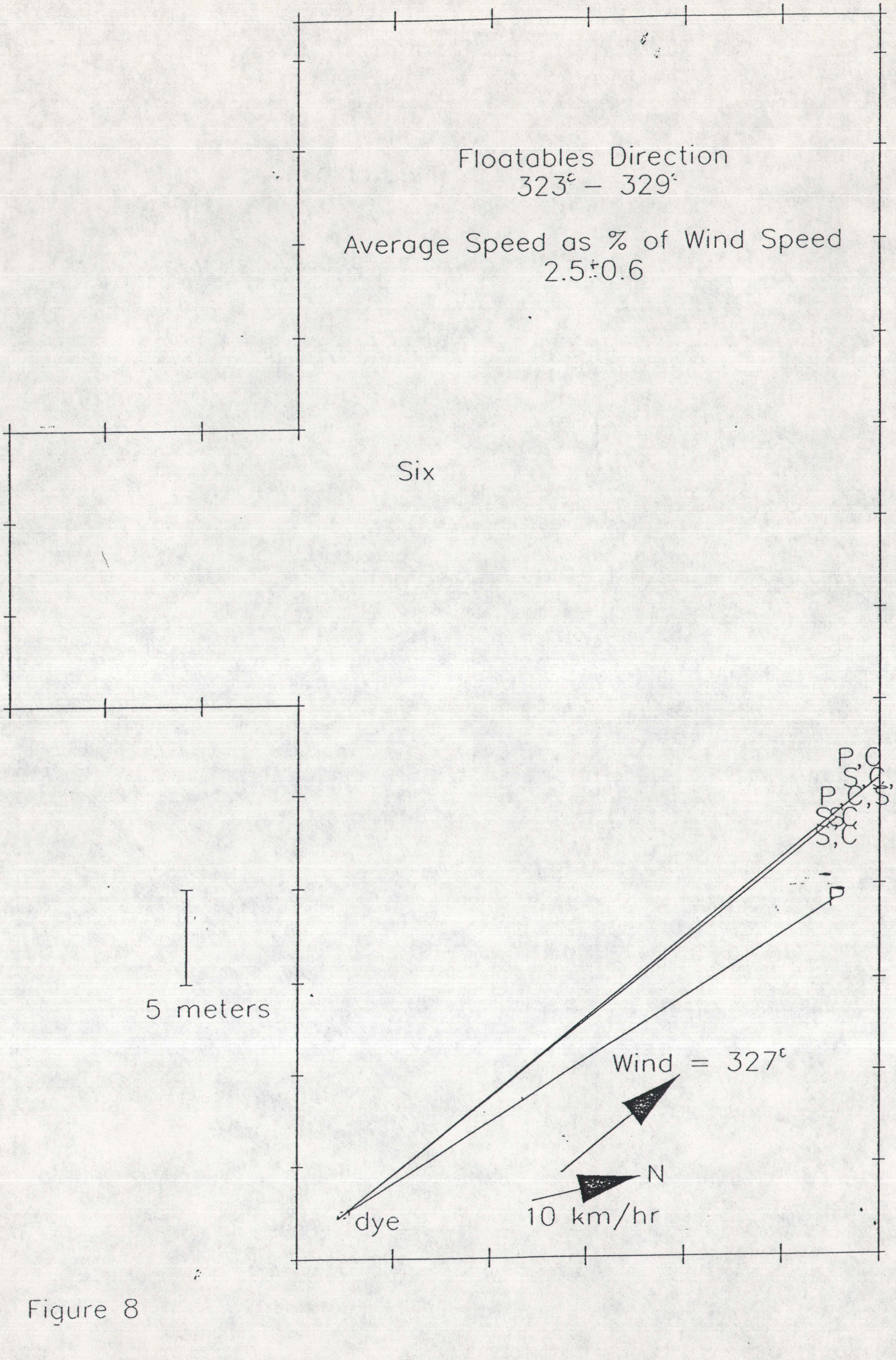

Floatables Direction
307° – 310°
Average Speed as % of Wind Speed
2.4±0.4
Four
C,S,P,S
S,P,C,S
S,P,C
P
5 meters
Wind = 323°
N
10 km/hr

Figure 6



Floatables Direction
315° – 321°
Average Speed as % of Wind Speed
2.0±0.5
Five
S,P
S
P S,C
C
C,S,P
P,S PC
C
5 meters
Wind = 324°
N
dye
10 km/hr

Figure 7



Floatables Direction
323° – 329°
Average Speed as % of Wind Speed
2.5±0.6
Six
5 meters
P,C
S,C,P
P,C,S
S,C
S,C
P
Wind = 327°
N
10 km/hr
dye

Figure 8

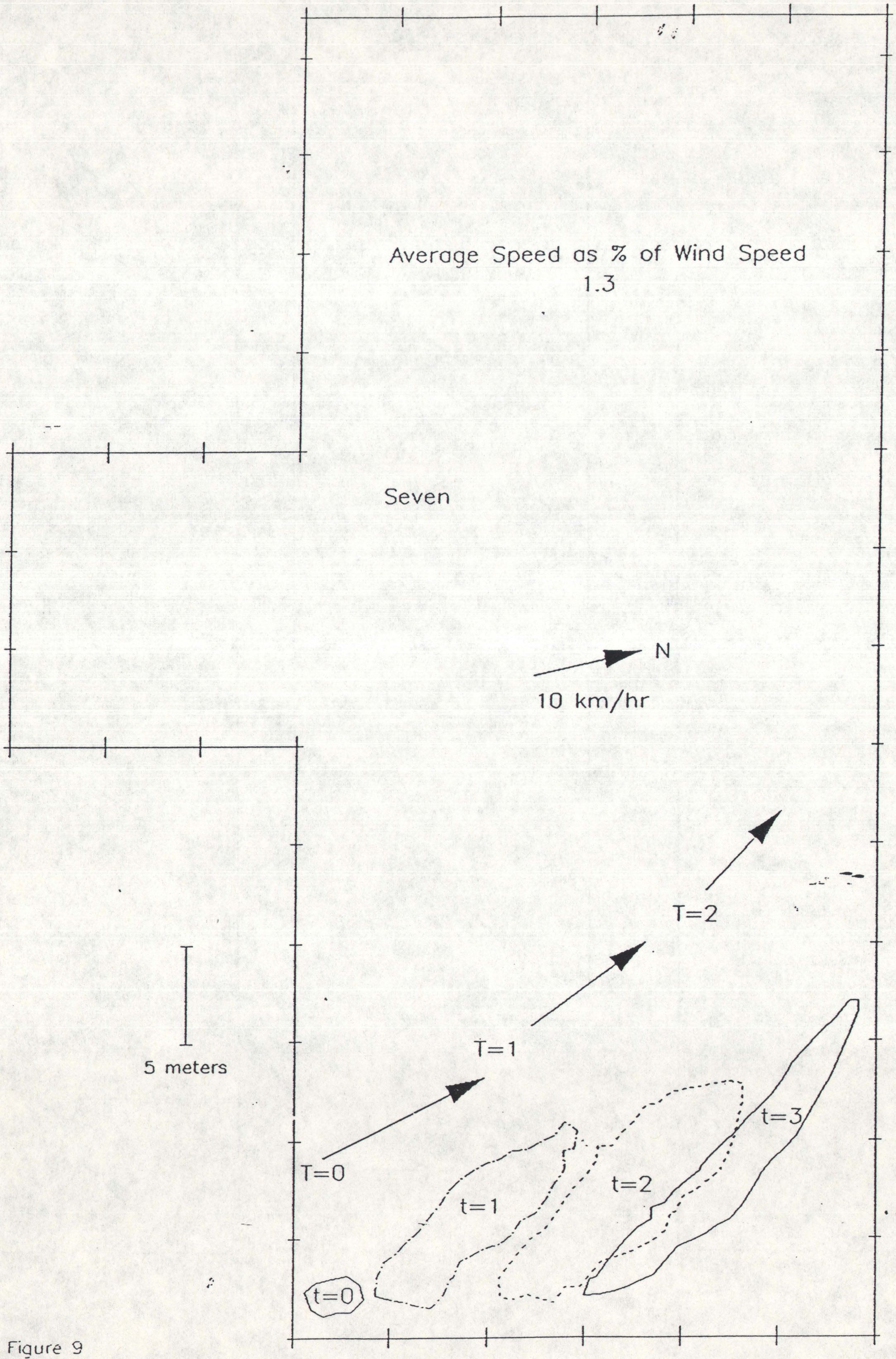

Average Speed as % of Wind Speed
1.3
Seven
N
10 km/hr
T=2
5 meters
T=1
t=3
T=0
t=2
t=1
t=0

Figure 9

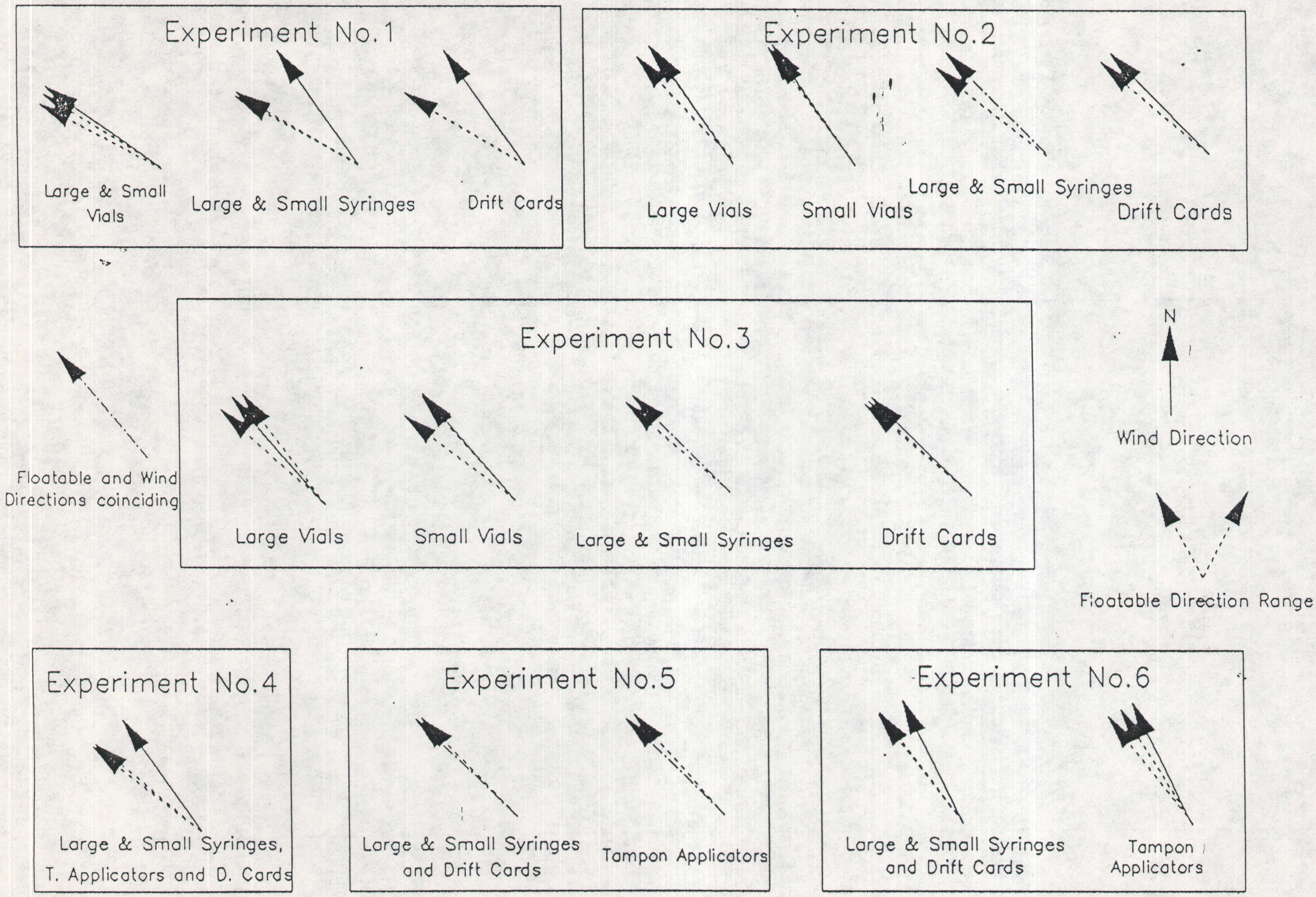
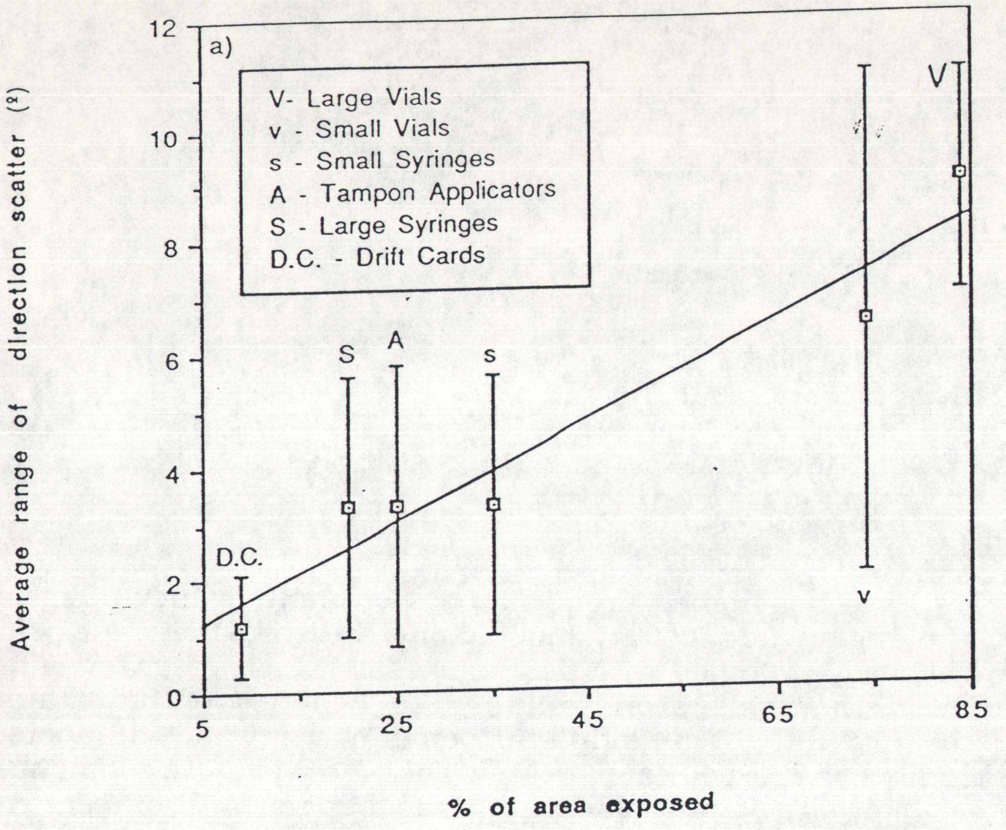
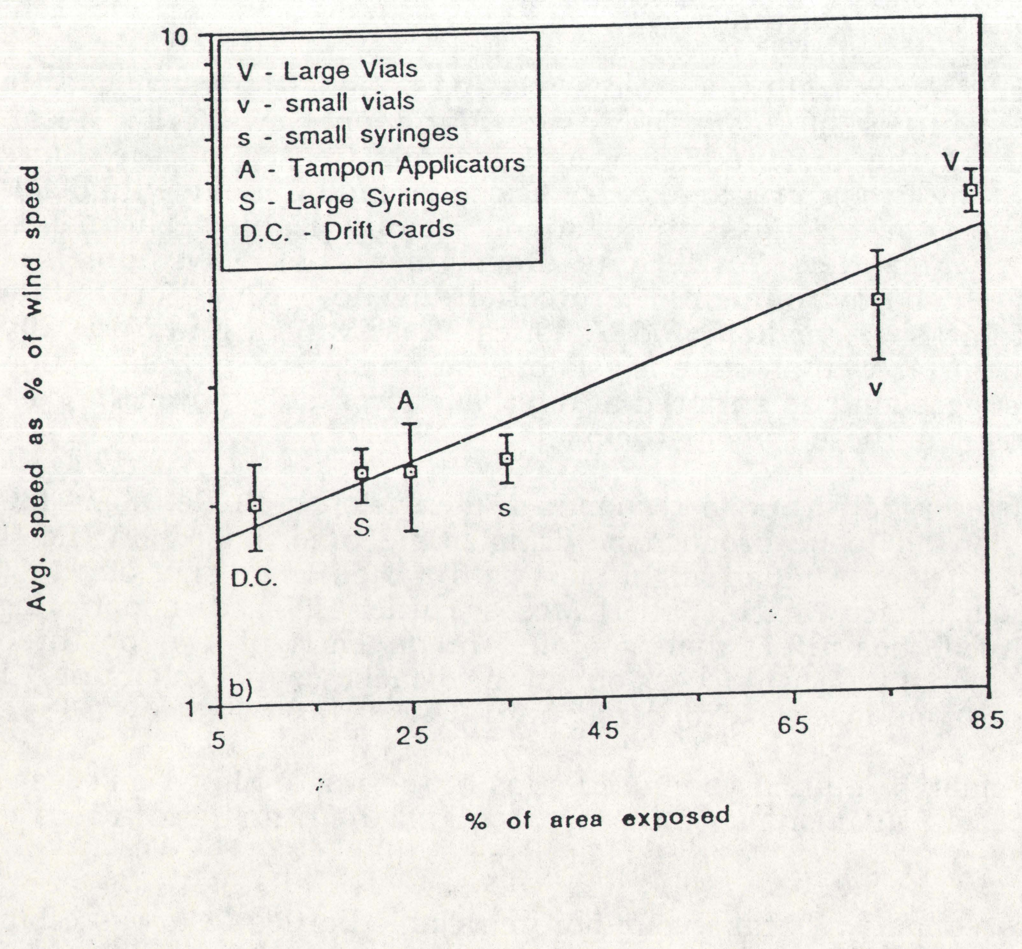

Experiment No.1
Large & Small Vials
Large & Small Syringes
Drift Cards
Experiment No.2
Large Vials
Small Vials
Large & Small Syringes
Drift Cards
Experiment No.3
Large Vials
Small Vials
Large & Small Syringes
Drift Cards
Floatable and Wind Directions coinciding
N
Wind Direction
Floatable Direction Range
Experiment No.4
Large & Small Syringes, T. Applicators and D. Cards
Experiment No.5
Large & Small Syringes and Drift Cards
Tampon Applicators
Experiment No.6
Large & Small Syringes and Drift Cards
Tampon Applicators

Figure 10.


a)
V- Large Vials
v - Small Vials
s - Small Syringes
A - Tampon Applicators
S - Large Syringes
D.C. - Drift Cards
Average range of direction scatter (°)
% of area exposed
12
10
8
6
4
2
0
5
25
45
65
85
V
S
A
s
D.C.
v


b)
V - Large Vials
v - small vials
s - small syringes
A - Tampon Applicators
S - Large Syringes
D.C. - Drift Cards
Avg. speed as % of wind speed
% of area exposed
10
1
5
25
45
65
85
V
v
A
S
s
D.C.

APPENDIX E

April 17, 1990

Mr. Joseph Shilling
NYS Department of Economic
Development
Division of Tourism
1 Commerce Plaza
Albany, NY 12245

RE: DRAFT PROPOSAL: "KEEP LONG ISLAND BEACHES CLEAN" PSA

Dear Mr. Shilling:

The past few years have heightened the awareness of many agency officials in the metropolitan region and Long Island about the threats to tourism when our ocean beaches are fouled with floating wastes. Last year Governor Tom Kean of New Jersey was seen walking the beaches of his state, exclaiming their beauty and threatening stiff penalties for waste dumpers. This year, we propose that the State of New York Tourism Development Commission create, produce and place a public service announcement declaring New York State's ocean beaches clean and beautiful and asking New Yorkers to help keep it that way.

The idea to write a proposal came from a meeting on long-term strategies to remediate the sources of floatable wastes found on New York's ocean beaches, held at the Marine Sciences Research Center of the State University at Stony Brook in late March. Those attending included officials from such agencies as the Nassau and Suffolk County health departments, New York City and New York State Departments of Environmental Conservation, U.S. Environmental Protection Agency, New York State Department of Parks, Recreation, and Historical Preservation, New York City Parks Department, as well as state legislators, scientists and citizens action groups. This suggestion has surfaced at other such workshops over the past two years by many of these same participants.

The time is now for New York to respond. We envision a single, short (30 second) television ad to be broadcast during prime time, based on the "I Love New York" theme. This ad might start with a wide angle shot of a New York State beach (Jones Beach, Robert Moses, Hither Hills), demonstrating that it is, indeed, beautiful, then zooming in on each of two or three well-known personalities in succession at the beach, each exclaiming, "I Love New York. If you love New York, too,...."

(first personality): "...pitch your used cups in the waste bin. Don't leave them on the beach. (Personality picks up a cup off the beach and tosses it into a can.)

(second personality): "...take your non-recyclable bottles to a waste bin and your recyclable bottles back to a return center. Don't leave them on the beach. (Personality finishes drinking from a soda can and puts it into a tote bag as he leaves the beach.)

(third personality): "...take your newspapers with you when leaving the beach and put them in recycling containers at the beach or at home.

It was suggested at these meetings on floatables to try to have personalities that appeal to young, middle aged and older audiences. Some specific people mentioned included Billy Joel, Debbie Gibson, Katherine Hepburn or Paul Newman. A sports star would also be ideal for the young and middle aged audience. Ron Delsner, producer for Jones Beach concerts, would be able to help find environmentally conscious personalities to do the ad.

Please let us know your reaction to this much needed advertising campaign.

Sincerely,

Trudy M. Bell
Editorial Associate

cc: Ms. Michele L. Vennard, Deputy Commissioner
NYS Tourism Development

Mr. Ronald Foley, Regional Director
NYS Office of Parks, Recreation & Historic Preservation

Mr. Bertrand T. Fisher
NYS Department of Economic Development, L.I. Region