BIBLIOGRAPHY

ON

MARINE POLLUTION PROBLEMS

IN THE

PACIFIC ISLANDS

ROBERT JOHN MORRISON
GANESHANRAO

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1994

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University of the South Pacific Media Centre
CONTENTS

Preface v

Bibliography (by country) 1

Author Index 41

Subject Index 51
PREFACE

Scope

The Bibliography primarily focuses on references to documents covering a number of issues relating to pollution including water quality, contamination, protection of water resources, ocean and atmospheric processes, sources of pollution, analytical methods, surveys, reports, and studies. The Bibliography predominantly focuses on Pacific island countries, however, a number of references on Australia and New Zealand are also included in view of their relevance to the island countries. This compilation is a result of a progressive exercise over a period of time and attempts to list primarily literature generated during the past one and a half decades. Like most bibliographies it is practically impossible to create an exhaustive list of references on a subject, therefore a number of pertinent documents may have been missed.

Arrangement

The Bibliography provides separate listings by author categorised under country names. In the case of identical authors sorting is done by the year of publication and those with identical dates are sorted by the title. However, it commences with a 'Pacific - General Information' category. This publication also includes author and subject indexes.

In addition to personal names, the Author Index also includes names of organisations, institutions etc. as appropriate. The Subject Index comprises of the terms that most appropriately describe the subject content of the documents. The numbers given in the indexes correspond to the specific number of the reference in the main Bibliography.

Annotations

Some of the references include brief annotations or summary notes for additional information to the users of this publication. The provision of annotations for all the references was not intended primarily in view of the lack of human resources and access to original items.

Acknowledgements

Acknowledgement is extended to Ana Naisaboca (of USP library) and Nirmala Gounder (PIMRIS Assistant) for their clerical assistance.

Acknowledgement is also extended to the International Centre for Ocean Development (ICOD)/Canadian International Development Agency (CIDA) of Canada, for the financial assistance provided for publishing this Bibliography.
Previous Document

This Bibliography is a revised, edited and updated document from an unpublished draft "Coastal and Inland Water Quality in the South Pacific" by R. J. Morrison. The draft was prepared for the Fifth SPREE Consultative Meeting, Suva, Fiji in June 1990.

Correspondence

Users of this publication are encouraged to send:
i. any corrections to the bibliographic data as entered in the references;
ii. references of more recent items and editions/updates published of any documents listed in this bibliography; and
iii. requests for copies of the Bibliography, to:

PIMRIS Coordinator
USP Library
P O Box 1168
Suva
FIJI.
BIBLIOGRAPHY

PACIFIC - GENERAL INFORMATION


18. Eldin, G. Conditions hydrologiques moyennes pour l'Ocean Pacifique Sud-Ouest. ORSTOM Centre de Noumea Rapports Scientifiques et Techniques No.39. 6p, + 3 figures + 26 pages of data.


Shows, using sample economic analysis that ban on logging would lead to significantly greater gross revenue generation over a period of 10 years.


Rainfall data collected 150° W & 170°W from 47°N to 55°S.


In N. Pacific Rain (35-5CN). In surface seawater. Cd 1.2-9.9 ng/kg, Pb 26-270 ng/kg, Cd 16-44 pmol/kg.


Valuable data on aerosol dust composition and decomposition rates.


Valuable review of recent data on NO₃, nssSO₄, methanesulphonate. Low NO₃'n American Samoa, Rarotonga, Tuvalu. Higher in Fanning, Oahu, Norfolk, N. Caledonia. nssSO₄ lowest Norfolk Island, Highest in Equatorial region. Amomalous N-Cal. value - 0.42 ug m⁻³, Norfolk - 0.23 - closer to Australia - could this be due to SO₂ from smelters? Methanesulphonate (MSA) Highest in N. Pacific. Higher than average in high productivity equatorial divergence region. Low in other stations. Significant correlation between DMS and chlorophyll-a (an indicator of standing stock of phytoplankton).


140 sediments - reviews data in patterns, but 66 sites covering whole Pacific/full data set not presented.

Red clays          Calc. ozzes          blue muds
<2% Ca            Ca >8               Fe - basic rock


Their use for nuclear tests, storage of nerve gas, oil superports, nuclear waste storage, radioactivity.


Nitrite data from cruise. Kwajelein to Samoa with 9 sampling stations, depth 0-10 m. Range 0.16-0.55 umol/L.

AMERICAN SAMOA


Data on large no. of trace elements & major elements. Values in rain similar to Enewetak. Comparisons of N & S Pacific patterns.


AUSTRALIA


Cape Grim = N.W. tip of Tasmania. Data on common ions, variations, weighted means etc. Main source of ions is seawater (seawater diluted X = 420).

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<td>Cl</td>
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Values much higher than in Samoa. High winds Amester Is. N. Plymouth


   Discusses Sedimentation patterns moving away from mouth of the Fly River. Cores collected and preliminary physical, mineralogical and geological analyses completed.


This report is a compilation of the statistical data required for design of an ocean temperature observing network in the tropical Pacific, using the method of optimum interpolation (OI). The statistics were estimated from a data base of expendable bathythermograph observations on the shipping routes New Caledonia-Japan; New Caledonia-Hawaii; Tahiti-Panama, The temporal and
meridional autocorrelation function (ACF) for the sea-surface temperature and depth of the 20°C isotherm was estimated at each degree latitude on each route. Additional data were used to estimate the zonal ACF. The ACF statistics permit estimation of the parameters required for 01 : levels of signal and noise variance for each field and spatial/temporal decorrelation scales. The 01 parameters are then summarised in large areas selected to represent the major currents.


(Assimilative capacity; nutrients).


97. Probert, M.E. The composition of rainwater at two sites near Townsville, Queensland xs S + Cl + Ca in rainfall, (publication data unknown)

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<thead>
<tr>
<th></th>
<th>Cl</th>
<th>S</th>
<th>P</th>
<th>Ca</th>
<th>Mg</th>
<th>Na</th>
<th>K</th>
<th>SiO₂</th>
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<td>0.15</td>
<td>0.08</td>
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COOK ISLANDS


Describes how inhabitants of Rarotonga use Lindane and Dieldrin to kill fish in pools and lagoons.


Precious coral survey, Phosphate survey, Manganese nodule survey, bathymetry survey. No specific water data.

FEDERATED STATES OF MICRONESIA


Endrin → lagoon → fish → 6 people hospitalized (very high levels of Endrin in fish flesh).


FIJI


Studies on coastal sites from Puna auia to Motu Marin. Data on water, sediment and shellfish.


Reports localized fish kills in the lagoon at Tahiti as a result of uncontrolled spraying of insecticides, especially Dieldrin.


Reports destruction of corals in a 4320 m$^2$ area of the reef margin by effluent (heated) from a power plant. Damage to corals over a much greater area was observed and many species of fishes, echinoderms and crustaceans as well as benthic algae disappeared from affected areas.


HAWAII


KIRIBATI


Water data on Secchi, Conductivity. No oil or tar on beach. No conclusion on source. Impact on local fishing - none to minimal.


**MARSHALL ISLANDS**


Data on wet and dry deposition. Seasonal cone, in rainwater - values among lowest ever found for trace metals + depositional rate/unit area.


Data on heavy metals + pesticides.


NEW CALEDONIA


NEW ZEALAND


Vol weighted means:

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Papers on:
- Impacts of Land Use (logging and erosion)
- Waste disposal
- Commercial fishing
- Aquaculture
- Port and foreshore development

Range of organochlorine in sediments at levels similar to Japan, Galveston, San Francisco. Potentially hazardous as leakage of organo-Cl's may lead to toxiciry, bio accumulation - further investigation.


(Fruit Processing effluent, slaughter house wastes).


Water up to 0.32 ug TBT-Sn L$^{-1}$ (detection limit 0.02)
Sediments 0.24 ug TBT-Sn g$^{-1}$
Oysters up to 2.24 ug TBT-Sn g$^{-1}$ (dry wgt basis).
Results indicate cause for concern.


4 sites, 2 near steel mill total lead exch/acid extr./org/residual speciates. Steel mill doubles Pb contents of sediments from 5-10 ppb to 15-20 ppb.


Valuable review, with many references of marine pollution studies in NZ up to 1986. Overall area is very clean apart from a very isolated hard spots. Very little actual hard data given.


Manukau Harbour. High sediment concentrations of hydrocarbons, Cd, Cu, Pb, Zn. Mudflat fauna dominated by a combination of small opportunistic * species and large long-lived, hardy species. Patterns of community structure correlated with gradients of various sedimentary variables including several contaminants.


Shows lack of data and sampling strategies. Levels generally low except in particular locations. Data given on various industries etc. but much work needed.


History; Av. content of seawater (2 sites);
Heavy metals on 130 samples data on Fe, Cu, Zn, Pb, Cd, Ni, Mn, Cr, Hg;
Enrichment at industrial discharge points. Evidence of anthropological additions;
Pb values high in places;


**NORTHERN MARIANAS**


**PALAU**


35


PAPUA NEW GUINEA


Effects of release into marine environment of effluent containing tailings from treatment plants at the large Bougainville Copper ore plant on marine fishes is being monitored by Bougainville Copper environmental officers.


SOLOMON ISLANDS


TONGA


Nr Queen Salote Wharf - Currents, Depth, Turbidity, PO4 Productivity, Plankton, BOD. Possible relationship between Secchi disc and susp. solids. Ohonua Harbour, Eua - no data. Causeways on Vavau - no data.


No cause identified. Suggested may be related to low tides - high temp + rainfall dilution of seawater. Testing carried out on water and plankton 6 days after incident occurred.


**TUVALU**


**VANUATU**


39

386. Lam Yeun, T. Baseline studies of Port Vila and Erakor Lagoon, Vanuatu. CCOP/SOPAC Cruise Report No. 82. CCOP/SOPAC, Suva. 31 p.

387. Lam Yeun, T. Coastal survey of water quality around Port Vila.

WALLIS AND FUTUNA


WESTERN SAMOA


AUTHOR INDEX

Ahlquist, N.C. - 14.
Aislable, J. - 85.
Alongi, D.M. - 351.
Andre, J.M. - 1.
Anglin, D.L. - 246.
Arimoto, R. - 2, 3, 60, 195, 247, 251, 271, 276.
Atkinson, M.J. - 248, 249.
Atlas, E. - 4.
Audic, J. - 149.
Avrahami, M. - 331.
Badie, C. - 180.
Bagg, J. - 98.
Bagnis, R. - 171.
Baines, G.B.K. - 380.
Baker, E.K. - 353.
Baldwin, S. - 86.
Ball, J.L. - 62.
Baria, A.E.L. - 5.
Barnes, C.A. - 250.
Bartle, J.A. - 292.
Beck, R.W. - 353.
Beeman, P.P. - 124.
Bell, P.R.F. - 69, 70.
Bell, J.D. - 150.
Bender, M.L. - 30.
Benente, P. - 159, 161.
Benezit, M. - 266.
Benton, T. - 6.
Bernadec, M. - 182.
Berryman, C. - 147.
Best, B.R. - 118, 190.
Beverage, P.J. - 380.
Bienfang, P. - 62.
Birkeland, C.E. - 109, 110.
Birkeland, R.H. - 191.
Boldi, R. - 271.
Booth, C.R. - 29.
Borja, M.B. - 192.
Boudou, A. - 1.
Bourns, C.T. - 112.
Bowoo, O. - 122.
Boyle, E.A. - 8.
Braley, R.D. - 190.
Bray, R. - 127.
Brock, R.E. - 223, 379.
Brock, V.E. - 113.
Brodie, J.E. - 9, 10, 37, 128, 129, 130, 131, 132, 137, 138, 147, 148, 385.
<table>
<thead>
<tr>
<th>Name</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brodie, G.D.</td>
<td>130</td>
</tr>
<tr>
<td>Brooks, R.R.</td>
<td>273, 274</td>
</tr>
<tr>
<td>Bruland, K.L.</td>
<td>31</td>
</tr>
<tr>
<td>Braland, K.W.</td>
<td>40</td>
</tr>
<tr>
<td>Buat-Menard, P.</td>
<td>11</td>
</tr>
<tr>
<td>Buckley, R.</td>
<td>381</td>
</tr>
<tr>
<td>Bumoon, B.</td>
<td>122</td>
</tr>
<tr>
<td>Burmpus, D.F.</td>
<td>250</td>
</tr>
<tr>
<td>Burnett, W.C.</td>
<td>12, 348</td>
</tr>
<tr>
<td>Buske, N.</td>
<td>151</td>
</tr>
<tr>
<td>Butler, E.C.V.</td>
<td>72</td>
</tr>
<tr>
<td>Cachier, H.</td>
<td>11</td>
</tr>
<tr>
<td>Caldwell Connell Engineers</td>
<td>133</td>
</tr>
<tr>
<td>CaUaway, R.J.</td>
<td>275</td>
</tr>
<tr>
<td>Chamberlin, W.S.</td>
<td>29</td>
</tr>
<tr>
<td>Chand, K.</td>
<td>9</td>
</tr>
<tr>
<td>Chandra, S.</td>
<td>236</td>
</tr>
<tr>
<td>Care, K.E.</td>
<td>240</td>
</tr>
<tr>
<td>Charpy, L.</td>
<td>152, 154</td>
</tr>
<tr>
<td>Charpy-Rouband, C.J.</td>
<td>153, 154</td>
</tr>
<tr>
<td>Charrier, B.</td>
<td>169</td>
</tr>
<tr>
<td>Chase, J.A.</td>
<td>126</td>
</tr>
<tr>
<td>Chen, L.</td>
<td>276</td>
</tr>
<tr>
<td>Chernin, M.I.</td>
<td>125, 204</td>
</tr>
<tr>
<td>Chemin, R.K.</td>
<td>118</td>
</tr>
<tr>
<td>Chesselet, R.</td>
<td>11</td>
</tr>
<tr>
<td>Christen, D.</td>
<td>189</td>
</tr>
<tr>
<td>Chung, Y.</td>
<td>13</td>
</tr>
<tr>
<td>Chvojka, R.</td>
<td>73</td>
</tr>
<tr>
<td>Clarke, A.D.</td>
<td>14</td>
</tr>
<tr>
<td>Clarkson, T.S.</td>
<td>284</td>
</tr>
<tr>
<td>Clayshute, R.N.</td>
<td>106, 107, 114, 115, 116, 117, 193, 345</td>
</tr>
<tr>
<td>Coale, K.H.</td>
<td>15</td>
</tr>
<tr>
<td>Cochran, J.K.</td>
<td>56, 265</td>
</tr>
<tr>
<td>Colgan, M.W.</td>
<td>194</td>
</tr>
<tr>
<td>Colin, C.</td>
<td>170</td>
</tr>
<tr>
<td>Connell, D.W.</td>
<td>83, 84</td>
</tr>
<tr>
<td>Cooper, M.J.</td>
<td>134, 225</td>
</tr>
<tr>
<td>Cornuelle, B.</td>
<td>46</td>
</tr>
<tr>
<td>Cousteau, J-Y.</td>
<td>169</td>
</tr>
<tr>
<td>Cousteau Foundation</td>
<td>155</td>
</tr>
<tr>
<td>Covert, D.S.</td>
<td>14</td>
</tr>
<tr>
<td>Cowan, P.A.</td>
<td>117, 343, 344, 345</td>
</tr>
<tr>
<td>Cremoux, J.L.</td>
<td>153</td>
</tr>
<tr>
<td>Cretney, W.J.</td>
<td>58</td>
</tr>
<tr>
<td>Cronan, D.S.</td>
<td>16</td>
</tr>
<tr>
<td>Cross, R.</td>
<td>226</td>
</tr>
<tr>
<td>Currey, N.A.</td>
<td>360</td>
</tr>
<tr>
<td>Cushing, F.</td>
<td>110, 342</td>
</tr>
<tr>
<td>Dahl, A.L.</td>
<td>389</td>
</tr>
<tr>
<td>Davies, P.J.</td>
<td>80</td>
</tr>
<tr>
<td>Davis, K.R.</td>
<td>325</td>
</tr>
<tr>
<td>Dayan, U.</td>
<td>61</td>
</tr>
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<td>Page(s)</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Deaker, M.</td>
<td>86</td>
</tr>
<tr>
<td>Debiard, J.P.</td>
<td>158, 159, 161</td>
</tr>
<tr>
<td>Debie, E.</td>
<td>156</td>
</tr>
<tr>
<td>Delcroix, T.</td>
<td>7</td>
</tr>
<tr>
<td>Demeke, G.</td>
<td>295, 296</td>
</tr>
<tr>
<td>Dent, J.</td>
<td>354</td>
</tr>
<tr>
<td>Desrosiers, F.</td>
<td>170</td>
</tr>
<tr>
<td>Determan, T.A.</td>
<td>106</td>
</tr>
<tr>
<td>Dickinson, R.</td>
<td>196</td>
</tr>
<tr>
<td>Dickson, R.J.</td>
<td>277</td>
</tr>
<tr>
<td>Dixon, J.A.</td>
<td>24, 347</td>
</tr>
<tr>
<td>Dobbie and partners</td>
<td>242</td>
</tr>
<tr>
<td>Dollar, S.J.</td>
<td>222</td>
</tr>
<tr>
<td>Dorrell, D.E.</td>
<td>100</td>
</tr>
<tr>
<td>Doty, J.E.</td>
<td>204, 205, 206, 340</td>
</tr>
<tr>
<td>Dougherty, G.</td>
<td>135, 136</td>
</tr>
<tr>
<td>Doumenge, F.</td>
<td>388</td>
</tr>
<tr>
<td>Duce, R.A.</td>
<td>2, 3, 60, 195, 247, 251, 252, 259, 271, 276</td>
</tr>
<tr>
<td>Duce, R.L.</td>
<td>42</td>
</tr>
<tr>
<td>Eads, J.R.</td>
<td>106</td>
</tr>
<tr>
<td>Eagle, R.J.</td>
<td>246, 253, 260</td>
</tr>
<tr>
<td>Eastbrook, C.</td>
<td>92</td>
</tr>
<tr>
<td>Edmond, J.M.</td>
<td>8</td>
</tr>
<tr>
<td>Edyvane, K.</td>
<td>74</td>
</tr>
<tr>
<td>Eldin, G.</td>
<td>18</td>
</tr>
<tr>
<td>Eldredge, L.G.</td>
<td>17, 118, 196, 197, 216, 341</td>
</tr>
<tr>
<td>Emerson, S.</td>
<td>28</td>
</tr>
<tr>
<td>Endean, R.</td>
<td>355</td>
</tr>
<tr>
<td>Espey, Q.I.</td>
<td>91</td>
</tr>
<tr>
<td>'Estall, H.W.</td>
<td>101</td>
</tr>
<tr>
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<tr>
<td>Fakahau, S.</td>
<td>376</td>
</tr>
<tr>
<td>Fasching, J.L.</td>
<td>252</td>
</tr>
<tr>
<td>Feely, R.A.</td>
<td>39</td>
</tr>
<tr>
<td>Feval, G.</td>
<td>171</td>
</tr>
<tr>
<td>Fidder, D.R.</td>
<td>356</td>
</tr>
<tr>
<td>Fitzgerald, W.F.</td>
<td>19</td>
</tr>
<tr>
<td>Fonseca, T.</td>
<td>90</td>
</tr>
<tr>
<td>Foid, W.L.</td>
<td>254</td>
</tr>
<tr>
<td>Forster, M.</td>
<td>62</td>
</tr>
<tr>
<td>Forsyth, J.R.L.</td>
<td>227</td>
</tr>
<tr>
<td>Fox, M.E.</td>
<td>279, 287</td>
</tr>
<tr>
<td>Fraizer, A.</td>
<td>149, 157, 159, 160, 161, 164, 187</td>
</tr>
<tr>
<td>Francis, M.P.</td>
<td>374</td>
</tr>
<tr>
<td>Franck, D.</td>
<td>159, 160, 161</td>
</tr>
<tr>
<td>Frazier, A.</td>
<td>158, 162</td>
</tr>
<tr>
<td>Fredrickson, S.</td>
<td>73</td>
</tr>
<tr>
<td>Furnas, M.J.</td>
<td>75</td>
</tr>
<tr>
<td>Furness, R.W.</td>
<td>292</td>
</tr>
<tr>
<td>Gabrie, C.</td>
<td>163</td>
</tr>
<tr>
<td>Gallagher, B.</td>
<td>62</td>
</tr>
<tr>
<td>Galzin, R.</td>
<td>150</td>
</tr>
<tr>
<td>Gammon, R.H.</td>
<td>39</td>
</tr>
<tr>
<td>Gangaiya, P.</td>
<td>131, 137, 138, 385</td>
</tr>
<tr>
<td>Garner, D.R.</td>
<td>119</td>
</tr>
<tr>
<td>Gastrovis, C.</td>
<td>250</td>
</tr>
</tbody>
</table>
Gauss, G.A. - 375.
GBRMPA. - 76.
Gerber, R.P. - 255.
Ghanc, N. - 361.
Giam, C.S. - 4.
Gillespie, P.A. - 280.
Gillet, R.W. - 272.
Gilmartin, M. - 75.
Glasby, G. - 281.
Glasby, G.P. - 283, 311, 324, 325.
Gogosian, R.B. - 43.
Goldberg, E.D. - 20.
Gordon, G.D. - 207.
Gourlay, M.R. - 96.
Graustein, W.C. - 56.
Green, D.R. - 58.
Gregory, M.R. - 21, 282.
Griffin, F. - 38.
Griffiths, G.A. - 283.
Grigg, R.W. - 222.
Grimm, G.R. - 107.
Gros, R. - 164, 182.
Grosenbaugh, D.A. - 220.
Grouhong, J.G. - 231.
Grundmanis, V. - 28.
Gueredrat, J.A. - 165.
Guinea, M. - 92, 94.
Gunther, E.B. - 228.
Gwyther, D. - 357.
Haagenson, P.L. - 41.
Haei, P. - 166, 358.
Haines, J.H. - 359.
Hancock, D.A. - 77.
Harder, P.J. - 195, 251, 252.
Hardy, S.A. - 346.
Hardy, J.T. - 346.
Harmelin-Vivien, M.X. - 167.
Harper, J.R. - 229.
Harris, C. - 285.
Harris, P.T. - 78, 79, 80, 81, 352, 353.
Harvey, M.J. - 284.
Hayes, T.M. - 139.
Healy, T. - 285.
Heath, R.A. - 286.
Hedlund, S.E. - 106.
Henderson, R.S. - 231, 237.
Henin, C. - 7, 22.
Hewitt, A.D. - 2, 60, 271.
Hewitt, J.E. - 309.
Higgins, H.W. - 72.
Hillman-Kitalong, A. - 208.
Hilton, D.F. - 360.
Ho, F.W.T. - 27, 290.
Hodgson, G. - 23, 24, 347.
Nairn, O. - 172.
Nakamura, Y. - 55.
Naqasima, M. - 147.
de Nardi, J.L. - 156, 168, 173, 174; 175.
Nathan, A. - 302.
Neudecker, S. - 212, 213.
Newman, L.E. - 333.
Nichols, P.D. - 72, 91.
Nielsen, S.A. - 301, 302.
Noshkin, V.E. - 246, 253, 260.
Odum, E.P. - 261.
Odum, H.T. - 261.
Ogg, J. - 214.
Oguri, M. - 65.
Orians, K.J. - 40.
ORSTOM. - 269.
Oudot, C. - 170.
Pakkiyaretham, T. - 94.
Pantin, H.M. - 303.
Parungo, F.P. - 41.
Parzada, N. - 92.
Patria, K. - 38.
Patrick, F.M. - 304, 305, 306.
Patterson, T.L. - 42.
Patterson, C.C. - 33, 63, 263
Peake, B.M. - 34.
Pearce, R.J. - 93.
Peerzada, N. - 94.
Peltzer, E.T. - 43.
Pendoley, K. - 95.
Penn, N. - 144.
Pernetta, J. - 5.
Pescod, N.R. - 145.
Pesret, F. - 239.
Peterson, J. - 90.
Phillips, H. - 90.
Pickard, G.L. - 368.
Piorewicz, J. - 96.
Pluger, W.L. - 324.
Poplawski, W.A. - 96.
Porcher, M. - 163.
Powell, R.E. - 356.
Powell, J.H. - 356.
Power, F.M. - 308.
Price, M.J. - 364.
Pridmore, R.D. - 309.
Probert, M.E. - 97.
Prospero, J.M. - 44, 45, 48, 49, 50.
Pszenny, A.P. - 252.
Radok, R. - 267.
Raj, V. - 376.
Randall, J.E. - 64, 120, 176.
Raymon, A. - 177.
Raymond, A. - 156, 175.
Read, G.B. - 315.
Rebert, J.P. - 36.
Reeves, R.L. - 300.
Renon, J.P. - 178, 180.
Revelante, N. - 75.
Reynolds, L.F. - 364.
Ribbe, J. - 179.
Ribeyre, F. - 1.
Ricard, M. - 175, 180, 184, 185.
Richard, C. - 270.
Ridgeway, N.M. - 311.
Robert - 89.
Robertson, T. - 312.
Robertson, A.I. - 351.
Rodrigo, A. - 313.
Roemmich, D. - 46.
Rogers, C.S. - 47.
Rohde, A.G. - 335.
Rosinski, J. - 41.
Rougerie, F. - 165, 181, 182, 183, 184, 185.
Roy, B.J. - 2.
Roy, K.J. - 235, 240.
Rual, P. - 267.
Rumsey, D. - 274.
Rumsey, M.G. - 273.
Saltzman, E.S. - 48, 50.
Salvat, B. - 186.
Sarano, F. - 169.
Savoie, D.L. - 44, 45, 48, 49, 50.
Scheuring, D.L. - 121.
Schiesser, H.G. - 240.
Schneider, R.C. - 236.
Schneider, P.M. - 79, 81.
Schoonmaker, J. - 236.
Sclater, F.R. - 8.
Secchi, F. - 187.
Seeto, J. - 236, 376.
Service d'Hygiene et de Salubrite Publique-188.
Settle, D.M. - 33, 63, 262, 263.
Severe, A. - 189.
Shanks, V. - 327.
Shaw, K.J. - 99.
Shepherd, G.L. - 240.
Sherwood, T.S. - 217.
Shirer, M.T. - 318.
Shirona, E. - 232.
Simeon, C. - 180.
Siren, N. - 121.
<table>
<thead>
<tr>
<th>Name</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waugh, G.D.</td>
<td>312</td>
</tr>
<tr>
<td>Wauthy, B.</td>
<td>183</td>
</tr>
<tr>
<td>Weissberg, B.G.</td>
<td>334, 335, 336</td>
</tr>
<tr>
<td>Whitfield, F.B.</td>
<td>99</td>
</tr>
<tr>
<td>Wilcock, R.J.</td>
<td>287</td>
</tr>
<tr>
<td>Wilkins, S.DeC.</td>
<td>208</td>
</tr>
<tr>
<td>Williams, B.L.</td>
<td>317, 337, 338</td>
</tr>
<tr>
<td>Williams, R.J.</td>
<td>73</td>
</tr>
<tr>
<td>Williams, J.</td>
<td>2, 60</td>
</tr>
<tr>
<td>Wilson, C.J.</td>
<td>325</td>
</tr>
<tr>
<td>Wilton and Bell</td>
<td>240</td>
</tr>
<tr>
<td>Winchester, R.V.</td>
<td>339</td>
</tr>
<tr>
<td>Winter, S.J.</td>
<td>116</td>
</tr>
<tr>
<td>Wolanski, E.J.</td>
<td>367, 368</td>
</tr>
<tr>
<td>Wong, C.S.</td>
<td>58</td>
</tr>
<tr>
<td>Wong, K.M.</td>
<td>246, 253, 260</td>
</tr>
<tr>
<td>Wood, H.R.</td>
<td>192</td>
</tr>
<tr>
<td>Wortman, C.G.</td>
<td>221</td>
</tr>
<tr>
<td>Wrigley, I.</td>
<td>98</td>
</tr>
<tr>
<td>Yamaguchi, M.</td>
<td>350</td>
</tr>
<tr>
<td>Yaru, B.T.</td>
<td>360</td>
</tr>
<tr>
<td>Zafiriou, O.C.</td>
<td>59</td>
</tr>
<tr>
<td>Zann, L.P.</td>
<td>147, 148, 243, 379</td>
</tr>
<tr>
<td>Zika, R.G.</td>
<td>48</td>
</tr>
<tr>
<td>Zobel, M.G.R.</td>
<td>336</td>
</tr>
<tr>
<td>Zolan, W.I.</td>
<td>115, 116, 245</td>
</tr>
</tbody>
</table>
SUBJECT INDEX

Acid Rain - 34, 66, 67, 151, 239, 262, 263, 265, 272, 284.
Arsenic - 385.
Bibliographies/Catalogs - 17, 197.
Biochemistry - 201, 210, 211, 219, 231.
Cadmium - 88, 353.
Carbon paniculate - 11, 264.
Ciguatera - 120, 225, 234.
Copper - 8, 15, 16, 277, 284, 325, 351, 352, 353, 359.
Cromium - 16, 319, 325.
Environmental management - 24, 77, 93, 100, 132, 144, 192, 218, 389, 390.
Environmental protection - 57, 77, 100, 125, 140.
Eutrophication - 69, 70, 223.
Geochemistry - 12, 43, 79, 165, 168.
Giant clams - 5.
Lead - 16, 63, 262, 265, 295, 296, 325, 352.
Marine aerosol - 14, 41, 44, 276.
Mercury contamination - 1, 19, 73, 156, 300, 312, 325, 330, 331, 334, 335, 361, 364, 365.
Methodology - 278, 299, 337.
Molybdenum - 16.
Monitoring and Assessment - 9, 22, 32, 56, 64, 76, 106, 107, 116, 126, 129, 132, 169, 179, 236, 343, 349, 359, 360, 362, 376.
Nickel - 277, 289, 325.
Nitrates/Nitrites - 49, 59.
Pesticide problems - 38, 102, 166, 174, 221, 321, 332, 339.
Phosphorus - 16, 26, 154, 203, 276, 290.
Pollution control - 25, 139, 358, 373.
Pollution problems - 6, 37, 45, 119, 159, 161, 171, 173, 225, 226, 281, 282, 310, 311, 355, 374.
Radium - 13.

Redtides - 71, 82, 211.


Sewage - 133.

Sulphates - 49, 50.


Tetracycline - 23.

Trace metals - 2, 3, 12, 55, 61, 72, 131, 135, 195, 247, 251, 252, 271, 274, 298, 339, 356, 385.

Uranium/Trans-uranics - 51, 253, 260.


Zinc - 15, 325, 348, 352.

*****************************************************************************

53