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OIL SPILL AND OIL POLLUTION REPORTS November 1974 – February 1975

National Environmental Research Center
Office of Research and Development
U.S. Environmental Protection Agency
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OIL SPILL AND OIL POLLUTION REPORTS

November 1974 - February 1975

By

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FOREWORD

Man and his environment must be protected from the adverse effects of pesticides, radiation, noise and other forms of pollution, and the unwise management of solid waste. Efforts to protect the environment require a focus that recognizes the interplay between the components of our physical environment -- air, water, and land. The National Environmental Research Centers provide this multidisciplinary focus through programs engaged in

- studies on the effects of environmental contaminants on man and the biosphere, and
- a search for ways to prevent contamination and to recycle valuable resources.

The compilation and dissemination of pertinent information is essential to understanding and management of the environment.

This report is the second in a series of quarterly reports highlighting research and literature dealing with the prevention, control and cleanup of oil spills.

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A B S T R A C T

The November 1974 - February 1975 Oil Spill and Oil Pollution Report is the second quarterly compilation of oil pollution report summaries. A new section has been added to the second report, providing information on the present status and results of the Current Research Projects listed in Report I.

The following topics are included in the report:

a) Summaries and bibliographic literature citations;

b) Current status of some of the research projects as listed in Report I;

c) Summaries of additional current research projects; and,

d) Patent summaries.

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INTRODUCTION

The purpose of the "Oil Spill and Oil Pollution Reports" series is to present a concise, comprehensive information source on oil pollution events, current research and oil pollution related publications. This is the second quarterly edition of "Oil Spill and Oil Pollution Reports". Topics surveyed include articles from the scientific and technical literature (Section I), the status and results of Current Research Project entries listed in Report I (Section II), additional Current Research Projects (Section III), and oil pollution related patents (Section IV). Section II is a new addition to the report and provides information concerning the present status of research projects presented in Report I. Unlike the first edition, a section on oil spill events is not included, but will appear in subsequent oil pollution reports.

The summaries and bibliographic citations of articles presented in Section I are grouped according to subject and are then arranged alphabetically by senior author within each subject division. The sources of the summarized material are scientific, technical, and abstracting journals.

Section II lists Current Research Project entries appearing in Report I and includes descriptive project information provided upon request by the principal investigators and/or performing organization. All reports and publications are entered in summary form. The entries in Section II are not complete in that status information is not given for some of the research projects listed in Report I. In these cases, the responses to the request letters were not received prior to the publication date. At the end of each entry, the name and address of the project information source are given.

Current Research Project summaries are grouped according to subject and then arranged alphabetically by senior principal investigator within each subject division. All research project information was obtained from the Smithsonian Science Information Exchange (SSIE).

Patent summaries are divided into United States and foreign subsections and arranged alphabetically by inventor in each section. All patent information was obtained from abstract journals. Illustrations of United States patented devices were obtained from the U.S. Patent Office Official Gazette.

All report entries are serialized. Each section has its own number series. The serial numbers in this report are a continuation of the numbering system appearing in Report I. The letters preceding the serial numbers designate the following sections: C, citations from the literature; R, research projects; P, patents. This number series will continue in subsequent reports. Many of the entries can be included under more than one subject heading. Following each summary are listed any other topics under which the entry can be categorized. A subject cross index is provided at the end of the report.

SECTION I. PUBLICATIONS AND REPORTS

A. OIL POLLUTION DETECTION AND EVALUATION

1. MONITORING

C-122-74
DEVELOPMENT OF A PROTOTYPE AIRBORNE OIL SURVEILLANCE SYSTEM. VOLUME I: SYSTEM DEFINITION STUDIES (Final design report 6 June 1972 - 5 June 1973).

Anonymous. 1973.
Contract DOT-CG-22170-A (AD-779482; AESC-1745FR-1-Vol-1; USCG-D-45-74). 271 p.

The document describes the prototype Airborne Oil Surveillance System (AOSS) design. The efforts and results associated with the systems analysis are discussed in Volume 1.

Citation Source: Scientific and Technical Aerospace Reports. 1974. 12(18). Entry #N74-29780.

C-123-74
DEVELOPMENT OF A PROTOTYPE AIRBORNE OIL SURVEILLANCE SYSTEM. VOLUME 2: DESIGN REPORT (6 June 1972 - 5 June 1973)

Anonymous. 1973.
Contract DOT-CG-22170-A. (AD-779483; AESC-1745FR-1-Vol-2; USCG-D-46-74). 407 p.

Volume 2 gives details of the overall prototype oil surveillance system design.

Citation Source: Scientific and Technical Aerospace Reports. 1974. 12(18). Entry #N74-29781.

C-124-74
DEVELOPMENT OF A PROTOTYPE OIL SURVEILLANCE SYSTEM. VOLUME 3: SUBSYSTEM SPECIFICATIONS (Final design report 6 June 1972 - 5 June 1973)

Anonymous. 1973.
Contract DOT-CG-22170-A. (AD-779484; AESC-1745FR-1-Vol-3; USCG-D-47-74). 156 p.

Volume 3 of the document contains the specifications and drawing lists of the prototype surveillance system, "and the Phase I and II work breakdown structure and the Spare Parts List for the procured sensors."

Citation Source: Scientific and Technical Aerospace Reports. 1974. 12(18). Entry #N74-29782.

C-125-74
GLOBAL MONITORING OF OIL IN OCEAN TO BEGIN

Anonymous. 1974.
Chemical and Engineering News 52(23):15-17.

Tar, oil slicks and dissolved hydrocarbons in the oceans will be surveyed by a worldwide system for monitoring petroleum in the seas, beginning January 1, 1975. The value of the monitoring system is questioned because biological damage by oil pollution will not be assessed.

Citation Source: Environment. 1974. 4(7,8). Entry #12-74-06744.

C-126-74
PROCESS INNOVATIONS

Anonymous. 1974.
Canadian Chemical Processing 58(3):8-10.

A new airborne instrument is described which can detect water pollution at night by means of fluorescence. The system has detected fluorescence from oil refinery wastes and can detect oil slicks from altitudes of 300 meters.

Remote Sensing

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10605.

C-127-74
(No Title)

Anonymous. 1974.
Research and Development News 15(21):1.

An oil-on-water sensor system has been developed and tested by Texas Instruments, Inc. The sensor detects the presence of oil on water by emitting a wideband IR pulse and receiving reflections at 2 narrow spectral bands.

Citation Source: Citation Journal.

C-128-74
MONITORING NARRAGANSETT BAY OIL SPILLS BY INFRARED SPECTROSCOPY

Brown, C. W., P. F. Lynch, and M. Ahmadjian. 1974.
Environmental Science and Technology 8(7):669-670.

Infrared spectroscopy used in monitoring oil spills in Narragansett Bay has been very effective in determining the sources of spills.

Citation Source: Chemical Abstracts. 1974. 81(14).
Entry #79959y.

C-129-74
OIL POLLUTION MONITORING IN THE LAGOON OF VENICE USING THE MUSSEL MYTILUS GALLOPROVINCIALIS

Fossato, V. U., and E. Siviero. 1974.
Marine Biology (Berlin) 25(1):1-6.

Studies have shown that the mussel M. galloprovincialis from several areas of the Lagoon of Venice contains significant amounts of hydrocarbon mixtures due to fuel oil contamination. Hydrocarbon levels in the organisms varied with distance from the pollution sources and varied in degree of exchange with the sea and sample areas. These results point to the mussel as a useful monitoring index of oil pollution in the lagoon.

Biological effects of oil pollution

Citation Source: Biological Abstracts. 1974. 58(6).
Entry #34253.

C-130-74
OIL/WATER INTERFACE DETECTOR LABORATORY EVALUATION

Heigl, J. J. 1973.
NTIS Report COM-74-10120/5WP. 94 p.

Three devices, based on acoustic attenuation, sonic velocity and electrical conductivity were evaluated in the laboratory for their ability to measure oil-in-water in tanker operations. Tests revealed that all three systems failed to meet the desired standards.

Citation Source: Environment Abstracts. 1974. 4(7,8).
Entry #12-74-06763.

C-131-74
ENVIRONMENTAL STUDIES OF PORT VALDEZ

Hood, D. W., W. E. Shiels, and E. J. Kelley. 1973.
Report NOAA-740101401.

Environmental data including physical and biological aspects and hydrocarbon studies of Port Valdez were determined so as to establish baseline information against which future monitoring could be compared. Such studies will aid in predicting the impacts of future additions of pollutants to the waters.

Research

Citation Source: Chemical Abstracts. 1974. 81(8).
Entry #41108g.

C-132-74
OIL POLLUTION DETECTION, MONITORING AND LAW ENFORCEMENT.
QUARTERLY PROGRESS REPORT

Horvath, R. 1974.
Contract NAS9-13281. (E74-10559; NASA-CR-138634; ERIM-101800-12-P; QPR-5). 2 p.

The author reports no significant results in the study.

Citation Source: Scientific and Technical Aerospace Reports.
1974. 12(17). Entry #N74-27771.

C-133-74
KINETIC STUDY OF A FUEL OIL UNDERGOING PHOTOCHEMICAL WEATHERING

Majewski, J., J. O'Brien, E. Barry, and H. Reynolds. 1974.
Environmental Letters 7(2):145-161.

A study was conducted which monitored the reactions resulting from exposure of No. 6 fuel oil in pentane to UV light. The data obtained were compared to various kinetic models.

Citation Source: Chemical Abstracts. 1974. 81(18).
Entry #108254x.

C-134-74
OBSERVATIONS OF WATER, AIR AND SOIL POLLUTION IN ISRAEL AND VICINITY FROM THE ERTS-1 IMAGERY

Otterman, J., A. Ginzburg, G. Ohring, and Y. Mekler. 1974. Water, Air, and Soil Pollution 3(1):53-61.

The objectives of the Earth Resources Technology Satellite Program (ERTS), a program in which Israel is a participant, are presented. Cases, in which pollution in Israel was observed by the multi-spectral scanner of the satellite, include oil slicks in the Gulf of Suez and near Haifa.

Citation Source: Biological Abstracts. 1974. 58(9). Entry #51949.

C-135-74
AERIAL DETECTION OF SPILL SOURCES

Rudder, C. L., A. G. Wallace, and C. J. Reinheimer. 1973. Contract EPA-01-0178 (PB-22810513; EPA-R-73-289).

An aerial surveillance spill prevention system has been designed, and an imagery interpretation key of the petroleum industry has been developed. Identifications of potential spill sources as related to oil processing, storage and disposal facilities were made.

Citation Source: Scientific and Technical Aerospace Reports. 1974. 12(16). Entry #N74-26940.

C-136-74
INFRARED SPECTROSCOPY. TOOL FOR AIR AND WATER POLLUTION STUDIES

Zeller, M. V. 1974.
Instrument News 24(1):5-7.

The research project describes the use of infrared spectroscopy in detecting contaminants in the atmosphere and in analyzing oil in water.

Analysis

Citation Source: Chemical Abstracts. 1974. 81(8). Entry #40950p.

2. REMOTE SENSING

C-137-74
THE DETERMINATION OF OIL SLICK THICKNESS BY MEANS OF MULTI-FREQUENCY PASSIVE MICROWAVE TECHNIQUES

Hollinger, P. 1973.
NTIS Report AD-771 376/1WP

An investigation was made on the technique of multifrequency microwave radiometry used for the remote determination of thickness and volume of ocean surface oil spills. Aircraft-borne studies on eight controlled marine oil spills revealed oil slick regions with film thicknesses of 1 mm or more, surrounded by larger and thinner slicks containing very little oil.

Citation Source: Environment Abstracts. 1974. 4(7,8). Entry #12-74-06758.

C-138-74
INVESTIGATIONS OF SURFACE FILMS - CHESAPEAKE BAY ENTRANCE

MacIntyre, W. G., C. L. Smith, J. C. Mundy, V. M. Gibson, and J. L. Lake. 1974.
Environmental Protection Agency. Technology Series Report EPA 670/2-73-099. 168 p.

The multi-purpose study includes research to predict oil slick motion and oil slick aging rates, remote sensing techniques to detect and measure the spreading rate of oil, and quantitative studies of plankton in slick, non-slick and subsurface water.

Research
Biological effects of oil pollution

Citation Source: Selected Water Resources Abstracts. 1974. 7(18). Entry #W74-08831.

C-139-74
EVALUATION OF AN INFRARED OIL FILM MONITOR

Wright, D. E., and J. A. Wright. 1973.
USCG-D-51-74. Contract DOT-CG-33672-A. 96 p.

The effectiveness of a remote oil film detection instrument was evaluated. Both laboratory and in-situ experiments showed that the instrument could specifically detect hydrocarbon films on the waters surface.

Citation Source: Government Reports Announcements. 1974. 74(14). Entry #AD-778 814/4GA.

3. SAMPLING

C-140-74
NOVEL METHOD FOR SAMPLING OIL SPILLS AND FOR MEASURING INFRARED SPECTRA OF OIL SAMPLES

Brown, C. W., P. F. Lynch, and M. Ahmadjian. 1974. Analytical Chemistry 46(1):183-184.

A method is discussed which reduces the water content from oil samples to negligible amounts and provides a new technique to measure infrared spectra.

Analysis

Citation Source: Citation Journal.

C-141-74
OIL FLOATING IN THE NORTH ATLANTIC

Wellman, A. M. 1973.
Marine Pollution Bulletin 4(12):190-191.

Tar samples were collected from tar balls floating in the Atlantic in the summer, 1973. The globules ranged from .35 to 20 mm in diameter; larger masses existed but were not collected.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04544.

4. ANALYSIS

C-142-74
ALKANE DEGRADATION IN BEACH SANDS

Ahlfeld, T. E., and P. A. LaRock. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01.
p. 199-203.

The rate of n-alkane breakdown was estimated in beach sands from Coal Oil Point, California. From the analyses, it was found that total daily oxidation only accounts for 6% removal of alkane content of the sand.

Chemical Effects

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08629.

C-143-74
THIN-LAYER CHROMATOGRAPHY IN THE HEAVY ORGANIC INDUSTRIES

Amos, R. 1973.
Talanta 20(12):1231-1260.

The role of thin-layer chromatography in analyzing petroleum hydrocarbons, fuel and lubricant polymers, and in conserving the environment is discussed.

Citation Source: Biological Abstracts. 1974. 58(8). Entry #41395.

C-144-74
ANALYTICAL TECHNIQUES SEEK TO FINGERPRINT OIL SPILLS

Anonymous. 1974
Chemical and Engineering News 52(12):30.

Various analytical methods for identifying oil spills, and determining oil spill sources were discussed at a Pittsburgh Conference symposium on fingerprinting oil spills. The efficiency of ultraviolet fluorescence spectroscopy in solving these problems was described.

Citation Source: Citation Journal.

C-145-74
'FINGERPRINTS' TRACE SPILL CULPRITS

Anonymous. 1974
Chemical Week 114(24):40.

Unidentified oil and chemical spills comprised 60% of the total spills occurring in 1973. Methods used in Environmental Protection Agency laboratories for analysis of oil spill origins include gas chromatography, infrared spectrophotometry and atomic absorption, and fluorescence spectroscopy.

Citation Source: Environment Abstracts. 1974. 4(7,8). Entry #74-06745.

C-146-74
MANY MILLION GALLONS OF OIL ILLEGALLY MISMANAGED IN NORTHEAST AREA

Anonymous. 1974
Solid Wastes Management 17(4):32.

The article reports that approximately 23 million gallons/year of industrial and automotive waste oil are illegally disposed of in the New York metropolitan area. Such illegal activities are attributed to the lack of development of proper handling and reprocessing systems.

Oil Recovery and Handling Techniques

Citation Source: Environment Abstracts. 1974. 4(9). Entry #17-74-07795.

C-147-74
ARTIFICIAL SEA SLICKS: THEIR PRACTICAL APPLICATIONS AND ROLE IN FUNDAMENTAL RESEARCH

Barger, W. R., and W. D. Garrett. 1974.
NTIS Report AD-780784; NRL-7751 CSCL 08C.

Large man-made organic sea slicks adsorbed at the air-sea interface have been generated to investigate mechanisms of wind-wave interactions, air-sea exchange processes and oil spill control, containment and retrieval. The composition and techniques for forming oil slicks are described.

Containment
Cleanup

Citation Source: Scientific and Technical Aerospace Reports. 1974. 12(22). Entry #N74-32861.

C-148-74
THE DETERMINATION OF VEGETABLE AND MINERAL OILS IN THE EFFLUENTS AND SEWAGE SLUDGES OF THE UPPER TAME BASIN

Bennett, M., H. J. Dee, and N. Harkness. 1973.
Water Research 7(12):1849-1859.

Methods for extraction and quantitative analysis of vegetable and mineral oils in effluents and sewage sludges are presented. The mineral oils are quantitatively estimated by infrared spectrophotometry.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10818.

C-149-74
DEVELOPMENT OF CLASSIFICATION SCALE FOR CHARACTERIZING BILGE WATERS USED IN EVALUATING OIL REMOVAL TECHNIQUES

Budininkas, P., and G. A. Remus. 1974.
USCG-D-75-74. Contract DOT-CG-32521-A.

The report describes a method for empirically classifying bilgewaters based upon the rate of oil separation from water-oil emulsions. The emulsions were prepared from oils used on marine vessels, including diesel fuel, hydraulic and lubricating oils.

Citation Source: Government Reports Announcements. 1974. 74(14). Entry #AD-778 929/0GA.

C-150-74
A MICROWAVE INSTRUMENT FOR THE CONTINUOUS MONITORING OF THE WATER CONTENT OF CRUDE OIL

Castle, G. S. P., and J. Roberts. 1974.
Proceedings of the IEEE 62(1):103-108.

An instrument is described which continuously compares "wet" samples of oil to determine water content present. The technique obtains sensitivities of 0.05% water content.

Citation Source: Citation Journal.

C-151-74
MICROBIAL ECOLOGY AND THE PROBLEM OF PETROLEUM DEGRADATION IN CHESAPEAKE BAY

Colwell, R. R., J. D. Walker, and J. D. Nelson, Jr. 1973.

Louisiana State University Sea Grant Publication #LSU-SG-73-01. P. 185-197.

To obtain information on seasonal occurrence and species distribution of oil-degrading organisms, water and sediment samples were analyzed from Chesapeake Bay. From these studies a hydrocarbon-utilizing fungus Cladosporium resinae and actinomycetes were the major degrading isolates.

Biological effects of oil pollution
Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08628.

C-152-74
DETERMINATION OF THE CONTENT OF PETROLEUM PRODUCTS IN WATER BY AN OPTICAL ACOUSTICAL METHOD

Domostroeva, N. G. 1974.
Izmeritel'naya Tekhnika 3:66-67.

The concept and operation of the optical acoustic method is discussed. The method is based on spectral properties of the petroleum products (absorption in the 2800-3000/cm range). Producibility was within ±1% with ±3% accuracy in determining petroleum in waters of three Russian oilfields.

Citation Source: Chemical Abstracts. 1974. 81(18). Entry #108156s.

C-153-74
INTERCALIBRATION OF ANALYSES OF RECENTLY BIOSYNTHESIZED HYDROCARBONS AND PETROLEUM HYDROCARBONS IN MARINE LIPIDS

Farrington, J. W., J. M. Teal, J. G. Quinn, T. Wade, and K. Burns. 1973.
Bulletin of Environmental Contamination and Toxicology 10(3): 129-136.

An intercalibration study was made to determine the accuracy and precision of hydrocarbon analyses being made in different laboratories. Analyses from three laboratories showed agreement in their measurements of petroleum contamination levels.

Citation Source: Pollution Abstracts. 1974. 5(6). Entry #74-05445.

C-154-74
PORT COLLECTION AND SEPARATION FACILITIES FOR OILY WASTES. VOLUME IV: EXECUTIVE SUMMARY

Forster, R.L., J.E. Moyer, and S.I. Firstman. 1973. Government Reports Announcements 73(17):106.

Types and estimates of quantities of oil wastes entering ports by nonmilitary shipping are reported. Conceptual designs for handling oil wastes at selected ports are listed and roles of government and impact of shipping are evaluated.

Installation design and engineering

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04344.

C-155-74
PORT COLLECTION AND SEPARATION FACILITIES FOR OILY WASTES. VOLUME V: A COMPARATIVE ANALYSIS OF CONCEPTUAL SYSTEM PLANS FOR THE SURVEYED PORTS UNDER THE 'NO DISCHARGE', '1969 AMENDMENTS' AND 'NO SHEEN' CRITERIA

Forster, R.L. et al. 1973.
NTIS Report COM-74-10012/4WP. Vol. 5. 470p.

The report identifies the different wastes that are brought into selected ports by military shipping and provides estimates of waste quantities in the seas for 1975 and 1980. Designs for oil handling facilities are presented and the roles of government and impact of shipping are evaluated.

Installation design and engineering

Citation Source: Environment Abstracts. 1974. 4(7,8). Entry #12-74-06764.

C-156-74
CHARACTERIZATION OF CRUDE, SEMIREFINED AND REFINED OILS BY GAS LIQUID CHROMATOGRAPHY

Garza, M.E., Jr., and J. Muth. 1974.
Environmental Science and Technology 8(3):249-255.

A simple method for the characterization of oils by chromatography is described. Lubricating and fuel oils can be identified as to source by this procedure.

Citation Source: Environmental Health and Pollution Control. 1974. 5(9). Entry #3161.

C-157-74
PETROLEUM-DERIVED AND INDIGENOUS HYDROCARBONS IN RECENT SEDIMENTS OF LAKE ZUG, SWITZERLAND

Giger, W., H. Reinhard, C. Schaffner, and W. Stumm. 1974. Environmental Science and Technology 8(5):454-455.

Hydrocarbon studies on Lake Zug have revealed that large amounts of petroleum-derived hydrocarbons are present in sediments near the more densely populated northern shores of the lake. Indigenous hydrocarbons are present in the lake's middle region, adjacent to less densely populated areas.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04486.

C-158-74
ON WHICH CONDITIONS ARE IDENTIFICATIONS OF MINERAL OILS ON WATER SURFACES POSSIBLE?

Hellman, H., and H. Zehle. 1974.
Fresenius' Zeitschrift fuer Analytische Chemie 269(5):353-356.

The paper discussed the difficulties in identifying mineral oils floating on water surfaces due to weathering and changes in thickness of the oil layer. Extinction increases in key bands in the IR spectra of some bilge oils are described.

Citation Source: Chemical Abstracts. 1974. 81(16). Entry #96242.

C-159-74
DISSOLVED HYDROCARBONS IN THE EASTERN GULF OF MEXICO LOOP CURRENT AND THE CARIBBEAN SEA

Iliffe, T. M. 1974.
Deep Sea Research 21(16):481-488.

Dissolved non-polar hydrocarbon concentrations of waters collected from various stations and depths in the Gulf of Mexico and the Caribbean Sea were determined. The highest concentrations were found to occur in the Florida Strait. Hydrocarbon compositions of the different waters are given.

Citation Source: The Engineering Index Monthly. 1974. 12(10). Entry #064130.

C-160-74
A REVIEW OF OUTBOARD MOTOR EFFECTS ON THE AQUATIC ENVIRONMENT

Jackivicz, T. P., Jr., and L. N. Kuzminski. 1973.
Water Pollution Control Federation Journal 45(8):1759-1770.

The various compounds discharged by outboard motors and their manner of entry into waters are reviewed.

Citation Source: Pollution Abstracts. 1974. 5(5).
Entry #74-04276.

C-161-74
FINGERPRINTING TECHNIQUES AS AIDS IN THE ANALYSIS OF COMPOSITE CHEMICAL POLLUTANTS IN THE ENVIRONMENT

Jeltes, R. 1974.
Journal of Chromatographic Science 12(10):599-606.

The article presents a series of examples to demonstrate the application of chromatographic techniques in recognizing and characterizing chemical pollutants, including oil.

Citation Source: Citation Journal.

C-162-74
CHARACTERIZATION OF HEAVY RESIDUAL FUEL OILS AND ASPHALTS BY INFRARED SPECTROPHOTOMETRY USING STATISTICAL DISCRIMINANT FUNCTION ANALYSIS

Kawahara, F. K., J. F. Santner, and E. C. Julian. 1974.
Analytical Chemistry 46(2):266-273.

A statistical technique has been developed to distinguish between asphaltic materials and residual fuel oils, using IR spectrophotometry, data treatment and transformation and discriminant function analysis.

Citation Source: Pollution Abstracts. 1974. 5(5).
Entry #74-04302.

C-163-74
EFFECT OF AN OIL SLICK ON THE SEA SURFACE ON TURBULENCE AND THE LAYER OF THE ATMOSPHERE NEXT TO THE WATER

Kuznetsov, O. A., and G. N. Panin. 1974
Meteorology and Hydrology 5:142-146.

The results of measuring the spectra of the vertical wind velocity component, the air humidity and the moisture flow above the sea surface covered by an oil slick are compared with the measurements under analogous conditions in the absence of the oil slick.

Citation Source: Scientific and Technical Aerospace Reports. 1974. 21(20). Entry #N74-31109.

C-164-74
A METHOD FOR THE HIGH TEMPERATURE GAS CHROMATOGRAPHIC ANALYSES OF PETROLEUM RESIDUES

Levy, E. M., L. R. Webber, and J. D. Moffat. 1973.
Journal of Chromatographic Science 11(11):591-593.

A procedure has been developed which can analyze crude oil, fuel oil residues and pollution samples, by high temperature gas chromatography, without any sample pretreatment. The method resolves the problems of sample contamination.

Citation Source: Abstracts on Health Effects of Environmental Pollutants. 1974. 3(8). Entry #7435.

C-165-74
DETERMINATION OF PARTICLE SIZE DISTRIBUTION OF OIL-IN-WATER EMULSIONS BY ELECTRONIC COUNTING

Lien, T. R. 1974.
Environmental Science and Technology 8(6):558-561.

A Coulter counter was used to determine the particle size distribution of a hydrocarbon-in-water emulsion. Changes in size of the oil particles after dilution were observed.

Citation Source: The Engineering Index Monthly. 1974. 12(9). Entry #059623.

C-166-74
STUDIES ON INDUSTRIAL WATERS CONTAINING OIL EMULSIONS. II.

Lordi, R., C. Manci, and B. M. Petronio. 1974.
Inquinamento 16(4):31-33.

Studies were conducted on industrial waters containing emulsions of oil-containing emulsifiers and additives. The emulsions were found to be very stable, broken only by additional heat or H_2SO_4.

Citation Source: Chemical Abstracts. 1974. 81(8). Entry #111072s.

C-167-74
SEA-WATER POLLUTION BY HYDROCARBON IN THE ADRIATIC SEA. NOTE I. A METHOD FOR THE SAMPLING AND DOSAGE OF SURFACE SEA-WATER HYDROCARBONS

Majori, L., F. Petronio, and G. Nedoclan. 1973. Igiene Moderna 66(2):150-171.

A multi-phase method for evaluating total and persisting hydrocarbons on the sea surface is described.

Citation Source: Aquatic Sciences and Fisheries Abstracts. 1974. 4(7). Entry #4Q 7323M.

C-168-74
SEA-WATER POLLUTION BY HYDROCARBON IN THE ADRIATIC SEA. NOTE II. RESULTS OF RESEARCH CARRIED OUT IN THE GULF OF TRIESTE IN 1970.

Majori, L., F. Petronio, and G. Nedoclan. 1973. Igiene Moderna 66(2):172-192.

In conducting sea surface oil pollution analyses, studies indicated stationary distributions of the oil in the Gulf. Distributions were dependent upon the space in the sea environment rather than the time element involved.

Citation Source: Aquatic Sciences and Fisheries Abstracts. 1974. 4(7). Entry #4Q 7348M.

C-169-74
MEASURES TO COMBAT ARCTIC AND SUBARCTIC OIL SPILLS

McLeod, R., and D. L. McLeod. 1974. Journal of Petroleum Technology 10:269-279.

Complete data from 16 arctic and subarctic oil spills have been collected for the purpose of analyzing the beneficial use of chemical, mechanical and destructive measures to combat spills under such severe climatic conditions.

Containment
Cleanup

Citation Source: Environment Abstracts. 1974. 4(7,8). Entry #12-74-06722.

C-170-74
REPORT ON THE COMPOSITION OF OIL FROM THE REGION OF NEW HYDROCARBON UPWELLING IN THE SANTA BARBARA CHANNEL

Mikolaj, P. G. 1973.
Grant: NOAA USDC SGP 04-3-158-22 R-CZ-9. 22 p.

Comparisons are made between oil seeps near Coal Oil Point and new upwelling oil observed June 1973, in the Santa Barbara Channel. Gas chromatography and atomic absorption spectrophotometry analyses indicate that the new seep is significantly different in chemical composition from existing Coal Oil Point seeps.

Citation Source: Oceanic Abstracts. 1974. 11(5).
Entry #74-04443.

C-171-74
APPLICATION OF GAS CHROMATOGRAPHY FOR ANALYSES OF WATER POLLUTED BY PETROLEUM PRODUCTS

Novotny, J. 1974.
Vodni Hospodarstvi 24(2):45-52.

The types and quantities of hydrocarbons in polluted waters and the gas chromatographic methods for their analyses are discussed.

Citation Source: Chemical Abstracts. 1974. 81(16).
Entry #96034k.

C-172-74
IDENTIFICATION OF SUBSTANCES IN PETROLEUM CAUSING OBJECTIONABLE ODOR IN FISH

Ogata, M., and Y. Miyake. 1973.
Water Resources 7(10):1493-1504.

Analyses were made on seawater wastes, fish and eels to identify the cause of offensive odors in fish near oil refineries. Toluene and possibly other aromatic hydrocarbons were found to be the main causes of the odor in fish.

Biological effects of oil pollution

Citation Source: Biological Abstracts. 1974. 58(5).
Entry #28793.

C-173-74
REMOVAL OF OIL IN GROUND AT TRANSMITTER SITE, NAVCOMSTA, GREECE

O'Neill, T. B., and J. S. Williams. 1973.
U.S. Naval Civil Engineering Laboratory, Port Hueneme, California, Technical Note N-1322. 20 p.

Chemical and biological analyses were conducted to measure the extent of oil contamination of accumulated underground diesel fuel located next to leaking storage tanks at the transmitter site Naval Communications Station, Greece. Suggestions were made to recover free oil from the area by pumping from collection pits, and to utilize bacterial seeding processes to restore the oil-polluted soil.

Oil recovery and handling techniques
Restoration

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04920.

C-174-74
DETERMINATIONS OF HYDROCARBONS IN THE MARINE FAUNA. PROSPECTS AND LIMITS OF THE USE OF GAS CHROMATOGRAPHY IN THESE STUDIES

Pavesi, M. A., and C. Zolezzi. 1973.
Ecologia 3(8):18-22.

A review is given of the techniques for determining the content and effects of hydrocarbons in marine fauna and flora. The utility and limitations of gas chromatography in detecting hydrocarbons in marine fauna are examined.

Biological effects of oil pollution

Citation Source: Environmental Health and Pollution Control. 1974. 5(10). Entry #3617.

C-175-74
EFFECTS OF EXHAUST FROM TWO-CYCLE OUTBOARD ENGINES

Shuster, W. W., L. Glesceri, S. Kobayashi, and W. Perrotte. 1974.
EPA - 670/2-74-063. 320 p.

Laboratory and field analyses were conducted to determine the amount of pollution arising from exhaust products being discharged into an oligotrophic/mesotrophic lake from the operation of

two-cycle outboard engines. Results have shown that very low levels of petroleum-derived hydrocarbons exist in the sediments and water column, and it is suggested that microbiological mechanisms are significant in the dispersion of exhaust products.

Cleanup

Citation Source: Government Reports Announcements. 1974. 74(19). Entry #PB-233 567/7GA.

C-176-74
APPLICATION OF REAL-TIME MASS SPECTROMETRIC TECHNIQUES TO ENVIRONMENTAL ORGANIC GEOCHEMISTRY. II. ORGANIC MATTER IN SAN FRANCISCO BAY AREA WATER

Simoneit, B. R., D. H. Smith, G. Eglinton, and A. Burlingame. 1973.
Archives of Environmental Contamination and Toxicology 1(3): 193-208.

Petroleum ether extracts taken from samples of water from the San Francisco Bay area were analyzed using gas chromatography and mass spectrometry techniques. It was concluded that the techniques were ideally suitable for assessing some potential interactions of pollutants and other organic substances in aqueous environments.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04193.

C-177-74
RECENT METHODS OF WATER ANALYSIS

Steinle, G. 1973.
Zucker 137(3):589-592.

Methods for the detection of phenols, detergents, tensides, hydrocarbons, pesticides, saccharides, and inorganic ions in water are surveyed and discussed in detail.

Citation Source: Environmental Health and Pollution Control. 1974. 5(10). Entry #3594.

C-178-74
QUALITY OF SURFACE WATER IN THE VICINITY OF OIL EXPLORATION SITES, BIG CYPRESS AREA, SOUTH FLORIDA

Wimberly, E. T. 1974.
Geological Survey Open-file Report 74012. 26 p.

A study was conducted in which samples of surface water were collected and analyzed before and after oil drilling activities.

General effects of oil prospecting and production

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08596.

C-179-74
RECONNAISSANCE OF WATER QUALITY IN THE VICINITY OF SUNNILAND OIL FIELD, COLLIER COUNTY, FLORIDA, 1971-72

Wimberly, E. T. 1973.
Water-Resources Investigations 35-73. 10 p.

Analyses were conducted on the surface water near the Sunniland Oil Field to check for chloride, organic carbon, oil and grease, or crude oil contamination. Tests using gas chromatography indicated no crude oil present in the samples.

General effects of oil prospecting and production

Citation Source: Selected Water Resources Abstracts. 1974. 7(19). Entry #W74-10240.

C-180-74
OIL POLLUTANTS IN THE MARINE ENVIRONMENT

Yamamoto, S. 1973.
Marine Electrochem. Pap. Symposium. 1972. p. 355-367. (ed: J. B. Gerkowitz, Princeton, New Jersey).

A review with thirty-four references.

Citation Source: Chemical Abstracts. 1974. 81(16). Entry #95986k.

C-181-74
OIL SPILL-SOURCE CORRELATION BY GAS CHROMATOGRAPHY. EXPERIMENTAL EVALUATION OF SYSTEM PERFORMANCE

Zafiriou, O. C., J. Myers, R. Bourbonniere, and F. J. Freestone. 1973.
Proceedings, Joint Conference on Prevention and Control of Oil Spills. p. 153-159.

Described is a gas chromatographic method which correlates unknown oil in waters with possible source oils. The efficiency of the method decreases with increase in the number of oils that are possible sources.

Citation Source: Chemical Abstracts. 1974. 81(6). Entry #27828k.

C-182-74
INTERFERENCE OF OIL SPILL EMULSIFIERS WITH GAS CHROMATOGRAPHY

Zafiriou, O. C., J. Meyers, and F. Freestone. 1973. Marine Pollution Bulletin 4(6):87-88.

Presented are four commercially available spill control agents which interfere with gas chromatographic correlation of spilled oils with suspected sources. The effects of these products are discussed and expected interference with other analytical methods is surveyed.

Citation Source: Oceanic Abstracts. 1974. 11(5). Entry #74-04633.

C-183-74
DETERMINATION OF AROMATIC HYDROCARBONS IN SUBMICROGRAM QUANTITIES IN AQUEOUS SYSTEMS BY MEANS OF HIGH PERFORMANCE LIQUID CHROMATOGRAPHY

Zsolnay, A. 1973. Chemosphere 2(6):253-260.

The paper deals with the method of high performance liquid chromatography to measure aromatic hydrocarbon levels in crude oil.

Citation Source: Abstracts on Health Effects of Environmental Pollutants. 1974. 3(9). Entry #8810.

B. OIL POLLUTION CONTROL

1. CONTAINMENT

C-184-74
OPEN-OCEAN BARRIER NEAR COMPLETION

Abrahams, R. N., and C. W. Koburger. 1974.
Oil and Gas Journal 72(16):98-101.

The article announces the near completion of a U.S. Coast Guard high seas oil containment barrier able to effectively operate in 5 foot seas and 20 mph winds. The barrier is a part of a three-part plan by the Coast Guard to control, contain and recover oil from surface waters.

Cleanup

Citation Source: Environment Abstracts. 1974. 4(10). Entry #12-74-08704.

C-185-74
BARGE SLIP, RETAINER BOOM ELIMINATE OIL SPILLS

Anonymous. 1974.
Electrical World 181(1):47.

Described is an oil spill containment barge slip installed near Richmond, Virginia, by the Virginia Electric and Power Company. The slip can accommodate a 70,000 barrel oil barge and tugboat; after the vessels are secured in the slip, an oil spill retaining boom is drawn across the slip entrance, sealing the area and retaining any spilled oil.

Citation Source: Citation Journal.

C-186-74
BOOM "BUSTS" OIL SPILLS

Anonymous. 1974.
Water and Wastes Engineering 11(3):55.

A device called a Sea Sentry Boom is being used to contain oil spills on inland and offshore waters. The boom extends above the surface by a full foot and has a 24 inch skirt extending below the surface to prevent oil loss due to waves or currents.

Citation Source: Citation Journal.

C-187-74
OCEAN PRODUCTS AND LITERATURE

Anonymous. 1974.
Ocean Science on Station 16(39):6.

An oil spill containment system named a Bottom Tension Boom has been developed to withstand twenty foot seas, sixty knot winds and two knot currents.

Citation Source: Citation Journal.

C-188-74
VIKOMA SYSTEM DESIGNED TO CONTROL AND LIMIT OIL SPILLS OCCURRING AT SEA

Anonymous. 1974.
Oil and Gas Journal 72(36):68-72.

The system is composed of a new boom for oil containment and a skimmer for removing oil from the sea surface.

Cleanup

Citation Source: The Engineering Index Monthly. 1974. 12(10). Entry #067030.

C-189-74
A RAPIDLY DEPLOYABLE OIL CONTAINMENT BOOM FOR EMERGENCY HARBOR USE

Cunningham, J. J. 1973.
Government Reports Announcements 73(18):114.

Information on oil spill confinement was collected to establish performance criteria for an ideal oil spill containment boom for harbor emergencies. Boom criteria include size limitations, storage and handling procedures and optimum performance capabilities.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04362.

C-190-74
DYNAMIC RESPONSE OF SURFACE-MOORED VERTICAL BARRIER TO WAVE ACTION BY ANALOG AND DIGITAL SIMULATION

Fowler, J. R., and E. I. Bailey. 1974.
Journal of Engineering for Industry 96(1):335-342.

A lightweight mechanical barrier with very low tensile loads was designed to contain oil spills at sea. A study was undertaken and a mathematical model was proposed and solved on analog and digital computers, so as to insure adequate dynamic response of the barrier to current and waves.

Citation Source: Citation Journal.

C-191-74
AN EXAMINATION OF ALTERNATIVE METHODS FOR EMPLOYING BOOMS TO CONTAIN OIL SPILLS IN NAVY HARBORS

Larson, J. J. 1974.
Masters Thesis. Naval Postgraduate School, Monterey, California. 102 p.

The paper assists decision-makers in determining the relative effectiveness of three methods for oil spill containment boom employment.

Citation Source: Government Reports Announcements. 1974. 74(21). Entry #AD-783 790/96A.

C-192-74
STATE OF THE ART OF OIL CONTAINMENT BARRIERS FOR USE AT OFFSHORE TERMINALS

Mainville, C. R. 1973.
NTIS Report COM-74-10212/OWP. 89 p.

After a thorough investigation, the suitability of existing oil containment barriers for use offshore has been reviewed. At present no commercially available oil containment barrier system can by itself prevent the spread of oil under offshore conditions.

Citation Source: Environment Abstracts. 1974. 4(7,8). Entry #12-74-06776.

C-193-74
AVIATION FUEL SPILL CONTAINMENT USING ABSORBENT MATERIALS

Mazewski, E. E., and R. H. Kroop. 1974.
Air Force Project 683L. AD-776762; AFWL-TR-9. 32 p.

An evaluation was made on three absorbent materials to determine which substances were effective in the rapid containment of small aviation fuel spills.

Citation Source: Scientific and Technical Aerospace Reports. 1974. 12(15). Entry #N74-26242.

C-194-74
ANALYSIS OF LIGHTWEIGHT OIL CONTAINMENT SYSTEM SEA TRIALS

Miller, E., et al. 1973.
NTIS Report AD-770344/OWP. 34 p.

The description and results of tests measuring the effectiveness of the U.S. Coast Guard's high seas containment barrier are presented. The development program of the barrier is reviewed.

Citation Source: Environment Abstracts. 1974. 4(7,8). Entry #12-74-06771.

C-195-74
SHORE TERMINATION FOR OIL SPILL BOOMS

Roberts, A. C. 1973.
Government Reports Announcements 73(17):123.

The paper cites one of the most common sources of failure in containing oil spills with floating booms - that of leakage between the end of the boom and the adjacent shoreline deck. A simple boom terminator is described in which an outboard motor is mounted on a structure to seal any existing gap.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04352.

C-196-74
RATING SYSTEM FOR SPILL CONTROL

Wright, C. 1973.
World Ports 35(3):8-9.

Described is a rating system, designed by Johns-Manville Corporation, which assists the buyer in evaluating oil barriers objectively.

Citation Source: Oceanic Abstracts. 1974. 11(5). Entry #04654.

C-197-74
HOW CLEAN GULF COMBATS OIL SPILLS

Wolfe, J. W., Jr. 1974.
Oil and Gas Journal 72(36):77-78, 80, 82.

A fast-response unit and high-volume open-sea systems (HOSS) are two types of equipment stocked by Clean Gulf Associates, an organization which maintains materials and apparatus for containment and cleanup of oil spills in Gulf waters.

Cleanup

Citation Source: The Engineering Index Monthly. 1974. 12(10). Entry #067029.

2. CLEANUP

C-198-74
CLEANUP EQUIPMENT FOR SPILLS IS ARRAYED FOR IMMEDIATE USE IN GULF OF MEXICO

Anonymous. 1973.
Offshore 33(10):61-62.

A flotilla of the most modern cleanup and containment systems has been assembled for use in the Gulf of Mexico. The equipment is subdivided into 4 basic groups: fast response open-sea and bay systems, shallow water systems, auxiliary equipment, and a high-volume open-sea system.

Containment

Citation Source: Pollution Abstracts. 1974. 5(5).
Entry #74-04514.

C-199-74
DISPOSAL OF USED LUBRICATING OIL IN WESTERN EUROPE

Anonymous. 1973.
Stichting Concawe. Report 9/73. 62 p.

Disposal technology and collection system options for used lubricating oil in western European countries are outlined and suggestions for future controls are given.

Citation Source: Pollution Abstracts. 1974. 5(6).
Entry #74-05940.

C-200-74
FIGHTING POLLUTION: LATEST GOVERNMENTAL ACTION IS AIMED AT REDUCING OIL SPILLS AND DISCHARGES

Anonymous. 1974.
Marine Engineering Log 79(5):29-32.

The increase in governmental actions to prevent oil discharges and spills from ships have resulted in increased business for pollution control manufacturers and higher ship outfitting costs. A broad spectrum of pollution control equipment is presented.

Oil recovery and handling techniques
Economic effects of oil pollution

Citation Source: Environment Abstracts. 1974. 4(10).
Entry #12-74-08690.

C-201-74
FIVE TOWER SYSTEM FOR OFFSHORE WASTE

Anonymous. 1973.
Dock Harbour Authority 54(634):137-138.

An offshore disposal system has been developed to handle a wide range of solid, liquid and effluent wastes. One tower in the five tower system was designed to also handle tanker discharge, slop disposal and ship refueling.

Citation Source: Environmental Health and Pollution Control. 1974. 5(8). Entry #2894.

C-202-74
NEW OIL SPILL CLEANUP TOOL FOR COMMERCIAL PRODUCTION

Anonymous. 1974.
Oil Week 25(8):30.

The Petroleum Association for the Conservation of the Canadian Environment has developed a boom for containing and cleaning up oil spills in medium to fast moving waters. An explanation of the structure and operation of the boom is given.

Containment

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10566.

C-203-74
SAFMARINE ORDER FIVE POLLUTION PATROL CRAFT FOR CHARTER TO DEPARTMENT OF TRANSPORT

Anonymous. 1973.
South African Shipping News and Fishing Industry Review. 28(6):27.

A contract was finalized by Sandock-Austral and Safmarine to build five oil pollution patrol boats for the Department of Transport. Shipboard features such as dispersant tanks and pumps and life saving equipment are described.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04510.

C-204-74
WASTE OIL STUDY

Anonymous. 1973.
Report by the House Committee on Public Works. 93rd Congress. 1 Ser. 93-12. 58 p.

Information on quantities and properties of waste oils produced and current methods of collection and disposal are presented. Results of studies on the hazards and environmental degradation from waste oil disposal are given.

Citation Source: Environment Abstracts. 1974. 4(10). Entry #03-74-0894.

C-205-74
EFFECTS OF SOME COMMERCIAL OIL HERDERS, DISPERSANTS AND BACTERIAL INOCULA ON BIODEGRADATION OF OIL IN SEAWATER

Atlas, R. M., and R. Bartha. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 283-289.

Oil herders and dispersants tested were shown to significantly increase rate of oil mineralization but had no effect on the extent of petroleum biodegradation; the two commercial bacteria tested had no effect on either rate or extent of oil biodegradation. The importance of preserving the natural microbial degradation process of oil is stressed.

Biological effects of oil pollution

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08640.

C-206-74
BIODEGRADATION OF OIL IN SEAWATER: LIMITING FACTORS AND ARTIFICIAL STIMULATION

Bartha, R., and R. M. Atlas. 1973.
Louisiana State University Sea Grant Publication LSU-SG-73-01. p. 147-152.

Limiting parameters of oil biodegradation were quantitatively evaluated in an effort to define stimulated oil biodegradation as a pollution abatement technique.

Biological effects of oil pollution

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08624.

C-207-74
EFFICIENCY MEASURES FOR THE SANITARY PROTECTION OF RESERVOIRS IN THE REGION OF CHEMICAL INDUSTRY ENTERPRISES

Belyaev, I. I., and M. P. Gracheva. 1974.
Gigiena i Sanitariya 5:13-16.

The paper describes the improvement in discharged waters containing petroleum and petroleum products from various chemical plants which had seriously polluted a stream. Sources of pollution were found and eliminated.

Citation Source: Chemical Abstracts. 1974. 81(10). Entry #54054m.

C-208-74
THE COAST GUARD MARINE ENVIRONMENTAL PROTECTION PROGRAM

Charter, D. B., Jr. 1973.
In: American Ordnance Association Proceedings of 3rd Meeting on Environmental Pollution, May 17-18, 1972. Fort McNair, Washington, D. C. p. 107-116.

A progressive program developed by the Coast Guard to help combat marine pollution is described. Elements included are minimization of polluting spills, prevention of discharges of oil and research in the development of cleanup systems.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10773.

C-209-74
CLEAN GULF ASSOCIATES EXTEND COVERAGE AREA

Crittenden, R. 1974.
Petroleum Engineer 46:12.

Clean Gulf Associates, the group of oil and gas companies operating in the Gulf of Mexico, increased its area of operation by leasing 87 tracts in December, 1974, off Mississippi, Alabama and Florida. The cleanup and containment skimmer units purchased by CGA for deployment at strategic locations in the new areas are described.

Containment

Citation Source: Citation Journal.

C-210-74
OIL CONTAMINATED BEACH CLEANUP

Der, J. J., and E. Ghormley. 1974.
NTIS Report AD-778 329/3WP. 44 p.

A review of oil spill incidents and cleanup operations was made in an effort to evaluate effective techniques for future operations. The most efficient beach cleanup procedures and equipment in terms of selected beach classifications are listed.

Citation Source: Environment Abstracts. 1974. 4(10).
Entry #12-74-08721.

C-211-74
INVESTIGATING WASTE OIL DISPOSAL BY COMBUSTION

DeBono, G. 1974.
NTIS Report AD-772911-4-WE. 18 p.

A four-year study (1968-1972) examining the feasibility of disposing of waste oil by introducing it into No. 6 fuel oil resulted in no operational difficulties from the mixture. When No. 2 fuel oil is substituted for the heavier oil, however, concern arose over the effectiveness of burning the mixture.

Citation Source: Chemical Abstracts. 1974.
Entry #96085c.

C-212-74
CONTROL OF OIL POLLUTION IN COASTAL WATERS

Fussess, D. R., et al. 1974.
Presented at 9th World Energy Conference, Detroit, Michigan, September 22-27, 1974. 22 p.

The various methods used to prevent oil discharges in coastal waters are discussed, and the development of chemicals and equipment to clean up spilt oil are discussed.

Oil recovery and handling techniques

Citation Source: Environment Abstracts. 1974. 4(10).
Entry #12-74-08722.

C-213-74
ACTIVATED CARBON ADSORPTION OF PETROCHEMICALS

Giusti, D. M., R. A. Conway, and C. T. Lawson. 1974.
Journal of the Water Pollution Control Federation 46(5):947-965.

Tests were made evaluating the ability of various 4-Carbon compounds to absorb 93 compounds encountered in petrochemical wastes. Studies indicated a petroleum hydrocarbon-based activated carbon processing low surface acidity to be most effective.

Citation Source: Biological Abstracts. 1974. 58(9).
Entry #51984.

C-214-74
HYDRODYNAMIC EFFECTS OF OIL SLICK MECHANICAL CONTROL DEVICES

Hale, L. A. 1974.
NTIS Report AD-777 926/7WP. 94 p.

The influence of the following four types of oil slick control mechanisms on oil slick behavior was studied: oil slick energy dissipation, oil slick shields, rapid removal of oil by lifting mechanisms and oil slick submersion devices. The ability of each device to control oil slicks at fast water current velocities was determined.

Citation Source: Environment Abstracts. 1974. 4(10).
Entry #12-74-08718.

C-215-74
INLAND OIL SPILL CLEANUP

Hubbard, E. H. 1974.
Stichting Concawe, Netherlands, presented at 9th World Energy Conference, Detroit, Michigan, September 22-27, 1974. p. 2.2-8.

The paper emphasizes the need for oil companies and authorities to cooperate in the planning of oil spill cleanup operations for inland spills. Contingency plans and oil cleanup equipment are discussed.

Citation Source: Environment Abstracts. 1974. 4(10).
Entry #09-74-08615.

C-216-74
USE OF FIRE STREAMS TO CONTROL FLOATING OIL

Katz, B., and R. Cross. 1973.
Government Reports Announcements 73(12):122.

The description and explanation of the technique of using large volume, high velocity water streams to control floating oil is presented, and its limitations are discussed.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04350.

C-217-74
THE EFFECTS OF ARTIFICIAL SUNLIGHT UPON FLOATING OILS

Klein, A. E., and N. Pipel. 1974.
Water Resources 8(1):79-83.

Samples of hexadecane from fractions of selected crude oils were placed on water and irradiated with UV light; as a result, the oils became photooxidized and changes in their properties were observed. Discussed in the paper is the use of photosensitizing agents to accelerate the oxidation of oils by sunlight in the event of an oil spill.

Physical effects of oil pollution

Citation Source: Environmental Health and Pollution Control. 1974. 5(8). Entry #2943.

C-218-74
THE SHADOW OF TORREY CANYON: A STATUS REPORT ON THE U.S. COAST GUARD'S POLLUTION R & D

Koburger, C. W. 1974.
Naval Engineers Journal 86:28-32.

The Coast Guard's Marine Environmental Protection Program is reviewed. Included in the program is the objective of eliminating or minimizing oil spills at sea through the development of detection systems, and cleanup, containment and oil recovery techniques.

Monitoring
Containment
Oil recovery and handling techniques

Citation Source: Citation Journal.

C-219-74
DISPOSAL OF WASTE OILS AT MILITARY AIR BASES

Lieberman, M., A. Beerbower, and R. H. Kroop. 1974.
Society of Automotive Engineers, Air Transportation Meeting, Dallas, Texas, April 30-May 2, 1974. Paper 740 472. 7 p.

The disposal of waste oils and alternatives to existing methods of oil disposal at U.S. Air Force and Navy facilities are discussed. The feasibility of using waste oils as a source of fuel, rerefining oils and recycling waste oils is reported.

Oil recovery and handling techniques

Citation Source: International Aerospace Abstracts. 1974. 14(16). Entry #C-18-A74-35001.

C-220-74
OIL AND THE CANADIAN ENVIRONMENT

MacKay, D., and W. Harrison (eds.). 1973.
Toronto: University of Toronto, Institute of Environmental Sciences and Engineering. 149 p.

The cleanup, containment, weathering and dissolution of oil spills are discussed. Topics of contingency planning, supertanker ports, and spill effects on different marine, freshwater and inland environments are also included.

Biological effects of oil pollution

Citation Source: Oceanic Abstracts. 1974. 11(5). Entry #74-04613.

C-221-74
DISPOSAL OF WASTE OIL BY LAND SPREADING

Maunder, B. R., and J. S. Waid. 1973.
New Zealand Department of Scientific and Industrial Research, Information Series 97:163-176.

Methods are described which are used in the disposal of waste oil by incorporation into the soil. Factors that are studied include effects of hydrocarbons on plants and soil structure and composition.

Biological effects of oil pollution

Citation Source: Chemical Abstracts. 1974. 81(12). Entry #65923v.

C-222-74
ENVIRONMENTAL FACTORS IN OPERATIONS TO COMBAT OIL SPILLS

Otto, L. 1973.
Reports on Marine Science Affairs (9). 28 p.

Several countermeasures are discussed with respect to environmental factors which influence their effectiveness in combating oil spills.

Citation Source: Oceanic Abstracts. 1974. 11(5). Entry #04646.

C-223-74
VERFAHREN UND ANLAGEN ZUR AUFBEREITUNG OELBELASTETER ABWAESSER

Rathgeber, F. 1973.
Wasser, Luft und Betrieb (English summary) 17(3):69-75.

The paper describes refineries and metal working industries as sources of oil-containing wastes. Different methods of waste oil treatment are discussed.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04313.

C-224-74
DISPOSAL OF AIRCRAFT WASHRACK WASTE WATER

Reinert, B. D. 1973.
Air Force Weapons Laboratory Technical Report AFWL-TR-73-33. 36 p.

Methods to treat aircraft washrack waste were evaluated. Centrifugation tests to remove oil from the mixture proved unsuccessful; removal was negligible even at high forces tested.

Citation Source: Selected Water Resources Abstracts. 1974. 7(18). Entry #W74-09376.

C-225-74
USING FIRE STREAMS WITH A SELF-PROPELLED OIL SPILL SKIMMER

Roberts, A. C. 1973.
Government Reports Announcements 73(17):122.

Field tests were performed by the New York City Fire Department to develop a method of oil spill cleanup with minimum use of booms. A fire boat was operated in conjunction with a self-propelled oil skimming boat. Streams from the fireboat were used to develop currents which would move and concentrate the oil in the direction of the skimmer.

Containment

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04349.

C-226-74
MICROBIAL DEGRADATION OF OIL: PRESENT STATUS, PROBLEMS AND PERSPECTIVES

ZoBell, C. E. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 3-16.

A summary is provided on topics including presence and kinds of hydrocarbon oxidizers, criteria and factors affecting oil degradation, rates of degradation, problems of oil in food chains, and artificial seeding of oil spills.

Biological effects of oil pollution

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08611.

3. RESTORATION

C-227-74
DEVELOPMENT OF A MOBILE SYSTEM FOR CLEANING OIL-CONTAMINATED BEACHES

Dolan, F. X., and J. B. Bowersox. 1973.
Government Reports Announcements 73(18):112.

Described is a method of restoring oil-contaminated beach sands by washing the sands in a high energy jet contactor washer and separating the cleaned sands in a solid-liquid cyclone. The sand washing process was shown to remove >99% of the contaminating oil from simulated beach sand.

Citation Source: Environmental Health and Pollution Control. 1974. 5(8). Entry #2740.

C. EFFECTS OF OIL POLLUTION

1. BIOLOGICAL EFFECTS

C-228-74
STEAM DISTILLATION: A SIMPLE TECHNIQUE FOR RECOVERY OF PETROLEUM HYDROCARBONS FROM TAINTED FISH

Ackman, R. G., and D. Noble. 1973.
Journal of the Fisheries Research Board of Canada 30(5):711-714.

Steam distillation was found to be effective in recovering hydrocarbons from contaminated whitefish. The composition of the isolated hydrocarbons was qualitatively similar to a diesel oil sample, which was believed to be the source of pollution.

Oil recovery and handling techniques

Citation Source: Oceanic Abstracts. 1974. 11(5). Entry #74-04617.

C-229-74
MICROBIAL-FACILITATED DEGRADATION OF OIL: A PROSPECTUS

Ahearn, D. G. 1973.
Louisiana State University Sea Grant Publications #LSU-SG-73-01. p. 1-2.

The paper states that oil pollution will most likely continue to be a major problem in the future and expresses the need for development of microbial systems to combat the toxicity of oil pollutants by biodegradation processes.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08610.

C-230-74
THE MICROBIAL DEGRADATION OF OIL POLLUTANTS

Ahearn, D. G., and S. P. Meyers (eds.). 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. 322 p.

The proceedings of the workshop consist of 32 papers which describe research conducted on microbial degradation of oil. Other topics concerning oil related investigations discussed at the workshop are included.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08609.

C-231-74
BIOCHEMICAL CHANGES IN THE HEMOLYMPH OF THE BLACK SEA MUSSEL MYTILUS GALLOPROVINCIALIS DURING PETROLEUM POLLUTION

Alyakrinskaya, I. O. 1974
Zoologicheskii Zhurnal 53(2):179-183.

When exposed to petroleum in the medium, M. galloprovincialis sealed its shell and began anaerobic respiration. The Ca content and buffering capacity of the hemolymph increased while the Ca level in the shell hypostracum decreased.

Citation Source: Chemical Abstracts. 1974. 81(19). Entry #115430g.

C-232-74
A FEASIBILITY STUDY OF A RESEARCH PROGRAM ON THE SOURCE, DEGRADATIVE REMOVAL AND SECONDARY CONSEQUENCES OF PETROLEUM PRODUCTS IN WATER

Andersen, K. K., et al. 1973.
NTIS Report PB-227 240/9WP. 6 p.

Included in the studies to detect hydrocarbons in lake water and water artificially contaminated with gasoline, was the attempt to detect differences in hydrocarbon content in fish grown in water containing hydrocarbons and in water without hydrocarbon contaminants, using a gas chromatographic system. No differences in extracts from control and experimental fish were observed.

Citation Source: Environment Abstracts. 1974. 4(7,8). Entry #02-74-06220.

C-233-74
CHARACTERISTICS OF DISPERSIONS AND WATER-SOLUBLE EXTRACTS OF CRUDE AND REFINED OILS AND THEIR TOXICITY TO ESTUARINE CRUSTACEANS AND FISH

Anderson, J. W., J. M. Neff, B. A. Cox, H. E. Tatem, and G. M. Hightower. 1974.
Marine Biology 27(1):75-88.

In an effort to evaluate potential impacts of oil spills on the marine and estuarine environments, the hydrocarbon composition and behavior in seawater of water soluble fractions (WSF) and oil-in-water dispersions (OWD) of two crude and two refined oils were investigated. It was found that the WSF's and OWD's of the refined oils were considerably more toxic to six species tested than those of the crude oils.

Citation Source: Citation Journal.

C-234-74
SOME OBSERVATIONS ON THE INTERACTIONS OF MARINE PROTOZOA AND CRUDE OIL RESIDUES

Andrews, A. R., and G. D. Floodgate. 1974.
Marine Biology (Berl.) 25(1):7-12.

Marine protozoa were observed to utilize Kuwait crude oil residues under both laboratory and field conditions. Organisms were found to ingest oil substances only while feeding on normal food resources.

Cleanup

Citation Source: Biological Abstracts. 1974. 58(6). Entry #31807.

C-235-74
EFFECTS OF POLLUTANTS ON MARINE LIFE PROBED

Anonymous. 1973.
Chemical and Engineering News 51(51):17-23.

Studies are being conducted to determine the long-term effects on natural marine ecosystems of low levels of three chemical pollutants; included are petroleum hydrocarbons. Experiments will consist of suspending large plastic cylinders in natural ocean environments that will contain fixed populations of marine organisms. The organisms can then be exposed experimentally to various pollutants,but in a natural environment.

Citation Source: Citation Journal.

C-236-74
GULF OF ALASKA UNDERGOING ENVIRONMENTAL STUDY

Anonymous. 1974.
Clean Air and Water News 6(40):577.

An environmental study is being conducted on the Continental Shelf in the Gulf of Alaska, investigating the possible ecological problems which might arise as a result of oil development. The report by the Council on Environmental Quality in April, 1974, indicated that oil development in the Northeastern Gulf of Alaska presented potential environmental risks to the existing marine ecosystem.

Citation Source: Citation Journal.

C-237-74
OIL-EATING ORGANISMS

Anonymous. 1974.
Mechanical Engineering 96(1):47.

Union Carbide Corporation has developed a method by which natural organisms in the soil completely consume oil and coolant waters. Experiments are being conducted in which wastes are added to six tilled plots; oil is dissipated as carbon dioxide and the chemical contaminants are trapped in the soil particles.

Cleanup

Citation Source: Citation Journal.

C-238-74
ORGANIC POLLUTANTS IN THE SEA

Anonymous. 1974.
Science 250(5468):622.

The nature, origin and fate of commonly occurring pollutants including crude oils were reviewed at a meeting of the Royal Society, July 4-5, 1974. Discussed were the studies conducted on the breakdown of fossil fuel hydrocarbons by marine crustaceans, and studies related to oil spill effects on the environment.

Citation Source: Citation Journal.

C-239-74
EFFECTS OF CRUDE OIL ON THE FEEDING BEHAVIOR OF THE LOBSTER HOMARUS AMERICANUS

Atema, J., and L. S. Stein. 1974.
Environmental Pollution 6(2):77-86.

The paper describes methods to determine the sublethal effects of crude oil on lobster behavior under controlled conditions. The feeding behavior of the lobster H. americanus is used as a standard with which to measure oil effects.

Citation Source: The Engineering Index Monthly. 1974. 12(8). Entry #056237.

C-240-74
FATE AND EFFECTS OF OIL POLLUTANTS IN EXTREMELY COLD MARINE ENVIRONMENTS

Atlas, R. M. 1974.
Government Reports Announcements 74(2):141.

Interactions of microorganisms and Prudhoe crude oil in Alaskan coastal waters were evaluated in an effort to predict what effects accidental oil spills would have on the biological populations of the area. Studies were conducted at Prudhoe, Valdez, Umiat and Cape Simpson, Alaska.

Citation Source: Pollution Abstracts. 1974. 5(6). Entry #74-05530.

C-241-74
ULTRASTRUCTURE OF TWO SPECIES OF OIL-DEGRADING MARINE BACTERIA

Atlas, R. M., and C. E. Heintz. 1973.
Canadian Journal of Microbiology 19:43-45.

Two marine bacteria grown on and in the absence of crude oil were studied. Differences in the ultrastructure of each were evident and in the form of lipoidal inclusion bodies.

Cleanup

Citation Source: Citation Journal.

C-242-74
THE DONA MARIKA OIL SPILL

Blackman, R. A. A., J. M. Baker, J. Jelly, and S. Reynard. 1973. Marine Pollution Bulletin 4(12):181-182.

Information is presented on the damage caused by 3,000 tons of gasoline which was spilled when the tanker "Dona Marika" ran aground near Wales. The fauna of Lindsway was adversely affected although there appeared to be no accumulation of lead in the waters or gasoline on the rocks 1 week after the spill.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04540.

C-243-74
SOME ACUTE EFFECTS OF LOW-BOILING PETROLEUM FRACTIONS ON THE CELLULAR STRUCTURE OF FISH GILLS UNDER FIELD CONDITIONS

Blanton, W. G., and M. C. Robinson. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 265-272.

Studies on the gill structure of fish collected from an oil slick-affected area have demonstrated resulting cell loss in the gills, leading to serious physiological damage. Further investigation is needed to examine the impact of oil fractions on pelagic fish under controlled laboratory conditions.

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08637.

C-244-74
DETERMINATION OF N-ALKANE AND METHYLNAPTHALENE COMPOUNDS IN SHELLFISH

Blaylock, J. W., P. W. O'Keefe, J. N. Roehm, and R. E. Wildung. 1973.
Proceedings, Joint Conference on Prevention and Control of Oil Spills. p. 173-177.

A method is described for the determination of the alkane and methylnapthalene substances in shellfish tissue. The procedure allows for >70% recovery of the toxic substances added to tissue.

Citation Source: Chemical Abstracts. 1974. 81(5). Entry #21843q.

C-245-74
INTERACTION BETWEEN MARINE ORGANISMS AND OIL POLLUTION

Blumer, M., J. M. Hunt, J. Atema, and L. Stein. 1973.
Government Reports Announcements 73(20):78-79.

Low levels of crude oil were found to interfere with the feeding behavior of the lobster, Homarus americanus. A result of the addition of oil was the reduction in the lipid, alkane and alkane-aromatic content of aquaria.

Chemical effects of oil pollution

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04372.

C-246-74
THE BIOLOGY OF PATELLA-COCHLEAR WITH REFERENCE TO OIL POLLUTION

Branch, G. M. 1973.
Abstracts of the papers of the South African National Oceanographic Symposium, Cape Town, South Africa. August 6-10, 1973. p. 18.

No summary provided.

Citation Source: Abstracts on Health Effects of Environmental Pollutants. 1974. 3(10). Entry #9981.

C-247-74
OBSERVATIONS ON THE EFFECTS OF CRUDE OIL POLLUTION ON THE SANDY-BEACH SNAIL, BULLIA (GASTROPODA: PROSOBRANCHIATA)

Brown, A. C., P. de B. Baissac, and B. Leon. 1974.
Transactions of the Royal Society of South Africa 41(1):19-24.

Observations were made of crude oil effects on Bullia in the field (following an oil spill) and under laboratory conditions. Very low concentrations of oil can be tolerated by the animal if there is direct contact with the oil. Much higher concentrations are tolerable by Bullia if there is no direct contact.

Citation Source: Aquatic Sciences and Fisheries Abstracts. 1974. 4(8). Entry #4Q8471M.

C-248-74
BIRD MORTALITY FROM OIL SLICKS OFF EASTERN CANADA, FEBRUARY-APRIL, 1970

Brown, R. G. B., D. I. Gillespie, A. R. Lock, P. A. Pearce, and G. H. Watson. 1973.
Canadian Field-Naturalist 87(3):225-234.

Oil slicks resulting from the "Arrow" and "Irving Whale" spills in February, 1970, resulted in the known deaths of 1500 ducks and seabirds, and approximately 12,000 birds. The species principally affected are described.

Citation Source: Abstracts on Health Effects of Environmental Pollutants. 1974. 3(8). Entry #7155.

C-249-74
THE DARKENING SEA

Cloud, W. 1973.
Sciences (New York) 13(9):6-12.

The author discusses the oil spill problem and presents a case history to demonstrate the destructive effects of oil spills to the marine environment. Potential effects of an arctic oil spill are predicted and present oil cleanup methods are evaluated.

Citation Source: Environmental Health and Pollution Control. 1974. 5(10). Entry #3546.

C-250-74
CONSIDERATIONS IN APPLICATION OF MICROORGANISMS TO THE ENVIRONMENT FOR DEGRADATION OF PETROLEUM PRODUCTS

Cobet, A. B., H. E. Guard, and M. A. Chatigny. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 81-87.

Considerations are described concerning possible deleterious effects of utilizing microbial preparations for oil pollutant degradation. The toxicity of resulting metabolic products, emulsified oil and soluble fractions from biodegradation is discussed.

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08618.

C-251-74
DEGRADATION OF CRUDE OIL BY YEASTS AND ITS EFFECTS ON LESBISTES RETICULATUS

Cook, W. L., J. K. Massey, and D. J. Ahearn. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01.
p. 279-282.

The effects of two hydrocarbon-utilizing yeasts in combination with crude oils on the mortality of the guppy L. reticulatus were studied. Laboratory results suggest that yeast by-products produced during high asphalt crude oil biodegradation may be harmful to fish.

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08639.

C-252-74
HYDROCARBON UTILIZATION BY CLADOSPORIUM RESINAE

Cooney, J. J., and J. D. Walker. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01.
p. 25-32.

The ability of C. resinae to accumulate, assimilate and oxidize hydrocarbons has led to the study of the role of the fungus as a potential seeding organism for oil slicks and oil containing sediments.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08613.

C-253-74
OIL COMPANIES EYE GULF OF ALASKA

Corrigan, R. 1974.
Marine Technology Society Journal 8(7):3-8.

Based on industry and government reports, offshore Alaska may be the next major drilling site for the oil industry, although a government environmental impact report stated that the Gulf is vulnerable to environmental damage from outer continental shelf drilling. Ecologically, the area is a habitat for rare and endangered species and baseline information is scarce with which to judge effects of oil pollution on marine life.

Citation Source: Citation Journal.

C-254-74
A COMPARISON OF THE EFFECTS OF OIL BP-1100 AND OLEOPHILIC FLUFF UPON THE PORCELAIN CRAB PORCELLANA PLATYCHELES

Davenport, J. 1973.
Chemosphere 2(1):3-6.

Oleophilic hydrophobic 'fluff' (a fabric and rubber mixture) may be used to treat future marine oil spills. A test was performed comparing the effects of fluff-treated oil and oil treated with B.P. 1100 (detergent) on the crab, P. platycheles, to determine fluff's detrimental effects on a marine organism.

Cleanup

Citation Source: Abstracts on Health Effects of Environmental Pollutants. 1974. 3(9). Entry #8824.

C-255-74
KEY ISSUES IN OFFSHORE OIL

Devanney, J. W., III. 1974.
Second Annual Sea Grant Lecture and Symposium. 14 p.

The Georges Bank analyses presented determine the environmental damage caused by oil spillage. Areas included are the biological effects of oil, and fish and larval kill possible from a spill.

Citation Source: Scientific and Technical Aerospace Reports. 1974. 12(17). Entry #N74-27828.

C-256-74
HYDROCARBONS OF SUSPECTED POLLUTANT ORIGIN IN AQUATIC ORGANISMS OF SAN FRANCISCO BAY: METHODS AND PRELIMINARY RESULTS

DiSalvo, L. H., H. E. Guard, L. Hunter, and A. B. Cobet. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01.
p. 205-220.

Chromatographic methods have been used to analyze the hydrocarbon content of selected Bay animals in an effort to investigate the effects and fate of petroleum components in marine waters. Bay animals were shown to have a substantially higher hydrocarbon content than closely related clean water organisms collected from relatively unpolluted California waters.

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08630.

C-257-74
ANALYTICAL TECHNIQUES FOR THE DETERMINATION OF PETROLEUM CONTAMINATION IN MARINE ORGANISMS

Farrington, J. W. 1973.
Government Reports Announcements 73(21):94.

Hydrocarbon composition in petroleum and hydrocarbons isolated from marine organisms were studied in an effort to select optimum analytical techniques for the detection of petroleum contamination in marine organisms.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04378.

C-258-74
MICROBES AND PETROLEUM: PERSPECTIVES AND IMPLICATIONS

Finnerty, W. R., R. S. Kennedy, P. Lockwood, B. O. Spurlock, and R. A. Young. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 105-125.

A study was conducted on the ultrastructure of Acinetobacter sp. grown on olefinic and paraffinic hydrocarbons. The serious problem of microbial biodegradation of microbe-resistant resinous tars is discussed.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08621.

C-259-74
MICROBIAL DEGRADATION OF AROMATIC HYDROCARBONS

Gibson, D. T., and W. K. Yeh. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 33-38.

Products of microbial degradation of hydrocarbons were studied by growing oil-utilizing bacteria on various hydrocarbons and accumulating bacterial products of oxidation. Differences in oxidation mechanisms of mammals and bacteria in the breakdown of hydrocarbons are outlined.

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08614.

C-260-74
OPPORTUNISTIC LIFE HISTORIES AND GENETIC SYSTEMS IN MARINE BENTHIC POLYCHAETES

Grassle, J. F., and J. P. Grassle. 1974.
Journal of Marine Research 32(2):253-284.

The paper describes a study which monitored the response of a number of polychaete species and other marine invertebrate organisms to an oil spill disturbance in West Falmouth, Massachusetts.

Citation Source: The Engineering Index Monthly. 1974. 12(10). Entry #067025.

C-261-74
PRODUCTION AND CHARACTERIZATION OF EMULSIFYING FACTORS FROM HYDROCARBONOCLASTIC YEAST AND BACTERIA

Guire, P. E., J. D. Friede, and R. K. Gholson. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01.
p. 229-231.

The production and characteristics of emulsifying factors have been examined from a yeast and a bacterium to determine the potential value of these nontoxic biodegradable products for accelerating the growth and metabolism of microorganisms on oil pollutants.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08632.

C-262-74
DISTRIBUTION AND ABUNDANCE OF OIL-OXIDIZING BACTERIA IN THE NORTH SEA

Gunkel, W. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01
p. 127-139.

Investigations were made concerning the distribution of oil oxidizing bacteria in regions of the North Sea. Data from samples collected indicated the presence of several species of bacteria in the beaches, water and sediments which were able to degrade different types of hydrocarbons.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08622.

C-263-74
THE DEGRADATION OF MINERAL OIL HYDROCARBONS IN THE RHINE

Hellman, H. 1973.
Tenside Detergents 10(6):285-289.

Determinations were carried out over many years measuring the biodegradation of hydrocarbons in the Rhine, using infrared spectroscopy and gas chromatography. Over a long term, degradation changes were observed.

Analysis

Citation Source: Environmental Health and Pollution Control. 1974. 5(9). Entry #3106.

C-264-74
BIOLOGICAL DEGRADATION OF HYDROCARBONS IN WATER

Houston, C. W. 1974.
NTIS Report BP-223 438. 31 p.

Studies were conducted on the growth of Pseudomonas aeruginoss on n-heptane. High growth rates were observed for the organisms on the hydrocarbon substrate and were attributed to the production of a surface tension depressant by P. aeruginoss, which caused the hydrocarbons to increase in solubility.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(18). Entry #W74-09254.

C-265-74
THE EFFECTS OF INCREASED PRODUCTION ON THE OCEANS

Husson, F. D., Jr. 1973.
In: Our Environment: The Outlook for 1980, Part I. Lexington Books, Lexington, Massachusetts.

Petroleum is one of the three dangerous pollutants examined in the volume on ocean pollution. The possible sources and major effects of oil in the marine environment are discussed.

Citation Source: Selected Water Resources Abstracts. 1974. 7(19). Entry #W74-09963.

C-266-74
SUSCEPTIBILITY TO CRUDE OIL WITH RESPECT TO SIZE, SEASON AND GEOGRAPHIC LOCATION IN MYTILUS CALIFORNICUS (BIVALVA)

Kanter, R. 1974.
Southern California Sea Grant Program 4(74). 50 p.

After conducting several studies on the effects of Santa Barbara crude oil on M. californicus from various coastal areas of California, it was found that M. californicus yielded faster and in larger numbers in higher concentrations of crude oil than in the lower concentrations. No seasonal mortality pattern or correlation between periods of highest mortality and spawning appeared to exist.

Citation Source: Aquatic Sciences and Fisheries Abstracts. 1974. 4(7). Entry #4Q7384M.

C-267-74
THE ATHABASCA TAR SANDS

Kariel, P. 1974.
Sierra Club Bulletin, San Francisco 59(8):8-10.

The article describes plans of the petroleum industry to develop the Canadian tar sands so as to extract crude oil using separation-refinement methods. Foreseen damages include overloading of surface streams and lakes with water and silt, which will in turn damage fish-spawning areas; land clearance, which will alter surface drainage patterns, and contamination of sub-surface water.

Physical effects of oil prospecting and production

Citation Source: Citation Journal.

C-268-74
EXPERIMENTAL STUDY OF THE EFFECT OF OIL ON SOME REPRESENTATIVES OF BENTHOS IN THE CASPIAN SEA

Kasymov, A. G., and A. D. Aliev. 1973.
Water, Air, and Soil Pollution 2(2):235-245.

Experimental studies were conducted in 1970-71 at Artem Island, on the effect of crude oil on benthic fauna of the Caspian Sea. Species investigated are listed according to their sensitivity to oil contamination, and observations of the effects of oil exposure on the organisms are given.

Citation Source: Abstracts on Health Effects of Environmental Pollutants. 1974. 3(10). Entry #9630.

C-269-74
UTILIZATION OF CRUDE OIL HYDROCARBONS BY MIXED CULTURES OF MARINE BACTERIA

Kator, H. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 47-75.

Hydrocarbons in crude oil were degraded by marine bacterial cultures grown in an enriched seawater environment. Degradation patterns were similar for the major crude oils; however, paraffin metabolism differed in oils containing different amounts of normal and branched paraffin molecules.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08616.

C-270-74
INVESTIGATIONS ON THE TOXICITY OF SEAWATER-EXTRACTS OF THREE CRUDE OILS ON EGGS OF COD (GADUS MORHUA)

Kuenhold, W. W. 1974.
Berichte der Deutschen Wissenschaftlichen Kommission fuer Meeresforschung 23(2):165-180.

Research was conducted on the effects of water-soluble fractions of three crude oils upon embryogenesis. The largest number of embryonic abnormalities occurred after gastrulation. The rate of non-viable larvae was high after exposing the eggs to crude oils.

Citation Source: Biological Abstracts. 1974. 58(9). Entry #48105.

C-271-74
THE RELATIVE CHANGES IN N-ALKANE COMPOSITION IN SURFACE WATER SLICKS

LaRock, P. A., and T. E. Ahlfeld. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 233-236.

Reported are results of changes of n-alkane composition in Barataria Bay surface slicks. The observed changes in hydrocarbon density are concluded to be due to bacterial degradation.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08633.

C-272-74
OIL IN SCOTTISH WATERS

Leonard, J. M. 1973.
Government Reports Announcements 73(21):159.

The paper discusses the ecological implications of petroleum discoveries in northern seas off Scotland's coast.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04379.

C-273-74
EFFECTS OF AN OIL SPILL IN THE NORTHERN BALTIC

Leppakoski, E. 1973.
Marine Pollution Bulletin 4(6):93-94.

Findings from the study of the hazardous effects caused by the 1969 oil spill from the tanker "Palva" are reported. The eider duck population suffered the most fatalities, but long-term effects appear small.

Citation Source: Oceanic Abstracts. 1974. 11(5). Entry #74-04636.

C-274-74
MICROBIAL DEGRADATION OF CRUDE OIL AND THE VARIOUS HYDROCARBON DERIVATIVES

Liu, D. L. S. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 95-104.

A bacterial culture grown in crude oil was studied to determine the utilization of various petroleum products. Crude oil cultures were found to rapidly break down n-alkanes, hydrocarbon alcohols, methyl ester of fatty acids and alkylbenzenes.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08620.

C-275-74
LITTORAL FISH POPULATIONS AFTER AN OIL TANKER DISASTER IN THE FINNISH SW ARCHIPELAGO

Mankki, J., and J. Vauras. 1974.
Annales Zoologici Fennici 11(2):120-126.

The object of the study was to determine what long-term effects an oil spill in the Baltic Sea, and emulsifiers used to disperse it, had on littoral fish populations. No statistically significant differences were found between fish of three oil-affected areas and a control region.

Citation Source: Aquatic Sciences and Fisheries Abstracts. 1974. 4(8). Entry #4Q8467M.

C-276-74
INTERACTIONS BETWEEN MICROBIAL POPULATIONS AND ORGANIC MATTER DISCHARGES

Mechalas, B. J. 1973.
American Association of Petroleum Geologists Bulletin 57(4):794.

A complex organic mixture, such as crude petroleum, requires a heterogeneous mixture of microorganisms and suitable conditions to bring about complete degradation. Oil degradation proceeds in a predictable sequence, from light-molecular weight compounds to the heavier weight substances, and is related to natural weathering processes in marine waters.

Cleanup

Citation Source: Abstracts on Health Effects of Environmental Pollutants. 1974. 3(9). Entry #8872.

C-277-74
MICROBIAL DECOMPOSITION PATTERNS USING CRUDE OIL

Mechalas, B. J., T. S. Meyers, and R. L. Kolpack. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 67-79.

A series of experiments were conducted to determine the sequence of microbial degradation in Santa Barbara crude oil. The n-paraffin and isoprenoid components are first to be

degraded, order of breakdown being dependent upon molecular weight.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08617.

C-278-74
THE IMPACT OF OIL ON MARSHLAND MICROBIAL ECOSYSTEMS

Meyers, S. P., D. G. Ahearn, S. Crown, and N. Berner. 1973. Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 221-228.

Investigations are being conducted to study the effects of oil-intrusion and depositions of petroleum effluents on the microbial community and food web of the marshland ecosystem.

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08631.

C-279-74
BACTERIAL SEEDING TO ENHANCE BIODEGRADATION OF OIL SLICKS

Miget, R. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 291-301.

In studying the possibility of adding cultures of hydrocarbonoclastic bacteria to an oil slick to increase biodegradation of oil pollutants, the type and quantity of crude oil used were the most significant factors in seeding effectiveness. Twenty-four hour oil losses in field and tank experiments were twice as large in the microbial seeded tanks relative to unseeded controls.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08641.

C-280-74
GROWTH AND TOXICITY TESTS ON THE MARINE NANOPLANKTONIC ALGA PTALYMONA TETRATHELE IN THE PRESENCE OF CRUDE OILS AND EMULSIFIERS

Mommaerts, B., and F. Mommaerts. 1973.
Environmental Pollution 4(4):261-282.

Studies on the effects of crude oil and industrial emulsifiers on growth rates of P. tetrathele suggest that crude oil and emulsifier pollution in the sea may temporarily eliminate species from the ecosystem and interrupt the food chain.

Citation Source: Chemical Abstracts. 1974. 81(11). Entry #58864y.

C-281-74
EFFECTS OF CRUDE OIL AND SOME OF ITS COMPONENTS ON YOUNG COHO AND SOCKEYE SALMON

Morrow, J. E. 1974.
Environmental Protection Agency, Ecological Research Series Report EPA-660/3-73-018.

After exposing young coho and sockeye salmon to different concentrations of crude oil, significant mortalities were observed at oil concentrations of 500 ppm or greater. Alteration of cell membrane permeability due to oil toxicity has been suggested.

Citation Source: Selected Water Resources Abstracts. 1974. 7(15). Entry #W74-07613.

C-282-74
DISTRIBUTION OF HYDROCARBON-UTILIZING BACTERIA IN NORTHWESTERN ATLANTIC WATERS AND COASTAL SEDIMENTS

Mulkins-Phillips, G. J., and J. E. Stewart. 1974.
Canadian Journal of Microbiology 20(7):955-962.

Studies were conducted on the location, varieties, numbers and capacity of hydrocarbon-utilizing microorganisms in the Northwestern Atlantic. Such information indicates the microbial potential for oil removal or conversion in the Atlantic environments examined.

Cleanup

Citation Source: Biological Abstracts. 1974. 58(9). Entry #49208.

C-283-74
CLEANING OF OIL COVERED BIRDS

Naviaux, J. L., and A. Pittrian. 1973.
Biological Conservation 5(4):292-294.

Described is a technique using Shell Sol 70 solvent to clean oil-covered birds. The solvent effectively cleaned contaminating oils and was completely removed by evaporation. The cleaning, rinsing and drying processes are given.

Citation Source: Environmental Health and Pollution Control. 1974. 5(10). Entry #3539.

C-284-74
BIODEGRADATION OF OIL IN SEAWATER FOR NAVAL POLLUTION CONTROL

O'Neil, T. B. 1973.
Government Reports Announcements 73(17):103.

Studies on the ability of pure and mixed cultures of hydrocarbonoclastic microorganisms to degrade marine diesel, Bunker C fuel and crude oil, indicated that mixed cultures were much more active than pure cultures. The addition of organic enrichment, inorganic salts and aeration aided in the oil degradation process.

Cleanup

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04340.

C-285-74
OIL DISPERSANT TOXICITY

Perkins, E. J., E. Gribbon, and J. W. M. Logan. 1973.
Marine Pollution Bulletin 4(6):90-93.

Toxicity tests of BP1100X and Shell Dispersant LT conducted on a variety of shore animals revealed that the most recently developed dispersants have low toxicity, as compared to early generation emulsifiers.

Cleanup

Citation Source: Oceanic Abstracts. 1974. 11(5). Entry #74-04635.

C-286-74
STUDIES ON THE DEGRADATION OF PETROLEUM BY FILAMENTOUS FUNGI

Perry, J. J., and C. E. Cerniglia. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 89-94.

Studies on the degradation of petroleum by microorganisms indicated that fungi were more efficient in hydrocarbon degradation than bacteria tested. It is suggested that the fungi have greater potential in cleansing the environment from oil spills.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08619.

C-287-74
MICROBIAL DEGRADATION OF OIL AND HYDROCARBONS IN CONTINUOUS CULTURES

Pritchard, P. H., and T. J. Starr. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 39-45.

Continuous culture techniques have been developed in which bacterial populations have significantly degraded petroleum hydrocarbons. The bacteria were able to degrade oil components in a water-hydrocarbon system without emulsifying or physically dispersing the oil products through the system.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08615.

C-288-74
THE DEGRADATION OF OIL IN CONTINUOUS CULTURE

Pritchard, P. H., and T. J. Starr. 1974.
NTIS Report CSCL 06/13. 82 p.

Biodegradation of hydrocarbons has been studied in a continuous culture system and changes in the substrates and in the bacteria attacking them are characterized. An artificial oil has been developed to aid in the study of oil biodegradation, and it is shown through the development of a fish embryo bioassay that water extracts from oil and toluene interfere with embryological development.

Cleanup

Citation Source: Scientific and Technical Aerospace Reports. 1974. 12(20). Entry #N74-30485.

C-289-74
TEMPERATURE-TOXICITY MODEL FOR OIL REFINERY WASTE

Reynolds, J. H., E. J. Middlebrooks, and D. B. Procella. 1974. ASCE Journal Environment. Engineering Division 100(EE3): 557-576.

A kinetic model is used to predict the effects of temperature on the toxicity of oil refinery waste to the algae Selenastrum capricornutum.

Citation Source: The Engineering Index Monthly. 1974. 12(8). Entry #050480.

C-290-74
HYDROCARBON BIODEGRADATION IN ALASKAN WATERS

Robertson, B., S. Arhelger, P. J. Kinney, and D. K. Button. 1973. Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 171-184.

The report includes observations on the identification and distribution of hydrocarbon-utilizing organisms, rates of hydrocarbon oxidation and slick inoculation frequency estimates.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08627.

C-291-74
THE WEST FALMOUTH SAGA: HOW AN OIL SPILL EXPERT TWISTED THE FACTS ABOUT A LANDMARK SPILL STUDY

Sanders, H. L. 1974.
New Engineer 3(5):32-39.

Dr. Sanders, a researcher from the Woods Hole Oceanographic Institution presents a rebuttal to D. J. G. Mackin's (Texas A & M University) report which condemned observations, made by researchers such as Woods Hole scientists, that oil spillage caused long-term environmental damage. Sanders uses the results of a study on the catastrophic spillage of 4000 bbls. of No. 2 heating oil in West Falmouth Harbor, Massachusetts, to support his claims.

Citation Source: Environment Abstracts. 1974. 4(9). Entry #12-74-07637.

C-292-74
POLYCONDENSED AROMATIC COMPOUNDS (PCA) AND CARCINOGENS IN THE SHALE ASH OF CARBONACEOUS SPENT SHALE FROM RETORTING OF OIL SHALE OF THE GREEN RIVER FORMATION

Schmidt-Collerus, J. J., F. Bonomo, and C. H. Prien. 1974. American Chemical Society, Division of Fuel Chemistry Preprints 19(2):115-122.

Included in the review of oil shale deposits and technology is the assessment of the potential environmental impact of this substance on the ecosystem. Potential utilization problems are discussed.

Biological effects of oil prospecting and production

Citation Source: The Engineering Index Monthly. 1974. 12(8). Entry #050249.

C-293-74
MARINE HYDROCARBONOCLASTIC BACTERIA: TYPES AND RANGE OF OIL DEGRADATION

Soli, G. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 141-146.

Studies were conducted which characterized marine bacterial isolates based upon their ability to decompose hydrocarbons in a synthetic mixture. The extent to which each bacterium was specialized or adapted to hydrocarbon oxidation was indirectly determined.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08623.

C-294-74
ASSIMILATION OF HYDROCARBONS BY BACTERIAL CULTURES OF MYCOCOCCUS SPECIES AND PSEUDOMONAS SPECIES

Spitsyna, D. N., E. G. Davidova, N. B. Gradova, and S. A. Konovalov. 1974.
Prikladnaya Biokhimiya Microbiologiya 10(2):187-195.

The effective utilization of octadecane-1-C by the two bacterial cultures is 75-78% while utilization by yeast is

lower, 66%. The coefficient of excretion is similar in all cultures (ratio of amount of labeled C in water soluble products and in $^{14}CO_2$ to the initial activity of the system).

Cleanup

Citation Source: Chemical Abstracts. 1974. 81(17). Entry #101652s.

C-295-74
SUBLETHAL EFFECTS OF THE WATER SOLUBLE COMPONENT OF OIL: CHEMICAL COMMUNICATION IN THE MARINE ENVIRONMENT

Takahashi, F. T., and J. S. Kittredge. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 259-264.

The water soluble components of crude oil and petroleum have been found to seriously inhibit chemoreception in marine organisms. After an oil spill, these components can detrimentally affect the survival and reproduction of marine animals.

Chemical effects of oil pollution

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08636.

C-296-74
THE COASTAL ZONE: PROBLEMS WITH MAN'S USES

Todd, C. F., Jr. 1973.
Rand Corporation. Rand Paper Series P-5081. 15 p.

The importance of estuarine waters and man's impact on them are discussed. Marine life has been damaged due to man's activities including waste disposal, dredging and oil production.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04525.

C-297-74
BACTERIAL DEGRADATION OF PETROLEUM MATERIALS IN LOW TEMPERATURE MARINE ENVIRONMENTS

Traxler, R. W. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 163-170.

Water and sediment samples were collected from Chedabucto and Narragansett bays, Rhode Island, and it was found that larger numbers of hydrocarbon-utilizing bacteria and a larger variety of genera were obtained from the sediment samples. Temperatures from which samples were obtained ranged from 16-17°C at Chedabucto Bay, to 2.5-5°C at Narragansett Bay.

Analysis

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08626.

C-298-74
PETROLEUM DEGRADATION IN LOW TEMPERATURE MARINE AND ESTUARINE ENVIRONMENTS

Traxler, R. W. 1974.
Government Reports Announcements, Report 98-01-4062-1. 63 p.

Hydrocarbon-utilization studies have shown that bacterial cultures isolated from bays in Rhode Island and Nova Scotia utilize specific structural hydrocarbons. Temperature studies on the isolates have demonstrated that hydrocarbon metabolism can occur at temperatures as low as 0°C.

Cleanup

Citation Source: Government Reports Announcements. 1974. 74(14). Entry #AD-778 687/4GA.

C-299-74
INHIBITION OF BACTERIAL CHEMORECEPTION BY HYDROCARBONS

Walsh, F., and R. Mitchel. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 275-278.

The study describes the effect of several hydrocarbons on bacterial chemotaxis. The effects of environmental levels of hydrocarbons include alteration of predator-prey interactions and rates of organic substrate biodegradation.

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08638.

C-300-74
EXPERIMENTAL CRUDE OIL SPILLS ON ARCTIC COMMUNITIES

Wein, R. W., and L. C. Bliss. 1973.
Journal of Applied Ecology 10(3):671-682.

A study was conducted in which five Arctic plant community types were treated with light gravity, sweet crude oil three times during the year. Results revealed total plant recovery ranging from 20-55% on the treated plots.

Citation Source: Biological Abstracts. 1974. 58(8).
Entry #45510.

C-301-74
LETHAL RESPONSE BY ATLANTIC SALMON PARR TO SOME POLYOXYETHYLATED CATIONIC AND NONIONIC SURFACTANTS

Wildish, D. J. 1974.
Water Resources 8(7):433-437.

The study determining the lethal response of Salmo salar to some polyoxyethylated surfactants is a useful source in assessing the side effects of oil dispersants in aquatic ecosystems.

Citation Source: Biological Abstracts. 1974. 58(10).
Entry #58060.

C-302-74
BACTERIAL DEGRADATION AND EMULSIFICATION OF NO. 6 FUEL OIL

Zagic, J. E., B. Supplisson, and B. Volesky. 1974.
Environmental Science and Technology 8(7):664-668.

Bacterial cultures isolated from sewage were effective in removing the paraffinic compounds in Grade 6 fuel oil, and also produce an active emulsifying agent for the fuel oil. Major emulsifying activities involved in a massive oil spill are attributed to bacterial emulsification.

Cleanup

Citation Source: Biological Abstracts. 1974. 58(7).
Entry #37464.

C-303-74
BACTERIAL DEGRADATION OF MINERAL OILS AT LOW TEMPERATURES

ZoBell, C. E. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01.
p. 153-161.

After growing oil-oxidizing bacteria in thirteen samples of oil contaminated North Alaskan water, soil and tundra muck, it was noted that mineral oil was being decomposed at 8 and 40°C. Data on oxygen uptake by the bacteria were also calculated.

Cleanup

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08625.

2. PHYSICAL EFFECTS

C-304-74
THE FATE OF OIL SPILT AT SEA

Anonymous. 1973.
Government Reports Announcements 73(16):98.

A study was conducted on the effects of natural forces (wind, waves, currents) on oil movement, spreading and destruction at sea and in the intertidal zone. Physical, photochemical and biological factors causing degradation were considered.

Biological effects of oil pollution

Citation Source: Pollution Abstracts. 1974. 5(5).
Entry #74-04334.

C-305-74
SPILL RESEARCH IS UNDERWAY IN ARCTIC

Anonymous. 1974.
Offshore 34(10):102.

Underwater research studying the effects of oil spills on Arctic ice is being conducted. Areas to be investigated are infiltration of ice by oil, effect of oil on ice cover stability and oil effects on the marine fauna and flora of the region.

Biological effects of oil pollution

Citation Source: Citation Journal.

C-306-74
ENERGY BUDGET CHANGES FOLLOWING SURFACE DISTURBANCE TO UPLAND TUNDRA

Haag, R. W., and L. C. Bliss. 1974.
Journal of Applied Ecology 11(1):355-374.

The effect of oil spills was one of the areas investigated in a study on surface disturbance effects on the radiant energy budget of upland- low shrub-heath tundra.

Citation Source: Biological Abstracts. 1974. 58(10).
Entry #53768.

3. CHEMICAL EFFECTS

C-307-74
EXPERIMENTAL DATA ON THE EFFECT OF OIL ON SOME CHEMICAL PROPERTIES OF SEAWATER

Mazmanidi, N. D., and G. I. Kovaleva. 1973.
Oceanology 12(5):684-689.

The effects of various oil concentrations on the hydrochemical characteristics of seawater were studied. Temperature changes, products of oil dissolution, varied oxygen concentrations and oil effects on water microflora were areas included in the study.

Citation Source: Pollution Abstracts. 1974. 5(5).
Entry #74-04237.

4. GENERAL EFFECTS

C-308-74
ECOLOGICAL FANTASIES. DEATH FROM FALLING WATERMELONS

Adler, CY. A. 1973.
Green Eagle Press: New York, New York. 350 p.

Oil spills, the Alaskan pipeline, detergents and phosphate pollution, and electrical energy are some of the topics discussed in the book viewing environmental problems. A section is included which examines global considerations of the world environment, the energy crisis, population growth and pollution, and their solutions.

Citation Source: Abstracts on Health Effects of Environmental Pollutants. 1974. 3(10). Entry #9401.

C-309-74
OIL SPILLS IN NORTHERN MINNESOTA

Anonymous. 1974.
Water Newsletter 16(18):2.

Over two million gallons of crude oil have been spilled in Minnesota due to twenty recent pipeline breaks. The spills have endangered the quality of water in two lakes and much farmland.

Citation Source: Citation Journal.

C-310-74
PROBLEMS OF POLLUTION OF COASTAL WATERS AND BEACHES BY OIL

Carow, U. 1973.
Kueste 24:93.

Small sea areas in the North and Baltic seas are threatened by the danger of oil pollution due to shipping routes through these waters. Measures should be taken to limit the dangers of oil pollution affecting the waters, coastal areas, and beaches.

Citation Source: Aquatic Sciences and Fisheries Abstracts. 1974. 4(7). Entry #4Q7330M.

C-311-74
PETROLEUM WEATHERING: SOME PATHWAYS, FATE AND DISPOSITION ON MARINE WATERS

Feldman, M. H. 1973.
NTIS Report PB-227278/9WP. 29 p.

The following mechanisms of the weathering of oil pollution in the oceans are discussed with respect to their ecological importance: photolysis, interactions with trace materials, and sedimentation with particulate materials.

Citation Source: Environment Abstracts. 1974. 4(7,8). Entry #12-74-06769.

C-312-74
RECENT INVESTIGATIONS INTO OCCURRENCE, QUANTITY, ORIGIN AND BEHAVIOR OF MINERAL OILS IN THE RHINE RIVER

Hellman, H. 1973.
Deutsche Gewaesserkundliche Mitteilungen 17(special issue): 63-64.

The seriousness of the problem of hydrocarbon pollution is discussed. Rates of hydrocarbon degradation are not equal to rates of discharge of mineral oil products into the river.

Citation Source: Aquatic Sciences and Fisheries Abstracts. 1974. 4(7). Entry #4Q 73 44F.

C-313-74
A REALISTIC LOOK AT OCEAN POLLUTION

Ketchum, B. H. 1973.
Marine Technology Society Journal 7(7):8-15.

Oil pollution is one of the major contaminants described in the report. The extent of oil pollution in the oceans and solutions to existing problems arising from oil contamination are presented.

Citation Source: Environmental Health and Pollution Control. 1974. 5(8). Entry #2739.

C-314-74
POLLUTION BY HYDROCARBONS IN THE ADRIATIC SEA. NOTE III - RESULTS OF AN INVESTIGATION IN THE GULFS OF TRIESTE AND VENICE DURING 1971-1972

Majori, L., and F. Petronio. 1973.
Igiene Moderna 66(2):193-222.

The study includes estimations and characteristics of seawater pollution in the high Adriatic Sea. The extent of pollution is described along with oil pollution sources and environmental conditions.

Citation Source: Aquatic Sciences and Fisheries Abstracts. 1974. 4(7). Entry #4Q 7349M.

C-315-74
LET'S PUT OIL-SPILL RISKS IN PERSPECTIVE

Matthews, C. D. 1974.
Oil and Gas Journal 72(36):65-67.

The author reveals that, based on oil spill studies, there is 99.986% chance that there will never be an oil spill at Nantucket, and only four major spills have occurred out of 18,123 offshore wells.

Citation Source: The Engineering Index Monthly. 1974. 12(10). Entry #067028.

C-316-74
ENVIRONMENTAL PROTECTION ON THE HIGH SEAS

Mau, G. 1973.
Hansa 110(15-16):1364-1366.

The paper views environmental protection in ocean navigation both internally, dealing with the conditions and quality of life on board the ships; and externally, regarding protection of the sea from pollution, particularly by oil. The goals set forth by the international maritime conventions for prevention of pollution of the sea by oil are described.

Citation Source: Environmental Health and Pollution Control. 1974. 5(9). Entry #3359.

C-317-74
ENVIRONMENTAL PROBLEMS AND THEIR INTERNATIONAL IMPLICATIONS

Odabasi, H., and S. E. Ulug (eds.). 1973.
Boulder: Colorado Associated University Press. 188 p.

Oil pollution is one of the topics examined in respect to international environmental problems, particularly as they relate to Turkey.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04843.

C-318-74
ENVIRONMENTAL IMPACTS OF OIL SPILLS ON LAND IN THE ARCTIC REGIONS

Raisbeck, J. M., and M. F. Mohtadi. 1974.
Water, Air, and Soil Pollution 3(2):195-208.

The paper reviews investigations made of the impact of oil spills on the Arctic environment. Theoretical models describing the movement of oil on permeable and impermeable surfaces are discussed.

Citation Source: The Engineering Index Monthly. 1974. 12(10). Entry #067026.

C-319-74
OIL ON ICE

Ramseier, R. O. 1974.
Environment 16(4):6-15.

The article discusses the potential of Arctic oil spills, a history of past oil spills, the fate of oil in the Arctic environment and the possible effects that spills may have in altering climatic conditions in the Arctic.

Citation Source: Environment Abstracts. 1974. 4(7,8). Entry #12-74-06737.

C-320-74
ANATOMY OF AN OIL SPILL

Wertenbaker, W. 1974.
Marine Technology Society Journal 8(3):16-29.

Studies were conducted to examine the effects of an oil spill caused by the grounding of a tug and barge carrying 2500 tons of No. 2 fuel oil at West Falmouth Harbor, Massachusetts. A summary, written by the marine scientists who studied the area, reported widespread and long-term damage occurring in the area.

Citation Source: Environment Abstracts. 1974. 4(7,8).
Entry #12-74-06723.

D. OIL POLLUTION PREVENTION

1. DESIGN AND ENGINEERING

C-321-74
PREVENTION OF SPILLAGE AT MONO-MOORING TERMINALS

Black, J. 1973.
Tanker and Bulk Carrier 20(5):28,30-32.

Environmental considerations are discussed in respect to buoy movement and hose arrangements during single point mooring. The development of new synthetic materials to improve hose performance in this area are reviewed.

Citation Source: Pollution Abstracts. 1974. 5(6). Entry #74-05342.

C-322-74
THE DEVELOPMENT AND DEMONSTRATION OF AN UNDERWATER OIL HARVESTING TECHNIQUE

Bianchi, R. A., and G. Henry. 1973.
Government Reports Announcements 73(16):128.

Submerged hydrodynamic oil concentrator units were designed and built, able to harvest light and heavy oils between 3/4 to 2 kn. The unit was tested in the Boston Harbor and was effective in recovering between 70% and 85% of all encountered oil.

Oil recovery and handling techniques

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04338.

C-323-74
DEVELOPMENT OF A POLLUTION-FREE CARGO TANK CLEANING SYSTEM FOR USE ON BOARD TANKERS

Femenia, J. 1973.
New York State Sea Grant Program Report. 75 p.

The preliminary design and operation of a pollution-free cargo tank cleaning system are described.

Citation Source: Selected Water Resources Abstracts. 1974. 7(19). Entry #W74-10249.

C-324-74
WATER CONSERVATION AT A MAJOR REFINERY. PETROCHEMICAL COMPLEX

Kirby, T. W. 1974.
AIChE Symposium Series 70(136):645-653.

The biological waste water treatment systems at the three major plants in the complex are discussed. Water reuse is being expanded throughout the complexes.

Citation Source: Chemical Abstracts. 1974. 81(6). Entry #29268b.

C-325-74
SUN OIL DEVELOPS WATER REUSE PROGRAM

Mohler, E. F., Jr., and L. T. Clere. 1973.
Oil and Gas Journal 71(37):111-116.

The paper describes Sun Oil Company's success in achieving effective pollution abatement and water reuse in its Toledo refinery. The design and development of the oil-water separators are also described.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04263.

C-326-74
THE OIL REFINERY IN 1980

Santa Olalla, M. 1973.
Ingenieurblad 42(22):637-644.

The capacity, complexity and antipollution features of an oil refinery of the future are visualized, based on present trends of demand.

Citation Source: Environmental Health and Pollution Control. 1974. 5(9). Entry #3223.

C-327-74
CENTRIFUGE HELPS TO CONTROL POLLUTION

Seither, H. J., Jr. 1974.
American Machinist 118(3):43-45.

A dual purpose oil-recirculating system has been developed by International Harvester for the purpose of reducing oil loss

from high speed machinery. Used oil is clarified by the centrifuge system and then is recycled back into the machines and used for lubrication.

Citation Source: Citation Journal.

C-328-74
THE SPREADING AND TRANSPORT OF OIL SLICKS ON THE OPEN OCEAN IN THE PRESENCE OF WIND, WAVES, AND CURRENTS

Waldman, G. A., R. A. Johnson, and P. L. Smith. 1973. Government Reports Announcements 73(20):120.

An analytical model is employed based on data collected on oil transport and spreading due to environmental factors. Comparisons of these calculations are made with data from the San Clemente and Arrow spills, and the Chevron and Santa Barbara leaks. Applicability of the model is discussed.

Analysis

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04373.

2. OIL RECOVERY AND HANDLING TECHNIQUES

C-329-74
REDUCES 500,000 GPD REFINERY WASTE WATER TO MAXIMUM OIL CONTENT OF 15 PPM

Adair, J. C. 1974.
Chemical Processing. Chicago 37(1):16.

The article describes a purification system able to reduce oil content of 500,000 gpd of waste water to 15 ppm at the Alabama Refining Company, Theodore, Alabama.

Citation Source: Pollution Abstracts. 1974. 5(6).
Entry #74-05314.

C-330-74
OIL POLLUTION RECOVERY

Anonymous. 1974.
Bulletin of the Ecological Society of America 55(3):13.

A new and efficient method has been developed to recover harmful oil, gas and kerosene spills. Bags composed of Loktuft, a non-woven fabric teamed with imbiber beads, polymers which can absorb several times their weight in pollutants, will imbibe 1 gallon of oil in ten minutes, and retain the pollutant within the bag.

Cleanup

Citation Source: Citation Journal.

C-331-74
POLYURETHANE FOAM AS OIL SORBENT

Anonymous. 1974.
Marine Technology Society Journal 8(8):25.

The report "An oil recovery system utilizing polyurethane foam - a feasibility study", has been released by the EPA, describing the effectiveness of the foam as a sorbent for spilled oil. The system tested was able to recover all types of spilled oil under various conditions.

Cleanup

Citation Source: Citation Journal.

C-332-74
REFINERY EFFLUENTS NEED EFFICIENT CONTROL

Anonymous. 1974.
Energy Digest 3(1):37-39.

The problem of refinery effluent treatment and control is discussed. Methods of oil-water separation of effluent water are reviewed.

Citation Source: Selected Water Resources Abstracts. 1974. 7(19). Entry #W74-10274.

C-333-74
SHIP REPAIR FACILITIES IN GOTHENBURG

Anonymous. 1973.
Shipping World and Shipbuilder 166(3884):882-884.

Included in the article is the description of the facility, "The Renare Hav", which is a part of a new ship repair complex in Gothenburg, Sweden, for use in cleaning ship tanks. The tank-cleaning station is expected to handle 6,000-8,000 TPY of oil.

Citation Source: Oceanic Abstracts. 1974. 11(5). Entry #74-04948.

C-334-74
TOLFLOC 311

Anonymous.
Descriptive information.

Tolfloc 311 is a mixture of liquid organic coagulants composed of highly cationic linear polyamine polyelectrolytes, used in the treatment of influent and effluent industrial waters to remove suspended solids and oily industrial wastes. The physical properties and application of Tolfloc 311 are given.

Information Source: Petrolite Corporation, Tetrolite Division, 369 Marshall Avenue, St. Louis, Missouri 63119

C-335-74
PETROLEUM PROCESSING WASTES

Baker, D. A. 1974.
Journal of the Water Pollution Control Federation 46(6): 1298-1301.

The paper is a review of the 1973 literature on pollution problems, control and treatment of petroleum processing wastes.

Citation Source: Chemical Abstracts. 1974. 81(14). Entry #81996b.

C-336-74
CRANKCASE OIL CLEANED FOR FUEL

Baumgardner, E. 1974.
Hydrocarbon Processing 53(5):129-131.

The operation of the process which converts used crankcase oil to a usable fuel for power generating plants, steel mills, and other large plants is described.

Citation Source: Environment Abstracts. 1974. 4(9). Entry #03-74-07338.

C-337-74
FABRIC BOOM CONCEPT FOR CONTAINMENT AND COLLECTION OF FLOATING OIL

Bonz, P. E. 1973.
NTIS Report PB-228 049/3WP. 67 p.

Model tests were conducted in which a woven hydrophilic fabric was used with a floating oil containment boom to achieve oil-water separation after containment. The concept has proven to be successful from tests of preliminary model performance.

Containment
Cleanup

Citation Source: Environment Abstracts. 1974. 4(10). Entry #12-74-08710.

C-338-74
WASTE AUTOMOTIVE LUBRICATING OIL AS A MUNICIPAL INCINERATOR FUEL

Chansky, S., et al. 1973.
EPA Report EPA-R2-73-293. 79 p.

The economic, technical and environmental feasibility of utilizing waste automotive lubricating oils as a fuel is examined.

Citation Source: Environment Abstracts. 1974. 4(9). Entry #17-74-07826.

C-339-74
TALL OIL REFINERY WASTE WATER TREATMENT SYSTEMS

Ciesielski, L. F. 1974.
American Oil Chemists' Society Journal 50:494-497.

Described is a recovery system which is effective in the removal of oils incorporated in recycle and waste water from tall oil refineries. The basic system consists of American Petroleum Institute separators and a floating skimmer.

Citation Source: Citation Journal.

C-340-74
A SMALL VACUUM OIL SKIMMING SYSTEM

Cross, R. H. 1973.
Government Reports Announcements 73(18):114-115.

An oil slick collection system has been developed which collects oil from the water surface by entrainment in a high-velocity air stream. The system can be used to recover No. 4 fuel and lighter oils.

Cleanup

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04363.

C-341-74
NEW TECHNOLOGY REVITALIZES WASTE-LUBE-OIL REFINERY

Davis, J. C. 1974.
Chemical Engineering 81(15):62-66.

The technical feature describes the increasing attractiveness of substituting refined waste lubricating oil for fuel and virgin oil. The rise in interest in this area is discussed.

Citation Source: Environment Abstracts. 1974. 4(9). Entry #03-74-07372.

C-342-74
RAPID ACTING OIL ABSORBENT. RIVERS, PONDS, ROAD SURFACES - ITS EMERGENCY USES ARE LEGION

DeVial, R. M. 1973.
Pollution Monitoring 15:5.

The speed and efficiency of the oil absorbent Drizil are reported. A boom is used to surround a waterborne oil slick, the product is spread across the oil, all free oil is absorbed and the absorbent is then collected and disposed of.

Containment
Cleanup

Citation Source: Environmental Health and Pollution Control. 1974. 5(10). Entry #3787.

C-343-74
SPLITTING EMULSIONS

Dittrich, V. 1974.
Wasser, Luft und Betrieb 18(2):91-98.

The treatment of oil emulsions from food processing and other industries, and cooling, drilling and rolling mill operations are discussed.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04327.

C-344-74
PORT COLLECTION AND SEPARATION FACILITIES FOR OILY WASTES. VOLUME I: COLLECTION, TREATMENT AND DISPOSAL OF OIL WATER WASTES FROM SHIPS

Forster, R. L., J. E. Moyer, and S. I. Firstman. 1973. Government Reports Announcements 73(17):105.

Types and quantities of oil wastes entering selected ports by nonmilitary shipping are reported. Also included is information pertaining to the collection, treatment and disposal of oil wastes in the selected ports.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04341.

C-345-74
PORT COLLECTION AND SEPARATION FACILITIES FOR OILY WASTES. VOLUME II: GENERAL TECHNOLOGY

Forster, R. L., J. E. Moyer, and S. I. Firstman. 1973. Government Reports Announcements 73(17):105.

The procedures used to collect and separate oil wastes at various ports are described and evaluated. Technical background information concerning the processes is given.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04342.

C-346-74
PORT COLLECTION AND SEPARATION FACILITIES FOR OILY WASTES. VOLUME III: GENERAL DATA AND CONCEPTUAL PLANS FOR THE SURVEYED PORTS

Forster, R. L., J. E. Moyer, and S. I. Firstman. 1973. Government Reports Announcements 73(17):105-106.

Included is an inventory of oily waste collection, handling and treatment facilities existing in U.S. ports. In studying several oil handling systems, preferred collection methods, treatment systems, and disposal systems were selected.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04343.

C-347-74
OIL RECLAMATION - AN ASSESSMENT OF CURRENT TECHNIQUES

Franklin, J. S. 1973.
Effluent and Water Treatment Journal 13(10):655,657.

Oil recovery processes, including mechanical separation techniques, emulsion treatment, and a flocculation system, are evaluated.

Citation Source: Pollution Abstracts. 1974. 5(6). Entry #74-05377.

C-348-74
DEVELOPMENT OF A BATCHWISE IN-SITU REGENERATION TYPE SEPARATOR TO REMOVE OIL FROM OIL WATER SUSPENSIONS

Fruman, D., A. Gollan, and J. Ricklis. 1973.
Final Technical Report 7080-2, Phase II (Maritime Administration Report MA-RD-900-73025). 111 p.

An oil-water separator was developed and tested on simulated oil-water suspensions. Contaminated water passes through a section of polyurethane foam, where the oil is retained or coalesced. Droplets of coalesced oil in the effluent are later separated by gravity.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10441.

C-349-74
AN OILY WATER SEPARATOR SYSTEM

Garber, D. C. 1974.
Marine Technology 11(1):61-65.

A unique oily water separation system for shipboard use is described. The system is able to issue water effluents containing 2 to 5 ppm of oil when in operation at sea (oil content of 6 ppm is considered marginal).

Citation Source: Environmental Health and Pollution Control. 1974. 5(8). Entry #2910.

C-350-74
OIL RECOVERY SYSTEM OPERATES EFFECTIVELY IN ROUGH WATER

Gascoigne, P. 1974.
World Oil 178(7):93-94.

An oil skimmer has been developed which can operate efficiently during bad weather conditions. Water containing floating oil and debris is herded and propelled into filter belts where the water is allowed to pass through and the oil is retained on the belts.

Cleanup

Citation Source: The Engineering Index Monthly. 1974. 12(8). Entry #052636.

C-351-74
OIL REMOVAL TECHNIQUES IN AN ARCTIC ENVIRONMENT

Golden, P. C. 1974.
Marine Technological Society Journal 8(1):38-43.

Studies of oil removal in the Arctic have revealed that crude oil (60°F) poured onto ice and snow in both winter and summer spreads to a minimum thickness of 5 cm. It was found that oil penetrates summer ice but practically no oil penetrates winter snow and ice.

Physical effects of oil pollution

Citation Source: Environmental Health and Pollution Control. 1974. 5(9). Entry #3360.

C-352-74
REMOVAL OF OIL FROM AQUEOUS WASTES BY FLOTATION

Goren, S. L. 1974.
Completion Report, California Water Resources Center, Davis (Project UCAL-WRC-W-276). 10 p.

Experimental studies have shown that flotation is highly effective in separating oil in water dispersions at high electrolyte concentrations. Efficiency of removal decreases with decreasing oil droplet size, limiting the system in separation capabilities.

Citation Source: Selected Water Resources Abstracts. 1974. 7(19). Entry #W74-10082.

C-353-74
VISCOSITY ACTUATED PHASE SEPARATING (VAPS), FOR OIL-WATER SEPARATIONS

Handwerk, R. H., D. J. Smith, and E. E. Griesser. 1973. Final Project Report 734305.2/5 to U.S. Coast Guard Office of Research and Development. 168 p.

An oil/water separator was designed to eliminate oil discharge in marine environments from all types of vessels. The effectiveness of several devices tested to achieve such separation are discussed.

Citation Source: Selected Water Resources Abstracts. 1974. 7(19). Entry #W74-10231.

C-354-74
CENTRIFUGE COALESCER FOR SEPARATING OIL FROM WATER IN SHIPBOARD APPLICATIONS

Harvey, A. C., A. R. Guzdar, V. K. Stokes, and A. T. Fisk. 1973. Government Reports Announcements 73(18):102.

The development and operation of a centrifuge to separate oil dispersed in bilge and ballast water is discussed.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04356.

C-355-74
ONE PRIVATE PLANT TREATS OIL, CHEMICAL RESIDUES IN DENMARK

Henriksen, P. 1974.
Solid Wastes Management 17(5):77.

The article describes the central treatment facility in Denmark developed to convert all waste oils and hazardous chemicals to safely disposable forms. The functions, capacities and characteristics of the operation are provided.

Citation Source: Environment Abstracts. 1974. 4(9). Entry #17-74-07813.

C-356-74
EFFLUENT WATER TREATMENT AT CHARTER INTERNATIONAL OIL COMPANY'S HOUSTON REFINERY

Hentschel, M. L., and T. L. Cox. 1974.
AIChE Symposium Series 70(136):638-644.

The problems associated with the water treatment operation at the refinery are discussed. Also included is the effect of sulfides and phenols on the activated sludge biological unit.

Citation Source: Chemical Abstracts. 1974. 81(6). Entry #29267a.

C-357-74
A MODIFIED EXTRACTION METHOD FOR DETERMINATION OF MINERAL OIL IN SEAWATER

Hughes, D. R., R. S. Belcher, and E. J. O'Brien. 1973. Bulletin of Environmental Contamination and Toxicology 10(3): 170-171.

Three extraction procedures measuring mineral oil levels in some Victorian coastal waters were compared in terms of efficiency. The most useful extraction technique was selected and modified.

Citation Source: Pollution Abstracts. 1974. 5(6). Entry #74-05446.

C-358-74
HIGH RATE FILTRATION OF SOLIDS-STABILIZED OIL-IN-WATER EMULSIONS

Humenick, M. J., E. F. Gloyna, and B. J. Davis. 1973. Texas. University at Austin. Center for Research in Water Resources, Technical Report CRWR-105. 166 p.

The performance of a high rate filtration process in removing suspended solids and oil in solids-stabilized oil-in-water emulsions was evaluated. Literature pertaining to the filtration theory and operation is reviewed.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-05484.

C-359-74
AN EXPERIMENT ON METAL WORKING OIL EMULSION INTO SEWER SYSTEMS

Izumi, K., and H. Nagamori. 1974. Junkatsu 19(3):32-40.

The procedure for the disposal of metal working oil emulsion

into sewer systems, followed by settling and oil-water separation is described.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10559.

C-360-74
DISPOSAL OF OIL EMULSION USED FOR METAL MACHINING

Izumi, K., and H. Nagamori. 1974.
Junkatsu 19(3):208-216.

From studies on the electrochemical oxidation of emulsifiers of machine oils in sewage, the nonionic emulsifiers were ≤95% oxidized, with the use of a Pt or Ru anode. The machine oil was separated from the sewage.

Citation Source: Chemical Abstracts. 1974. 81(6). Entry #96044p.

C-361-74
REMOVAL OF OIL FROM UNDER PIERS

Katz, B. 1973.
Government Reports Announcements 73(17):122.

Methods are outlined for removing oil from under piers. The primary means of removal are by producing artificial currents under the pier and driving the oil out to be retrieved.

Cleanup

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04351.

C-362-74
SUPPORT SYSTEMS TO DELIVER AND MAINTAIN OIL RECOVERY SYSTEMS AND DISPOSE OF RECOVERED OIL

Kim, B. C., H. Carlton, T. J. Cooke, J. H. Hancock, and R. A. Mendelson. 1973.
USCG-D-56-74. Contract DOT-CG-23223-A. 256 p.

Three oil spill-related problems were investigated: determination of optimum transfer systems for oil recovery; determination of oil tanker traffic in coastal and open waters in order to establish future oil cleanup systems requirements; and the study of techniques for the ultimate disposal of recovered oil.

Citation Source: Government Reports Announcements. 1974. 74(14). Entry #AD-778 941/5GA.

C-363-74
ENROLLMENT OF THE MUNICIPAL WATER AUTHORITY OF AMSTERDAM INTO ENVIRONMENTAL CONTROL

Ligthart, H. M. 1973.
Gemeentewerken 2(4):80-82.

The primary ways by which polluting oil enters the city canals and decorative waters of Amsterdam are described. Oil removal methods used in these waters include emulsification by means of emulsifier Finasol S.C., absorption using a very light volcanic substance, Ekoperl, and sucking away of oil using a self leveling unit, the SLURP device (developed by Esso Research).

Citation Source: Environmental Health and Pollution Control. 1974. 5(10). Entry #3786.

C-364-74
DECONTAMINATION OF SEWAGE AND SURFACE WATERS BY SYNTHETIC DETERGENTS AND RECOVERY OF OIL RESIDUES

Marino, G. 1973.
Igiene Moderna 66(6):587-594.

Discussed are the major causes for the inefficient removal of oils and surfactants by activated carbon filters.

Citation Source: Chemical Abstracts. 1974. 81(14). Entry #82063g.

C365-74
STATE OF MARYLAND WASTE OIL RECOVERY AND REUSE PROGRAM

Martin, E. J., and G. D. Gumtz. 1974.
Environmental Protection Agency, Technology Series Report EPA 670/2-74-013. 248p.

The report presented is a supplement to the 1971 study conducted by the Maryland Environmental Service and Department of Health and Mental Hygiene, bringing to view the problem of waste oil discharges in state waters. The report recommends waste oil collection, storage and reprocessing programs to prevent further oil pollution and promote resource recovery in Maryland.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10539.

C-366-74
EVALUATION OF CONCEPTS FOR SEPARATING OIL FROM WATER DISCHARGED FROM SHIPS

McKay, W. C. 1973.
NTIS Report AD-770 436/5WP. 121 p.

Eight unique systems used to separate oil from water discharged from ships are evaluated.

Citation Source: Environment Abstracts. 1974. 4(7,8). Entry #12-74-06762.

C-367-74
IMPROVEMENT OF COALESCENCE CONDITIONS OF OILFIELD EMULSIONS

Meijs, F. H., and R. W. Mitchell. 1974.
Journal Petroleum Technology (May):563-570.

Improvements in the area of oil emulsion-coalescence are discussed. The studies are aimed at dehydrating crude oil emulsions, and deoiling dehydration effluents which result in improved environmental effects.

Citation Source: Chemical Abstracts. 1974. 81(18). Entry #108189e.

C-368-74
DEVELOPMENT AND PRELIMINARY DESIGN OF A SORBENT-OIL RECOVERY SYSTEM

Miller, E., L. Stephens, and J. Ricklis. 1973.
Government Reports Announcements 73(17):122.

The preliminary designs of a Sorbent Oil Recovery System are presented, including descriptions of system components, operating instructions and costs. The system is able to recover about 90% of the oil in a 1.5 mm slick, retrieved oil having a water content <10%.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04347.

C-369-74
TEST AND EVALUATION OF OIL POLLUTION ABATEMENT DEVICES FOR SHIPBOARD USE, PHASE 3

Norton, L. B. 1973.
Final Report. NTIS AD-762488. 16 p.

A filter coalescer system to separate oily water was tested for bilge and ballast mixtures by the United States Coast Guard. Most emulsions were separated satisfactorily.

Citation Source: Selected Water Resources Abstracts. 1974. 7(18). Entry #W74-09321.

C-370-74
WASTE PAPER USED FOR THE CLEANUP OF OIL SPILLS

Oesterling, J. F., and L. A. Spano. 1973.
Science 181(4101):775.

A method has been developed to remove oil from a body of water by dispersing fiberized paper of a specific fragment size over the oil layer. The paper can collect >27 times its weight and acts as an oil-fibrous agglomerate which can be easily skimmed and recovered.

Cleanup

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04198.

C-371-74
VACUUM DESORPTION CONCEPT FOR REMOVING OIL FROM WATER

Pomonik, G. M. 1973.
Government Reports Announcements 73(18):102.

A prototype model of an oil-water separator to remove oil from bilge and ballast water aboard ships was developed. Gas is desorbed from the water by a vacuum and the resulting formation of bubbles aids in the separation process. Further testing of the system with different oils and input conditions is planned.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04357.

C-372-74
SEPARATION AND RECOVERY SYSTEMS, INC., 100-GALLON-PER-MINUTE OIL/WATER SEPARATOR

Russell, E. C. 1973.
Government Reports Announcements 73(18):102.

A 100-gpm oil-water separation system is evaluated as a shipboard oil pollution control device.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04355.

C-373-74
OIL/SORBENT HARVESTING SYSTEM FOR USE ON VESSELS OF OPPORTUNITY

Sartor, J. D., C. R. Foget, and R. W. Castle. 1973. Government Reports Announcements 73(17):123.

An oil/sorbent harvesting system for recovery of mixtures of oil and sorbent materials was developed and evaluated in San Francisco Bay and Coal Oil Point, California. The system was successful in recovering sorbents (straw and polyurethane foam) that were dispersed over natural oil slicks.

Cleanup

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04353.

C-374-74
PLANNING-EQUIPMENT AND TRAINING FOR OIL POLLUTION CONTROL

Smith, M. F., and P. Lane. 1973. Review Edition, Westport, Connecticut: Slickbar.

A technical guide is presented with information for planning ahead and recovering oil spills. Oil spill characteristics are discussed along with procedures for using such spill-related equipment as oil booms, absorbents, dispersants, herders and sinking agents.

Containment
Cleanup

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04193.

C-375-74
PURIFICATION OF PETROLEUM REFINERY WASTE WATERS STUDIED BY THE REAGENT PRESSURE FLOTATION METHOD

Sokolov, V. P., and Z. I. Pustoselova. 1974. Neftepererab Neftekhim 2:11-13.

Maximum effectiveness in decreasing the content of petroleum products in purified effluents is described.

Citation Source: Chemical Abstracts. 1974. 81(10). Entry #54016a.

C-376-74
TREATMENT OF WASTEWATER CONTAINING OIL

Takahashi, S., and K. Miyata. 1974.
Junkatsu 19(3):222-228.

The paper reviews "separation and removal procedures of free and suspension oils from wastewater."

Citation Source: Chemical Abstracts. 1974. 81(8). Entry #41098d.

C-377-74
SURVEY OF WASTEWATER DISCHARGE: ELMENDORF AFB, ALASKA

Thomas, J. F., and C. F. Pauls. 1974.
Report No. EHL(K)-74-11. 60 p.

After surveying wastewater discharge at Elmendorf AFB for six days in June, 1972, there was visual evidence of oil contaminated waters having entered the storm drainage system and a swampy area where water eventually drains. Recommendations were made regarding the disposal of waste lubricating oils, fuels and solvents.

Citation Source: Government Reports Announcements. 1974. 74(19). Entry #AD-782 480/8GA.

C-378-74
EVALUATION AND DEVELOPMENT OF PHYSICAL-CHEMICAL TECHNIQUES FOR THE SEPARATION OF EMULSIFIED OIL FROM WATER

Wang, L. K., J. Y. Yang, and D. B. Dahm. 1973.
Calspan Corporation, Buffalo. Report 189. 5 p.

Flotation, magnetization, coalescence, chromatography, layer filtration, centrifugation, and biological oxidation are among the physical-chemical processes reviewed for oil-water separation. The most effective methods for removing oil are outlined.

Citation Source: Oceanic Abstracts. 1974. 11(5). Entry #74-04650.

C-379-74
WASTE LUBRICATION OIL RESEARCH: SOME INNOVATIVE APPROACHES TO RECLAIMING USED CRANKCASE OIL

Whisman, M. C., et al. 1974.
USBM Report RI-7925. 20 p.

Techniques including vacuum distillation and solvent treatment are evaluated in respect to their effectiveness in reclaiming used lubricating oil.

Citation Source: Environment Abstracts. 1974. 4(9). Entry #03-74-07391.

C-380-74
SOURCES OF OIL AND WATER IN BILGES OF GREAT LAKES SHIPS

Woodward, J. B. 1974.
Environmental Protection Agency, Cincinnati, Ohio, Technology Series Report EPA-670/2-74-054. 33 p.

"Sources of bilge water and oil in bilgewater were investigated aboard ships of the Cleveland Cliffs Iron Company. It was concluded that by diverting water that contributes to the bilges, separation, storage, and disposal of oil wastes are facilitiated."

Citation Source: Selected Water Resources Abstracts. 1974. 7(19). Entry #W74-10191.

C-381-74
FACILITIES IN PORTS FOR THE RECEPTION OF OIL RESIDUES

Anonymous. 1973.
London: Inter-Governmental Maritime Consultative Organization. 145 p.

Data have been gathered from twenty-four countries on the stationary and mobile oil facilities existing in ports for the reception of oil residues.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04550.

C-382-74
APPLYING OCEAN RESEARCH TO ENVIRONMENTAL MONITORING

Covey, S. W. 1974.
Sea Technology 15(3):22-25.

EG&G Environmental Equipment Division is studying the environmental effects of operations such as sewage treatment, offshore drilling and other offshore activities, utilizing equipment the company has designed and developed for research in these areas.

Citation Source: Environment Abstracts. 1974. 4(7,8). Entry #12-74-06726.

C-383-74
OIL SPILLS, HAZARDOUS MATERIALS SPILLS, VESSEL PROTECTION AND OCEAN DUMPING

Dewling, R. 1973.
In: American Ordnance Association Proceedings of 3rd Meeting on Environmental Pollution, May 17-18, 1972. Fort McNair, Washington, D. C. p. 99-106.

The programs and research conducted by the Edison Water Quality Laboratory of EPA dealing with oil and other hazardous material spills, and effluent from small recreational watercraft in inland waters and estuaries are described. Techniques for identifying oil, containment, recovery and beach restoration are evaluated.

Cleanup
Analysis

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10772.

C-384-74
DYE AND DROGUE STUDIES OF SPOIL DISPOSAL AND OIL DISPERSION

Klemas, V., D. Maurer, W. Leatham, P. Kinner, and W. Treasure. 1974.
Journal of the Water Pollution Control Federation 46(8): 2026-2034.

The authors utilized dyes and drogues to predict short-term dispersion of potential oil spills from a proposed offshore oil terminal in Delaware Bay, and dispersion of spoils from dredging. It was found that surface currents which influence oil movement differed significantly from predicted gross current circulation at the test sites.

Citation Source: The Engineering Index Monthly. 1974. 12(10). Entry #067027.

C-385-74
APPLICATION OF THE CONCEPT OF RECTILINEAR VORTICES TO THE MOVEMENT OF OIL SLICKS

Murty, T. S., and M. L. Khandekar. 1973.
Canada Marine Sciences Directorate. Manuscript Report Series 32. 29 p.

The movement of oil slicks was studied in respect to the concept of rectilinear vortices.

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04264.

C-386-74
PETROLEUM SYSTEMS RELIABILITY ANALYSIS. VOLUME I: ENGINEERING REPORT, A PROGRAM FOR PREVENTION OF OIL SPILLS USING AN ENGINEERING APPROACH TO A STUDY OF OFFSHORE AND ONSHORE CRUDE OIL PETROLEUM SYSTEMS

Ritchie, J. E., et al. 1973.
NTIS Report PB-226 584/1WP. 95 p.

The report is a response to the Federal Water Pollution Control Act Amendment (1972). A study surveyed offshore and onshore oil facilities in United States oil producing areas. Spill records were collected to determine points of spill vulnerability in existing systems, and to formulate spill prevention guidelines applicable to these points.

Citation Source: Environment Abstracts. 1974. 4(7,8). Entry #12-75-06767.

4. OTHER

C-387-74
DEEPWATER PORTS

Anonymous. 1973.
H.R. Report No. 668, 93rd Congress, 1st Session. 15 p.

The report contends that no evidence exists which indicates that supertankers present a greater risk in causing oil spills than do smaller ships, since the size of a spill is independent of ship size; thus, supporting the construction of deepwater ports which accommodate large cargo carriers.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10877.

C-388-74
PROTECTION AND USE OF THE ISLANDS IN HAURAKI GULF MARITIME PARK

Atkinson, I. A. E. 1973.
New Zealand Ecological Society Proceedings 20:103-114.

The paper discusses the extreme necessity to preserve the outer islands of Hauraki Gulf Maritime Park of New Zealand. Included in the measures suggested to maintain the wildlife areas is a greatly increased penalty for oil spillage.

Citation Source: Biological Abstracts. 1974. 58(6). Entry #31076.

C-389-74
NAVAL ENVIRONMENTAL PROTECTION PROGRAM

D'Emidio, J. A. 1973.
In: American Ordnance Association Proceeding of 3rd Meeting on Environmental Pollution, May 17-18, 1972. Fort McNair, Washington, D. C. p. 66-83.

The Navy's Pollution Abatement Program has been concentrated in two main areas where its impact is the greatest: shore facilities and ships. Included in the Navy's pollution abatement program proposal are measures which attack occurrences of harbor spills caused by leaks, overflows, parting of fuel lines during oil transfer and recovering operations, and human error.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10769.

C-390-74
MARITIME ADMINISTRATION POLLUTION ABATEMENT PROGRAM

Dillon, E. S. 1973.
In: American Ordnance Association Proceedings of 3rd Meeting on Environmental Pollution, May 17-18, 1972. Fort McNair, Washington, D. C. p. 85-92.

The paper discusses the lack of satisfactory programs or regulations existing to solve the problem of oily waste and sewage disposal in marine waters. Government groups involved in efforts to solve these major problems are given.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10770.

C-391-74
A THRENODY CONCERNING THE BIODEGRADATION OF OIL IN NATURAL WATERS

Floodgate, G. D. 1973.
Louisiana State University Sea Grant Publication #LSU-SG-73-01. p. 17-24.

The paper represents a plea for greater recognition of the complex oil pollution problem. The need for extensive physical, chemical and biological investigations of areas of oil spills has been emphasized.

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08612.

C-392-74
MARITIME ACCIDENTAL SPILL RISK ANALYSIS. PHASE I: METHODOLOGY DEVELOPMENT AND PLANNING

Fortson, R. M., Jr., E. L. Holmboe, F. B. Brown, J. T. Kirkland, and P. M. Tullier. 1973.
Technical Report 743 for U.S. Coast Guard. DOT-CG-22, 326-A. 71 p.

A task plan is given for assessing alternative methods of reducing the potential risk caused by hazardous spills resulting from vessel collisions and groundings.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10619.

C-393-74
POTENTIAL POLLUTANTS IN FOSSIL FUELS

Magee, E. M., et al. 1973.
NTIS Report PB-225 039/7WP. 292 p.

"The composition of typical U.S. fossil fuels by source location and the extent to which the selection of coals and crude oils by geographic source can be expected to affect their composition in trace elements are surveyed. Good data and useful correlations with source locations are available for a number of potential pollutants, including oil."

Citation Source: Environment Abstracts. 1974. 4(7,8). Entry #12-74-06703.

C-394-74
RESEARCH AND DEVELOPMENT ON PREVENTION OF POLLUTION OF THE SEAS BY OIL AND OTHER POLLUTANTS

Seelinger, J. 1973.
In: American Ordnance Association Proceedings of 3rd Meeting on Environmental Pollution, May 17-18, 1972. Fort McNair, Washington, D. C. p. 117-126.

The Maritime Administration, in its research and development programs, is concerned with ways and means to prevent both accidental and intentional oil discharges on the seas. Current oil discharge laws and activities are summarized and the U.S. position at the Intergovernmental Maritime Consultative Organization Conference on oil discharges is predicted.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10774.

E. EFFECTS OF OIL PROSPECTING AND PRODUCTION

1. BIOLOGICAL EFFECTS

C-395-74
A REPORT-CEQ HEARINGS ON OFFSHORE DRILLING

Feine, P. 1974.
American Gas Association Monthly 56(3):7-11.

The potential environmental impact of outer continental shelf drilling off the Atlantic Coast was the subject of a series of CEQ hearings. There were three areas of comment: development of new energy resources on the Atlantic shelf should not be undertaken, more research and development should be conducted to study the effects of such activities on the marine environment, and that development should begin promptly.

Citation Source: Environment Abstracts. 1974. 4(7,8). Entry #12-74-06719.

2. PHYSICAL EFFECTS

C-396-74
ANOTHER VIEW OF OFFSHORE OIL AND GAS OPERATIONS

National Academy of Sciences. 1974.
Marine Technology Society Journal 8(9):2-12.

The article is comprised of several excerpts from a committee of the National Academy of Sciences on findings about the Council of Environmental Quality report, "OCS Oil and Gas - an Environmental Assessment". In regard to the environment, the committee stresses the fact that present knowledge is inadequate for assessing thoroughly the likely physical and biological consequences of OCS development of the areas in question.

Biological effects of oil production and prospecting

Citation Source: Citation Journal.

3. SOCIAL EFFECTS

C-397-74
THE TRANS-ALASKA PIPELINE. A VICTIM OF CONFLICTING PRIORITIES

Fulmer, W. W. 1973.
Student Essay.

The essay is a study of the clash between proponents of a pipeline to be constructed across Alaska and environmentalists opposing construction. The dissension arose as a result of the petroleum discovery on the North Slope of Alaska in July, 1968.

Citation Source: Government Reports Announcements. 1974. 74(14). Entry #AD-778 916/7GA.

4. GENERAL EFFECTS

C-398-74
(No Title)

Anonymous. 1974.
Ocean Oil Weekly Report 9(4):1.

A two-year study conducted by the Gulf Universities Research Consortium, Galveston, Texas, revealed that offshore drilling and production appear to have no harmful effects on the environment. The project undertook studies into twenty-four biological, physical and chemical aspects of offshore drilling on the Timbalier Bay Estuarine System off Louisiana. In 79% of the investigations, evidence indicated no harmful or a beneficial impact on the environment.

Citation Source: Citation Journal.

C-399-74
(No Title)

Anonymous. 1974.
Ocean Science News 16(46):3.

A report "North Sea Oil & Gas: Impact of Development on the Coastal Zone", has been published and is available from the U.S. Government Printing Office. The National Ocean Policy Study concluded, "one of the most important findings is that the impact from drilling is far more serious to the coastal communities than any damages likely to hit coastal waters and beaches from an oil spill."

Citation Source: Citation Journal.

C-400-74
POTENTIAL ONSHORE EFFECTS OF DEEPWATER OIL TERMINAL-RELATED INDUSTRIAL DEVELOPMENT. VOLUME I: PART ONE. EXECUTIVE SUMMARY

Arthur D. Little, Inc. 1973.
Government Reports Announcements 73(23):29.

The onshore effects of deepwater port development in five potential terminal sites in the U.S. are examined and discussed (Machias, Maine; Sandy Hook, New Jersey; Delaware Bay, New Jersey; Grand Isle, Louisiana; and Freeport, Texas). Included in the discussion are the relative impacts of industrial development,

air and water pollution and land use resulting from deep-water terminal development.

Citation Source: Pollution Abstracts. 1974. 5(6). Entry #74-05876.

C-401-74
POTENTIAL ONSHORE EFFECTS OF DEEPWATER OIL TERMINAL-RELATED INDUSTRIAL DEVELOPMENT. VOLUME II: PART TWO. MID-ATLANTIC REGION. PART THREE. MAINE.

Arthur D. Little, Inc. 1973.
Government Reports Announcements 73(23):29-30.

Two sets of impacts were examined in regard to the establishment of a deepwater terminal near Cape May in southern New Jersey and near Sandy Hook in northern New Jersey. The economic impact of such development was considered and the environmental consequences of deepwater port construction and operation were assessed for a belt of land extending through New Jersey, Pennsylvania and Delaware.

Citation Source: Pollution Abstracts. 1974. 5(6). Entry #74-05877.

C-402-74
POTENTIAL ONSHORE EFFECTS OF DEEPWATER OIL TERMINAL-RELATED INDUSTRIAL DEVELOPMENT. VOLUME III: PART FOUR. GULF COAST REGION

Arthur D. Little, Inc. 1973.
Government Reports Announcements 73(23):30.

The impact of potential deepwater terminals off Grand Isle, Louisiana and Freeport, Texas, was evaluated.

Citation Source: Pollution Abstracts. 1974. 5(6). Entry #74-05878.

C-403-74
POTENTIAL ONSHORE EFFECTS OF DEEPWATER OIL TERMINAL-RELATED INDUSTRIAL DEVELOPMENT. VOLUME IV: PART FIVE. APPENDICES

Arthur D. Little, Inc. 1973.
Government Reports Announcements 73(23):30.

"Information and data pertinent to each study are presented. Topics include the petrochemical industry, U.S. crude oil imports and refining, economic methodology and environmental methodology."

Citation Source: Pollution Abstracts. 1974. 5(6). Entry #74-05879.

C-404-74
COMMUNITY DECISION-MAKING AND ENERGY EXPLORATION: THE PACIFIC PALISADES CONFLICT

Briggs, M. J., and M. L. Moss. 1973.
University of Southern California Sea Grant Program. Publication USC-SG-7-73. 106 p.

The environmental, economic, geological, social, political and legal aspects of a conflict emerging from proposed oil drilling and exploration in the Pacific Palisades area of Los Angeles are examined in detail.

Citation Source: Pollution Abstracts. 1974. 5(6). Entry #74-05478.

C-405-74
THE OIL INDUSTRY

Chandler, G. 1973.
Fuel and the Environment, Conference Proceedings 1:23-40.

The environmental problems associated with petroleum-related activities are reviewed and methods of control and prevention of oil pollution are discussed.

Citation Source: Chemical Abstracts. 1974. 81(18). Entry #108148r.

C-406-74
BURNING WASTE GAS IN OIL FIELDS

Croft, T. A. 1973.
Nature (London) 245(5425):375-376.

When petroleum is extracted from beneath the earth's surface, an abundance of gas is released. The author discusses the implications of waste and pollution resulting from the burning of waste gas in oil fields.

Citation Source: Environmental Health and Pollution Control. 1974. 5(10). Entry #3666.

C-407-74
NEW PETROLEUM REFINERY. ENVIRONMENTAL IMPACT

Cross, F. L., Jr., and J. R. Lawson. 1974.
AIChE Symposium Series 70(136):808-816.

"A multidisciplined approach to an environmental impact study for a refinery is discussed."

Citation Source: Chemical Abstracts. 1974. 81(10). Entry #53955u.

C-408-74
MANY VARIABLES GO INTO PLANNING DEEPWATER TERMINAL

Dudley, R. J., and K. P. Havik. 1974.
Oil and Gas Journal 72(9):53-57.

Discussed are the preliminary studies that must be conducted in planning the operation of a deepwater oil terminal. Aspects which must be considered include location, weather conditions, arrival patterns of ships, cargo types, and the environmental impact.

Citation Source: Environment Abstracts. 1974. 4(10). Entry #12-74-08703.

C-409-74
ENVIRONMENTAL INFLUENCES ON OFFSHORE FACILITIES

Hull, A. R., and T. S. Austin. 1974.
Marine Technology Society Journal 8(4):15-21.

The environmental data needed for the development of offshore facilities such as deepwater ports for supertankers are discussed.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10898.

C-410-74
POLICY FOR LOCATION OF OFFSHORE PORTS AND OIL REFINERIES IN COASTAL AREAS

Leak, R. E., W. S. Gaither, L. S. Amant, and W. D. Welch. 1973.
Report of the Governor's Conference on Marine Resources. p. 35-42.

Viewpoints from a port designer, industrial developer and an environmentalist are given in regard to policy for location of offshore ports and oil refineries in coastal areas.

Citation Source: Selected Water Resources Abstracts. 1974. 7(19). Entry #W74-09995.

C-411-74
A PRELIMINARY ASSESSMENT OF THE ENVIRONMENTAL VULNERABILITY OF MACHIAS BAY, MAINE TO OIL SUPERTANKERS

Moore, S. F., R. L. Dwyer, and A. M. Katz. 1973. Massachusetts Institute of Technology Sea Grant Project Report MITSG 76-6. 162 p.

The environmental impact of construction of a supertanker terminal in Machias Bay, Maine, was assessed. Considered were oil transport and dispersion, spill trajectories and behavior, biological transfers and biological effects on marine organisms.

Citation Source: Selected Water Resources Abstracts. 1974. 5(20). Entry #W74-10656.

C-412-74
INTERNATIONAL SCIENTIFIC CONCERNS IN THE ANTARCTIC: XIII SCAR

Schatz, G. S. 1974.
National Research Council News Report XXIV(7):4-5.

One of the areas of concern of the Scientific Committee on Antarctic Research (SCAR), a nongovernmental coordinating body for Antarctic science, is the impact mineral resources will have on the Antarctic. Information is being assembled by the committee on the possible detrimental environmental effects which might result from exploration or exploitation of Antarctic resources, such as oil.

Citation Source: Citation Journal.

C-413-74
MASSACHUSETTS INSTITUTE OF TECHNOLOGY ANNUAL SEA GRANT LECTURE AND SYMPOSIUM (2ND): WORLD ENERGY AND THE OCEANS; KEY ISSUES IN OFFSHORE OIL, AND INNOVATIONS IN HEAT DISPOSAL IN THE OCEANS.

Shoupp, W. E., et al. 1973.
NTIS Report COM-74-10197/3WP. 48 p.

Included in the three papers presented is the recommendation that efforts be made to locate offshore reserves, and to maximize the use of the oceans fuel resources.

Citation Source: Environment. 1974. 4(7,8).
Entry #12-74-06770.

C-414-74
PROPOSED 1974 OUTER CONTINENTAL SHELF OIL AND GAS GENERAL LEASE SALE, OFFSHORE LOUISIANA. VOLUME I.

USDI, Bureau of Land Management. 1973.
Government Reports Announcements 73(24):176.

Analytical techniques evaluating potential environmental effects were conducted on 215 tracts of outer continental shelf land, scheduled to be sold in spring, 1974, in an effort to measure the environmental impact should oil and gas exploration and production ensue.

Citation Source: Pollution Abstracts. 1974. 5(6).
Entry #74-05507.

C-415-74
PROPOSED 1974 OUTER CONTINENTAL SHELF OIL AND GAS GENERAL LEASE SALE, OFFSHORE LOUISIANA. VOLUME II

USDI, Bureau of Land Management. 1973.
Government Reports Announcements 73(24):176.

Aspects of the proposal to lease 215 tracts of outer continental shelf lands are discussed. Included topics are the adverse environmental effects of such operations, and the irreversible commitment of resources for oil and gas operations.

Citation Source: Pollution Abstracts. 1974. 5(6).
Entry #74-05508.

F. OIL POLLUTION LEGISLATION

1. STATE LEGISLATION

C-416-74
OIL POLLUTION CONTROL

Anonymous. 1973.
North Carolina Stat. Secs. 143-215.75 thru 143-215.82.

The statute's purpose is to protect the land and waters from pollution by oil, oil products and oil by-products. The North Carolina Board of Water and Air Resources will be the responsible body to assure compliance with the statute, making all necessary investigations and inspections to control oil discharges.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10509.

C-417-74
POLLUTION AND OBSTRUCTION OF WATERS

Anonymous. 1973.
New Jersey Stat. Ann. Ch. 23:5-28.

A regulation has been established in New Jersey in which deleterious products such as petroleum shall not be placed in areas where their entrance into the state's fresh or tidal waters is feasible.

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08569.

2. NATIONAL LEGISLATION

C-418-74
ASKEW V. AMERICAN WATERWAYS OPERATORS, INC., REVISITED (commentary)

Anonymous. 1974.
Natural Resources Journal 14:153-156.

The commentary deals with the provisions of the Florida Oil Spill and Pollution Control Act which, in 1973, was made constitutional by the United States Supreme Court. The main objection to the legislation, which led to its unconstitutionality prior to 1973, was that it imposed much stricter standards of liability for oil spills than the Water Quality Improvement Act (an amendment to the Federal Water Pollution Control Act).

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10518.

C-419-74
COAST GUARD, MARITIME COMMISSION AND CEQ OIL POLLUTION RULES

Anonymous. 1974.
Clean Air and Water News 6(42):607-608.

Listed are the oil regulations and their locations in the Pollution Control Guide, a guide which covers the Federal rules dealing with oil pollution prevention and control. Full texts of pertinent regulations issued by the Coast Guard, Federal Maritime Commission and the Council of Environmental Quality are included.

Citation Source: Citation Journal.

C-420-74
OIL POLLUTION ACT AMENDMENTS OF 1973--LEGISLATIVE HISTORY

Anonymous. 1973.
United States Code Congressional and Administrative News. p. 3732-3738.

The 1969 amendment to the 1954 International Convention for the Prevention of Pollution of the Sea by Oil is described. Conditions of oil discharge relating to total quantity and rate of discharge, oil mixture dilution and distance from land are reviewed.

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08567.

C-421-74
OIL POLLUTION PREVENTION--NON-TRANSPORTATION-RELATED ONSHORE AND OFFSHORE FACILITIES--PROPOSED RULES

Anonymous. 1973.
Federal Register 38(138):19334-19339.

The report describes the provision by the Environmental Protection Agency for the preparation of Spill Prevention Control and Countermeasure Plans (SPCC Plans) for owners and operators of onshore-offshore oil facilities.

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08561.

C-422-74
OIL POLLUTION: WHAT'S AVAILABLE TO PREVENT OR CONTROL OIL SPILLS

Anonymous. 1973.
Marine Engineering/Log. 77(6):25-29.

The paper presents existing and proposed legislation pertaining to the prevention of oil discharges. Oil spill control systems such as containment booms, skimmers and oil-water separators are also reviewed.

Containment
Cleanup
Oil recovery and handling techniques

Citation Source: Oceanic Abstracts. 1974. 11(5). Entry #74-04652.

C-423-74
PETROLEUM REFINING POINT SOURCE CATEGORY

Anonymous. 1974.
Federal Register 39(91):16560-16573.

The paper cites regulations from the Federal Water Pollution Control Act which limit toxic substances, including oil and grease, in effluent from cracking, topping, and lubrication processes.

Citation Source: Chemical Abstracts. 1974. 81(8). Entry #41123h.

C-424-74
POLLUTION OF COASTAL AND NAVIGABLE WATERS (CRF title 19, Part 4)

Anonymous. 1973.
Federal Register 38(10):1587.

The regulation requires customs officers to report to the district director discharges of oil into coastal and navigable waters which violate the Water Quality Improvement Act of 1970. The director is required to report such information to the Coast Guard district commander.

Citation Source: Selected Water Resources Abstracts. 1974. 7(16). Entry #W74-08562.

C-425-74
ROLE OF COAST GUARD IN POLLUTION CONTROL

Benkert, W. 1973.
In: American Ordnance Association Proceedings of 3rd Meeting on Environmental Pollution, May 17-18, 1972. Fort McNair, Washington, D. C. p. 93-95.

The duties and responsibilities of the Coast Guard in dealing with oil pollution and its prevention in navigable waters are outlined.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10771.

C-426-74
LIABILITY LIMITS FOR SMALL ONSHORE OIL STORAGE FACILITIES -- PROPOSED RULES

Environmental Protection Agency. 1973.
Federal Register 38(90):12339-12340.

The liability classifications and size limits for small onshore oil storage facilities are outlined, as authorized by the administrator of the EPA.

Citation Source: Selected Water Resources Abstracts. 1974. 7(19). Entry #W74-10063.

C-427-74
OIL POLLUTION PREVENTION: NON-TRANSPORTATION RELATED ONSHORE AND OFFSHORE FACILITIES

Environmental Protection Agency. 1973.
Federal Register 38(237):34163-34170.

The changes made to simplify, clarify or correct deficiencies in the proposed regulations to prevent oil discharges into U.S. navigable waters (unpublished July 19, 1973) are presented.

Citation Source: Pollution Abstracts. 1974. 5(5).
Entry #74-04435.

C-428-74
PETROLEUM REFINING POINT SOURCE CATEGORY: EFFLUENT LIMITATION GUIDELINES AND NEW SOURCE STANDARDS

Environmental Protection Agency. 1973.
Federal Register 38(240):34541-34558.

EPA has proposed effluent limitations guidelines for the petroleum refining industry for present point sources and performance and pretreatment standards for new point sources. An explanation for the proposed guidelines is included.

Citation Source: Pollution Abstracts. 1974. 5(5).
Entry #74-04437.

C-429-74
CLEANUP DOWN BY THE OLD MILL STREAM

Josephson, J. 1974.
Environmental Science and Technology 8(4):314-315.

Included is the discussion of EPA effluent guidelines and criteria for the petroleum refining industry; the need for better industry-government communication and cooperation is described.

Citation Source: Pollution Abstracts. 1974. 5(5).
Entry #74-04478.

C-430-74
STATE PROTECTION FROM OIL SPILLS: ASKEW VS AMERICAN WATERWAYS OPERATORS, INC.

Judy, A. D. 1974.
Environmental Law 4(3):433-444.

Described is a recent Supreme Court decision which protected the interests of the states from damage or injury by oil spills occurring within territorial waters. Conflicts between State and Federal oil spill and discharge regulations are analyzed.

Citation Source: Environment. 1974. 4(9). Entry #12-74-07635.

C-431-74
ENVIRONMENTAL PROTECTION IN OFFSHORE PETROLEUM OPERATIONS

McKelvey, V. E. 1973.
Ocean Management 1(1):119-127.

The United States Geological Survey has devised a number of safety systems to prevent accidents from occurring in offshore petroleum operations. The survey is responsible for insuring that such operations are conducted safely and it has the legal power to enforce these regulations and develop inspection systems so as to protect the offshore environment.

Citation Source: Pollution Abstracts. 1974. 5(6). Entry #74-05218.

C-432-74
PETROLEUM SYSTEMS RELIABILITY ANALYSIS, A PROGRAM FOR PREVENTION OF OIL SPILLS USING AN ENGINEERING APPROACH TO A STUDY OF OFFSHORE AND ONSHORE CRUDE OIL PETROLEUM SYSTEMS, VOLUME II - APPENDICES

Ritchie, J. E., Jr., F. J. Allen, Jr., R. M. Fettes, R. Q. Foote, and W. A. Shortt. 1973.
Environmental Protection Agency, Report EPA-R2-73-280b.

By examining causes of polluting spills from various oil systems, the Environmental Protection Agency is presently considering preparing a set of spill prevention plans to prevent discharges of oil.

Citation Source: Selected Water Resources Abstracts. 1974. 7(15). Entry #W74-07957.

C-433-74
UPDATE-OUTER CONTINENTAL SHELF LEASE MANAGEMENT PROGRAM

Solanas, D. W. 1974.
Journal Petroleum Technology 26(4):388-395.

Government studies and efforts by the petroleum industry to develop standardized methods and regulations concerning offshore safety and pollution control are discussed.

Citation Source: Environment. 1974. 4(7,8).
Entry #12-74-06732.

C-434-74
STEMMING HAZARDOUS SPILLS

Weismantel, G. E. 1974.
Chemical Engineering 81(11):56-58.

The article discusses the legislation which was effective October 18, 1974, increasing the penalty for hazardous chemical spills from $50,000 to $5 million. Spill prevention and contingency planning topics discussed at the 1974 conference on the Control of Hazardous Material Spills are included.

Citation Source: Citation Journal.

3. INTERNATIONAL LEGISLATION

C-435-74
A BILL TO AMEND THE OIL POLLUTION ACT, 1961 (75 Stat. 402), AS AMENDED TO IMPLEMENT THE 1969 AND 1971 AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE PREVENTION OF THE POLLUTION OF THE SEA BY OIL, 1954, AS AMENDED; AND FOR OTHER PURPOSES

Anonymous. 1973.
House Bill 5451, 93rd Congress, 1st Session. 13 p.

The provisions of the Oil Pollution Act Amendments of 1973 are outlined.

Citation Source: Selected Water Resources Abstracts. 1974. 7(18). Entry #W74-09312.

C-436-74
AMENDMENT TO THE OIL POLLUTION ACT, 1961 (15 Stat. 402), (Final Environmental Impact Statement)

Anonymous. 1973.
NTIS EIS-AA-73-0703-F. 63 p.

The provisions and probable impact of the Amendment to the Oil Pollution Act of 1961 are presented. The Amendment calls for stronger penalties and oil record book requirements, and stricter oil discharge provisions than the 1969 legislation.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10708.

C-437-74
INTERNATIONAL CAMPAIGN PROGRAM AGAINST POLLUTION OF THE SEAS

Anonymous. 1973.
Options. Mediterran. 19:89-91.

International legislation to control and regulate marine pollution is reviewed; included is the anti-pollution report by the French Ministry for the Protection of Nature and the Environment. The discharge of hydrocarbon products is one of the major marine pollutant problems considered.

Citation Source: Environmental Health and Pollution Control. 1974. 5(8). Entry #2886.

C-438-74
OFFSHORE DEVELOPMENT AND MARINE POLLUTION

Hardy, M. 1973.
Ocean Development and International Law 1(3):239.

The paper, prepared for a regional conference on the African petroleum industry, discusses types and causes of marine pollution, national legislation and measures adopted by several countries and international agencies to control the pollution problem caused by offshore exploitation of minerals.

Citation Source: Environment Abstracts. 1974. 4(10). Entry #12-74-08682.

C-439-74
OIL ON THE SEAS

Livingston, D. 1974.
Environment 16(7):38-43.

The article presents the beneficial aspects and shortcomings of a new document, the Ship Pollution Convention which is awaiting ratification by the world's major shipping powers. The convention is more comprehensive in technical regulations and enforcement procedures of oil pollution prevention than the present Oil Pollution Convention treaty.

Citation Source: Citation Journal.

C-440-74
LAW OF THE SEA: PARTICULAR ASPECTS AFFECTING THE PETROLEUM INDUSTRY

National Petroleum Council, Committee on Petroleum Resources Under the Ocean Floor, and National Petroleum Council, Technical Subcommittee on Petroleum Resources Under the Ocean Floor.

A study was conducted by the National Petroleum Council on oil and gas development on continental margins "in respect to international negotiations being conducted by the UN Seabed Committee preparing for the forthcoming conference on the law of the sea."

Citation Source: Pollution Abstracts. 1974. 5(5). Entry #74-04512.

C-441-74
OIL POLLUTION AS AN INTERNATIONAL PROBLEM: A STUDY OF PUGET SOUND AND THE STRAIT OF GEORGIA

Ross, W. M. 1973.
Seattle: University of Washington Press. 291 p.

State and international laws designed to deal with oil pollution problems are analyzed; particularly as they relate to the Puget Sound and Strait of Georgia. No satisfactory legislation concerning oil pollution control was found and new programs and approaches are proposed to meet the oil pollution program.

Citation Source: Oceanic Abstracts. 1974. 11(5).
Entry #74-04558.

4. FOREIGN LEGISLATION

C-442-74
THE JAPANESE LEGAL APPROACH TO MARINE POLLUTION

Alexander, C. E. 1973.
In: Sea Grant Publication UNC-SG-73-01. p. 209-213.

Discussed is anti-pollution legislation by Japan, including a 1970 law preventing marine pollution by controlling oil and waste discharges into the ocean from ships and offshore facilities.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10702.

C-443-74
OIL REFINING INDUSTRY CONFIDENT IT CAN MEET EFFLUENT STANDARDS

Anonymous. 1973.
Canadian Petroleum 14(11):40-43.

An outline is given of some of the new regulations oil refiners in British Columbia are encountering, and various process modifications adopted by the refiners to comply with the legislation are described.

Citation Source: Environmental Health and Pollution Control. 1974. 5(10). Entry #3649.

C-444-74
SWEDEN: POLLUTION

Anonymous. 1973.
Bulletin of Legal Developments 23:4.

The summary describes a bill published by the Swedish Minister of Justice which deals with liability and compensation for damage caused by oil pollution of the seas.

Citation Source: Oceanic Abstracts. 1974. 11(5). Entry #74-04988.

C-445-74
UNITED KINGDOM: SHIPPING

Anonymous. 1973.
Bulletin of Legal Developments. 22:10.

The effect of the Merchant Shipping Bill, published November, 1973, is to enable the United Kingdom to ratify the International Convention on the Establishment of an International Fund for Oil Pollution Damage, 1971, and to implement 1971 amendments to the International Convention for the Prevention of Pollution of the Sea by Oil.

Citation Source: Oceanic Abstracts. 1974. 11(5).
Entry #74-04986.

G. BIBLIOGRAPHIES

C-446-74
OIL SPILLAGE: A BIBLIOGRAPHY, VOLUME 1

Anonymous. 1973.
U.S. Department of the Interior. Water Resources Scientific Information Center. Bibliography Series WRSIC 73-207. 390 p.

The oil pollution bibliography is based on information from Selected Water Resources Abstracts from February 15, 1973.

Citation Source: Oceanic Abstracts. 1974. 11(5). Entry #74-04601.

C-447-74
DEEPWATER PORTS BIBLIOGRAPHY

Rote, J. W., D. L. Deyes, and L. B. Jack. 1974.
Assembly Select Committee on Deepwater Ports, California Legislature, August, 1974.

A bibliography on deepwater ports has been compiled which contains major sections on oil spills, oil pollution, and oil cleanup. A listing of federal laws relevant to development or operation of deepwater port facilities is included.

Citation Source: J. W. Rote, Assembly Select Committee on Deepwater Ports, Sacramento, California 95814.

SECTION II. CURRENT STATUS OF SOME OF THE RESEARCH PROJECTS AS LISTED IN REPORT I

A. OIL POLLUTION DETECTION AND EVALUATION

1. MONITORING

R-005-74
EVALUATION OF AN INFRARED OIL FILM MONITOR

Principal Investigator: Unknown
Performing Organization: Wright and Wright Environmental Engineering, Newton Centre, Massachusetts 02159
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/72 to 6/73 Funds: $45,687

The research project has been completed and the final report will be published by the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22151.

Publications

EVALUATION OF AN INFRARED OIL FILM MONITOR

(Author Unknown). 1974.
IOC/WMO Marine Pollution Monitoring Symposium, May 13-17, 1974, National Bureau of Standards, Gaithersburg, Maryland (summary to be included in Proceedings due to be published in January, 1974).

Summary not available.

EVALUATION OF AN INFRARED OIL FILM MONITOR

(Author Unknown). 1974.
Marine Technology Society National Conference, September 23-26, 1974, Washington, D. C. (report to be published in MTS Journal in January, 1974).

Summary not available.

Information Source: J. A. Wright, Wright and Wright Environmental Engineering, Newton Centre, Massachusetts 02159.

R-006-74
IN-SITU DETECTION OF OIL SLICKS UTILIZING DIFFERENTIAL EVAPORATION

Principal Investigator: Unknown
Performing Organization: Environmental Research Institute, Ann Arbor, Michigan 48107
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: Unknown

The project has been completed with the publication of the Phase II report. Reports are available through the National Technical Information Service.

Reports

IN-SITU DETECTION OF OIL SLICKS UTILIZING DIFFERENTIAL EVAPORATION: PHASE I FEASIBILITY STUDY

Horvath, R., E. F. Lirette, and D. M. Zuk. 1974. Technical report to supporting agency - January, 1974.

An empirical-analytical investigation to determine the feasibility of applying an evaporative technique to in-situ detection of oil slicks is described.

IN-SITU DETECTION OF OIL SLICKS UTILIZING DIFFERENTIAL EVAPORATION: PHASE II SYSTEM DESIGN

Horvath, R., E. F. Lirette, and D. M. Zuk, 1974. Technical report to supporting agency - March, 1974.

The system design of an in-situ oil slick sensor is described.

Information Source: R. Horvath, Environmental Research Institute of Michigan, P.O. Box 618, Ann Arbor, Michigan 48107

R-008-74
SHIPBOARD WASTEWATER OIL DETECTOR

Principal Investigator: Unknown
Performing Organization: General Electric Company, Philadelphia, Pennsylvania 19123
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: Unknown

The project was completed in August, 1974, and the final contract report (Task No. 4305.5/3) entitled "Shipboard Oil-in-water Content Monitor Based on Small Angle Forward Light Scattering" is available through the National Technical Information Service.

Information Source: F. B. Waechter, General Electric Company, P.O. Box 8418, Philadelphia, Pennsylvania 19101

R-012-74
AIRBORNE OIL SURVEILLANCE SYSTEM/AOSS

Principal Investigator: Unknown
Performing Organization: Aerojet General Corporation, El Monte, California 91734
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: $370,367

Flight evaluation of the system has recently been completed and the data report based upon the flight test results is being prepared. A technical paper on flight evaluation of the system has been submitted to the forthcoming Conference on Prevention and Control of Oil Pollution.

Reports

A MULTISENSOR SYSTEM FOR AIRBORNE SURVEILLANCE OF OIL POLLUTION

Edgerton, A. T., R. Ketchal, and C. Catoe. 1973. Society of Photo-Optical Instrumentation Engineers 16th Annual Technical Meeting and Equipment Display, 16-18 October, 1973. San Francisco, California. 11 p.

A prototype Airborne Oil Surveillance System (AOSS) is being developed which utilizes an x-band side-looking radar system, a 37-GHz imaging microwave radiometer, a multichannel line scanner and a multispectral low light level system.

DEVELOPMENT OF A PROTOTYPE AIRBORNE OIL SURVEILLANCE SYSTEM - VOLUME I - SYSTEM DEFINITIONS STUDIES

Aerojet Electrosystems Company, 1973. Department of Transportation, U.S. Coast Guard Office of Research and Development Report No. CG-D-45-74. Work Unit No. 4204.4. 271 p.

Details of the prototype Airborne Oil Surveillance System design are given.

DEVELOPMENT OF A PROTOTYPE AIRBORNE OIL SURVEILLANCE SYSTEM - VOLUME II - DESIGN REPORT

Aerojet Electrosystems Company. 1973. Department of Transportation, U.S. Coast Guard Office of

Research and Development Report No. CG-D-46-74. Work Unit No. 4204.4. 393 p.

Details of the prototype Airborne Oil Surveillance System design are given.

DEVELOPMENT OF A PROTOTYPE AIRBORNE OIL SURVEILLANCE SYSTEM - VOLUME III - SUBSYSTEM SPECIFICATIONS

Aerojet Electrosystems Company. 1973. Department of Transportation, U.S. Coast Guard Office of Research and Development Report No. CG-D-47-74. Work Unit No. 4204.4. 157 p.

Details of the prototype Airborne Oil Surveillance System design are given.

Information Source: A. T. Edgerton, Aerojet Electrosystems Company, Azusa, California 91702

3. SAMPLING

R-017-74
DEVELOPMENT OF A SURFACE FILM OIL SAMPLER CAPABLE OF CONTINUOUS IN-SITU SAMPLING

Principal Investigator: Unknown
Performing Organization: Curtis Levantine and Associates, Tarzana, California 91356
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: Unknown

The Final Report of the project has been completed and submitted to the U.S. Coast Guard.

Information Source: A. D. Le Vantine, Curtis-Le Vantine and Associates, 18225 Rancho St., Tarzana, California 91356

R-018-74
FEASIBILITY STUDY OF A RESEARCH PROGRAM ON THE SOURCE, DEGRADATIVE REMOVAL, AND SECONDARY CONSEQUENCES OF PETROLEUM PRODUCTS IN LAKE WATER

Principal Investigator: Andersen, K. K.
Performing Organization: University of New Hampshire, Water Resources Research Center, Durham, New Hampshire 03824
Supporting Agency: U.S. Department of the Interior, Office of Water Resources Research, No. A-033-NH
Period: 7/73 to 6/74 Funds: $1,200

Reports

A FEASIBILITY STUDY OF A RESEARCH PROGRAM ON THE SOURCE, DEGRADATIVE REMOVAL, AND SECONDARY CONSEQUENCES OF PETROLEUM PRODUCTS IN WATER

Andersen, K. K., P. R. Jones, G. G. Lyle, R. E. Lyle, and C. W. Owens. 1973.
Final Report to supporting agency.

Using gas-liquid chromatograms, gasoline in lab-prepared water-gasoline mixtures were detected down to 1 ppm. Water samples from Lake Pawtuckaway, New Hampshire, when concentrated by a factor of 600, yielded hydrocarbon contaminants in the 1 to 10 ppb range.

Information Source: K. K. Andersen, Department of Chemistry, University of New Hampshire, Durham, New Hampshire 03824

4. ANALYSIS

R-020-74
NAVY ENVIRONMENT--ORGANIC CHEMISTRY OF THE OCEANS AND DETECTION OF HYDROCARBON POLLUTION

Principal Investigator: Blumer, M.
Performing Organization: Woods Hole Oceanographic Institution, Woods Hole, Massachusetts 02543
Supporting Agency: U.S. Department of Defense, Navy. DN 723504 No. N00014-66-C-0241
Period: 7/72 to 6/73 Funds: $56,000

The oil pollution project has been completed. All reports are available through the National Technical Information Service.

Oil-pollution related publications (summaries not available)

OIL POLLUTION OF THE OCEAN

Blumer, M. 1969.
In: Oil on the Sea. D. P. Hoult (ed.). Plenum Press. p. 5-13.

OIL POLLUTION OF THE OCEAN

Blumer, M. 1969.
Oceanus 15:2-7.

OIL CONTAMINATION AND THE LIVING RESOURCES OF THE SEA. A REVIEW

Blumer, M. 1970.
Presented at the FAO Technical Conference on Marine Pollution and Its Effects on Living Resources and Fishing. Rome, December 9-18, 1970.

HYDROCARBON POLLUTION OF EDIBLE SHELLFISH BY AN OIL SPILL

Blumer, M., G. Souza, and J. Sass. 1970.
Marine Biology 5:195-202.

SCIENTIFIC ASPECTS OF THE OIL SPILL PROBLEM

Blumer, M. 1971.
Environmental Affairs 1:54-73.

A SMALL OIL SPILL

Blumer, M., H. L. Sanders, J. F. Grassle, and G. R. Hampson. 1971.
Environment 13:2-12.

ARE SUBMARINE SEEPS A MAJOR SOURCE OF OPEN OCEAN OIL POLLUTION?

Blumer, M. 1972.
Science 176:1257-1258.

INDIGENOUS AND PETROLEUM-DERIVED HYDROCARBONS IN A POLLUTED SEDIMENT

Blumer, M., and J. Sass. 1972.
Marine Pollution Bulletin 3:92-94.

PERSISTENCE AND DEGRADATION OF SPILLED FUEL OIL

Blumer, M., and J. Sass. 1972.
Science 176:1120-1122.

THE WEST FALMOUTH OIL SPILL, DATA AVAILABLE IN NOVEMBER, 1971. II. CHEMISTRY

Blumer, M., and J. Sass. 1972.
Woods Hole Oceanographic Institution Technical Report No. 72-19.

THE ENVIRONMENTAL FATE OF STRANDED CRUDE OIL

Blumer, M., M. Ehrhardt, and J. H. Jones. 1972.
Deep Sea Research (no other information provided)

PETROLEUM

Blumer, M., P. C. Blokker, E. B. Cowell, and D. F. Duckworth. 1972.
In: Manual on Methods of Analysis of Pollutants in the Marine Environment. E. C. Goldberg (ed.). Gordon and Breech.

PETROLEUM HYDROCARBONS IN OYSTERS FROM GALVESTON BAY

Ehrhardt, M. 1972.
Environmental Pollution (no other information provided)

THE SOURCE IDENTIFICATION OF MARINE HYDROCARBONS BY GAS CHROMATOGRAPHY AND SPECTROMETRY

Ehrhardt, M., and M. Blumer. 1972.
Environmental Pollution.

CORRELATION OF OILS AND OIL PRODUCTS BY GAS CHROMATOGRAPHY

Zafiriou, O., M. Blumer, and J. Myers. 1972.
Woods Hole Oceanographic Institution Technical Report, July, 1972. No. 72-55.

Information Source: M. Blumer, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts 02543

R-022-74
ATMOSPHERIC POLLUTANT TRANSPORT AND DEPOSITION ON THE SEA SURFACE

Principal Investigator: Duce, R. A.
Performing Organization: University of Rhode Island, School of Oceanography, Kingston, Rhode Island
Supporting Agency: U.S. National Science Foundation, Division of National and International Progress, GX-33777 A2
Period: 2/74 to 1/75 Funds: $11,600

Reports and Publications

SOLUBILIZATION OF HYDROCARBONS BY THE DISSOLVED ORGANIC MATTER IN SEAWATER

Boehm, P. D., and J. G. Quinn. 1973.
Geochimica et Cosmochimica Acta 37:2459-2477.

Using natural water samples and lab-prepared fulvic acid/saline water solutions, it was found that n-alkane and isoprenoid water solubilities were directly related to amounts of dissolved organic matter (D.O.M.) in the water. Aromatic hydrocarbon water solubility was unaffected by D.O.M.

ENRICHMENT OF HEAVY METALS AND ORGANIC COMPOUNDS IN THE SURFACE MICROLAYER OF NARRAGANSETT BAY, RHODE ISLAND

Duce, R. A., J. G. Quinn, C. E. Olney, S. R. Piotrowicz, B. J. Ray, and T. L. Wade. 1972.
Science 176:161-163.

Investigations of the surface microlayer (100 to 150 micrometers) indicate that enrichment is 1.5 to 50 times greater for several pollutants, including hydrocarbons, than for water 20 meters below the surface.

RESIDENCE TIME OF NON-METHANE HYDROCARBONS IN THE ATMOSPHERE

Duce, A., G. Quinn, and L. Wade. 1974.
Marine Pollution Bulletin 5(4):59-61.

Data on global hydrocarbon production and concentration in the atmosphere in marine and non-urban areas are reviewed. Atmospheric residence time of these hydrocarbons is estimated.

INTERCALIBRATION OF ANALYSES OF RECENTLY BIOSYNTHESIZED HYDROCARBONS AND PETROLEUM HYDROCARBONS IN MARINE LIPIDS

Farrington, J. W., J. M. Teal, J. G. Quinn, T. Wade, and K. Burns. 1973.
Bulletin of Environmental Contamination and Toxicology 10(3):129-136.

An intercalibration study was made to determine the accuracy and precision of hydrocarbon analyses being conducted in different laboratories. Analyses from three laboratories indicated agreement in their measurements of petroleum contamination.

ANALYSIS OF HYDROCARBONS IN MARINE ORGANISMS: RESULTS OF IDOE INTERCALIBRATION EXERCISES

Farrington, J. W., J. M. Teal, J. G. Quinn, P. L. Parker, K. Winters, T. L. Wade, and K. Burns. 1974.
Woods Hole Oceanographic Institution Technical Report WHOI-74-61.

An assessment of precision and accuracy of analyses measuring hydrocarbons in marine organisms was conducted in this intercalibration exercise.

HYDROCARBON ANALYSES OF IDOE INTERCALIBRATION SAMPLES OF COD LIVER OIL AND TUNA MEAL

Quinn, J. G., and T. L. Wade. 1974.
University of Rhode Island Graduate School of Oceanography, Marine Memorandum Series No. 33.

Baseline pollutant studies of hydrocarbons included testing cod liver oil containing crude oil and testing a sample of tuna meal. Different hydrocarbon analyses were used and each is discussed.

Information Source: R. A. Duce, Graduate School of Oceanography, University of Rhode Island, Kingston, Rhode Island 02881.

R-024-74
SHIP OPERATION SUPPORT

Principal Investigator: Geyer, R. A.
Performing Organization: Texas A & M University System, School of Geosciences, College Station, Texas 77843
Supporting Agency: U.S. National Science Foundation, Division of National and International Progress, No. GD-31790
Period: 12/73 to 11/74 Funds: $125,000

The project is in progress at present.

Reports

NATURAL HYDROCARBON SEEPAGE IN THE GULF OF MEXICO

Geyer, R. A., and W. E. Sweet, Jr. 1972.
Preprint prepared for the Society of Petroleum Engineers of AIME on Environmental Quality, Lafayette, Louisiana, November 13 to 14, 1972.

A current study was initiated to determine the circulation patterns of the hydrocarbons along the continental shelf in the Gulf of Mexico. The impact upon the environment is studied.

NATURAL HYDROCARBON SEEPAGE IN THE GULF OF MEXICO

Geyer, R. A., and W. M. Sweet, Jr. 1973.
Transactions Gulf Coast Association of Geological Societies, 23rd Annual Convention, October 24-26, 1973. p. 158-169.

Hydrocarbon seep sites in the Gulf of Mexico have been studied geologically and geophysically, and pertinent chemical, biological and physical oceanographic characteristics have been determined and outlined.

MARINE ACOUSTICAL HYDROCARBON DETECTION

Sweet, W. E., Jr. 1973.
Preprint prepared for the Fifth Annual Conference, Houston, Texas. April 29-May 2, 1973. Paper No. OTC 1803.

The relationship between marine hydrocarbon seepage, subsurface structure and bottom topography is presented.

TAR BALLS IN THE SEA: A NEW SOURCE CONCEPT

Sweet, W. E., Jr. 1974.
Preprint prepared for the Sixth Annual Offshore Technology Conference, Houston, Texas, May 6-8, 1974.

Tar balls have been reported from most of the world's oceans. The author contends that natural seepage could account for a major portion of the tar balls found in the sea.

MARINE ACOUSTICAL SEEP DETECTION

Sweet, W. E., Jr. 1974.
The American Association of Petroleum Geologists Bulletin 58(6):113-1136.

Hydrocarbon seeps can be detected and pinpointed with the use of high-resolution subbottom profiles. The detection of gas bubbles is useful in hydrocarbon exploration and gas leak detection.

Information Source: W. E. Sweet, Jr., Texas A & M University, College of Geosciences, College Station, Texas 77843.

R-025-74
INPUT AND LOSS OF PETROLEUM AND CHLORINATED HYDROCARBONS TO THE DEEP NORTH ATLANTIC OCEAN

Principal Investigator: Harvey, G. R.

Performing Organization: Woods Hole Oceanographic Institution, Woods Hole, Massachusetts 02543
Supporting Agency: U.S. National Science Foundation, Division of National and International Progress, No. GX-35212A1
Period: 7/73 to 6/74 Funds: $70,150

Reports and Publications

INPUT AND LOSS OF PETROLEUM AND CHLORINATED HYDROCARBONS TO THE DEEP NORTH ATLANTIC OCEAN

Harvey, G. R., J. W. Farrington, and J. M. Teal. 1974. Progress report to the National Science Foundation, Office for the International Decade of Ocean Exploration covering period 15 July 1973 to 31 October 1974.

Progress has been made toward the understanding of the transport of continental pollutants to the deep sea by sinking processes. Nearshore, slope and deep sea sediments have been analyzed for hydrocarbons, and a collection of abyssal plain benthos has been made and will be analyzed.

ANALYSIS OF HYDROCARBONS IN MARINE ORGANISMS, RESULTS OF IDOE INTERCALIBRATION EXERCISES

Farrington, J. W., J. M. Teal, J. G. Quinn, P. L. Parker, K. Winters, T. L. Wade, and K. Burns. 1974. Proceedings of the Marine Pollution Monitoring (Petroleum) Symposium and Workshop, May 13-17, 1974.

For summary see Reports and Publications, R-22-74.

HYDROCARBONS IN THE MARINE ENVIRONMENT

Farrington, J. W., and P. A. Meyers. 1974. In: Environmental Organic Chemistry of Oceans, Fjords and Anoxic Basins. G. Eglinton (ed.). Volume I of Environmental Chemistry, Special Report No. 35. The Chemical Society, London (in press).

Summary not available.

SOME PROBLEMS ASSOCIATED WITH THE COLLECTION OF MARINE SAMPLES AND ANALYSIS OF HYDROCARBONS

Farrington, J. W. 1974. Proceedings of Conference/Workshop on Marine Environmental Implication of Offshore Drilling in the Eastern Gulf of

Mexico. University of South Florida, St. Petersburg, Florida. R. E. Smith (ed.). (Available from State University of Florida Institute of Oceanography, St. Petersburg, Florida. p. 269-278.

Summary not available.

IDOE-5 INTERCALIBRATION SAMPLE: RESULTS OF ANALYSIS AFTER SIXTEEN MONTHS STORAGE

Medeiros, G. C., and J. W. Farrington. 1974. Proceedings of the Marine Pollution Monitoring (Petroleum) Symposium and Workshop, May 13-17, 1974.

Summary not available.

Information Source: G. R. Harvey, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts 02543.

R-033-74
MARINE ENVIRONMENT PETROLEUM SENSORS

Principal Investigator: Unknown
Performing Organization: Stanford Research Institute, Menlo Park, California 94025
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: Unknown

The project is in progress at present and status reports will be forthcoming as progress is achieved. The reports will be available from the U.S. Department of Transportation, Coast Guard.

Reports

IDENTIFICATION OF MINERAL OILS BY FIELD IONIZATION MASS SPECTROMETRY

Anbar, M., M. E. Scolnick, and A. C. Scott. 1974. Proceedings of the Marine Pollution Monitoring Symposium, Gaithersburg, Maryland, May, 1974.

Field ionization mass spectrometry is used for qualitative analysis of oil samples in order to develop a "fingerprint" method for identifying the origin of oil spills.

Information Source: J. A. Eikelman, Jr., Stanford Research Institute, Menlo Park, California 94025

R-034-74
STUDY OF THE CHEMICAL AND PHYSICAL CHARACTERIZATION OF TAR SAMPLES FOUND IN THE MARINE ENVIRONMENT

Principal Investigator: Unknown
Performing Organization: Shell Oil Company, Houston, Texas
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: Unknown

The Coast Guard sponsored project has been completed and the Final Report (Department of Transportation, U.S. Coast Guard, No. S-14133) is available by contacting the National Technical Information Service.

Information Source: G. Edwards, Shell Development Co., 3737 Bellaire Blvd., Houston, Texas 77025

R-035-74
WEATHERING OF OIL AT SEA

Principal Investigator: Unknown
Performing Organization: Esso Research and Engineering Co., Linden, New Jersey 07036
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: Unknown

Reports

FACTORS GOVERNING THE FATE OF OIL AT SEA; VARIATIONS IN THE AMOUNTS AND TYPES OF DISSOLVED OR DISPERSED MATERIALS DURING THE WEATHERING PROCESS

Frankenfeld, J. W. 1973.
Proceedings, Joint Conference for Prevention and Control of Oil Spills, Washington, D. C. p. 485-495.

Investigations have been conducted on some of the factors influencing the amounts and types of compounds found in the water extracts from several crude and refined oils. Effects of oxidation and the characteristics of the original oil appear to be the most important factors.

IDENTIFICATION OF WEATHERED OIL FILMS FOUND IN THE MARINE ENVIRONMENT

Frankenfeld, J. W., and W. Schulz. 1974.
Final Report to Department of Transportation, Coast Guard.

Summary not available.

Information Source: J. W. Frankenfeld, Exxon Research and Engineering Company, P.O. Box 8, Linden, New Jersey 07036.

B. OIL POLLUTION CONTROL

1. CONTAINMENT

R-042-74
EFFECTS OF CURRENTS AND WAVES ON FLOATING OIL SLICKS RETAINED BY A BARRIER

Principal Investigator: Unknown
Performing Organization: Texas A & M University System, Graduate School, College Station, Texas 77843
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: Unknown

The project has been completed and a final report was submitted to the U.S. Coast Guard in April, 1974.

Reports (summaries not available)

AN INVESTIGATION OF THE EFFECTS OF CURRENTS ON AN OIL SLICK RETAINED BY A PHYSICAL BARRIER

Agrawal, R. K. 1973.
Ph.D. Dissertation, Texas A & M University. August, 1973.

A NEW CRITERION FOR PREDICTING HEADWAVE INSTABILITY OF AN OIL SLICK RETAINED BY A BARRIER

Agrawal, R. K., and L. A. Hale. 1974.
Offshore Technology Conference Paper No. OTC 1983, Houston, May, 1974.

THE ENTRAINMENT OF OIL DROPLETS IN FLOW BENEATH AN OIL SLICK

Chao, C. H. 1973.
M.S. Thesis, Texas A & M University. August, 1973.

HYDRODYNAMIC EFFECTS OF OIL SLICK MECHANICAL CONTROL DEVICES

Hale, L. A. 1974.
Interim Technical Report, Report No. CG-D-64-74, U.S. Coast Guard.

THE EFFECTS OF CURRENTS AND WAVES ON AN OIL SLICK RETAINED BY A BARRIER

Hale, L. A., D. J. Norton, and C. A. Rodenberger. 1974. Final Report, Contract DOT-CG-23357A, U.S. Coast Guard.

AN INVESTIGATION OF THE EFFECTS OF PROGRESSIVE WAVES ON AN OIL SLICK RETAINED BY AN ABSORBER BEACH

(Author unknown). 1973. M.S. Thesis, Texas A & M University.

Information Source: L. A. Hale, College of Engineering, Texas A & M University , College Station, Texas 77843

R-045-74
OIL CONTAINMENT SYSTEM

Principal Investigator: Unknown
Performing Organization: Texas A & M University System, Graduate School, College Station, Texas 77843
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: $12,600

Two final reports resulted from the project and have been submitted to the U.S. Coast Guard.

Reports and Publications (summaries not available)

PNEUMATIC BARRIERS FOR OIL CONTAINMENT UNDER WIND, WAVE, AND CURRENT CONDITIONS

Basco, D. R. 1971. Proceedings, Joint Conference on Prevention and Control of Oil Spills. p. 381-391.

MATHEMATICAL MODEL OF THE TEXAS A & M LOW TENSION OIL CONTAINMENT BARRIER

Fowler, J. R. 1971. Ph.D. Dissertation, Texas A & M University.

A SYSTEMS ENGINEERING SOLUTION TO OPEN-SEA OIL SPILLS

Rodenberger, C. A. 1971. Journal of Hydronautics 5(4):132-139.

TWO DIMENSIONAL WIND SET-UP OF OIL ON WATER

Sorensen, R. M., and E. B. Spencer. 1971.
Proceedings, Waterways, Harbors, and Coastal Engineering Division, ASCE. August. p. 517-530.

HEAVY DUTY OIL CONTAINMENT SYSTEM-PNEUMATIC BARRIER SYSTEM

Wilson Industries, Inc. 1970.
Final Report, Part 1, Contract DPT-CG-00, 490-A (October).

LIGHT WEIGHT OIL CONTAINMENT SYSTEM-LOW TENSION BARRIER SYSTEM FOR THE UNITED STATES COAST GUARD

Wilson Industries, Inc. 1970.
Final Report, Part 1, Contract DOT-CG-00, 490-A (October).

Information Source: L. A. Hale, College of Engineering, Texas A & M University, College Station, Texas 77843

R-047-74
OIL SPILL CONTAINMENT

Principal Investigator: Unknown
Performing Organization: U.S. Air Force, Flight Training Command, Edwards, California 93523
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/72 to 6/73 Funds: $21,701

The Air Force Flight Test Center at Edwards AFB was involved only in providing aircraft support for the drop tests. Any report resulting from these tests would have been prepared by the U.S. Coast Guard. Information concerning the oil spill containment test can be obtained from: Commander Gary Bush, U.S. Coast Guard/GFCP-2/71, 400 Seventh St. S.W., Washington, D. C. 20590.

Information Source: J. R. Hagan, Captain, U.S. Air Force, BSC, Department of the Air Force, USAF Hospital, Edwards Air Force Base, California 93523.

R-049-74
MECHANICAL CONTROL OF OIL SPILLS UTILIZING A STREAMLINE BOOM

Principal Investigator: Wooten, D.
Performing Organization: Ultrasystems, Incorporated, Newport Beach, California 92660
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development, No. 68-01-0182, 72P19584
Period: 7/73 to 6/74 Funds: Unknown

The contract has been completed and a final report was submitted. A second contract has been provided by the Environmental Protection Agency, and is for the further development of the streamlined oil retention boom. Work was begun in March, 1974, and will progress for eighteen months. No reports have yet been published.

Reports

MECHANICAL CONTROL OF OIL SPILLS UTILIZING A STREAMLINE BOOM

Wooten, D. C. 1972.
Final Report to supporting agency (December, 1972).

Described is a streamlined oil retention boom consisting of a hydrofoil followed by a rigid sump to collect oil during a 2 kt or greater current, or while being towed.

Information Source: B. A. Folsom, Ultrasystems, Incorporated, Newport Beach, California 92660.

2. CLEANUP

R-051-74
DESIGN A MOBILE WASHING SYSTEM

Principal Investigator: Dean, R. C.
Performing Organization: Ecological Research Corporation, Hanover, New Hampshire 03755
Supporting Agency: U.S. Environmental Protection Agency, Office of Water Programs
Period: 7/72 to 6/73 Funds: $43,100

The project was terminated in 1972, and a report was issued from the Office of Research and Monitoring in May, 1973.

Reports

DEVELOPMENT OF A MOBILE SYSTEM FOR CLEANING OIL CONTAMINATED BEACHES

Dean, R. C. 1973.
Environmental Protection Agency Report R2-73-233.

The report describes the development and operation of a system for restoring oil contaminated beach sands. The sand washing process has been shown to be capable of removing over 99% of the contaminating oil from simulated beach sand.

Information Source: F. X. Dolan, Creare, Incorporated, Hanover, New Hampshire 03755.

R-052-74
INVESTIGATIONS OF METHODS OF CLEANING OIL-CONTAMINATED BIRDS

Principal Investigator: Ferrel, C. M.
Performing Organization: State Department of Fish and Game, Sacramento, California 95819
Supporting Agency: U.S. Department of the Interior, Bureau of Sport Fishing and Wildlife, Federal Aid Division, No. W-52-R-17-1-5
Period: 7/72 to 6/73 Funds: $2,584

Research efforts on oiled wildlife problems have been completed.

Reports

GUIDELINES FOR CLEANING AND TREATMENT OF OILED BIRDS

State of California - Resources Agency. Department of Fish and Game. 1974.

In: Oil and Hazardous Materials Contingency Plan. p. 40-50.

The initial treatment, cleaning procedure and post cleaning care of oil contaminated birds are described. Organizations to be contacted to coordinate treatment activities are listed.

Information Source: C. M. Ferrel, State of California - Resources Agency, Department of Fish and Game, 987 Jedsmith Dr., Sacramento, California 95819.

C-053-74
SEPARATION OF OIL FROM WASTEWATERS

Principal Investigator: Gloyna, E. F.
Performing Organization: University of Texas, School of Engineering, Austin, Texas 78712
Supporting Agency: University of Texas
Period: 7/73 to 6/74 Funds: Unknown

The project terminated in June of 1972 resulting in a final report of the same title.

Reports

SEPARATION OF OIL FROM WASTEWATERS WITH CRUSHED GRAPHITE ORE

Gloyna, E. F., S. O. Brady, and P. M. Pereda. 1972. Final Report to supporting agency.

The program's objective was to develop a comprehensive evaluation of the filtering capacities of graphite ore. Emphasis was directed toward the development of engineering design data. Special attention was focused on high rate filtration of oily wastewaters.

Information Source: E. F. Gloyna, University of Texas Center for Research in Water Resources, Austin, Texas 78757.

R-055-74
PERFORMANCE TESTING OF PROTOTYPE SYSTEMS AND DEVICES DEVELOPED TO REMOVE AND SEPARATE SPILLED OIL

Principal Investigator: Markel, A., and R. A. Bianchi
Performing Organization: Reynolds International, Richmond, Virginia 23261

Supporting Agency: American Petroleum Institute
Period: 1/73 to 12/73 Funds: $150,000

Research efforts on the oil pollution related project have been completed.

Information Source: A. L. Markel, Reynolds International, Inc., P.O. Box 27002, Richmond, Virginia 23261.

R-056-74
DEVELOPMENT OF CLASSIFICATION SCALE FOR CHARACTERIZING BILGEWATERS USED IN EVALUATING OIL REMOVAL TECHNIQUES

Principal Investigator: Unknown
Performing Organization: General American Transportation Corporation, Chicago, Illinois 60648
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: Unknown

The project was completed, and the final report submitted to the sponsoring agency in January, 1974.

Reports

DEVELOPMENT OF CLASSIFICATION SCALE FOR CHARACTERIZING BILGEWATERS USED IN EVALUATING OIL REMOVAL TECHNIQUES

Budininkas, P., and G. A. Remus. 1974.
Final Report to Department of Transportation, U.S. Coast Guard.

A method for empirically classifying bilgewaters by observing the rate of oil separation from water-oil emulsions was developed. A compact demulsification measurement instrument was constructed and curves plotted for the separation rates of different oils from water-oil emulsions.

Information Source: P. Budininkas, Environmental Controls Systems, General America Transportation Corporation, 7449 North Natchez Ave., Niles, Illinois 60648.

C. EFFECTS OF OIL POLLUTION

1. BIOLOGICAL EFFECTS

R-058-74
NAVY ENVIRONMENT. WORKSHOP ON THE MICROBIAL DEGRADATION OF OIL POLLUTANTS

Principal Investigator: Ahearn, D. G.
Performing Organization: Georgia State University, School of Arts, Atlanta, Georgia 30303
Supporting Agency: U.S. Department of Defense, Navy, DN223668, N00014-73-C-0066
Period: 7/73 to 6/74 Funds: $15,500

Publications

THE MICROBIAL DEGRADATION OF OIL POLLUTANTS

Ahearn, D. G., and S. P. Meyers. 1973. Center for Wetland Resources, Louisiana State University Publication #LSU-SG-73-01. 322 p.

The proceedings of the workshop consist of thirty-two papers which describe research conducted on microbial degradation of oil. Other topics concerning oil-related investigations discussed at the workshop are included.

Information Source: D. G. Ahearn, Georgia State University, 33 Gilmer Street, S.E., Atlanta, Georgia 30303.

R-061-74
CLINICAL STUDY OF TOXICITY TO BIOTA OF OIL IN WATER - PROJECT NO. 05-20C

Principal Investigator: Anderson, J.
Performing Organization: Texas A & M University System, Center for Marine Resources, College Station, Texas 77843
Supporting Agency: American Petroleum Institute
Period: 7/73 to 6/74 Funds: Unknown

Reports and Publications

CLINICAL STUDY OF TOXICITY TO BIOTA OF OIL IN WATER - PROJECT NO. 05-20C

Petrocelli, S. R., J. W. Anderson, W. M. Sackett, B. J. Presley, and C. S. Giam. 1974.

Progress Report prepared for presentation at the IDOE Pollutant Effects Meeting in Sidney, British Columbia, Canada, 11-15 August 1974.

Included in the study is the determination of relative toxicities of various petroleum hydrocarbons, determination of the sensitivities of several test organisms to these compounds, and measurements of physiological parameters as modified by oil pollutants.

THE EFFECTS OF OIL ON ESTUARINE ANIMALS: TOXICITY, UPTAKE AND DEPURATION, RESPIRATION

Anderson, J. W., J. M. Neff, B. A. Cox, H. E. Tatem, and G. M. Hightower. 1973.
Report submitted to the symposium, "Effects of Pollutants on the Physiological Ecology of Estuarine Organisms", University of South Carolina, November, 1973.

The research is concerned with short-term toxicity studies to determine the range of tolerance of organisms to oil, rates of accumulation and release of oil, and to measure the extent and nature of physiological changes of organisms exposed to sublethal oil concentrations.

ACCUMULATION AND RELEASE OF PETROLEUM HYDROCARBONS BY EDIBLE MARINE ANIMALS

Anderson, J. W., and J. M. Neff. 1974.
Report submitted to an international symposium, "Recent Advances in the Assessment of the Health Effects of Environmental Pollution", Paris, June, 1974.

The investigation determined the petroleum hydrocarbon composition of tissues of oil-exposed marine organisms, and the rates of hydrocarbon release of animals that were returned to oil-free seawater. The potential health hazards arising from the consumption of oil-contaminated marine animals are discussed.

SUBLETHAL EFFECTS OF OIL, HEAVY METALS AND PCB'S ON MARINE ORGANISMS

Anderson, J. W., J. M. Neff, and S. R. Petrocelli. 1974.
Report submitted to the symposium, "The Mechanisms of Survival in Toxic Environments", December, 1973. (In press as a symposium volume, 1974).

A review is presented of the research conducted on the sublethal effects of three major pollutant classes commonly found in estuarine environments. Results indicate that levels of petroleum hydrocarbons in animal tissues may act to temporarily alter the regulatory ability of test individuals; the class of hydrocarbons accumulated to the greatest extent and retained the longest in animals being the napthalenes.

CHARACTERISTICS OF DISPERSIONS AND WATER-SOLUBLE EXTRACTS OF CRUDE AND REFINED OILS AND THEIR TOXICITY TO ESTUARINE CRUSTACEANS AND FISH

Anderson, J. W., J. M. Neff, B. A. Cox, H. E. Tatem, and G. M. Hightower. 1974.
Marine Biology 27:75-88.

Studies were conducted on the quantitative hydrocarbon composition and behavior in seawater of water-soluble fractions (WSF) and oil-in-water dispersions (OWD) of two crude and two refined oils. Results showed that the WSF's and OWD's of the refined oils were more toxic to six test species than were those of the crude oils.

Information Source: J. W. Anderson, Department of Biology, Texas A & M University, College Station, Texas 77843.

R-066-74
DEMONSTRATION OF OILY WASTE DISPOSAL BY SOIL CULTIVATION PROCESS

Principal Investigator: Baldwin, B.
Performing Organization: Shell Oil Co., Deer Park, Texas 77536
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development, No. 12050 EZG, 72P21245
Period: 7/73 to 6/74 Funds: Unknown

The project by Shell Oil Company was completed in 1972.

Reports

DEMONSTRATION OF OILY WASTE DISPOSAL BY SOIL CULTIVATION PROCESS

Baldwin, B. 1972.
Environmental Protection Technology Series EPA-R2-72-110.

Oily sludges were decomposed in Deer Park, Texas, soils at the rate of about 0.5 lbs/ft^3/month without fertilizers and about 1.0 lbs/ft^3/month in fertilized soils. Differences were minimal in decomposition rate and microbial species due to hydrocarbon type as present in crude, bunker C, and waxy paraffinate oils.

Information Source: R. V. Mattern, Shell Chemical Company, P.O. Box 2633, Deer Park, Texas 77536

R-067-74
R-068-74
NAVY ENVIRONMENT: BIODEGRADATION OF OIL SLICKS IN THE MARINE ENVIRONMENT

Principal Investigator: Bartha, R.
Performing Organization: Rutgers-The State University, School of Arts, New Brunswick, New Jersey 08903
Supporting Agency: U.S. Department of Defense, Navy, DN023175, N00014-67-A-0115-0005
Period: 7/73 to 6/74 Funds: $17,986

Publications (summaries not available)

BIODEGRADATION OF PETROLEUM BY TWO MARINE BACTERIAL ISOLATES

Atlas, R. M., and R. Bartha. 1971.
162nd A.C.S., National Meeting, Washington, D. C. MICR 21.

BIODEGRADATION OF PETROLEUM IN SEAWATER AT LOW TEMPERATURES

Atlas, R. M., and R. Bartha. 1972.
Canadian Journal of Microbiology 18:1851-1855.

DEGRADATION AND MINERALIZATION OF PETROLEUM IN SEAWATER: LIMITATION BY NITROGEN AND PHOSPHORUS

Atlas, R. M., and R. Bartha. 1972.
Biotechnology and Bionengineering 14:297-308.

LIMITING FACTORS OF OIL BIODEGRADATION IN THE SEA

Atlas, R. M., and R. Bartha. 1972.
Bacteriological Proceedings E13.

ABUNDANCE, DISTRIBUTION, AND OIL DEGRADATION POTENTIAL OF MICROORGANISMS IN RARITAN BAY

Atlas, R. M., and R. Bartha. 1973.
Environmental Pollution 4:291-300.

EFFECTS OF SOME COMMERCIAL OIL HERDERS, DISPERSANTS AND BACTERIAL INOCULA ON BIODEGRADATION

Atlas, R. M., and R. Bartha. 1973.
In: The Microbial Degradation of Oil Pollutants (D. G. Ahearn and S. P. Meyers, eds.), Louisiana State University Publication, Baton Rouge, Louisiana. p. 283-289.

FATE AND EFFECTS OF POLLUTING PETROLEUM IN THE MARINE ENVIRONMENT

Atlas, R. M., and R. Bartha. 1973.
Residue Reviews 49:49-85.

INHIBITION BY FATTY ACIDS OF THE BIODEGRADATION OF PETROLEUM

Atlas, R. M., and R. Bartha. 1973.
Antonie Van Leeuwenhoek 39:257-271.

STIMULATED BIODEGRADATION OF OIL SLICKS USING OLEOPHILIC FERTILIZERS

Atlas, R. M., and R. Bartha. 1973.
Environmental Science and Technology 7:538-541.

BIODEGRADATION OF POLLUTING OIL

Bartha, R., and R. M. Atlas. 1972.
Naval Research Reviews 25(6,7):17-22.

BIODEGRADATION OF OIL IN SEAWATER: LIMITING FACTORS AND ARTIFICIAL STIMULATION

Bartha, R., and R. M. Atlas. 1973.
In: The Microbial Degradation of Oil Pollutants (D. G. Ahearn and S. P. Meyers, eds.), Louisiana State University Publication, Baton Rouge, Louisiana. p. 147-152.

BIODEGRADATION OF SOME POLYNUCLEAR AROMATIC PETROLEUM COMPONENTS BY MARINE BACTERIA

Dean-Raymond, D., and R. Bartha. (In press)
Developments in Industrial Microbiology 16.

PRISTANE: DIAUXIC UTILIZATION AND DEGRADATION PATHWAY BY BREVIBACTERIUM SP.

Pirnik, M. P., R. M. Atlas, and R. Bartha. 1973.
Bacteriological Proceedings. p. 179.

HYDROCARBON METABOLISM BY BREVIBACTERIUM ERYTHROGENES: NORMAL AND BRANCHED ALKANES

Pirnik, M. P., and R. Bartha. 1974.
Journal of Bacteriology 118:868-878.

METABOLISM OF ALKYLNAPTHALENES BY BACTERIA FROM A POLLUTED ESTUARY

Raymond, D. D., and R. Bartha. 1974.
Bacteriological Proceedings. p. 100.

Information Source: R. Bartha, Agricultural Experiment Station, Rutgers-The State University, New Brunswick, New Jersey 08903.

R-069-74
INDUSTRY PEST AND MICROBIOLOGY PROBLEMS

Principal Investigator: Beckman, C.
Performing Organization: University of Rhode Island Agricultural Experiment Station, Kingston, Rhode Island 02881
Supporting Agency: Rhode Island State Government No. 0024708, RI00604
Period: 7/72 to 6/73 Funds: Unknown

The Rhode Island State Government project no longer supports work on oil pollution research, but is continuing to support work on other industrial problems.

Information Source: R. W. Traxler, Plant Pathology - Entomology, University of Rhode Island, Kingston, Rhode Island 02881.

R-074-74
FATE AND EFFECT OF OIL IN THE ENVIRONMENT OF THE COASTAL GULF OF MEXICO

Principal Investigator: Brown, L. R.
Performing Organization: Mississippi State University School of Arts, State College, Mississippi 39762
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development
Period: 7/73 to 6/74 Funds: $97,584

The EPA project will not be completed until 31 August 1975.

Information Source: L. R. Brown, College of Arts and Sciences, Mississippi State University, Mississippi State, Mississippi.

R-078-74
EFFECTS OF VARYING LEVELS OF PETROLEUM ON WILDLIFE AND PLANTS OF LOUISIANA COASTAL MARSHES

Principal Investigator: Chabreck, R. H.
Performing Organization: Louisiana State University, Agricultural Experiment Station, Baton Rouge, Louisiana 70803
Supporting Agency: Louisiana State Government No. 0061671 LAB01594
Period: 7/73 to 6/74 Funds: Unknown

The oil spill project has been completed.

Reports and Publications (summaries not available)

BIRD USAGE OF MARSH PONDS SUBJECTED TO OIL SPILLS

Chabreck, R. H. 1973.
Proceedings. Louisiana Academy of Sciences 36:101-110.

THE EFFECTS OF VARYING LEVELS OF CRUDE OIL ON PLANTS OF THE LOUISIANA COASTAL MARSHES

Gebhart, J. L. 1973.
M.S. Thesis. Louisiana State University, Baton Rouge, Louisiana. 77 p.

THE EFFECTS OF CRUDE OIL ON DISSOLVED OXYGEN LEVELS

Gebhart, J. L., and R. H. Chabreck. 1973. Proceedings. Annual Conference of the Southeastern Association of Game and Fish Commissioners. 4 p.

Information Source: R. H. Chabreck, Department of Forestry and Wildlife Management, Louisiana State University, Baton Rouge, Louisiana 70803.

R-082-74
TOXICITY OF CRUDE OIL AND OIL EMULSIFIERS TO VARIOUS LIFE STAGES OF MARINE ORGANISMS

Principal Investigator: Culley, D. D.
Performing Organization: Louisiana State University, Agricultural Experiment Station, Baton Rouge, Louisiana 70803
Supporting Agency: Louisiana State Government, No. 0031728
Period: 7/72 to 6/73 Funds: Unknown

The oil pollution project has been terminated.

Reports and Publications

TOXICITY OF VARIOUS OFFSHORE CRUDE OILS AND DISPERSANTS TO MARINE AND ESTUARINE SHRIMP

Mills, E. F., and D. O. Culley, Jr. 1971. Proceedings. 25th Annual Conference of the Southeastern Association of Game and Fish Commissioners, October 17-20, 1971, Charleston, South Carolina. p. 642-650.

Results from forty-eight hour bioassays, measuring the acute effects of four crude oils and two oil spill removers on four species of shrimp, showed distinctive differences in toxicity between crude oils from different areas. The oil spill removers were much more toxic than the crude oils, and crude oil and spill removers together had a synergistic toxic effect on the shrimp.

THE EFFECTS OF CRUDE OIL ON THE PALATABILITY OF THREE COMMERCIALLY IMPORTANT CRUSTACEANS OF THE GULF OF MEXICO

Knieper, L. H., and D. D. Culley, Jr.
In review.

In a study which exposed three crustaceans to sublethal concentrations of two crude oils, a triangular taste test

with a panel of judges indicated a significant difference in the effect of the two oils on the taste of each species of shrimp, but not on crabs. The taste of the crabs was the least affected by the oil addition.

Information Source: D. D. Culley, Louisiana State University, Baton Rouge, Louisiana 70803.

R-085-74
THE SEDIMENT ENVIRONMENT OF PORT VALDEZ AND GALENA BAY, ALASKA AND THE EFFECT OF OIL ON THIS ECOSYSTEM

Principal Investigator: Feder, H. M.
Performing Organization: University of Alaska, School of Biological Sciences, College, Alaska 99701
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development, No. 800944
Period: 7/72 to 6/73 Funds: $57,231

The project is an ongoing one with no publications to date. The project is now restricted to studies of Port Valdez. Completion of the final report is expected during the latter half of 1975.

Information Source: H. M. Feder, University of Alaska, Fairbanks, Alaska 99701.

R-089-74
ASSESSMENT OF INTERTIDAL ANIMALS AND PLANTS FOLLOWING CONTAMINATION BY OIL

Principal Investigator: Hand, C.
Performing Organization: University of California, Bodega Marine Laboratory, Bodega Bay, California 94923
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development, No. 15080 HFS
Period: 7/73 to 6/74 Funds: Unknown

The project was completed and the final report submitted in February, 1973. No papers have been published from the study.

Reports

ASSESSMENT OF INTERTIDAL ANIMALS AND PLANTS FOLLOWING CONTAMINATION BY OIL

Hand, C.
Final Report to Environmental Protection Agency.

To determine some effects of the San Francisco oil spill, January, 1971, a study examined the reproductive conditions of four species occupying different positions in the food web in oiled, moderately oiled and unoiled sites from July, 1971 to July, 1972. It was found that reproduction and recruitment of marine invertebrates may be affected by oil pollutants directly through physiological effects or indirectly through food organisms.

Information Source: C. Hand, Bodega Marine Laboratory, P.O. Box 247, Bodega Bay, California 94923.

R-090-74
PHYTOPLANKTON ECOLOGY AT PRUDHOE BAY, ALASKA

Principal Investigator: Horner, R.
Performing Organization: University of Alaska, Institute of Marine Sciences, College, Alaska 99735
Supporting Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Sea Grant Office, No. 1-36109
Period: 9/72 to 8/73 Funds: $19,600

The project has been completed and the final report is available from the University of Alaska Sea Grant Program. The title is "Biology of Plankton in Prudhoe Bay, Alaska, and Surrounding Coastal Waters". The report developed into a baseline study of the phyto- and zooplankton populations in terms of species present, numbers of organisms and productivity.

Information Source: R. A. Horner, 14816 Bothwell Way, N.E., Seattle, Washington 98155.

R-092-74
TOXICITY STUDIES ON STRIPED BASS

Principal Investigator: Hughes, J. S.
Performing Organization: State Wildlife and Fish Commission, New Orleans, Louisiana 70130

Supporting Agency: U.S. Department of the Interior, Bureau of Sport Fishing and Wildlife, Federal Aid Division, No. F-15-6-4
Period: 7/72 to 6/73 Funds: $5,250

Studies on the striped bass have been completed and the final report is being prepared.

Publications

TOXICITY OF SOME CHEMICALS TO STRIPED BASS (ROCCUS SAXATILIS)

Hughes, J. S. 1969.
Proceedings. 22nd Conference of the Southeastern Association of Game and Fish Commissioners. p. 230-234.

Included in the study was the determination of the toxicity of oil field brine, based on chloride content on old striped bass for a period of one month. Results demonstrated that the salts found in oil field brine were less toxic than equivalent amounts of chloride, as constituted from sodium chloride.

Information Source: J. S. Hughes, Louisiana Wildlife and Fisheries Commission, 400 Royal St., New Orleans, Louisiana 70130.

R-095-74
PHYSIOLOGICAL EFFECTS OF THE WATER SOLUBLE HYDROCARBONS ON MARINE INVERTEBRATES

Principal Investigator: Kittredge, J. S.
Performing Organization: University of Texas, School of Medicine, Galveston, Texas 77550
Supporting Agency: U.S. National Science Foundation, Division of National and International Progress, No. GX-37851
Period: 3/73 to 2/74 Funds: $26,800

Reports

BIOASSAYS INDICATIVE OF SOME SUBLETHAL EFFECTS OF OIL POLLUTION

Kittredge, J. S., and F. T. Takahashi. 1974.
Presented to the Tenth Annual Conference of the Marine Technology Society, September 23-25, 1974, Washington, D.C.

Investigations were conducted examining the effects of the water soluble component of crude oils on chemically triggered behavioral responses of crabs. Exposure of crabs to the water-soluble extracts of two crude oils completely inhibited both the "feeding response" and the "mating stance" response of males when presented with a female sex pheromone.

Information Source: J. S. Kittredge, Comparative Marine Biochemistry and Pharmacology, University of Texas Medical Branch, Galveston, Texas 77550

R-099-74
THE IMPACT OF MICROORGANISMS ON OIL

Principal Investigator: Meyers, S. P.
Performing Organization: Louisiana State University, School of Agriculture, Baton Rouge, Louisiana 70803
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development, No. 800993, 92P14726
Period: 7/73 to 6/74 Funds: Unknown

The EPA project has been completed and a final report is presently being prepared.

Publications

THE MICROBIAL DEGRADATION OF OIL POLLUTANTS

Ahearn, D. G., and S. P. Meyers. 1973. Center for Wetland Resources. Louisiana State University Publication #LSU-SG-73-01. 322 p.

For summary see Publications, R-058-74.

Information Source: S. P. Meyers, Food Science Department, Louisiana State University, Baton Rouge, Louisiana 70803.

R-100-74
EFFECTS OF CRUDE OIL ON AQUATIC ORGANISMS OF THE CENTRAL ALASKAN FISHERIES

Principal Investigator: Morrow, J. E.
Performing Organization: University of Alaska, School of Biological Sciences, College, Alaska 99701
Supporting Agency: U.S. Environmental Protection Agency, Office of Water Programs, No. 801039

Period: 7/72 to 6/73 Funds: Unknown

The project was completed in May, 1973, and the final report was published in January, 1974.

Reports and Publications

EFFECTS OF CRUDE OIL AND SOME OF ITS COMPONENTS ON YOUNG COHO AND SOCKEYE SALMON

Morrow, J. E. 1974.
Final Report. Ecological Research Series, EPA-660/3-73-018.

Young coho and sockeye salmon were exposed to different amounts of Prudhoe Bay field crude oil. Fresh oil concentrations of 500 ppm or greater produced significant mortalities. Alteration of cell membrane permeability is regarded as a possible toxic effect of oil.

OIL-INDUCED MORTALITIES IN JUVENILE COHO AND SOCKEYE SALMON

Morrow, J. E. 1973.
Journal of Marine Research 31(3):135-143.

Studies indicated that the mortality of young salmon, when subjected to various concentrations of oil and different water temperatures, increased significantly over control groups of salmon.

Information Source: J. E. Morrow, Zoology Department, University of Alaska, Fairbanks, Alaska 99701.

R-101-74
MARINE PETROLEUM POLLUTION - BIOLOGICAL EFFECTS AND CHEMICAL CHARACTERIZATION

Principal Investigators: Nicol, J. A., and C. Van Baalen.
Performing Organization: University of Texas, Marine Science Institute, Port Aransas, Texas 78373
Supporting Agency: U.S. National Science Foundation, Division of National and International Progress, No. GX-37345
Period: 2/73 to 1/74 Funds: $142,150

Reports

MARINE PETROLEUM POLLUTION: BIOLOGICAL EFFECTS AND CHEMICAL CHARACTERIZATION

Nicol, J.A., and C. Van Baalen. 1974.
Progress Report submitted to the National Science Foundation. NSF-IDOE 37345.

Growth experiments revealed that when seawater is brought into equilibrium with a sample of No. 2 fuel oil, the mixture becomes toxic and inhibits growth of representative types of microalgae. The growth of most organisms was inhibited by various amounts of water solubles from Kuwait or Southern Louisiana crude oil when in direct contact with them.

Information Source: C. Van Baalen, University of Texas, Marine Science Institute, Port Aransas, Texas 78373.

R-102-74
MICROBIOLOGICAL SEEDING TO ACCELERATE DEGRADATION OF HYDROCARBONS

Principal Investigator: Oppenheimer, C.
Performing Organization: University of Texas, Marine Science Institute, Port Aransas, Texas 78373
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development, No. 15080EHF, 72P21565
Period: 7/73 to 6/74 Funds: Unknown

The EPA sponsored project was completed in 1973.

Reports and Publications (summaries not available)

UTILIZATION OF CRUDE OIL HYDROCARBONS BY MIXED CULTURES OF MARINE BACTERIA

Kator, H. 1972.
Thesis. Florida State University. 237 p.

MICROBIAL SEEDING TO ACCELERATE HYDROCARBON DEGRADATION

Miget, R. 1971.
Thesis. Florida State University. 126 p.

MICROBIAL DEGRADATION OF NORMAL PARAFFIN HYDROCARBONS IN CRUDE OIL

Oppenheimer, C., R. Miget, H. Kator, and LaRock. 1969. Proceedings, Joint Conference on Prevention and Control of Oil Spills, American Petroleum Institute. p. 327-331.

MICROBIAL DEGRADATION OF A LOUISIANA CRUDE OIL IN CLOSED FLASKS AND UNDER SIMULATED FIELD CONDITIONS

Oppenheimer, C., H. Kator, and R. Miget. 1971. Proceedings, Joint Conference on Prevention and Control of Oil Spills, American Petroleum Institute, EPA and USDG. p. 287-296.

MICROBIAL DEGRADATION OF OIL POLLUTANTS

Oppenheimer, C., H. Kator, and R. Miget. 1971. Biological Conservation 4:2.

UTILIZATION OF PARAFFIN HYDROCARBONS IN CRUDE OIL BY MIXED CULTURES OF MARINE BACTERIA

Oppenheimer, C., H. Kator, and R. Miget. 1972. Society of Petroleum Engineers of AIME. Paper No. SPE 4206. 8 p.

A NEW SURFACE FILM SAMPLER FOR THE RECOVERY OF HYDROCARBONS AND FATTY ACIDS

Oppenheimer, C., H. Kator, and R. Miget. 1974. Analytical Chemistry 46:1154-1157.

A second project entitled "Distribution of Hydrocarbons in Water, Sediment and Indicator Organisms as Related to Oil Platforms, 1972-1974", was sponsored by a consortium of oil companies and administered by the Gulf Universities Research Consortium (GURC). A final report entitled, "Hydrocarbons in Seawater and Organisms and Microbiological Investigations. Offshore Ecology Investigations", was submitted to GURC and is in the process of publication.

Information Source: C. H. Oppenheimer, University of Texas, Marine Science Institute, Port Aransas, Texas 78373.

R-103-74
EFFECT OF DIESEL OIL ON STREAM LIFE

Principal Investigator: Patterson, B.
Performing Organization: State Department of Game and Fish, Santa Fe, New Mexico 87501
Supporting Agency: U.S. Department of the Interior, Bureau of Sport Fish and Wildlife, Federal Aid Division, No. F-22-R-15-B-2
Period: 4/73 to 3/74 Funds: $1,275

The three-segment study of the Cimarron River oil spill is in progress, with plans for the last segment of the study to be completed in 1975.

Reports

STATEWIDE WATER POLLUTION INVESTIGATIONS

Elliott, R. 1974.
Statewide Fisheries Investigations. Federal Aid Project F-22-R-14, Job No. B-1.

The study objective was to obtain court acceptable evidence of damage to fish and aquatic habitat caused by oil pollution in waters of the Cimarron, Pecos and Rio Puerco rivers. Findings on the effects of oil pollution on the fish populations are reported.

EFFECT OF DIESEL OIL ON STREAM LIFE

Elliot, R. 1974.
Statewide Fisheries Investigations. Federal Aid Project F-22-R-15, Job No. B-2.

In studying oil pollution in the Cimarron River, data analysis indicated a rapid repopulation of invertebrates in the area affected by the diesel oil spill. Population estimates show a steady increase in brown trout numbers in the spill affected area.

Information Source: R. R. Patterson, State Department of Game and Fish, Santa Fe, New Mexico 87501.

R-109-74
FATE, SPATIAL AND TEMPORAL DISTRIBUTION OF PETROLEUM-DERIVED ORGANIC COMPOUNDS IN THE OCEAN AND THEIR SUBLETHAL EFFECTS ON MARINE ORGANISMS

Principal Investigators: Sackett, W. M., and J. W. Anderson

Performing Organization: Texas A & M University System, School of Geosciences, College Station, Texas 77843

Supporting Agency: U.S. National Science Foundation, Division of National and International Progress, No. GX-37344

Period: 2/73 to 1/74 Funds: $51,650

The IDOE project is presently being renewed.

Reports and Publications

BASELINE CONCENTRATIONS OF LIGHT HYDROCARBONS IN GULF OF MEXICO

Brooks, J. M., A. D. Fredericks, and W. M. Sackett. 1973. Environmental Science and Technology 7:639-641.

In an effort to identify problems of oceanic environmental quality, a 2500 mile survey of light hydrocarbon concentrations in the Gulf of Mexico was made and baseline concentrations were determined. It was found that high concentrations occurred in areas of ports and offshore oil drilling and production operations.

SOURCES, SINKS AND CONCENTRATIONS OF LIGHT HYDROCARBONS IN THE GULF OF MEXICO

Brooks, J. M., and W. M. Sackett. 1973. Journal of Geophysical Research 78(24):5248-5258.

A survey was made of the concentrations of light hydrocarbons in the Gulf of Mexico. The instruments and technique used to determine hydrocarbon levels are described and results of the study are presented.

MOLECULAR AND ISOTOPIC COMPOSITION OF TWO SEEP GASES FROM THE GULF OF MEXICO

Brooks, J. M., J. R. Gormly, and W. M. Sackett. 1974. Geophysical Research Letters 1(5):213-215.

From analyses conducted on gas samples collected on the Texas - Louisiana continental shelf from two natural seeps, the authors demonstrated that at least part of the gas seepage is of biogenic origin as opposed to petrogenic origin.

FATE, SPATIAL AND TEMPORAL DISTRIBUTION OF PETROLEUM DERIVED ORGANIC COMPOUNDS IN THE OCEAN AND THEIR SUB-LETHAL EFFECTS ON MARINE ORGANISMS

Sackett, W. M., and J. W. Anderson. 1974.
Report presented for BEP Meeting on 10 May, 1974.
(Grant No. GX-37344).

The report consists of three studies concerned with hydrocarbons in the ocean: "Use of Low-Molecular-Weight Hydrocarbon Concentrations as Indicators of Marine Pollution" (W. Sackett and J. Brooks), "Sub-lethal Effects of Light Hydrocarbons" (J. Brooks and W. Sackett), and "Feasibility Study of the Use of $\delta^{13}C$ as an Indicator of Petroleum Residues in Organisms and Sediments" (J. Gormly and W. Sackett).

Information Source: W. M. Sackett, Department of Oceanography, Texas A & M University, College Station, Texas 77843.

R-110-74
BIOLOGICAL RECOVERY FOLLOWING AN OIL SPILL

Principal Investigator: Sanders, H. L.
Performing Organization: Woods Hole Oceanographic Institution, Woods Hole, Massachusetts 02543
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development, No. 801001
Period: 7/72 to 6/73 Funds: Unknown

Reports and Publications

THE WEST FALMOUTH OIL SPILL. I. BIOLOGY

Sanders, H. L., J. F. Grassle, and G. R. Hampson. 1972.
Woods Hole Oceanographic Institution Technical Report WHOI-72-20.

An effort was made to determine the longer term biological effects of the West Falmouth oil spill.

THE WEST FALMOUTH OIL SPILL SAGA

Sanders, H. L. 1974.
New Engineer 3(5):32-39.

Dr. Sanders, as researcher from Woods Hole Oceanographic Institution, presents a rebuttal to Dr. J. G. Mackin's

(Texas A & M University) report which condemned observations made by researchers such as Woods Hole scientists, that oil spillage caused long-term environmental damage. Sanders uses the results of a study on the catastrophic spillage of 400 bbls of No. 2 heating oil in West Falmouth Harbor, Massachusetts, to support his claims.

Information Source: H. L. Sanders, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts 02543.

R-116-74
NAVY ENVIRONMENT: MICROBIAL METABOLISM OF HYDROCARBONS UNDER LOW TEMPERATURE MARINE CONDITIONS

Principal Investigators: Traxler, R. W., and A. M. Cundell
Performing Organization: University of Rhode Island, Graduate School, Kingston, Rhode Island 02881
Supporting Agency: U.S. Department of Defense, Navy DN475025, N00014-68-A-0215-0013
Period: 7/73 to 6/74 Funds: $16,505

The Navy contract is continuing and has been renewed for the period 1 January - 31 December, 1975.

Publications

MICROBIAL DEGRADATION OF PETROLEUM AT LOW TEMPERATURE

Cundell, A. M., and R. W. Traxler. 1973.
Marine Pollution Bulletin 4(8):125-127.

Data are presented on the hydrocarbon utilization and growth temperature of two bacteria isolated from littoral sediments from Chedabucto Bay, Nova Scotia and from oil-polluted soil near a natural oil seep at Cape Simpson, Alaska. Results suggest that the bacteria in these environments play an important role in the biodegradation of pollutant hydrocarbons.

HYDROCARBON-DEGRADING BACTERIA ASSOCIATED WITH ARCTIC OIL SEEPS

Cundell, A. M., and R. W. Traxler. 1974.
Developments in Industrial Microbiology 15:250-255.

Fifteen hydrocarbon-degrading bacteria were isolated by enrichment culture from an aged asphaltic flow near a

natural oil seep, Cape Simpson, Alaska; and their ability to grow on various hydrocarbons at temperatures ranging from 0° to 24° was studied. The bacteria were found to grow on the hydrocarbon substrates and the growth temperature of the organisms suggested that they were "facultative psychrophilic bacteria."

Information Source: R. W. Traxler, Plant Pathology - Entomology, University of Rhode Island, Kingston, Rhode Island 02881.

R-117-74
MICROBIAL DEGRADATION OF OIL POLLUTANTS

Principal Investigator: Unknown
Performing Organization: U.S. Navy, Office of Naval Research, Arlington, Virginia 22217
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/72 to 6/73 Funds: $7,500

The research contract has been completed.

Reports

THE MICROBIAL DEGRADATION OF OIL POLLUTANTS, WORKSHOP

Ahearn, D. G., and S. P. Meyers. 1973. Report of the Seminar on Biodegradation. Available from Louisiana State University, Report #LSU-SG-73-01.

For summary see Publications, R-058-74.

Information Source: W. L. King, Environmental and Transportation Technology Division, Department of Transportation, U.S. Coast Guard, Washington, D.C. 20590.

R-118-74
MICROBIAL SEEDING TO ACCELERATE DEGRADATION OF HYDROCARBONS

Principal Investigator: Unknown
Performing Organization: University of Texas, Marine Science Institute, Port Aransas, Texas 78373
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development
Period: 7/72 to 6/73 Funds: $99,904

Refer to R-102-74 for reports and publications arising from this EPA supported project.

Information Source: C. H. Oppenheimer, University of Texas, Marine Science Institute, Port Aransas, Texas 78373.

R-119-74
OIL POLLUTANT BASELINES AND TRENDS IN THE MARINE ENVIRONMENT

Principal Investigator: *Unknown*
Performing Organization: Nova University, Graduate School, Dania, Florida 33004
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/72 to 6/73 Funds: $39,000

Reports

A PORTABLE GAS CHROMATOGRAPHIC TECHNIQUE TO MEASURE DISSOLVED HYDROCARBONS IN SEAWATER

Perras, J. P. 1973.
Final Report to the U.S. Coast Guard, Report DOT-CG-21660-A-3.

The project's objective was to develop an automated portable gas chromatographic technique to be used aboard a small vessel to detect the presence of dissolved hydrocarbons in seawater and measure their concentrations. A summary of progress in the development of the apparatus is presented.

Information Source: J. P. Perras, Nova University Oceanographic Laboratory, 8000 North Ocean Dr., Dania, Florida 33004.

R-120-74
OIL POLLUTION CONTROL - SPECIAL TECHNIQUES - BACTERIOLOGICAL DEGRADATION OF OIL SLICKS

Principal Investigator: Unknown
Performing Organization: U.S. Department of Transportation, Coast Guard, Washington, D.C. 20591
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: Unknown

No research is currently being conducted by the Department of Transportation, U.S. Coast Guard, in the use of biodegradation to clean up spilled oil.

Information Source: W. L. King, Environmental and Transportation Technology Division, Department of Transportation, U.S. Coast Guard, 400 Seventh St., Washington, D.C. 20590.

R-121-74
STUDY OF ARCTIC OIL BIODEGRADATION

Principal Investigator: Unknown
Performing Organization: University of Alaska, Institute of Marine Sciences, College, Alaska 99735
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: Unknown

The report "Arctic Oil Biodegradation" is undergoing final revisions for the U.S. Coast Guard. Contained in the report is the manuscript "Hydrocarbon Metabolism, Heterotroph Populations and Activity in Alaskan Waters".

Reports and Publications (summaries not available)

BIOLOGICAL EFFECTS OF PETROLEUM IN THE MARINE ENVIRONMENT

Button, D. K. 1971.
In: Impingement of Man on the Oceans. D. W. Hood (ed.). J. Wiley & Sons, New York. p. 421-425.

HYDROCARBON BIODEGRADATION KINETICS

Button, D. K. 1973.
In: Proceedings, National Academy of Sciences Petroleum Workshop: Airlie, Virginia. In press.

KINETICS OF DISSIPATION AND BIODEGRADATION OF CRUDE OIL IN ALASKA'S COOK INLET

Kinney, P. J., D. K. Button, and D. M. Schell. 1970. Proceedings, Joint Conference on Prevention and Control of Oil Spills, FWPCA-API, New York. p. 333-340.

HYDROCARBON BIODEGRADATION IN ALASKAN WATERS

Robertson, B., S. Arhelger, P. J. Kinney, and D. K. Button. 1973.

In: Microbial Degradation of Oil Pollutants. D. G. Ahearn and S. P. Meyers (eds.).

Information Source: D. K. Button, Institute of Marine Sciences, University of Alaska, Fairbanks, Alaska 99701.

2. PHYSICAL EFFECTS

R-124-74
MEASUREMENT AND MOLECULAR INTERPRETATION OF SURFACE SHEAR VISCOSITY

Principal Investigator: Goodrich, F. C.
Performing Organization: Clarkson College of Technology, School of Arts, Potsdam, New York 13676
Supporting Agency: U.S. National Science Foundation, Division of Mathematics and Physical Sciences, GP-29612A#1
Period: 5/73 to 4/74 Funds: $20,500

Continuing research is being conducted on the project.

Reports

A NEW SURFACE VISCOMETER OF HIGH SENSITIVITY. I. THEORY

Goodrich, F. C., L. A. Allen, and A. Poskanzer.
Preprint from F. C. Goodrich.

A film covered interface, driven by making contact with a rotating ring inserted into a narrow gap in the wall of a cylindrical vessel, is proposed as a new design for a surface viscometer.

A NEW SURFACE VISCOMETER OF HIGH SENSITIVITY. II. EXPERIMENTS WITH STEARIC ACID MONOLAYERS

Poskanzer, A., and F. C. Goodrich.
Preprint from F. C. Goodrich.

A working model surface viscometer is described with a review of the details of calibration and operation. Some experiments with stearic acid monolayers are conducted.

THE SURFACE VISCOSITY OF SODIUM DODECYL SULFATE SOLUTIONS WITH AND WITHOUT ADDED DODECANOL

Poskanzer, A. M., and F. C. Goodrich.
Preprint from F. C. Goodrich.

A new, high sensitivity surface viscometer is used to measure surface shear viscosity of various concentrations of sodium dodecyl sulfate solutions. When dodecanol is added, surface viscosity can be greatly increased.

Information Source: F. C. Goodrich, Department of Chemistry, Clarkson College of Technology, Potsdam, New York 13676.

3. ECONOMIC EFFECTS

R-131-74
OCEAN UTILIZATION AND COASTAL ZONE DEVELOPMENT

Principal Investigator: Keil, A.
Performing Organization: Massachusetts Institute of Technology, School of Engineering, Cambridge, Massachusetts 02139
Supporting Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Sea Grant Office, No. 710157, 0241333000
Period: 7/72 to 6/73 Funds: $24,700

The program effort has been completed and has produced two reports.

Reports

A PRELIMINARY ASSESSMENT OF THE ENVIRONMENTAL VULNERABILITY OF MACHIAS BAY, MAINE TO OIL SUPERTANKERS

Moore, S. T., R. L. Dwyer, and A. M. Katz. 1973. Massachusetts Institute of Technology Sea Grant Report No. MITSG 73-6. (January 15, 1973).

After assessment of the environmental vulnerability of Machias Bay, Maine, to oil supertankers, it was concluded that the bay is highly vulnerable. Estimates of future oil spills are a moderate spill (500 tons) once a year, and a catastrophic spill (30,000 tons) once in twenty years. Biological effects of these spills are expected to be very extensive with some localized permanent changes.

THE GEORGES BANK PETROLEUM STUDY

Offshore Oil Task Group. 1973. Massachusetts Institute of Technology Sea Grant Report No. MITSG 73-5 (February 1, 1973).

A study group (M.I.T. faculty and staff) has studied the potential impact on the environment and region income caused by the hypothetical exploration and development of Georges Bank petroleum.

Citation Source: D. A. Horn, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139.

4. GENERAL EFFECTS

R-133-74
NATURAL OIL SEEPAGE IN THE SANTA BARBARA CHANNEL - PHYSICOCHEMICAL ASPECTS

Principal Investigator: Mikolaj, P. G.
Performing Organization: University of California, School of Engineering, Santa Barbara, California 93106
Supporting Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Sea Grant Office, No. 2-35208
Period: 9/72 to 8/73 Funds: $19,030

Reports and Publications

POLLUTION OF THE SEA BY OIL: PHYSICAL AND CHEMICAL ASPECTS OF NATURAL OIL SEEPAGE IN THE SANTA BARBARA CHANNEL

Mikolaj, P. G. 1973.
Final Report of work accomplished. August, 1973.

The summary report, covering the period 1969 to 1973, presents the major results and findings of a project examining the physical, chemical and environmental factors that influence the behavior and fate of oil after natural seepage from the ocean floor. Studies include underwater exploration and sample collection near Coal Oil Point, aerial and surface studies of oil slicks and surveys of contaminated beaches and coast zone.

TIDAL EFFECTS ON THE ACTIVITY OF NATURAL SUBMARINE OIL SEEPS

Ampaya, J. P., and P. G. Mikolaj. 1973.
Marine Technology Society Journal 7(1):25.

A study was conducted to measure the variability in oil flow rates from natural seeps in the Santa Barbara Channel. It was found that tide height is the principal factor in this variability.

VOLUMETRIC DETERMINATION OF MARINE OIL SPILLS USING COORDINATED AIRBORNE AND SURFACE SAMPLING DATA

Estes, J. E., P. G. Mikolaj, R. R. Thaman, and L. W. Senger. 1973.

Proceedings of the Joint Conference on Prevention and Control of Oil Spills, American Petroleum Institute, Washington, D.C. p. 117.

"Methods and equipment are described which are used to obtain ground truth data on oil slick thickness, and techniques for interpreting these data by means of remotely sensed imagery." The method is applied to at-sea tests of an oil containment barrier.

ENVIRONMENTAL APPLICATIONS OF THE WEIBULL DISTRIBUTION FUNCTION: OIL POLLUTION

Mikolaj, P. G. 1972.
Science 176:1019.

An explanation of applying the Weibull Distribution Function, an empirical three parameter distribution, to oil spill data is given.

INVESTIGATIONS OF THE NATURAL EXTENT, AND FATE OF NATURAL OIL SEEPAGE OFF SOUTHERN CALIFORNIA

Mikolaj, P. G. 1972.
Proceedings of the 4th Annual Offshore Technology Conference, Houston, Texas. Paper No. OTC-1549.

Field techniques used to study natural oil seepage in Santa Monica Bay and the Santa Barbara Channel are discussed. Results include estimates of oil flow rates, characterization of beach tar deposits and source identification.

REPORT ON THE COMPOSITION OF OIL FROM THE REGION OF NEW HYDROCARBON UPWELLING IN THE SANTA BARBARA CHANNEL

Mikolaj, P. G. 1973.
Report prepared for NOAA, Office of Sea Grant USDC SGP 04-3-158-22, R-CZ-9

Comparisons are made between oil seeps near Coal Oil Point and new upwelling oil observed June, 1973, in the Santa Barbara Channel.

MEASUREMENT OF EVAPORATION RATES FROM OIL SLICKS ON THE OPEN SEA

Sivadier, H. O., and P. G. Mikolaj. 1973.

Proceedings, Joint Conference on Prevention and Control of Oil Spills, American Petroleum Institute, Washington, D.C. p. 475.

The paper discusses a gas chromatographic procedure to determine the time dependent weight loss of an oil slick by following its compositional changes. Results from experiments using natural seep oil are described.

Information Source: P. G. Mikolaj, Dames and Moore, Suite 1000, 1100 Glendon Ave., Los Angeles, California 90024.

D. OIL POLLUTION PREVENTION

1. DESIGN AND ENGINEERING

R-134-74
CONSTRUCTION SUPERVISION OF THE OIL AND HAZARDOUS MATERIALS SYSTEMS CONTROL TEST BASIN

Principal Investigator: Cipriano, P.
Performing Organization: Engineers Incorporated, Newark, New Jersey 07101
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development, No. 68-01-0198, 72P21137
Period: 7/73 to 6/74 Funds: Unknown

An article dealing with the planning and construction of the Environmental Protection Agency oil spill test site, Leonardo, New Jersey, is being written by Engineers Incorporated.

Information Source: A. G. Cipriano, Engineers Incorporated, P.O. Box 39, Newark, New Jersey 07101.

R-135-74
OIL SPILL DETECTOR DEVELOPMENT

Principal Investigator: Unknown
Performing Organization: Northeast Utilities Service Company, Hartford, Connecticut 06101
Supporting Agency: Northeast Utilities Service Company
Period: 1/73 to 12/73 Funds: $27,200

The detector system is presently undergoing performance tests. No reports have been published. Further information regarding the system, its operation and extensions to the technology can be obtained from: Mr. Herbert R. Gram, Spectrogram Corporation, 385 State St., North Haven, Connecticut 06473.

Information Source: R. H. Meyer, Energy Research Conversion Research Engineer, Northeast Utilities, P. O. Box 270, Hartford, Connecticut 06101.

2. OIL RECOVERY AND HANDLING TECHNIQUES

R-144-74
FLAME SPREAD OVER LIQUID FUEL

Principal Investigator: Torrance, K. E.
Performing Organization: Cornell University, School of Engineering, Ithaca, New York 14850
Supporting Agency: U.S. National Science Foundation, Division of Advanced Technological Applications, No. GI-31894X1.
Period: 11/72 to 10/73 Funds: $31,700

The project is currently active under funding of the second grant.

Reports and Publications

EVAPORATION, SURFACE KINETICS, AND SURFACE TENSION EFFECTS FOR LIQUID FUELS

Mahajan, R. L., and K. E. Torrance. 1973.
Report prepared under NSF-RANN Grant GI-31894X, Mechanical and Aerospace Engineering, Cornell University, Ithaca, New York.

Summary not available.

SUBSURFACE FLOW PRECEDING FLAME SPREAD OVER A LIQUID FUEL

Torrance, K. E. 1971.
Combustion Science and Technology 3:133-143.

Liquid fuel flows are examined as they occur below a two-dimensional flame spreading at a steady state.

FIRE SPREAD OVER LIQUID FUELS: LIQUID PHASE PARAMETERS

Torrance, K. E., and R. L. Mahajan. 1974.
Fifteenth Symposium (International) on Combustion, Tokyo, Japan, 25-30 August, 1974.

The effects of surface tension, buoyancy forces, Prandtl number, fuel depth, and flame speed upon fire spread over liquid fuels are reported and summarized.

SURFACE TENSION FLOWS INDUCED BY A MOVING THERMAL SOURCE

Torrance, K. E., and R. L. Mahajan.
Preprint from senior author, to appear in Combustion Science and Technology.

Investigations were conducted upon surface tension flows induced by a thermal source moving over an otherwise stationary liquid layer.

Information Source: K. E. Torrance, National Center for Atmospheric Research, P.O. Box 1470, Boulder, Colorado 80302.

R-145-74
OIL RECOVERY SYSTEMS. MARINE ENVIRONMENT OIL SPILL RECOVERY (PRELIMINARY DEVELOPMENT)

Principal Investigator: Trimble, L.
Performing Organization: Lockheed Missiles and Space Company, Sunnyvale, California 94088
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/72 to 6/73 Funds: $537,000

The full-scale prototype has completed its final testing and has been accepted as part of the Coast Guard's inventory of high seas oil recovery facilities.

Information Source: C. F. Scharfenstein, Ocean Systems, Lockheed Missiles and Space Company, Sunnyvale, California 94088.

R-147-74
FEASIBILITY STUDY FOR TURBINE DRIVEN CENTRIFUGE CONCEPTS FOR OIL WATER SEPARATION

Principal Investigator: Unknown
Performing Organization: Foster-Miller Associates, Inc., Waltham, Massachusetts 02154
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: $142,000

Foster-Miller Associates, Inc. is currently developing a solids-oil separating pump to be used in conjunction with the centrifugal coalescer.

Reports

EVALUATION OF A UNIQUE CENTRIFUGE FOR SEPARATION OF OIL FROM SHIP DISCHARGE WATER

Harvey, A. C., and V. K. Stokes. 1973.
Final Report to U.S. Coast Guard, February, 1973.
Contract DOT-CG-24287A.

Described is a centrifugal coalescer designed and tested for oil separation as it is dispersed in ship bilge and ballast water. Its design, development and laboratory tests are evaluated.

Information Source: J. R. Potter, Foster-Miller Associates, Inc., 135 Second Ave., Waltham, Massachusetts 02154.

R-152-74
OIL RECOVERY SYSTEM - OIL STORAGE UNITS FOR USE WITH HIGH SEAS OIL RECOVERY SYSTEM

Principal Investigator: Unknown
Performing Organization: U.S. Department of Transportation, Coast Guard, Washington, D.C. 20591
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: Unknown

The Coast Guard planned high seas oil recovery system prototype hardware phase of development is complete and the final report is presently being prepared.

List of Published Reports (Reports followed by an AD number may be ordered directly by that number from the National Technical Information Service)

Response

3994/01/01 Oil Spillage Literature Search and Critical Evaluation for Selection of Promising Techniques to Control and Prevent Damage - Batelle Memorial Institute. AD 666 289

714101/001 Development of the Air Deliverable Anti-Pollution Transfer System (ADAPTS) - Coast Guard (DAT-4), August 6, 1971. AD 732-978

714101/B/002	Design and Development of an Optimum Oil Storage Container for the Air Deliverable Anti-Pollution Transfer System - ADAPTS - Goodyear Tire and Rubber Company, February, 1971. PB 207-601
714101/004	3000 Hour Endurance Test of the Diesel Prime Mover for ADAPTS - U.S. Coast Guard Field Testing and Development Center, 1 March, 1972. AD 742 514
714101/004/1	Special Transfer Pump Development, Interim Report No. 1. 750 Hour Endurance Test of Diesel Prime Mover - U.S. Coast Guard Field Testing and Development Center.
714101/009	Analysis Redesign of Towpoint of the ADAPTS No. 2, Prototype Oil Storage Container - Uniroyal, Inc.
724102	Oil Retrieval Skimmer Development - DAT - 4, December, 1971. (NOT FOR DISTRIBUTION)
734102.5/8 FTC-TR-73/53	Performance Evaluation of an Oil Containment Barrier, Aerial Delivery System - Edwards Air Force Base, January, 1974.
734102.5/11	Determination of Oil Loss Rate from High Seas Oil Containment Barrier. AD 762-339
714102/A/001	Lightweight Oil Containment System Low Tension Barrier System - Wilson Industries, Inc. AD 719 277
714102/002-1	Oil Pollution Control - Research and Development Requirements, Volume I. Methods. A. D. Little, Inc. AD 696 635
714102/002-2	Research and Development Plans. Volume 2 - A. D. Little, Inc. (RESTRICTED)
714102/A/002	Lightweight Oil Containment System - Ocean Systems, Inc. (3 volumes available)
794102/003	Review of the Santa Barbara Channel Oil Pollution Incident - Battelle Northwest. AD 726 156
714102/A/003	Concept Development of a Prototype Lightweight Oil Containment System for Use on the High Seas - Johns-Manville Products Corp. AD 723 601

714102/A/004	Heavy Duty Oil Containment System Pneumatic Barrier System - Wilson Industries, Inc. AD 719 278
714102/A/006	Concept Development of a Heavy Duty Oil Containment System for Use in the High Seas. Volume I - Atlantic Research Corporation. AD 719 615
714102/A/008	Studies of Oil Retention Boom Hydrodynamics - Hydronautics, Inc. AD 719 294
734102.0/2 CG-D-22-74	Analysis of Lightweight Oil Containment System Sea Trials - Hydronautics, Inc., October, 1973. AD 770 344
794102/010	Analysis and Model Test to Determine Forces and Motions of an Oil Retention Boom - Two Volumes - Hydronautics, Inc. AD 702 512 and AD 702 513
4103.1/1	Mechanical Equipment for the Cleanup of Oil Spills - U.S. Coast Guard (DAT-4).
714103/A/001	Investigation of the Use of a Vortex Flow to Separate Oil from an Oil-Water Mixture - United Aircraft Corporation Research Laboratories. AD 716 309
714103/A/002	A Feasibility Study of the Use of the Oleophilic Belt Oil Scrubber - Shell Pipeline Corporation. AD 723 598
714103/A/003	Free Vortex Recovery of Floating Oil - Scientific Associates, Inc. AD 723 599
704103/004	The Feasibility of Surface-Skimming Oil Collection Devices - The Charles River Association (Hoult, Cross and Milgram). AD 716 324
724103.06.1	Development of a High Seas Oil Recovery System - Ocean Systems, Inc., February, 1972. AD 759 523 and AD 759 524
724103.06.3	Prototype High Seas Oil Recovery System - Phase I (3 Volumes), System Development - Lockheed Missiles and Space Company, February 1972. AD 758 351, AD 758 352 and AD 758 353

734103.18/1 CG-D057-74	Concept Development of a Free Vortex Oil Recovery System - Scientific Associates, May, 1973.
734103.10/1	Support Systems to Deliver and Maintain Oil Recovery Systems and Dispose of Recovered Oil - Batelle Columbus, January, 1974. AD 778 941
714103/A/004	Engineering Concept Evaluation Program for High Seas Oil Spill Recovery - Ocean Systems Division, Lockheed Missiles and Space Company. AD 725 883
714103/A/005	The Conduct of a Feasibility Study of the Inverted Weir Oil Collection Concept - Battelle Memorial Institute (NOT AVAILABLE)
714103/A/006	Engineering Feasibility Study of the Bishop System for Open Ocean Oil Spills - William R. Bishop Associates. AD 723 600
724107.1 (714107/A/003)	Forecasting Oil Slick Behavior - A Preliminary Guide - U.S. Coast Guard, July, 1971. AD 762 358
724107.3/2	The Effect of Waves on Oil Spill Movements - University of Missouri, March, 1972.
714107/A/001	Physical Process in the Spread of Oil on a Water Surface - Massachusetts Institute of Technology. AD 726 281
734108.2/2	Crude Oil Behavior on Arctic Winter Ice - U.S. Coast Guard (G-DET-1), September, 1972. AD 754 261
734108.2/4.1	Examination of Chedabucto Bay Bottom Sediments for Biodegradation Potential - University of Rhode Island, November, 1972.
744108.2/5 (CG-D-79-74)	"Geographical Analysis of Oil Spill Potential Associated with Alaskan Oil Production and Transportation Systems" - Battelle Memorial Institute, February, 1972. AD 784 099 ($6.50)
714108/A/001	A Study of the Behavior of Oil Spills in the Arctic - U.S. Coast Guard (DAT-4). AD 717 142

724110.1/1.1 Investigation of Sinking Methods for Removal of Oil Pollution from Water Surfaces, Final Report - Corps of Engineers, Vicksburg, Mississippi, April, 1972. AD 741 247

724110.1/1.2 Feasibility Study of the Sand Sinking Methods of Combating a Major Oil Spill in the Ocean Environment - Office Chief of Engineering, U.S. Army, December, 1971. AD 742 949

724110.1/2.1 Investigation of Sorbents for Removing Oil Spills from Water - Naval Ship R&D Center, November, 1971. AD 742 950

724110.1/3.1 Assessment of Biodegradation Potential for Controlling Oil Spills on the High Seas - Oklahoma State University, September, 1971. AD 759 848

724110.1/4.1 Control and Confinement of Oil Pollution on Water with Monomolecular Surface Films - Naval Research Laboratory, November, 1971. AD 744 943

744110.1/5.1 CG-D-69-74 Chemical Additives to Control Oil Spills - A State-of-the-Art Survey. AD 779 557

734110.1/6.1 (LSU-SG-73-01) The Microbial Degradation of Oil Pollutants, Workshop - Georgia State University, December, 1972.

734110.2 Evaluation of Surfactants, Sorbents and Sinking Agents as Effective Oil Spill Cleanup Agents - U.S. Coast Guard (G-DET-1), November, 1972. AD 758 132

704110/A/001-1 Investigation of Sinking Methods for Removal of Oil Pollution from Water Surfaces, Phase I: Survey of the State-of-the-Art - Corps of Engineers, Vicksburg, Mississippi. AD 725 617

724110/A/001-2 Investigation of Sinking Methods for Removal of Oil Pollution from Water Surfaces, Phase II: Methods of Test for Laboratory Evaluation - Corps of Engineers, Vicksburg, Mississippi. AD 741 247

73411.2/1 (CG-D-64-74)	Hydrodynamic Effects of Oil Slick Mechanical Control Devices - Texas A & M Research Foundation, February, 1974.
744111.2/3 (CG-D-69-74)	"Chemical Additives to Control Oil Spills - A State-of-the-Art Survey" - Rensselear Polytechnic Institute, January, 1974. AD 770 557
734111.5/1	Analysis of Inland Waterways Oil Transport Traffic Density Patterns - Battelle Columbus, October, 1973.
734112.1/2	Fast Surface Delivery Systems for Pollution Control Equipment, A Feasibility Study - Coast Guard (G-DET-1), January, 1974. (LIMITED DISTRIBUTION)

Enforcement

714104	Remote Sensing of Southern California Oil Pollution Experiment - U.S. Coast Guard (DAT-4), July, 1971. PB 203 194
714104/1	U.S. Atlantic Coast Tanker Density Survey - U.S. Coast Guard (DAT-4).
714104.2/3	Optical Remote Sensing of Oil Slicks: Signature Analysis and Systems Evaluation - University of Michigan, October, 1971.
714104.2/3	Investigation of Oil Fluorescence as a Technique for Remote Sensing of Spills - DOT Transportation Systems Center, June, 1971 (Phase I Report). PB 203 585
724104.2/5	Multi-Sensor Detection and Tracking of Controlled Oil Spills - Spectran, Inc., May, 1971. AD 741 953
724104.2/10	Remote Sensing Oil Pollution System Concept - Concept Evaluation - U.S. Coast Guard (DAT-4), June, 1971. (FOR COAST GUARD USE ONLY)
744204.4	"Development of a Prototype Airborne Oil Surveillance System." Volume I, "System Definitions Studies"(AD 779 482). Volume II, "Design Report" (AD 779 483). Volume III, "Subsystem Specifications" (AD 779 484) - Aerojet Electrosystems Company.

714104/002 Measurements Program for Oil-Slick Characteristics - University of Michigan. AD 758 591

794104/A/002
794104/A/002-1 Microwave Radiometric Detection of Oil Slicks - Aerojet General Corporation. AD 702 402 Final Report. AD 728 551

714104/A/003 An Investigation of Oil Fluorescence as a Technique for Remote Sensing of Oil Spills - DOT Transportation Systems Center, Cambridge, Massachusetts. Final Report, June, 1971. PB 203 585

714104/A/004 The Remote Sensing of Oil Slicks by Radar - Naval Research Laboratory. AD 709 982

714104/A/005 Results of Overflight of Chevron Oil Spill in the Gulf of Mexico - National Aeronautical and Space Administration. AD 714 681

714104/A/006 Photographic Detection of Ship-Generated Oil Slicks - U.S. Coast Guard (DAT-4).

714104/A/006-1 Oil Pollution Detection and Discrimination by Remote Sensing Techniques - Spectran, Inc. AD 716 349

714104/A/006-2 Oceanographic Observations and Theoretical Analysis of Oil Slick During the Chevron Spill, March, 1970 - Louisiana State University. AD 716 324

714104/A/009 Applicability of Remote Sensor Techniques for Oil Slick Detection - U.S. Coast Guard, February, 1971. AD 728 422

734209.9 Remote Sampler for Determining Residual Oil Contents of Surface Water - Naval Ship R&D Center, Annapolis, Maryland, November, 1972. AD 760 217

714141 The Biological Response to Oil in the Marine Environment - U.S. Coast Guard Oceanographic Unit, March, 1971. AD 726 281

734141 Fate of Petroleum Hydrocarbons in Beach Sand - Naval Biomedical Research Center, Contract Mippr 13,337. AD 758 740

714141/002	Natural Oil Seeps in or Near the Marine Environment - Coast Guard Research and Development Center. AD 723 310
734241.1 (CG-D-52-74)	Oil Spill Drift Caused by the Coupled Effects of Wind and Waves - University of Missouri - Rolla, October, 1973. AD 777 702
734241.2/2 (CG-D-42-74)	Development of a Floating Oil Slick Detector - URS Research, November, 1973.
734241.2/7 (CG-D-12-74)	"Model Study of the Dilution of Soluble Liquids Discharged from Tankers," September, 1973 - Stevens Institute of Technology. AD 768 681
744241.2/8	"Oil in Water Sensor Final Engineering Report" - Texas Instruments, February, 1974. AD 784 104
734241.2/9 (CG-D-51-74)	Evaluation of an Infrared Oil Film Monitor - Wright and Wright Environmental Engineering, November, 1973. AD 778 814
734244 (CG-D-17-73)	The Spreading and Transport of Oil Slicks on the Open Ocean in the Presence of Wind, Waves, and Currents - AVCO Corporation, July, 1973.
744241.2/11 (D-77-74)	"In Situ Detection of Oil Slicks Utilizing Differential Evaporation, Phase I, Feasibility Study" - Environmental Research Institute of Michigan, January, 1974. AD 779 615
744242.5/1 (CG-D-102-74)	Development of a Fixed Site Surface Film Oil Sampler, April, 1974 - Curtis D. LeVantine. AD 784 106

Abatement

734305.1/1 (CG-D-23-74)	Survey of Commercial Oil-Water Separators, August, 1973 - U.S. Coast Guard (G-DET-1). (RESTRICTED)
734105.2/1	Vortex Concept for Separating Oil from Water - United Aircraft Research Laboratories, January, 1973. AD 758 320
734305.2/2	Ultrafiltration Concept for Separating Oil from Water - Abcor, Inc., January, 1973. AD 758 318

734305.2/3	Centrifuge Coalescer Concept for Separating Oil from Water Discharged from Ships - Foster-Miller Associates, Inc., February, 1973. AD 764-006
734305.2/4	Electrochemical Flotation Concept for Removing Oil from Water - Lockheed Aircraft Service Company, May, 1972. AD 760 056
734305.2/5	Viscosity Actuated Phase Separating (VAPS) for Oil-Water Separations - Union Carbide Corporation, March, 1973. AD 763 552
734305.2/6	Coalescing Plates and Packs for Oil Water Separation in Various Shipboard Applications - General Electric Company, January, 1973. AD 758 319
734305.2/6.1	Feasibility Test Program of Application of Coalescing Phase Oil/Water Separators to Self Compensating Fuel Tanks in Surface Ships - General Electric Re-entry and Environmental Systems Division, May, 1974. AD 784 105
734305.2/7	Study of Hydrophilic Membranes for Oil-Water Separation - Gulf Environmental Systems Company, January, 1973. AD 758 321
734305.2/8	Vacuum Desorption Concept for Removing Oil from Water - Mechanics Research, March, 1973. AD 764 447
734305.2/9	Evaluation of Concepts for Separating Oil from Water Discharged from Ships, August, 1973 - U.S. Coast Guard (G-DET-1). AD 770 346
744305.3/1 (CG-D-75-74)	Development of a Classification Scale for Characterizing Bilgewater Used in Oil Removal Techniques - General American Research Division, January, 1974. AD 778 929
734305.3/2 (CG-D-31-74)	Laboratory Evaluation of the Emulsifying Characteristics of Pumps - Foster-Miller Associates, Inc., October, 1973. AD 779 629
734206.1	A Study of Oil Source Identification Techniques - In House Report. AD 761 971
734321.4/1	An Experimental Study of Wastewater Treatment Systems Suitable for Shipboard Use - Hydronautics, Inc., July, 1972. AD 764 448

714121/100 Evaluation of Proprietary Waste Treatment System Aboard the USCGC ALERT (WMEC-630) based at Cape May, New Jersey - U.S. Coast Guard (DAT-4), May, 1971. AD 723 789

714121/101 Modified 50-Man Vadespino Shipboard Sewage Treatment System - Field Testing and Development Center. AD 716 199

Information Source: W. L. King, Environmental and Transportation Technology Division, Department of Transportation, U.S. Coast Guard, Washington, D.C. 20591.

R-153-74
PARTICLE VACUUM ACCELERATED GRAVITY CONCEPT

Principal Investigator: Unknown
Performing Organization: Mechanic Research, Inc., Los Angeles, California 90045
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: Unknown

Reports

VACUUM DESORPTION CONCEPT FOR REMOVING OIL FROM WATER

Pomonik, G. M. 1974.
Project Final Report to U.S. Coast Guard, Report No. 734305.2/8, March 30, 1974.

The design, development and testing of a prototype unit for oil-water separation in bilge and ballast water aboard ships and tankers are described. In the process of oil removal gas bubbles, which form on oil particles in the contaminated water, are desorbed by means of a vacuum; and the oil particles are raised to the water's surface.

Information Source: G. M. Pomonik, Ocean Systems Mechanics Research, Inc., 9841 Airport Blvd., Los Angeles, California 90045.

R-154-74
PROTOTYPE OIL RECOVERY SYSTEM FOR USE ON THE HIGH SEAS, PHASE II/LOCKHEED

Principal Investigator: Unknown
Performing Organization: Lockheed Missile and Space Company, Sunnyvale, California 94088
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/73 to 6/74 Funds: $20,286

Reports

HIGH SEAS OIL RECOVERY SYSTEM DEVELOPMENT

Beran, W. T., B. Bruch, K. R. Maxwell, et al. 1972. Final Report to U.S. Coast Guard, Office of Research and Development.

Results are presented of the preliminary design and development of a high seas oil spill recovery system. The preliminary design includes the four-foot diameter device, its support catamaran and the machinery necessary to drive the device and transfer the recovered oil to storage.

TESTING THE LOCKHEED DISC-DRUM ROUGH WATER OIL RECOVERY SYSTEM

Scharfenstein, C. F., and J. F. Leary. 1974. Paper presented to Sixth Annual Offshore Technology Conference, Houston, May 6-8, 1974.

The paper discusses the qualification testing of the Lockheed prototype High Seas Oil Recovery System. The system proved capable of recovering spilled oil on the water surface up to the rate of 1,000 gallons per minute under certain current, oil thickness and viscosity conditions.

Information Source: C. F. Scharfenstein, Ocean Systems, Lockheed Missiles and Space Company, Inc., Sunnyvale, California 94088.

R-157-74
VORTEX CONCEPT

Principal Investigator: Unknown
Performing Organization: United Aircraft Corporation, Hartford, Connecticut, 06118
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/72 to 6/73 Funds: $6,424

Reports and Publications

INVESTIGATION OF THE USE OF A VORTEX FLOW TO SEPARATE OIL FROM AN OIL-WATER MIXTURE

Mensing, A. E., R. C. Stoeffler, W. R. Davison, and T. E. Hoover. 1970.

Final Engineering Report to the U.S. Coast Guard, November, 1970.

A feasibility study was conducted testing a continuous flow vortex separator. Performance tests were made on a laboratory-scale model, and an analytical evaluation was carried out on a full-scale vortex separator.

INVESTIGATION OF THE USE OF A VORTEX FLOW TO SEPARATE OIL FROM OIL-WATER MIXTURE

Mensing, A. E., and R. C. Stoeffler. 1971. Proceedings, Joint Conference on Prevention and Control of Oil Spills. June 15-17, 1971, Washington, D.C.

Tests were made on laboratory-scale model vortex separators by varying inlet oil-to-total-flow ratios and using different oils. Optimal conditions yielded approximately 90% recovery of injected oil and capture flow of approximately 90% oil.

VORTEX CONCEPT FOR SEPARATING OIL FROM WATER

Stoeffler, R. C., and C. E. Jones. 1973. Final Engineering Report to U.S. Coast Guard, January, 1973.

A three-part study was conducted on continuous flow vortex separators: performance testing was made on scale models, determinations were made for scaling, and an analytical evaluation of large shipboard separator systems was conducted.

Information Source: J. F. Glasgow, Battelle, Columbus Laboratories, 965 Harbor Scenic Way, Berth 249, Pier J, Long Beach, California 90802.

3. RESEARCH

R-161-74
STUDY TO IDENTIFY SUPPORT SYSTEMS TO DELIVER AND MAINTAIN OIL RECOVERY SYSTEMS AND DISPOSAL OF RECOVERED OIL

Principal Investigator: Unknown
Performing Organization: Battelle Memorial Institute, Columbus, Ohio 43201
Supporting Agency: U.S. Department of Transportation, Coast Guard
Period: 7/72 to 6/73 Funds: $253,107

The research project for the U.S. Coast Guard was completed on May 31, 1973. The final report is available through the National Technical Information Service.

Reports

SUPPORT SYSTEMS TO DELIVER AND MAINTAIN OIL RECOVERY SYSTEMS AND DISPOSE OF RECOVERED OIL

Kim, B. C., H. Carlton, T. J. Cooke, J. H. Hancock, R. A. Mendelsohn, and W. J. Sheppard. 1974. Final Report to Supporting Agency, 8 June 1973 (issued by the Coast Guard, 7 January 1974).

Three areas of study are covered: (1) determination of optimum transfer systems for use in oil recovery operations and the establishment of the type and availability of vessels suitable for support of oil recovery operations; (2) establishment of provisions necessary for ultimate disposal of recovered oil; (3) and determination of future project patterns of oil transport traffic around U.S. coastal regions.

Information Source: J. S. Glasgow, Battelle Columbus Laboratories, 965 Harbor Scenic Way, Berth 249, Pier J, Long Beach, California 90802.

SECTION III. CURRENT RESEARCH PROJECTS

A. OIL POLLUTION DETECTION AND EVALUATION

1. MONITORING

R-166-74
EFFECT ON THE ECOLOGY AND BIOCHEMISTRY IN COLD ENVIRONMENTS OF OIL SEEPAGES AND SPILLS

Principal Investigators: Brown, J., and R. Murrmann
Performing Organization: U.S. Army, Cold Region Research and Engineering Laboratory, P. O. Box 282, Hanover, New Hampshire 03755
Supporting Agency: U.S. Department of Defense, Army #DAOZ8146
Period: 7/72 to 6/73 Funds: Unknown

The project includes the inspection of oil spills along the Army Haines-Fairbanks Pipeline and examination of plant recovery of these areas. Experiments will also be carried out measuring the effects of oil dispersion and extent of oil toxicity on Arctic plant foliage.

Biological effects of oil pollution

SSIE No.: ZQA-268146-1

R-167-74
PASSIVE TAGGING OF OILS BY FLUORESCENCE SPECTROPHOTOMETRY

Principal Investigator: Gruenfeld, M.
Performing Organization: U.S. Environmental Protection Agency, National Environmental Research Center, 5555 Ridge Avenue, Cincinnati, Ohio 45213
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development
Period: 10/73 to 9/74 Funds: Unknown

The project will determine whether fluorescence spectrophotometry is a usable means for measuring oil parameters in the presence of weathering. A rapid method will be developed to test oils if the initial effort proves successful.

SSIE No.: ZMA-662-1

R-168-74
PASSIVE TAGGING OF WATER DISPERSED OILS

Principal Investigator: Gruenfeld, M.
Performing Organization: U.S. Environmental Protection Agency, National Environmental Research Center, 5555 Ridge Avenue, Cincinnati, Ohio 45213
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development, No. 21 AOE 07 72P17899
Period: 7/73 to 6/74 Funds: Unknown

The contract provides for the use of spectroscopic and chromatographic techniques for passive tagging trace levels of water dispersed oils.

SSIE No.: ZMA-665-1

R-169-74
DEVELOP CHEMICAL STANDARDS FOR GROWING AREA

Principal Investigator: Lamb, J. B.
Performing Organization: U.S. Department of Health,Education and Welfare, Public Health Service, Food and Drug Administration, 200 C St., S.W., Washington, D.C. 20204
Supporting Agency: U.S. Department of Health, Education and Welfare, Public Health Service, Food and Drug Administration, Bureau of Foods
Period: 7/73 to 6/74 Funds: Unknown

One of the objectives is to improve analytical methods for detecting toxic substances such as petroleum in shellfish, and to enable the FDA to establish standards and tolerances for toxic chemicals in growing areas and shellfish.

Biological effects of oil pollution

SSIE No.: ZVA-2084

R-170-74
ANALYSIS AND CHARACTERIZATION OF PETROCHEMICALS IN WATER AND SEDIMENT

Principal Investigator: Unknown, Water Resources Division
Performing Organization: U.S. Department of the Interior, Geological Survey, 18th and F Sts., N.W., Washington, D.C. 20242

Supporting Agency: U.S. Department of the Interior, Geological Survey, Water Resources Division, No. NR-69-062
Period: 7/72 to 6/73 Funds: Unknown

Methods are being developed for the detection of petrochemicals in water systems, analysis of the products, and determination of the impact of oil drilling on water resources so as to increase existing knowledge concerning the widespread use of petrochemicals.

Analysis
General effects of oil production and prospecting

SSIE No.: ZUA-2688

R-171-74
MOVEMENT AND FATE OF SUNKEN OIL

Principal Investigator: Wood, P. C.
Performing Organization: Ministry of Agriculture, Burnham on Crouch, England
Supporting Agency: United Kingdom Government
Period: 7/72 to 6/73 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-510

2. REMOTE SENSING

R-172-74
EFFECT OF WATER POLLUTION ON NAVAL OPERATIONS

Principal Investigators: Gallagher, J. J., and D. F. Guiliano
Performing Organization: U.S. Navy, Underwater Systems Center, Newport, Rhode Island 02840
Supporting Agency: U.S. Department of Defense, Navy #DN014506
Period: 7/72 to 6/73 Funds: Unknown

Included in the multi-purpose project is the study of aquatic factors that are influenced by pollution, and the investigation of remote sensing techniques for rapid detection and identification of water-borne pollutants (i.e. petroleum).

SSIE No.: ZQN-14506

R-173-74
REMOTE SENSING FOR WATER AND AIR POLLUTION

Principal Investigator: Goodwin, G.
Performing Organization: U.S. National Aeronautics and Space Administration, Ames Research Center, Moffett Field, California 94035
Supporting Agency: U.S. National Aeronautics and Space Administration, Aeronautics and Space Technical Office, Ames Research Center, No. 160-75-22 7370495
Period: 7/72 to 6/73 Funds: Unknown

In a comprehensive study dealing with water and air pollution, background levels are being determined to establish the sources, types and levels of natural and artificially introduced pollutants.

SSIE No.: ZH-21706

R-174-74
MARINE POLLUTION MONITORING AND ASSESSMENT

Principal Investigator: Love, E. S.
Performing Organization: U.S. National Aeronautics and Space Administration, Langley Research Center, Hampton, Virginia 23365
Supporting Agency: U.S. National Aeronautics and Space Administration, Aeronautics and Space Technical Office, Langley Research Center, No. 176-53-32 7470481

Period: 7/73 to 6/74 Funds: Unknown

Ecological consequences of specific manmade and natural pollutants in estuaries of the Chesapeake Bay and adjacent coastal zones are being quantitatively measured in a cooperative study. An evaluation of remote sensing and remote readout instrumentation for evaluation of marine pollution including the study of oil spill effects is being conducted.

Biological effects of oil pollution

SSIE No.: ZH-31488

R-175-74
REMOTE SENSING OF PHYSICAL OCEANOGRAPHY, COASTAL PROCESSES AND ESTUARIES

Principal Investigator: Oberholtzer, J. D.
Performing Organization: U.S. National Aeronautics and Space Administration, Wallops Station, Chincoteague, Virginia 23337
Supporting Agency: U.S. National Aeronautics and Space Administration, Space Sciences Office, Wallops Station, No. 160-75-17 7370488
Period: 7/72 to 6/73 Funds: Unknown

Remote sensing capabilities are being demonstrated and evaluated in a study to expand remote sensing utilization to a wide range of problems, including oil pollution.

SSIE No.: ZH-21699

R-176-74
AERIAL SURVEILLANCE SPILL PREVENTION SYSTEM

Principal Investigator: Welch, R. I.
Performing Organization: Earth Satellite Corporation, 1771 N. St. NW, Washington, D.C. 20036
Supporting Agency: U.S. Environmental Protection Agency, Office of Water Programs
Period: 7/73 to 6/74 Funds: Unknown

The feasibility of locating and identifying potential spill sources in San Francisco Bay by aerial reconnaissance and photo or multispectral interpretation techniques is being investigated.

SSIE No.: ZMA-615-1

3. ANALYSIS

R-177-74
MOVEMENT OF OIL SLICKS INCLUDING PREDICTION

Principal Investigator: Cole, H. A.
Performing Organization: Ministry of Agriculture, Lowestoft, England, United Kingdom
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-575

R-178-74
GEOCHEMISTRY OF OILFIELD BRINES

Principal Investigators: Collins, A. G., J. W. Davis, G. E. Fletcher, and C. A. Pearson, Energy Research Center
Performing Organization: U.S. Department of the Interior, Bureau of Mines, Bartlesville, Oklahoma 74003
Supporting Agency: U.S. Department of the Interior, Bureau of Mines
Period: 7/73 to 6/74 Funds: $86,000

Oilfield brine samples will be analyzed to determine chemical and physical characteristics. Brines are being evaluated as sources for economically recoverable constituents and to gain information concerning their disposal to prevent pollution of freshwater and land.

Economic effects of oil pollution

SSIE No.: ZUG-1691-4

R-179-74
OIL POLLUTION ANALYTICAL METHODS

Principal Investigator: Cram, S. P.
Performing Organization: U.S. Department of Commerce, National Bureau of Standards, Washington, D.C. 20234
Supporting Agency: U.S. Department of Commerce, Maritime Administration, No. 3109499
Period: 7/72 to 6/73 Funds: $90,000

Methods are being developed to determine trace amounts of toxic crude oil compounds in seawater in order to establish the effect of crude oil on fish and other aquatic organisms.

Biological effects of oil pollution

SSIE No.: ZBM-18

R-180-74
DEVELOPMENT AND METHODS OF ANALYSIS FOR PESTICIDES, METALS, ETC. AND THE IDENTIFICATION OF OIL POLLUTANTS

Principal Investigator: Egan, H.
Performing Organization: Department of Trade and Industry, Cornwall House, London, England
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-845

R-181-74
DEVELOPMENT OF TECHNIQUES FOR IDENTIFICATION OF OIL SPILLS

Principal Investigator: Egan, H.
Performing Organization: Department of Trade and Industry, Cornwall House, London, England
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-843

R-182-74
OIL SPILL IDENTIFICATION

Principal Investigators: Ferrero, E. P., C. C. Ward, and H. J. Coleman, Energy Research Center
Performing Organization: U.S. Department of the Interior, Bureau of Mines, Bartlesville, Oklahoma 74003
Supporting Agency: U.S. Department of the Interior, Bureau of Mines
Period: 7/73 to 6/74 Funds: $76,000

The project provides for the preparation of a catalog of reference data for identification of sources of water pollution caused by accidental spillage or intentional dumping of oil. Samples of crude oil from major oil fields in the world will be analyzed for unique properties, such as amounts of particular metals or gases.

SSIE No.: ZUG-2215-2

R-183-74
OIL POLLUTION OF RIVERS, METHODS OF ANALYSIS

Principal Investigator: Glenn, W. J.
Performing Organization: Department of Environment, London, England
Supporting Agency: United Kingdom Government
Period: 7/72 to 6/73 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-527

R-184-74
EXTRACTION OF OIL FROM SEDIMENT FOR QUANTITATION SPECTROSCOPIC ANALYSIS

Principal Investigator: Gruenfeld, M.
Performing Organization: U.S. Environmental Protection Agency, National Environmental Research Center, 5555 Ridge Avenue, Cincinnati, Ohio 45213
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development
Period: 7/73 to 6/74 Funds: Unknown

A technique is sought which can rapidly extract small amounts of oils from sediments. Extracted oils are to be analyzed using infrared, ultraviolet or fluorescence spectrophotometry.

Sampling

SSIE No.: ZMA-663-1

R-185-74
QUANTITATIVE ANALYSIS OF OIL BY INFRARED SPECTROPHOTOMETRY

Principal Investigator: Gruenfeld, M.
Performing Organization: U.S. Environmental Protection Agency, Edison Water Quality Research Laboratory, 5555 Ridge Avenue, Cincinnati, Ohio 45268
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development, No. 21 AOE 02 72P17896
Period: 7/73 to 6/74 Funds: Unknown

Application of infrared spectrophotometry for the quantitative analysis of oil will be assessed.

SSIE No.: ZMA-664-1

R-186-74
INSTRUMENTAL METHOD FOR DETERMINING OIL IN WATER

Principal Investigator: Hearst, P. S.
Performing Organization: U.S. Navy, Civil Engineering Laboratory, Point Mugu, Port Hueneme, California 93041
Supporting Agency: U.S. Department of Defense, Navy EDN 244080
Period: 7/73 to 6/74 Funds: Unknown

A method to detect small amounts of oil in water is being developed. Other areas of study include emulsification of the oil-water sample, and determination of total carbon present.

SSIE No.: ZQN-244080-1

R-187-74
DEVELOP METHOD FOR OIL FINGERPRINTING BY NEUTRON ACTIVATION ANALYSIS

Principal Investigator: Moore, R. V.
Performing Organization: U.S. Environmental Protection Agency, Southeast Environmental Research Laboratory, College Station Road, Athens, Georgia 30601
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development, No. 24AAP-05
Period: 7/72 to 6/73 Funds: $17,500

A method for identifying the source of spilled oils is being developed by comparing characteristic ratios of elements as determined by neutron activation analysis.

SSIE No.: ZMA-677

R-188-74
DEVELOPMENT OF TECHNIQUES FOR IDENTIFICATION OF OIL SPILLS

Principal Investigator: Robinson, A. J.
Performing Organization: Department of Trade and Industry, Stevenage, England
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-736

R-189-74
HYDROCARBONS IN MARINE WATERS-PORT VALDEZ, ALASKA

Principal Investigator: Shaw, D. G.
Performing Organization: University of Alaska, Institute of Marine Sciences, Fairbanks, Alaska 99701
Supporting Agency: American Chemical Society, No. 284963
Period: 7/73 to 6/74 Funds: $3,500

No summary provided to SSIE.

SSIE No.: PCS-2102

R-190-74
METHODS FOR SSMS FINGERPRINTING OF OILS

Principal Investigator: Taylor, C. E.
Performing Organization: U.S. Environmental Protection Agency, National Evnironmental Research Center, Corvallis, Oregon 97330
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development
Period: 7/73 to 6/74 Funds: Unknown

The feasibility of using spark source mass spectrophotometry to provide stable fingerprinting of oils (unaffected by weathering) is being investigated.

SSIE No.: ZMA-709-1

R-191-74
EMULSION FORMED FROM CRUDE OIL SPILT AT SEA

Principal Investigator: Unknown
Performing Organization: University of Nottingham, Nottingham, England
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-1043

R-192-74
OIL POLLUTION RESEARCH

Principal Investigator: Wasik, S. P.
Performing Organization: U.S. Department of Commerce, National Bureau of Standards, Washington, D.C. 20234
Supporting Agency: U.S. Department of Commerce, Maritime Administration
Period: 7/72 to 6/73 Funds: $50,000

The solubilities of petroleum-type hydrocarbons in fresh and seawater over ocean temperature and salinity ranges are being determined.

SSIE No.: ZBM-19

B. OIL POLLUTION CONTROL

1. CONTAINMENT

R-193-74
BREAKING OF OIL-WATER EMULSIONS

Principal Investigators: Kaufman, S., and R. C. Little
Performing Organization: U.S. Navy Research Laboratory, Washington, D.C. 20390
Supporting Agency: U.S. Department of Defense, Navy #DN220050
Period: 7/73 to 6/74 Funds: Unknown

The contract provides for the development of methods to prevent oil dispersions in ballast and bilge water aboard ships and in natural waters. Studies to devise techniques for cleaning bilges are also underway.

Cleanup

SSIE No.: ZQN-220050

R-194-74
CARGO HANDLING AND TERMINALS

Principal Investigator: Powers, J. V.
Performing Organization: U.S. Department of Commerce, National Maritime Research Center, P.O. Box 1600, Galveston, Texas 77550
Supporting Agency: U.S. Department of Commerce, Maritime Administration
Period: 7/72 to 6/73 Funds: Unknown

Studies are being conducted to test and evaluate an offshore deepwater oil containment system, to evaluate systems for submerged oil pipeline leak detection and isolation, and to learn current American Merchant Marine cargo handling and management techniques.

Design and Engineering

SSIE No.: ZBM-36

R-195-74
STUDY AND ASSESSMENT OF EQUIPMENT FOR CONTAINMENT OF OIL AT SEA

Principal Investigator: Robinson, A. J.
Performing Organization: Department of Trade and Industry, Stevenage, England

Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-744

R-196-74
DETERMINE PHYSICAL PARAMETERS WHICH AFFECT OIL SPILL CONTAINMENT

Principal Investigator: Unknown
Performing Organization: U.S. Environmental Protection Agency, National Environmental Research Center, 5555 Ridge Avenue, Cincinnati, Ohio 45213
Supporting Agency: U.S. Environmental Protection Agency
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: ZMA-778

2. CLEANUP

R-197-74
TRIALS FOR SINKING OIL

Principal Investigator: Cole, H. A.
Performing Organization: Ministry of Agriculture, Lowestoft, England, United Kingdom
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE

SSIE No.: WDQ-573

R-198-74
ABSORBENT RECOVERY SYSTEMS

Principal Investigator: Hall, D.
Performing Organization: Ocean Design Engineering Company, 600 E. Ocean, Long Beach, California 90802
Supporting Agency: American Petroleum Institute
Period: 1/73 to 12/73 Funds: $230,000

The design of the sorbent distribution and harvesting systems of a marine weed harvester used as an absorbent recovery device is being optimized and an at-sea, open-water prototype device is being constructed.

SSIE No.: PAP-80

R-199-74
ASSESSMENT AND TESTING OF OIL DISPERSANTS FOR USE AT SEA

Principal Investigator: Robinson, A. J.
Performing Organization: Department of Trade and Industry, Stevenage, England
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-734

R-200-74
ASSESSMENT OF DEVICES FOR THE REMOVAL OF OIL FROM INSHORE AND INLAND WATERS

Principal Investigator: Robinson, A. J.
Performing Organization: Department of Trade and Industry, Stevenage, England, United Kingdom
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-738

R-201-74
ASSESSMENT OF OIL SINKING AGENTS AND POSSIBLE DEVELOPMENT OF NEW AGENTS

Principal Investigator: Robinson, A. J.
Performing Organization: Department of Trade and Industry, Stevenage, England, United Kingdom
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-739

R-202-74
STUDY AND ASSESSMENT CRAFT INCLUDING THEIR DEPLOYMENT FOR USE IN THE RECOVERY OF OIL AT SEA AND IN INSHORE AND INLAND WATERS

Principal Investigator: Robinson, A. J.
Performing Organization: Department of Trade and Industry, Stevenage, England, United Kingdom
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-741

R-203-74
STUDY AND ASSESSMENT OF DEVICES FOR RECOVERY OF OIL AT SEA

Principal Investigator: Robinson, A. J.
Performing Organization: Department of Trade and Industry, Stevenage, England, United Kingdom

Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-742

R-204-74
STUDY AND ASSESSMENT OF OIL COLLECTION, SEPARATION, STORAGE AND TRANSPORT SYSTEMS AT SEA

Principal Investigator: Robinson, A. J.
Performing Organization: Department of Trade and Industry, Stevenage, England, United Kingdom
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-743

R-205-74
STUDY AND ASSESSMENT OF OIL SCAVENGING AGENTS FOR USE ON INSHORE AND INLAND WATERS

Principal Investigator: Robinson, A. J.
Performing Organization: Department of Trade and Industry, Stevenage, England, United Kingdom
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-745

R-206-74
TRIALS FOR SINKING OIL

Principal Investigator: Robinson, A. J.
Performing Organization: Department of Trade and Industry, Stevenage, England, United Kingdom
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-735

R-207-74
CHEMICAL AND BIOLOGICAL METHODS OF DISPERSING OIL AT SEA

Principal Investigator: Unknown
Performing Organization: University of London, London, England, United Kingdom
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-1051

R-208-74
ASSESSMENT AND TESTING OF OIL DISPERSANTS FOR USE AT SEA

Principal Investigator: Wood, P. C.
Performing Organization: Ministry of Agriculture, Burnham on Crouch, England, United Kingdom
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-719

R-209-74
TREATMENT OF OIL SPILLS, ESPECIALLY SINKING OR DISPERSION

Principal Investigator: Wood, P. C.
Performing Organization: Ministry of Agriculture, Burnham on Crouch, England, United Kingdom
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-718

R-210-74
NILSLIC

Principal Investigator: Young, P. H.
Performing Organization: ICI Australia, Limited, Ascot Vale, Victoria, Australia
Supporting Agency: ICI Australia Limited

Period: 7/72 to 6/73 Funds: Unknown

A novel process for recovering spilled oil from rivers and the sea is being evaluated.

SSIE No.: WAS-743

R-211-74
BILGE AND BALLAST WATER OIL POLLUTION CONTROL FOR NAVAL SHIPS

Principal Investigators: Yu, T.S., and S. M. Finger
Performing Organization: U.S. Navy, Ship Research and Development Center, Annapolis, Maryland 21402
Supporting Agency: U.S. Department of Defense, Navy
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: ZQN-710112-3

C. EFFECTS OF OIL POLLUTION

1. BIOLOGICAL EFFECTS

R-212-74
FATE AND EFFECTS OF OIL AND OIL COMPOUNDS ON MARINE COASTAL ECOSYSTEMS

Principal Investigators: Bean, R. M., and J. A. Lichatowich
Performing Organization: Battelle Memorial Institute, P.O. Box 999, Richland, Washington 99352
Supporting Agency: U.S. Atomic Energy Commission, Biomedical and Energy Research Division
Period: 7/73 to 6/74 Funds: $60,000

A study will be conducted on the effects on the marine environment of chronic discharge of oil as a result of spillage from marine transport, industrial operations and land run-off. Such sources of oil present an increasing threat to valuable natural resources.

SSIE No.: ZPE-10398

R-213-74
EFFECTS OF OIL AND OIL PRODUCTS ON MARINE AND ANADROMOUS FISHES AND INVERTEBRATES

Principal Investigator: Brocksen, R. W.
Performing Organization: U.S. Department of Commerce, Tiburon Fisheries Laboratory, P.O. Box 98, Belvedere, California 94920
Supporting Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, No. 28181010
Period: 7/72 to 6/73 Funds: $70,000

Experiments are being conducted to determine the acute and chronic effects of oil and oil products on marine and anadromous fishes and invertebrates.

SSIE No.: ZBP-511

R-214-74
WATER FOWL DISPERSION STUDY - PROJECT NO. OS-12B

Principal Investigator: Crummit, J.
Performing Organization: Biological Field Services Company, P.O. Box 3836, Visalia, California 93277

Supporting Agency: American Petroleum Institute
Period: 7/72 to 6/73 Funds: $10,000

In addition to water fowl response to noise studies, the feasibility of moving water fowl from oil spill threatened areas is being evaluated and the longevity of evacuation is being determined.

SSIE No.: PAP-77

R-215-74
FAUNAL RELATIONSHIPS TO HYDROCARBONS

Principal Investigator: Farragut, R. N.
Performing Organization: U.S. Department of Commerce, Miami Fisheries Laboratory, 75 Virginia Beach Drive, Miami, Florida 33149
Supporting Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, No. SEC-008-76-IE-A
Period: 7/73 to 6/74 Funds: $97,300

Hydrocarbon components of marine fauna and their relationship to environmental parameters are being determined.

SSIE No.: ZBP-680

R-216-74
THE MICROBIAL DEGRADATION OF AROMATIC HYDROCARBONS

Principal Investigator: Gibson, D. T.
Specialty: Microbiology
Performing Organization: University of Texas, School of Natural Sciences, 200 West 21st Street, Austin, Texas 78712
Supporting Agency: Robert A. Welch Foundation
Period: 7/73 to 6/74 Funds: $15,000

Studies are being conducted on the ability of microorganisms to degrade aromatic hydrocarbons.

SSIE No.: PRW-585-2

R-217-74
EFFECTS OF PETROLEUM OILS, OIL DISPERSANTS, PETROCHEMICAL WASTES, AND ASSOCIATED POLLUTANTS ON MARINE LIFE

Principal Investigator: Hegre, C. S.

Performing Organization: U.S. Environmental Protection Agency, National Environmental Research Center, Corvallis, Oregon 97330
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development, No. 16AAV 12 72P17877
Period: 7/73 to 6/74 Funds: Unknown

Variability of toxic levels to aquatic organisms and water qualities which influence response are being investigated. Interim safe level standards are to be provided based upon field studies.

Analysis

SSIE No.: ZMA-644-1

R-218-74
PHYSIOLOGICAL AND BEHAVIORAL RESPONSES OF FISHES TO OIL, LEACHATES, AND OTHER POLLUTANTS

Principal Investigators: Karinen, J., and S. Rice
Performing Organization: U.S. Department of Commerce, Pacific Northwest Fisheries Research Center, 2725 Montlake Blvd. E, Seattle, Washington 98102
Supporting Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, No. 28189073
Period: 7/72 to 6/73 Funds: $76,800

The effects of Alaskan crude oil on Alaskan organisms are being investigated as part of an effort to predict, prevent, and alleviate damage to Alaskan coastal fishery resources due to petroleum development. Acute and chronic bioassays, oil avoidance tests, and enzyme assays are being conducted primarily on pink salmon fry.

SSIE No.: ZBP-400

R-219-74
ENVIRONMENTAL QUALITY CRITERIA

Principal Investigator: London, S. A.
Performing Organization: U.S. Air Force Aerospace Medical Research Lab, 6570 Wright Patterson A.F.B., Dayton, Ohio 45433

Supporting Agency: U.S. Department of Defense, Air Force #DF312920
Period: 7/73 to 6/74 Funds: Unknown

The project proposes to determine the effects of missile propellants, petroleum products and other substances used in Air Force operations on a broad spectrum of plant and fish species; to insure that such reactive materials are not disruptive to the environment. Environmental pollution toxicology criteria will also be developed.

SSIE No.: ZQF-312920-1

R-220-74
PROBABLE EFFECTS OF TRANS-ALASKA PIPELINE, TERMINALS, AND TANKER FACILITIES ON ALASKA'S FISHERIES

Principal Investigators: Merrell, T. R., R. T. Myren, J. Pella, and N. Smith
Performing Organization: U.S. Department of Commerce, Auke Bay, Fisheries Laboratory, P.O. Box 155, Auke Bay, Alaska 99821
Supporting Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, No. R8110283
Period: 7/72 to 6/73 Funds: $65,000

Field research activities are being conducted which are useful in the prevention, alleviation and evaluation of damage to Alaska's coastal fishing resources threatened by petroleum development. Intertidal biota baseline studies and oil toxicity experiments are in progress.

SSIE No.: ZBP-398

R-221-74
EFFECTS OF INDUSTRIAL DEVELOPMENTS ON ALASKA'S LIVING MARINE RESOURCES

Principal Investigators: Merrell, T. R., R. T. Myren, R. Rice, H. E. Bruce, H. Sears, and C. R. Mattson
Performing Organization: U.S. Department of Commerce, Auke Bay Fisheries Laboratory, P.O. Box 155, Auke Bay, Alaska 99821
Supporting Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, No. 720581 028180928

Period: 7/72 to 6/73 Funds: $250,000

Research is being conducted to help prevent and alleviate damage to Alaska's coastal fisheries threatened by development (including petroleum development). Baseline measures, oil toxicity, and catastrophe prediction (oil spills) are some of the areas being examined.

SSIE No.: ZBP-309

R-222-74
EFFECT OF NATURAL OIL SEEPS ON MARINE ORGANISMS

Principal Investigators: Merrell, T. R., and H. S. Sears
Performing Organization: U.S. Department of Commerce, Auke Bay Fisheries Laboratory, P.O. Box 155, Auke Bay, Alaska 99821
Supporting Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, No. R8110187
Period: 7/72 to 6/73 Funds: $3,000

Natural intertidal oil seeps in Alaska are being located and marine intertidal invertebrates are being collected for analysis and determination of hydrocarbon baseline levels.

Analysis

SSIE No.: ZBP-399

R-223-74
DETERMINATION OF THE ENVIRONMENTAL EFFECTS OF OFF-SHORE PIPELINES

Principal Investigator: Morrison, D. L.
Performing Organization: Battelle Memorial Institute, 505 King Avenue, Columbus, Ohio 43201
Supporting Agency: No formal support reported
Period: 1/73 to 12/73 Funds: Unknown

No summary provided to SSIE.

Physical effects of oil pollution

SSIE No.: WZ-2622

R-224-74
DEVELOPMENT AND USE OF A SALT MARSH MICROCOSM AS AN OIL POLLUTION RESEARCH TOOL

Principal Investigator: Nadeau, R. J.
Oil Spills Branch, U.S. Environmental Protection Agency
Performing Organization: U.S. Environmental Protection Agency, Edison Water Quality Lab, Edison, New Jersey 08817
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development, No. 21 APU-02
Period: 7/72 to 6/73 Funds: $2,000

Plant and animal growth and development in a salt marsh microcosm were analyzed before and after contamination of the area with low concentrations of oil. The project will evaluate the consequences of using microcosms to measure effects of pollutants on natural environments.

SSIE No.: ZMA-649

R-225-74
MARINE TUNICATE RESPONSE TO LOW LEVEL CONCENTRATIONS OF OIL

Principal Investigator: Nadeau, R. J.
Performing Organization: U.S. Environmental Protection Agency, National Environmental Research Center, 5555 Ridge Avenue, Cincinnati, Ohio 45213
Supporting Agency: U.S. Environmental Protection Agency, Office of Research and Development, No. 21 APU 02 72P17906
Period: 7/73 to 6/74 Funds: Unknown

A continuous flow system was developed to screen macroinvertebrate marine animals for possible indicator species that could be used to determine the impact of an oil spill on marine populations. Sublethal responses of the tunicate Molgula manhattensis to low concentrations of oil were observed.

SSIE No.: ZMA-650-1

R-226-74
REMOTE SENSING - WATER AND LAND POLLUTION, BIOTIC AND ABIOTIC DEGRADATION, ENERGY BUDGET AND CULTURAL PRESSURES

Principal Investigator: Nelson, C. H.

Performing Organization: U.S. National Aeronautics and Space Administration, Langley Research Center, Hampton, Virginia 23365
Supporting Agency: U.S. National Aeronautics and Space Administration, Aeronautics and Space Technical Office, Langley Research Center
No. 160-75-22 7370494
Period: 7/72 to 6/73 Funds: Unknown

Ecological consequences of specific man-made and natural pollutants in estuaries of the lower Chesapeake Bay are being measured. An experiment being conducted is the monitoring of the fate and effects of oil spilled in mini-ecosystems constructed in a tidal marsh.

Physical effects of oil pollution

SSIE No.: ZH-21705

R-227-74
BIODEGRADATION OF OIL IN SEAWATER FOR NAVAL POLLUTION CONTROL

Principal Investigators: O'Neill, T. B., and D. B. Chan
Performing Organization: U.S. Navy Civil Engineering Laboratory, Point Mugu, Port Hueneme, California 93041
Supporting Agency: U.S. Department of Defense, Navy
Period: 7/73 to 6/74 Funds: Unknown

Investigations are being conducted to find microorganisms that are capable of degrading oil products in seawater efficiently, and to develop techniques to isolate and mass produce these organisms for field application.

Cleanup

SSIE No.: ZQN-144052

R-228-74
THE MICROBIAL DEGRADATION OF HYDROCARBONS IN MARINE ENVIRONMENTS

Principal Investigator: Perry, J. J.
Performing Organization: University of North Carolina, School of Agriculture, Raleigh, North Carolina 27607
Supporting Agency: North Carolina State Government
Period: 7/72 to 6/73 Funds: Unknown

The total number and distribution of hydrocarbon utilizers that occur in coastal North Carolina seawater, salt marshes, and soil will be investigated. Isolated colonies and combined populations of microorganisms will be cultured on single petroleum fractions or complex petroleum.

SSIE No.: YNC-186-2

R-229-74
EFFECTS OF ENVIRONMENTAL POLLUTION ON THE AQUATIC RESOURCES

Principal Investigators: Snyder, G. R., T. Blahm, J. Hughes, R. Clark, and C. Sims
Performing Organization: U.S. Department of Commerce, National Fisheries Service, 2725 Montlake Blvd., Seattle, Washington 09102
Supporting Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service
Period: 7/72 to 6/73 Funds: $393,000

A study is being conducted to determine environmental variables in estuaries that are or will be altered by industrial or water resource development. Food chain bioenergetics and synergistic effects of ecological changes on the aquatic biota will be evaluated.

Physical effects of oil pollution

SSIE No.: ZBP-499

R-230-74
PHYSIOLOGICAL EFFECT OF CONTAMINANTS - EFFECT OF ALTERATIONS IN THE NATURAL ENVIRONMENT

Principal Investigator: Stansby, M. E.
Performing Organization: U.S. Department of Commerce, Environmental Conservation Division, 2725 Montlake Blvd. E., Seattle, Washington 98112
Supporting Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, No. FB 1100 2 818 A4
Period: 7/73 to 6/74 Funds: $305,300

Petroleum hydrocarbons are included among the contaminants being examined in a study of the natural and man-induced environmental effects on the distribution, abundance, and function of aquatic organisms in the lower Columbia River and estuary, and in the northern Puget Sound.

SSIE No.: ZBP-625

R-231-74
SURVEY OF SUBLETHAL EFFECTS ON BIOTA OF CHRONIC NATURAL EXPOSURE TO OIL

Principal Investigator: Straughan, D.
Performing Organization: University of Southern California, Allan Hancock Foundation, University Park, Los Angeles, California 90007
Supporting Agency: American Petroleum Institute
Period: 7/73 to 6/74 Funds: Unknown

California beach areas subject to long-term oil exposure will be surveyed for growth irregularities and abnormalities of the biota. Unpolluted beach areas will be surveyed and used as controls.

SSIE No.: PAP-76

R-232-74
PROCESSING OF BUNKER C OIL PARTICLES BY ZOOPLANKTON

Principal Investigator: Strickler, J. R.
Specialty: Earth and Planetary Sciences
Performing Organization: Johns Hopkins University, School of Arts, Charles and 34th Streets, Baltimore, Maryland 21218
Supporting Agency: American Chemical Society, No. 2740G1
Period: 9/72 to 8/73 Funds: $3,500

No summary provided to SSIE.

SSIE No.: PCS-1856

R-233-74
ECOLOGICAL CYCLING OF PETROLEUM DERIVATIVES

Principal Investigators: Turner, M. R., R. L. Ferguson, and D. A. Wolfe
Performing Organization: U.S. Department of Commerce, Atlantic Estuarine Fisheries Center, Beaufort, North Carolina 28516
Supporting Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries, No. R8110303
Period: 7/72 to 6/73 Funds: $37,200

The fate of various petroleum-based hydrocarbons in simple and polytrophic cultures of marine and estuarine organisms is being investigated using labeled pure hydrocarbons.

SSIE No.: ZBP-462

R-234-74
BACTERIOLOGICAL DEGRADATION OF OIL

Principal Investigator: Unknown
Performing Organization: University of Wales, Bangor Caerns, Wales
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

Cleanup

SSIE No.: WDQ-1052

R-235-74
ASSESSMENT OF EFFECTS OF OIL AND OIL DISPERSANTS ON FISH, SHELLFISH AND OTHER MARINE RESOURCES

Principal Investigator: Wood, P. C.
Performing Organization: Ministry of Agriculture, Burnham on Crouch, England, United Kingdom
Supporting Agency: United Kingdom Government
Period: 7/73 to 6/74 Funds: Unknown

No summary provided to SSIE.

SSIE No.: WDQ-720

2. ECONOMIC

R-236-74
EFFECTS OF OIL POLLUTION ON FISH EATING QUALITIES

Principal Investigator: Burgess, G. H.
Performing Organization: Ministry of Agriculture, Aberdeen, Scotland, United Kingdom
Supporting Agency: United Kingdom Government
Period: 7/72 to 6/73 Funds: Unknown

No summary provided to SSIE.

Biological effects of oil pollution

SSIE No.: WDQ-746

R-237-74
EFFECTS OF OIL POLLUTION ON FISH EATING QUALITIES

Principal Investigator: Wood, P. C.
Performing Organization: Ministry of Agriculture, Burnham on Crouch, England, United Kingdom
Supporting Agency: United Kingdom Government
Period: 7/72 to 6/73 Funds: Unknown

No summary provided to SSIE.

Biological effects of oil pollution

SSIE No.: WDQ-511

3. GENERAL EFFECTS

R-238-74
ENVIRONMENTAL IMPACT OF PETROLEUM EXPLORATION AND PRODUCTION ON GEORGES BANK

Principal Investigator: Knebel, H. J.
Performing Organization: U.S. Department of the Interior, Geological Survey, Woods Hole, Massachusetts 02543
Supporting Agency: U.S. Department of the Interior, Geological Survey, Geological Division, No. 9810-00973
Period: 7/72 to 6/73 Funds: Unknown

The project encompasses physical, chemical, geological, and biological studies to determine the spatial and temporal variability of the primary dynamic factors involved in oil spill dispersal. Such studies will provide baseline data on environmental factors affected by oil spills.

SSIE No.: ZUA-2451

D. OIL POLLUTION PREVENTION

1. DESIGN AND ENGINEERING

R-239-74
PETROLEUM PRODUCTS FOR ELECTRICAL EQUIPMENT

Principal Investigator: Geier, F. H.
Performing Organization: U.S. Department of the Interior, Bureau of Reclamation, Denver Federal Center, Bldg. 67, Denver, Colorado 80225
Supporting Agency: U.S. Department of the Interior, Bureau of Reclamation, No. DR-248
Period: 7/73 to 6/74 Funds: $5,000

Studies must be undertaken to develop an efficient method to reclaim insulating oils by identifying and removing contaminants which degrade the oils.

SSIE No.: ZUF-589-2

R-240-74
CONCEPT TESTING FOR OIL/WATER SEPARATION

Principal Investigator: Mitchell, G. E.
Performing Organization: Todd Shipyards Corporation, Galveston, Texas 77550
Supporting Agency: U.S. Department of Commerce, Maritime Administration, No. 037412
Period: 7/72 to 6/73 Funds: $198,000

In an effort by the Pollution Control Center to develop shipboard systems and procedures and eliminate marine pollution, concept testing of oil/water separation systems is being performed.

Oil recovery and handling techniques

SSIE No.: GBM-84

2. OIL RECOVERY AND HANDLING TECHNIQUES

R-241-74
OIL REMOVAL EQUIPMENT FOR NAVAL HARBORS - MULTICOMPONENT EVALUATION

Principal Investigator: Graham, D. J.
Performing Organization: U.S. Navy, Civil Engineering Laboratory, Point Mugu, Point Hueneme, California 93041
Supporting Agency: U.S. Department of Defense, Navy #DN044061
Period: 7/72 to 6/73 Funds: Unknown

Evaluations will be made of a broad spectrum of equipment which can be incorporated into an overall oil recovery system.

SSIE No.: ZQN-44061-3

R-242-74
A STUDY ON PORT COLLECTION AND SEPARATION FACILITIES FOR OILY WASTE

Principal Investigator: Moyer, E.
Performing Organization: Frederick R. Harris, Inc., New York, New York 10017
Supporting Agency: U.S. Department of Commerce, Maritime Administration, No. 035933
Period: 7/72 to 6/73 Funds: $645,393

The three phase project will determine the volume of oily waste which would be discharged from ship and barge ballast water and tank cleanings at U.S. ports; investigate available systems for the separation/treatment and disposal of oily wastes.

SSIE No.: GBM-87

3. PERSONNEL TRAINING AND EDUCATION

R-243-74
REVISION OF U.S.C.G. - TANKERMAN'S MANUAL

Principal Investigator: McCready, L. S.
Performing Organization: U.S. Department of Commerce, National Maritime Research Center, Great Neck, New York 11024
Supporting Agency: U.S. Department of Commerce, Maritime Administration, No. 044544
Period: 7/72 to 6/73 Funds: $60,000

No summary provided to SSIE.

SSIE No.: ZBM-43

E. LEGAL ASPECTS OF OIL POLLUTION

R-244-74
LEGAL REPRESENTATION OF CITIZEN'S INTERESTS IN ENVIRONMENTAL PROTECTION

Principal Investigator: Unknown
Performing Organization: Environmental Defense Fund, Riverhead, New York 11901
Supporting Agency: Ford Foundation
Period: 7/72 to 6/73 Funds: Unknown

Legal and scientific work will be done in several areas of environmental protection including oil pollution.

SSIE No.: QY-1575-2

SECTION IV. PATENTS

A. UNITED STATES

P-030-74
FLOATING BOOM

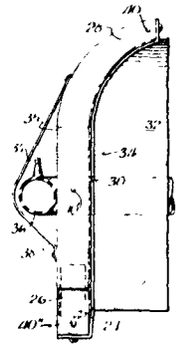
Cerasari, N. P.

U.S. Patent 3,800,542

The design of a floating boom which can be towed around an oil spill to collect and contain it is described.

Citation Source: Selected Water Resources Abstracts. 1974. 7(17). Entry #W74-09177.

3,800,542
FLOATING BOOM
Nicholas P. Cerasari, Wilmington, Del.
Continuation-in-part of Ser. No. 25,450, April 3, 1970, abandoned. This application Aug. 18, 1972, Ser. No. 281,850
Int. Cl. E02b 15/04
U.S. Cl. 61—1 F 11 Claims



P-031-74
FLUID-ANALYZER

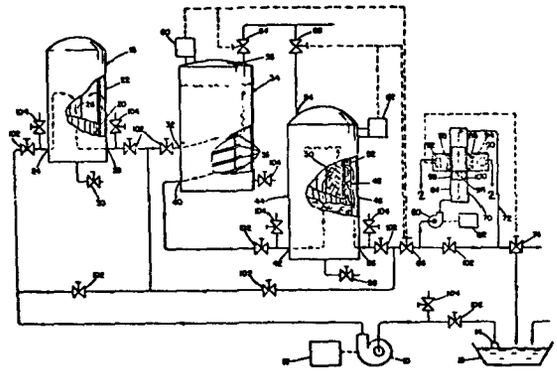
Conley, J. D., D. E. Belden, and R. D. Terhune

U.S. Patent 3,795,810

The apparatus provides continuous and accurate readouts measuring the concentration of hydrocarbons in effluent over wide concentration ranges.

Citation Source: Chemical Abstracts. 1974. 81(8). Entry E41168b.

3,795,810
FLUID ANALYZER
James D. Conley, Tulsa; Donald E. Belden, Sand Springs, and Ralph D. Terhune, Tulsa, all of Okla., assignors to Fram Corporation, East Providence, R.I.
Filed Nov. 27, 1972, Ser. No. 309,796
Int. Cl. G01n 21/26
U.S. Cl. 250—339 4 Claims



P-032-74
POLYSILOXANE CARBAMATE COMPOUNDS

Creamer, C. E.

U.S. Patent 3,816,359

Siloxamine polymers treated with CO_2 and water, respectively, result in silicone rubber foam which easily absorbs oil when prepared on an oil-covered water surface.

Citation Source: Chemical Abstracts. 1974. 81(18). Entry #107066a.

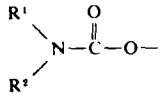
3,816,359

POLYSILOXANE CARBAMATE COMPOUNDS

Charles Edward Creamer, Ridgefield, Conn., assignor to Union Carbide Corporation, New York, N.Y.

Filed May 10, 1972, Ser. No. 252,330
Int. Cl. C08d *13/08*
U.S. Cl. 260—2.5 S 27 Claims

An organopolysiloxane polymer free from hydroxyl radicals, which contains at least one carbamate radical having the formula



P-033-74
MULTI-UNIT APPARATUS FOR COLLECTING OIL FROM THE SURFACE OF A BODY OF WATER

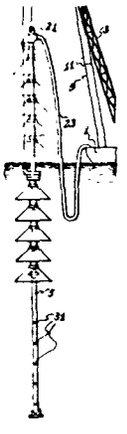
Daniel, W. H.

U.S. Patent 3,784,013

An apparatus has been developed in which oil is collected from surface waters by moving the oil downward beneath the surface of the water, and then upward into a receiving area.

Citation Source: Selected Water Resources Abstracts. 1974. 7(15). Entry #W74-08020.

3,784,013
MULTI-UNIT APPARATUS FOR COLLECTING OIL FROM THE SURFACE OF A BODY OF WATER
William H. Daniel, 541 Putman Rd., Rogers, Ark.
Filed Feb. 8, 1971, Ser. No. 113,555The portion of the term of this patent subsequent to June 6, 1989, has been disclaimed.
Int. Cl. E02b *15/04*
U.S. Cl. 210—242 **5 Claims**



P-034-74
FLOATAGE COLLECTING APPARATUS AND METHOD

Farrell, J. H., R. A. Bianchi, and E. E. Johanson

U.S. Patent 3,804,251

An oil separation technique is described in which a surface craft carrying an endless belt is exposed to the oil on the water's surface. The motion of the belt carries flotsam or oil in a downward direction and discharges the substances into an enclosure.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #10587.

3,804,251

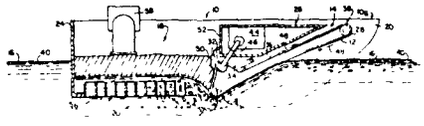
FLOATAGE COLLECTING APPARATUS AND METHOD

James H. Farrell; Ralph A. Bianchi, both of Lexington, and Edward E. Johanson, Lynnfield, all of Mass., assignors to JBF Scientific Corporation, Burlington, Mass.

Continuation-in-part of Ser. No. 151,838, June 10, 1971, abandoned. This application Mar. 6, 1972, Ser. No. 231,977

Int. Cl. B01d *21/00*

U.S. Cl. 210—83 22 Claims



P-035-74
TREATING OIL SLICKS USING CHEMICAL AGENTS

Ferm, R. L.

U.S. Patent 3,810,835. No illustration.

Chemical agents such as polyethylene glycol oleate, poly (oxyethylene) oleyl ether, and N,N-dimethyloleamide are used to treat open water oil slicks to contain them and prevent uncontrolled spreading.

Citation Source: Chemical Abstracts. 1974. 81(2). Entry #126560y.

P-036-74
CELL HAVING CATALYTIC ACTION FOR COALESCING OIL DROPLETS

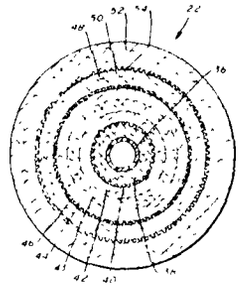
Fowler, L. L.

U.S. Patent 3,800,945

A multilayered core tube effective in coalescing oil dispersed in water is described.

Citation Source: Chemical Abstracts. 1974. 81(12). Entry #68184r.

3,800,945
CELL HAVING CATALYTIC ACTION FOR COALESCING OIL DROPLETS
Leslie L. Fowler, Tulsa, Okla., assignor to Cata-Sep, Inc., Tulsa, Okla.
Filed Nov. 26, 1971, Ser. No. 202,487
Int. Cl. B01d 27/02
U.S. Cl. 210—73 4 Claims



P-037-74
COMPOSITIONS FOR RECOVERY OF OIL

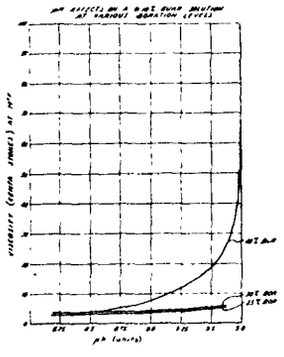
Friedman, R. H.

U.S. Patent 3,800,872

A process has been developed which removes oil from oil-water mixtures by the addition of a medium containing a pH control agent, organic gum, inorganic salt and o-cresol. Oil is separated due to the medium's differential effects on the viscosities of the oil and water components.

Citation Source: Chemical Abstracts. 1974. 81(10). Entry #52073t.

3,800,872
METHODS AND COMPOSITIONS FOR RECOVERY OF OIL
Robrt H. Friedman, Houston, Tex., assignor to Getty Oil Company, Los Angeles, Calif.
Continuation-in-part of Ser. No. 152.411, June 11, 1971, abandoned, which is a continuation-in-part of Ser. No. 42,328, June 1, 1970, abandoned. This application Oct. 10, 1972, Ser. No. 296,019
Int. Cl. E21b 43/22
U.S. Cl. 166—270 40 Claims



P-038-74
CONTROL OF OILS FLOATING ON WATER

Gilchrist, R. E., and J. C. Cox

U.S. Patent 3,821,109. No illustration.

A composition is described which treats oil slicks and spills on water surfaces so as to make the slick readily recoverable by mechanical or other removal means. The composition is composed of a drying oil, primarily derived from naturally occurring products and a carrier for the drying oil, which is usually a solvent for the drying oil.

Citation Source: Chemical Abstracts. 1974. 81(16). Entry #96158d.

P-039-74
GROWTH AND RECOVERY OF CELLS OF A HYDROCARBON-UTILIZING MICROORGANISM

Heilweil, I. J., and S. Srinivasan

U.S. Patent 3,813,290. No illustration.

Microorganisms were grown in an emulsion of oil and a mineral salt nutrient medium; the emulsion was maintained by continuous shaking. After cultivation, when shaking ceased, the cells separated into the water phase.

Citation Source: Chemical Abstracts. 1974. 81(13). Entry #76490c.

P-040-74
APPARATUS FOR REMOVING OIL FROM WATER

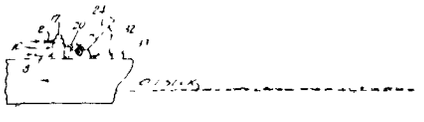
Hess, H. V., and E. L. Cole

U.S. Patent 3,800,950

The method and apparatus for removing oil floating on a water surface is described. Highly oleophilic plastic foam particles are projected on an oily surface and subsequently agglomerates the oil into lumps which can be contained and removed.

Citation Source: Selected Water Resources Abstracts. 1974. 7(17). Entry #W74-09178.

3,800,950
APPARATUS FOR REMOVING OIL FROM WATER
Howard V. Hess, and Edward L. Cole, both of P.O. Box 509, Fishkill, N.Y.
Continuation of Ser. No. 875,579, Nov. 10, 1969, abandoned, which is a continuation-in-part of Ser. No. 804,863, March 6, 1969, abandoned. This application Jan. 8, 1971, Ser. No. 105,074
Int. Cl. E02b 15/04
U.S. Cl. 210—242 3 Claims



P-041-74
SEPARATOR FOR OIL-CONTINUOUS DISPERSIONS

Jarvis, H. R., and E. A. Cole, Jr.

U.S. Patent 3,812,027

Described in detail is a separator system for oil-continuous dispersions. The separator contains a dispersed water phase composed of a horizontal vessel with baffles and a unidirectional electric field for resolving the dispersion.

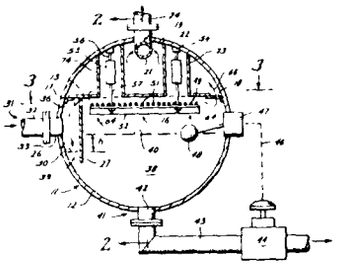
Citation Source: Chemical Abstracts. 1974. 81(16). Entry #93830f.

3,812,027

SEPARATOR FOR OIL-CONTINUOUS DISPERSIONS

Howell R. Jarvis and Ernest A. Cole, Jr., Houston, Tex., assignors to Petrolite Corporation, St. Louis, Mo.

Filed Oct. 17, 1972, Ser. No. 299,494
Int. Cl. B03c *5/02*
U.S. Cl. 204—302 **13 Claims**



P-042-74
DISPERSING A WATER-IMMISCIBLE LIQUID IN AN AQUEOUS MEDIUM

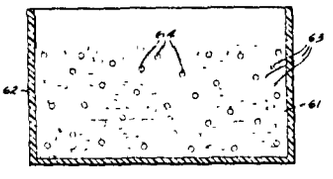
Kennedy, J. T., and F. A. Litt

U.S. Patent 3,816,329

When a mixture of oil and a 10-10,000A colloidal hydrous oxide wetting solution (described in U.S. Patent 3,657,003) are agitated under high speed conditions, a stable dispersion containing ≤74% oil will result. Examples of silicone oil dispersions are given.

Citation Source: Chemical Abstracts. 1974. 81(20. Entry #127103p.

3,816,329
DISPERSING A WATER-IMMISCIBLE LIQUID IN AN AQUEOUS MEDIUM
John Thomas Kenney, Lawrence Township, Mercer County, and Frederic Alan Litt, Cranford, both of N.J., assignors to Western Electric Company, Incorporated, New York, N.Y.
Filed May 24, 1972, Ser. No. 256,550
Int. Cl. B01j *13/00*
U.S. Cl. 252—312 6 Claims



P-043-74
DISPERSANT COMPOSITIONS

Meinhardt, N. A.

U.S. Patent 3,804,763. No illustration.

An oil-soluble dispersant having emulsifying characteristics is described.

Citation Source: Chemical Abstracts. 1974. 81(10). Entry #52118m.

P-044-74
FLOATING BOOM STRUCTURES

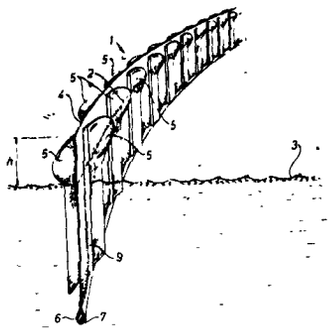
Oberg, P. O.

U.S. Patent 3,807,177

A description of an oil barrier system, the floating boom, is given. The boom is composed of a curtain of cloth material elongated vertically in the water supported by buoyant bags.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10580.

3,807,177
FLOATING BOOM STRUCTURES
Per Olof Oberg, Nordmaling, Sweden, assignor to Sanera Projecting Aktiebolag, Nordmaling, Sweden
Filed Dec. 15, 1971, Ser. No. 208,313
Claims priority, application Sweden, Oct. 15, 1971, 13108/71
Int. Cl. E02b *15/04*
U.S. Cl. 61 – 1 F 12 Claims



P-045-74
CONTROL OF WATERBORNE OIL SLICKS

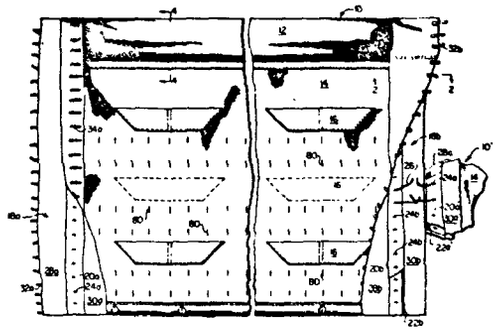
Preus, P.

U.S. Patent 3,795,315

A segmented floating barrier with a fluid absorbing skirt has been designed to serve as an oil containment system.

Citation Source: Selected Water Resources Abstracts. 1974. 7(15). Entry #W74-08036.

3,795,315
CONTROL OF WATERBORNE OIL SLICKS
Paul Preus, Smith Rd., Toms River, N.J. 08753
Filed Jan. 2, 1970, Ser. No. 214
Int. Cl. E02b 15/04
U.S. Cl. 210—242 1 Claim



P-046-74
PETROLEUM RECOVERY USING MISCIBLE FLUIDS

Rankin, M. R.

U.S. Patent 3,817,329. No illustration.

The constituents and method of producing a mixture which forms a suitable oil-external emulsion are described.

Citation Source: Chemical Abstracts. 1974. 81(20). Entry #124054n.

P-047-74
OIL-WATER SEPARATION ACCELERATION

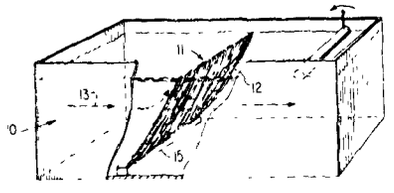
Rhodes, H. M.

U.S. Patent 3,810,832

An oil water separator composed of polypropylene filaments, formed in an inclined plane, can be arranged across the flow path in a tank, ditch or holding pond. Oil drops coalesce on the plane and move up to the water surface.

Citation Source: Chemical Abstracts. 1974. 81(16). Entry #93447m.

3,810,832
OIL/WATER SEPARATION ACCELERATION MEDIA
Herbert M. Rhodes, New Orleans, La., assignor to Oil Mop, Inc., New Orleans, La.
Filed June 1, 1972, Ser. No. 258,506
Int. Cl. B01d *17/02;* E02b *15/04*
U.S. Cl. 210—23 6 Claims



P-048-74
SEPARATING OIL FROM AN OIL-WATER MIXTURE

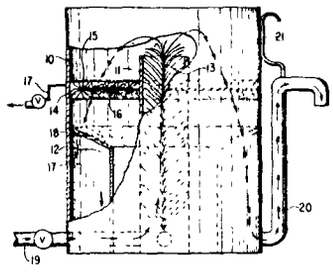
Rhodes, H. M.

U.S. Patent 3,794,583

Oil can be separated from water by passing the mixture through fibrillated strips of propylene. The separated water is then passed through a fluorocarbon "impregnated" fabric to remove any remaining oil.

Citation Source: Chemical Abstracts. 1974. 81(12). Entry #66033s.

3,794,583
METHOD AND APPARATUS FOR SEPARATING OIL FROM AN OIL WATER MIXTURE
Herbert M. Rhodes, New Orleans, La., assignor to Oil Mop, Inc., New Orleans, La.
Filed Aug. 28, 1972, Ser. No. 284,089
Int. Cl. B01d *13/00*
U.S. Cl. 210—23 **11 Claims**



P-049-74
FLOATING BARRIER

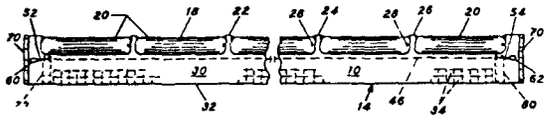
Sayles, J. A.

U.S. Patent 3,792,589

The apparatus, composed of a single sheet of reinforced rubber extending above the water surface, serves as a floating barrier to contain the spread of oil.

Citation Source: Selected Water Resources Abstracts. 1974. 7(15). Entry #W74-08025

3,792,589
FLOATING BARRIER
James A. Sayles, Kensington, Calif., assignor to Chevron Research Company, San Francisco, Calif.
Filed Jan. 17, 1972, Ser. No. 218,253
Int. Cl. E02b 15/04
U.S. Cl. 61—1 F 10 Claims



P-050-74
BREAKING OF OIL-IN-WATER EMULSIONS

Schick, J. W., and D. R. Cushman

U.S. Patent 3,826,725. No illustration.

Separation of an emulsion into a water phase and an oil phase is made possible by the addition of an electrolyte which adjusts the pH, followed by passage of a D.C. current through the emulsion to obtain a pH of 5, whereby separation occurs. The mechanism involved in breaking the emulsion is the formation of a floc which adsorbs oil onto the surface.

Citation Source: Chemical Abstracts. 1974. 18(20). Entry #126580e.

P-051-74
CLARIFICATION OF TAR SANDS MIDDLINGS WATER

Schutte, R.

U.S. Patent 3,816,305. No illustration.

The neutralization and clarification processes of middlings and tailings streams produced during the hot water treatment of Canadian tar sands are outlined.

Citation Source: Chemical Abstracts. 1974. 81(20). Entry #124095b.

P-052-74
OIL RECOVERY APPARATUS

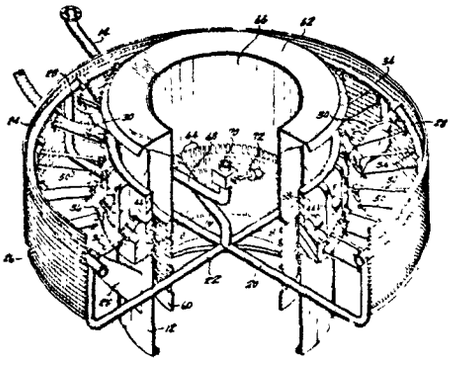
Stewart, J. K.

U.S. Patent 3,794,175

An oil recovery vessel is described in which floating oil is collected by water jets and carried to a receiving chamber.

Citation Source: Selected Water Resources Abstracts. 1974. 7(15). Entry #W74-08033.

3,794,175
OIL RECOVERY APPARATUS
Joe K. Stewart, 22818-102nd Pl. West, Edmonds, Wash. 98020
Filed May 15, 1972, Ser. No. 253,433
Int. Cl. E02b *15/04*
U.S. Cl. 210—242 18 Claims



P-053-74
APPARATUS FOR REMOVING OIL AND OTHER FLOATING CONTAMINANTS FROM A MOVING BODY OF WATER

Strohecker, J. W.

U.S. Patent 3,779,385

Described is a process in which floating pollutants such as oil are removed from a moving body of water by the use of a skimming system. Floating contaminants are diverted over a floating weir and into a retention pond by positioning a boom diagonally across the moving water. An underflow weir is used to return pollutant-free water to the moving body of water.

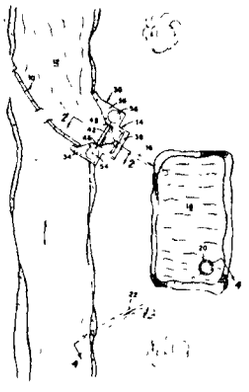
Citation Source: Government Reports Announcements. 1974. 74(21). Entry #13B Patent 3,779,385.

3,779,385

APPARATUS FOR REMOVING OIL AND OTHER FLOATING CONTAMINANTS FROM A MOVING BODY OF WATER

John W. Strohecker, Oak Ridge, Tenn., assignor to The United States of America, as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Nov. 30, 1971, Ser. No. 203,267
Int. Cl. E02b *5/08, 7/28*
U.S. Cl. 210—154 2 Claims



P-054-74
FLOATING BOOM

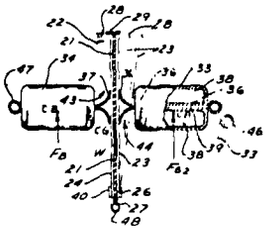
Tanksley, N. D.

U.S. Patent 3,807,178

The design and operation of an oil barrier system, comprised of several floats secured to a movable frame to form a floating boom, are outlined.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10579.

3,807,178
FLOATING BOOM
Neeld D. Tanksley, Walnut Creek, Calif., assignor to Pacific Pollution Control, San Francisco, Calif.
Filed June 16, 1972, Ser. No. 263,522
Int. Cl. E02b 15/04
U.S. Cl. 61—1 F 16 Claims



P-055-74
BOOM ARRANGEMENT FOR CONFINING OIL

Van't Hof, G.

U.S. Patent 3,803,848

A boom arrangement is described, composed of a number of bar-like parts connected to form a rigid wall structure. Several floating walls can be adjacently arranged to surround, confine or sweep an oil spill.

Citation Source: Selected Water Resources Abstracts. 1974. 7(20). Entry #W74-10591.

3,803,848
BOOM ARRANGEMENT FOR CONFINING OIL
Gustaaf Van't Hof, 10021 Lesterford Ave., Downey, Calif.
Continuation-in-part of Ser. No. 829,303, June 2, 1969, Pat. No. 3,611,728. This application Oct. 12, 1971, Ser. No. 188,313
Int. Cl. E02b *15/04*
U.S. Cl. 61—1 F 17 Claims

B. FOREIGN

P-056-74
DEOILING OF POLLUTED WATERS

Abadie, A., H. Roques, and Y. Aurelle

French Demande 2,109,741

Separation of oil-in-water emulsions is made possible by passing the emulsions through a column packed with oleophilic resin beads and collecting the oil phase droplets.

Citation Source: Chemical Abstracts. 1974. 81(20). Entry #126555a.

P-057-74
APPARATUS AND METHODS FOR COALESCING THE DISPERSE PHASE OF AN EMULSION

Alfa-Laval, N. V.

Netherlands Patent 73 12,706

The method describes the feasibility of coalescing hydrocarbon oils ballast water by passing the emulsion through a bed of particles with a higher specific weight than the emulsion, and preferentially wetted by the disperse phase.

Citation Source: Chemical Abstracts. 1974. 81(14). Entry #82129h.

P-058-74
REMOVAL OF OIL FROM GASES OR LIQUIDS

Andreichev, P. P., V. A. Kurkovskii, A. N. Vorob'ev, and M. P. Shilkina

U.S.S.R. Patent 415,026

Oil can be removed from liquid or gaseous substances by a process carried out by coalescence and separation of oil drops followed by purification on an absorber.

Citation Source: Chemical Abstracts. 1974. 81(4). Entry #82142g.

P-059-74
APPARATUS FOR THE SEPARATION OF OIL FROM WATER BY GRAVITY

Anonymous

Netherlands Patent 73 14,659

An apparatus is described in which an oil-water mixture is poured into a column containing packing in the form of plates. The oil forming a layer above the heavier water is removed at a top exit and the water flows out through a bottom exit.

Citation Source: Chemical Abstracts. 1974. 81(20).
Entry #126586m.

P-060-74
UNSTABLE EMULSION OF TWO NONMISCIBLE LIQUIDS

Anonymous

French Demande 2,180,500

A method is described by which an emulsion, such as an oil-water emulsion, is separated into the two phases by filtering and recycling processes.

Citation Source: Chemical Abstracts. 1974. 81(6).
Entry #29330r.

P-061-74
CLEANING COMPOSITIONS

Antonova, N. M., N. N. Balashova, E. K. Ivanova, O. I. Selenskaya, M. P. Nesterova, V. N. Maslennikova, L. A. Potolovskii, and A. B. Taubman

German Offenlegungsschriften (unexamined patent application) 2,332,479

Cleaning compositions of materials used in cleaning metallic surfaces of petroleum tankers and containers are discussed.

Citation Source: Chemical Abstracts. 1974. 81(6).
Entry #27569b.

P-062-74
BREAKING OF PETROLEUM EMULSIONS

Ashimov, M. A., M. A. Mursalova, Z. A. Dadasheva, M. A. Israfilov, G. A. Mamedov, Kh. M. Mamedov, and M. A. Mavlyutova

U.S.S.R. Patent 412,225

A petroleum soluble calcium alkyarylsulfonate (mol. st. 800-1000) was added to a petroleum emulsion to break the emulsion and prevent the contamination of waste water.

Citation Source: Chemical Abstracts. 1974. 81(20). Entry #124056q.

P-063-74
POLYPROPYLENE FOAM ADSORBENT FOR REMOVAL OF OILS FROM WATER

Azuma, K.

Japanese Kokai (unexamined patent application) 74 44,987

Oil adsorbents with improved adsorbtive capacity for removing oils from water surfaces have been produced by placing polypropylene and atactic polypropylene foams between two tightly bound laps of synthetic fibers. The adsorbtive capacity of the material was 22.5, 24, and 29 times higher than the conventional material for various oils.

Citation Source: Chemical Abstracts. 1974. 81(18). Entry #111202j.

P-064-74
PURIFYING WATER

Beavon, D. K.

British Patent 9423/71

Wastewater from petroleum refineries, containing oils and particulate solids, was purified by a filtration process through sand or sand-coal beds, steaming to remove the oils and backwashing with water to remove solid matter.

Citation Source: Chemical Abstracts. 1974. 81(6). Entry #29316r.

P-065-74
VESSEL FOR THE REMOVAL OF OIL ON WATER

Brydoy, S., and A. Sletsjoe

Canadian Patent 939,614

A skimming device is described for the removal of oil after an oil spill. Sweeping arms, fastened to a propellered vessel, float on the water and direct the surface oil toward the intake and suction chambers in the vessel.

Citation Source: Chemical Abstracts. 1974. 81(18). Entry #111203k.

P-066-74
BREAKING OF SPENT COLD-ROLL EMULSIONS AND OTHER OIL-IN-WATER EMULSIONS WITH NONIONOGENIC AND ANION-ACTIVE EMULSIFIERS

Busch, F., H. D. Benn, and A. Bowi

German Patent 2,302,369

A process to separate oil-in-water emulsions is described in which NaCl is added to the emulsion followed by boiling, addition of a ferrous or aluminum salt, and blowing of air through the emulsion to bring about flotation and oxidation of the metal salt. The separated oil is reusable and the wastewater is nonpolluting.

Citation Source: Chemical Abstracts. 1974. 81(20). Entry #124073t.

P-067-74
OIL EMULSIFIERS

Cook, T. E., and S. M. Craven

German Offenlegungsschriften (unexamined patent application) 2,359,599

The various components of low toxicity oil emulsifiers for oil removal from water surfaces are described.

Citation Source: Chemical Abstracts. 1974. 81(16). Entry #96326g.

P-068-74
APPARATUS FOR EMULSIFICATION OF OIL FLOATING ON THE SEA

Desty, D. H.

British Patent 1,347,841

The paper describes a floating apparatus which emulsifies oil slicks with seawater. The system contains stiff bristled rotary brushes which feed emulsifying agents into the surface layer of oil and water, and agitate the layer.

Citation Source: Chemical Abstracts. 1974. 81(6). Entry #29334v.

P-069-74
CRUDE OIL SWEEP DREDGE

Dilney, E.

Canadian Patent 943,871

An apparatus is described which removes oil and sludge from surface water by picking it up with an arm structure extending from a vessel and transferring the oil and sludge to a discharge area by a bucket conveyor system.

Citation Source: Selected Water Resources Abstracts. 1974. 7(19). Entry #W74-10030.

P-070-74
REMOVING OILS FROM WASTEWATERS BY FLOCCULATION WITH POLYMERS

Fukumori, R.

Japanese Kokai (unexamined patent application) 74 32,469

Oils are removed from wastewater by treatment with a mixture of a water-soluble salt of a water-soluble copolymer resin and a polyvalent metallic salt. Steps in the removal are described.

Citation Source: Chemical Abstracts. 1974. 81(18). Entry #111184e.

P-071-74
APPARATUS AND METHOD FOR REMOVAL OF IMPURITIES SUCH AS OIL OR GASOLINE FROM PROCESS WATERS

Hakansson, E. A.

Swedish Patent 363,903

In the process, part of the water is continuously separated and allowed to settle; a top layer is removed by overflow, the remaining amount is passed into a heated chamber for gas detection.

Citation Source: Chemical Abstracts. 1974. 81(20). Entry #126581f.

P-072-74
TREATMENT OF ADSORBENT USED FOR REMOVAL OF OIL FROM WATER

Hayashi, J., T. Nagao, M. Mizutani, T. Okamoto, and K. Tsukahara

Japanese Kokai (unexamined patent application) 74 52,180

By dissolving oil-adsorbed adsorbents, made from styrene system polymer fibers in lightweight aromatic hydrocarbons, and then adding the resulting solutions to raw oil for catalytic cracking, the oil and adsorbent materials are recovered as petroleum products.

Citation Source: Chemical Abstracts. 1974. 81(18). Entry #111218u.

P-073-74
APPARATUS AND PROCESS FOR PHASE SEPARATION OF EMULSIONS

Herce, J. A., and J. E. Heath

German Offenlegungsschriften (unexamined patent application) 2,335,354

An aqueous suspension of oil absorbing fibrous material added to an oil-in-water emulsion (composed of crude oil in seawater) resulted in an oil-free water after continuous stirring.

Citation Source: Chemical Abstracts. 1974. 81(12). Entry #66126z.

P-074-74
USE OF OIL-CONTAMINATED WASTE WATER

Heynert, G., K. H. Peters, W. Kowalski, R. Zink, and G. Linnemann

German Patent 2,314,429

By adding oil to oil-contaminated waste water, a water-in-oil emulsion is formed which can be used as a reducing agent for iron ores in blast furnaces.

Citation Source: Chemical Abstracts. 1974. 18(20). Entry #124642c.

P-075-74
PURIFICATION OF OIL

Ikhno, N. P., G. S. Garmash, and L. A. Zhernkovkova

U.S.S.R. Patent 406,871

The process of oil purification by hydration, addition of degreased material, soaking and separation of precipitate is described.

Citation Source: Chemical Abstracts. 1974. 81(14). Entry #79641p.

P-067-74
ACIDIC WASTEWATER-TREATING AGENT

Inoue, G., K. Iwata, and F. Goto

Japanese Kokai (unexamined patent application) 73 104,345

The patent application discusses the production of oil adsorbents and describes the process for removing oils from wastewater.

Citation Source: Chemical Abstracts. 1974. 81(16). Entry #96123.

P-077-74
APPARATUS AND METHOD FOR THE SEPARATION OF OIL OR SIMILAR MATERIAL FROM WATER

International Pollution Control Corporation

French Demande 2,186,436

Included is a two-phase procedure to remove oil from contaminated water. The aqueous phase is pumped out and then a second stage pumping separates the oil-water mixture followed by removal of air.

Citation Source: Chemical Abstracts. 1974. 81(14). Entry #82124c.

P-078-74
REMOVING OILS FROM WASTE WATERS BY TREATING WITH FOAMED PLASTICS, FLOCCULANTS, AND OXIDIZING AGENTS

Ishida, T., T. Satani, and S. Tanoi

Japanese Kokai (unexamined patent application) 74 36,157

An emulsion waste water containing oils was treated with a foamed plastic powder, a flocculant, and an oxidizing agent to facilitiate the separation of oil from the water.

Citation Source: Chemical Abstracts. 1974. 81(20). Entry #126573e.

P-079-74
ETHYLENE-PROPYLENE COPOLYMER FIBERS FOR ABSORBING SPILLED OIL

Kita, S., T. Kono, and Y. Nakano

Japanese Kokai (unexamined patent application) 74 39,585

The composition of a fibrous material used to absorb spilled oil is described. The product can absorb several times its weight of heavy oil.

Citation Source: Chemical Abstracts. 1974. 81(20). Entry #122604t.

P-080-74
TREATING EMULSION SOLUTIONS TO REMOVE OILS BY FLOCCULATION AND ADSORPTION

Kito, N., A. Kinbara, and H. Shiraishi

Japanese Kokai (unexamined patent application) 74 33,881

Removal of oils from an emulsion is achieved by (1) making the oils unstable by mixing with a flocculant, (2) mixing with an adsorbent and a flocculation aid to allow for the formation of

flocs, (3) flocculating with the flocculation aid, and (4) separating the flocs from the water.

Citation Source: Chemical Abstracts. 1974. 81(14). Entry #82125d.

P-081-74
REMOVAL OF OILS FROM WASTEWATER

Komatsu, K., T. Inoue, K. Kasai, K. Harada, and H. Kumabe

Japanese Kokai (unexamined patent application) 74 46,256

A method for the removal of oils from water is described in which the water containing the oils is contacted with crushed or powdered vulcanized rubber.

Citation Source: Chemical Abstracts. 1974. 81(18). Entry #111182c.

P-082-74
REMOVAL OF OILS ON THE SURFACE OF THE SEA

Kondo, G., and M. Hayashi

Japanese Patent 73 18,180

An experimental process has been developed which removes oil spills from water. If pretreated soft foamed polyurethane, soaked in heavy oil and in turn squeezed, is placed in oil contaminated water, the polyurethane removes the heavy oils from the solution.

Citation Source: Chemical Abstracts. 1974. 81(8). Entry #41182b.

P-083-74
DETERGENT COMPOSITION CAPABLE OF SEPARATING OIL FROM WATER

Nakayama, S., N. Ito, and H. Kiyoya

Japanese Patent 73 39,207

Detergent solutions effective in separating oil from wastewater mixtures when washing oil tanker interiors are listed.

Citation Source: Chemical Abstracts. 1974. 81(6). Entry #27581z.

P-084-74
SUSPENDED WASTE WATER TREATING PROCESS

Nishikado, H., T. Nomura, and Y. Kuroita

Japanese Patent 73 44,336

Treatment of an oil-water emulsion from a petroleum refinery with a medium containing a coagulating agent, water soluble resin and an inorganic salt or acid followed by mixing and heating, has resulted in separating the oil component completely from solution.

Citation Source: Chemical Abstracts. 1974. 81(10). Entry #54139t.

P-085-74
TREATMENT OF FLOATING POLLUTANTS

O'Sullivan, D. J., and B. J. Bolger

British Patent 1,349,284

A simulated oil slick was sprayed with a solution of $CH_2C(CN)COMe$ in CH_2Cl_2, and then became enclosed in a harmless polymer matrix which sank. The enclosed slick could then be easily gathered.

Citation Source: Chemical Abstracts. 1974. 81(6). Entry #29333u.

P-086-74
OIL REMOVAL FROM WASTEWATER

Oswald, S.

German Offenlegungsschriften (unexamined patent application) 2,259,095

A technique for the removal of oil from aqueous oil suspensions is described. The treatment includes addition of a cleaning agent for flocculation, introduction of compressed air to obtain a dense oil layer at the surface, and skimming and filtering of the oil layer.

Citation Source: Chemical Abstracts. 1974. 81(18). Entry #111159a.

P-087-74
SUBSTANCE FOR PURIFICATION OF WATER

Papirer, E., and J. B. Connet

German Offenlegungsschriften (unexamined patent application) 2,355,000

Hydrocarbons are removed from water by polymers of butadiene-styrene, polyethylene, polyisoprene, and rubber substrates.

Citation Source: Chemical Abstracts. 1974. 81(18). Entry #111367s.

P-088-74
DISPERSION OF OIL SLICKS

Parkinson, A., and R. W. Tomlinson

British Patent 1,338,385

A process has been developed to obtain stable emulsions of oil slicks using an oil fatty acid as the emulsifying agent. The fatty acid dispersed 10 parts crude oil in 1000 parts seawater and was proven to be redispersible after removal of water.

Citation Source: Chemical Abstracts. 1974. 81(10). Entry #51555q.

P-089-74
DISPERSION OF OIL SLICKS

Parkinson, A., and R. W. Tomlinson

British Patent 1,338,391

An emulsifying agent is prepared, composed of oil fatty acid esters, which is capable of dispersing 10 parts crude oil in 1000 parts seawater.

Citation Source: Chemical Abstracts. 1974. 81(12). Entry #65562b.

P-090-74
COMPOSITIONS FOR DISPERSING OIL FILMS ON WATER SURFACES

Perlaky, C.

German Offenlegungsschriften (unexamined patent application) 2,356,092

Nonfoaming compositions for dispersing oil films on industrial waste water surfaces are described.

Citation Source: Chemical Abstracts. 1974. 81(12). Entry #68171j.

P-091-74
PURIFICATION OF OIL- AND FAT-CONTAMINATED WATER

Radke, D., A. Supp, and W. Radke

German Offenlegungsschriften (unexamined patent application) 2,252,777

A process in which oil and fat are removed from waste water by the addition of adsorbents such as graphite, coal or coke is described. The adsorbent is formed and then impregnated with copper, lead or antimony, so that it is heavier and settles out after becoming loaded with contaminants.

Citation Source: Chemical Abstracts. 1974. 81(20). Entry #126564c.

P-092-74
WASTE WATER TREATMENT IN HYDROGENATION OF GAS OILS

Sasaki, T., K. Ide, K. Ito, and Y, Kawamura

Japanese Kokai (unexamined patent application) 74 54,402

Wastewater from scrubbing of gases from hydrogenation of gas oils was steamed at pH 5.0 and stripped of H_2S and oils, leaving a colorless, practically odorless wastewater.

Citation Source: Chemical Abstracts. 1974. 81(20). Entry #126577j.

P-093-74
MIXTURE FOR DAMMING AND HOLDING TOGETHER OIL ON WATER

Scott, P. R., and P. E. Titus

German Offenlegungsschriften (unexamined patent application) 2,249,168

A method utilizing mixtures composed of at least an aliphatic carbon, 10-20 long chain alcohol and a liquid or solid diluent, to contain and contract oil slicks for collection and disposal, is discussed.

Citation Source: Chemical Abstracts. 1974. 81(20). Entry #126558d.

P-094-74
OIL HERDER COMPOSITIONS AND REMOVAL OF OIL FROM WATER

Scott, P. R., and P. E. Titus

South African Patent 73 00,346

The compositions of materials suitable for removal of oil from water (such as alcohols) are discussed. Application of the compositions to the contaminated water surface is described.

Citation Source: Chemical Abstracts. 1974. 81(20). Entry #126553y.

P-095-74
APPARATUS FOR SEPARATING A LIQUID COMPONENT FROM A LIQUID MIXTURE

Shaus, B.

German Patent 2,352,508

Oil can be separated from water by an apparatus containing an immersed cylindrical porous partition, such as a polyurethane foam partition, which selectively passes the oil component to an outlet.

Citation Source: Chemical Abstracts. 1974. 81(16). Entry #93451h.

P-096-74
REMOVAL OF OIL FROM WATER

Sicard, M. C.

Canadian Patent 939,612

An apparatus for removing oil consists of receiving and discharging ports and internal discs, spacers and stationary wiper blades for separating oil from the oil-water mixture.

Citation Source: Chemical Abstracts. 1974. 81(18). Entry #111204m.

P-097-74
TREATMENT OF WASTE OIL WITH POZZOLAN

Soki, S.

Japanese Kokai (unexamined patent application) 74 44,003

Waste oil is treated with pozzolan at ≥360° to recover light oil, lubricating oil, heavy oil, etc., by a heating, cooling and filtering process.

Citation Source: Chemical Abstracts. 1974. 81(16). Entry #96146y.

P-098-74
POLYURETHANE SPONGE WITH DISPERSED ADDITIVES IN IT

Strickman, R. L., and M. B. Strickman

German Offenlegungsschriften (unexamined patent application) 2,356,460

The manufacture of polyurethane rubber sponges for use as cleaning materials is discussed.

Citation Source: Chemical Abstracts. 1974. 81(18). Entry #107085f.

P-099-74
ADSORBENT FOR TREATING OIL SPILLS AND WASTE OILS

Takeda, Y.

Japanese Kokai (unexamined patent application) 74 10,187

A waste-solution sludge is kreaded, molded, dried, sintered, impregnated with a hydrophobic substance and dried to yield an oil adsorbent to be used for treating oil spills and waste oils.

Citation Source: Chemical Abstracts. 1974. 81(6). Entry #29325t.

P-100-74
REMOVING OILS FROM WASTE WATER BY TREATING WITH DIBENZYLIDENE-SORBITOL

Tamayama, M., and K. Tanaka

Japanese Kokai (unexamined patent application) 74 09,484

Addition of a solution containing dibenzylidene sorbitol to an oil-water mixture is effective in separating the oils from the aqueous dispersion.

Citation Source: Chemical Abstracts. 1974. 81(6). Entry #29324s.

P-101-74
REMOVAL OF OILS FROM WASTEWATER

Tamayama, M., and K. Tanaka

Japanese Kokai (unexamined patent application) 74 09,485

The composition of acidic wastewater-treating agents and the apparatus used for treatment of wastewater (water used for washing waste gases from the heavy oil-burning process) are discussed.

Citation Source: Chemical Abstracts. 1974. 81(16). Entry #96124q.

P-102-74
REMOVAL OF OILS FROM WASTEWATER

Tamayama, M., and K. Tanaka

Japanese Kokai (unexamined patent application) 74 09,486

The paper discusses the production of oil adsorbents and describes the process for removing oils from wastewater.

Citation Source: Chemical Abstracts. 1974. 81(6). Entry #96125r.

P-103-74
REMOVAL OF OILS FROM WASTEWATER

Tanaka, K., H. Yoshihara, and M. Mori

Japanese Kokai (unexamined patent application) 74 50,744

A method is described in which oils are removed from wastewater by adjusting the pH to 5-9, adding surfactants, aerating, settling, and separating floated or precipitated oils.

Citation Source: Chemical Abstracts. 1974. 81(16). Entry #96152x.

P-104-74
OIL-POLLUTION DETECTOR FOR USE ON MARINE PETROLEUM OPERATING/ STORAGE PLATFORM - USING U-TUBE APPTS.

Texaco Development Corporation

Belgian Patent 803,742

A pollution detector is described for the detection of petroleum in a stream of water. Variations in the level of the stream of liquid in a U-tube show the presence of liquid contaminant.

Citation Source: Selected Water Resources Abstracts. 1974. 7(19). Entry #W74-10033.

P-105-74
APPARATUS FOR ELECTROSTATIC SEPARATION OF LIQUIDS

Tokumoto, T.

German Offenlegungsschriften (unexamined patent application) 2,354,596

A dielectric or insulating solvent, suitable for separating oily contaminants from water, is fed through the bottom of an apparatus containing two adjustable electrodes. When a high potential is applied across the electrodes, the oil separates from the water mixture and remains in the solvent to form a discrete layer which rises to the top and is decanted.

Citation Source: Chemical Abstracts. 1974. 81(20). Entry #123495v.

P-106-74
FOAMED POLYETHYLENE COMPOSITED FOR ABSORBING SPILLED OIL

Tomikawa, M., A. Tsunoda, K. Kaneda, H. Ohkawa, and Y. Mugino

Japanese Kokai (unexamined patent application) 74 09,483

Woven mats composed of foam strings of polyethylene (I) and inorganic calcium have been found to be successful in absorbing spilled oil in seawater.

Citation Source: Chemical Abstracts. 1974. 81(10). Entry #50613v.

P-107-74
CARBONIZED CELLULOSE FIBERS FOR ABSORBING OIL IN WATER

Tsuji, T., and T. Arima

Japanese Kokai (unexamined patent application) 74 05,893

Described are cellulose fibers which when heated at a temperature above the carbonization temperature, give an oil absorbent carbon fiber. An example of the fibers oil-recovering capabilities is given.

Citation Source: Chemical Abstracts. 1974. 81(18). Entry #107270n.

P-108-74
ADSORBENT FOR REMOVING OILS FROM WASTEWATER

Tsunekawa, T., and T. Komoda

Japanese Kokai (unexamined patent application) 74 18,784

Described is an oil adsorbent formed by subjecting a porous elastic material to an oleophilic, hydrophobic treatment. The adsorbent can be used for removing oils from industrial wastewaters.

Citation Source: Chemical Abstracts. 1974. 81(6). Entry #293315.

P-109-74
PURIFICATION OF WASTEWATERS CONTAINING OIL AND GREASE

Wolfgang, F., L. Wuensch, W. Heyer, and G. Huettenrauch

German Offenlegungsschriften (unexamined patent application) 2,339,143

Water containing oil and grease in emulsion is treated with electrofilter ash which breaks the emulsion, absorbs the oil and grease and then settles. Clear water remains.

Citation Source: Chemical Abstracts. 1974. 81(18). Entry #111166a.

P-110-74
APPARATUS FOR SEPARATING IMMISCIBLE LIQUIDS

Worlidge, R. F.

German Offenlegungsschriften (unexamined patent application) 2,342,809

An apparatus for separating immiscible liquids such as water and oil has been developed. A continuous belt floats in the fluid mixture and scrapes off the surface layer of liquid with an adjustable blade. The liquid is then channeled into settling chambers from which the liquids leave separately.

Citation Source: Chemical Abstracts. 1974. 81(14). Entry #79734w.

P-111-74
OIL- AND WATER-RESISTANT SHEETS MADE OF FIBERS COATED WITH OLEFIN-MODIFIED POLY (VINYL ALCOHOL)

Yano, M., H. Mori, and H. Nakamura

Japanese Kokai (unexamined patent application) 74 35,275

A sheet material composed of olefin-modified vinyl alcohol is described. The material can be used as hoses for transporting crude oil from tankers to shore storage facilities, and as diaphrams for separating oil and ballast water in crude oil tankers.

Citation Source: Chemical Abstracts. 1974. 81(16). Entry #93827k.

TOPIC CROSS REFERENCE

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C-292-74, C-396-74

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16. ABSTRACT

The November 1974 - February 1975 Oil Spill and Oil Pollution Reports is the second quarterly compilation of oil spill events and oil pollution report summaries. Presented in the report are: (a) summaries of oil spill events; (b) summaries and bibliographic literature citations; (c) summaries of current research projects; and (d) patent summaries. This report is submitted in partial fulfillment of EPA Grant No. R803063 by the Marine Science Institute, University of California, Santa Barbara, under the sponsorship of the Environmental Protection Agency.

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U.S. Environmental Protection Agency
Industrial Waste Treatment Research Laboratory
Edison, New Jersey 08817

We are requesting your assistance upon receiving this report ("Oil Spill and Oil Pollution Reports, November 1974 - February 1975").

Is the information usable?
Is the format helpful?

We invite your comments and suggestions. Thank you.

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