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NEW ZEALAND MARINE DEPARTMENT

FISHERIES TECHNICAL REPORT
No. 74

MARINE DEPARTMENT ROCK OYSTER SPAT CATCHING PROGRAMME 1970-71

L. CURTIN

WELLINGTON, NEW ZEALAND
1971

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SUMMARY

In the summer of 1970-71, Marine Department set out a total of 200,000 new sticks to catch. (100,000 asbestos cement; 100,000 concrete.) These were equally divided between Tapora - Kaipara Harbour and Huawai Bay - Mahurangi River.

There was a carry over of 200,000 sticks from last season. 60,000 at Kawau Island and 140,000 at Huawai Bay.

At Mahurangi and Kaipara the following materials were tested for suitability for spat catching:- Tarred Australian hardwood - tarred rata - tarred pinus radiata - pinus cement dipped - tarred hardwood cement dipped - aluminium - cellulose acetate butyrate - acrylonitrile butadienne styrene - poly styrene - polyvinyl chloride - fibreglass - forest products experimental hardboard types 1 and 2.

Standard bundles of asbestos cement sticks were set out at various levels to test spatfall at:- Parengarenga, Bay of Islands, Mangawhai, Whakaki, Whangateau and Whangapoua. Various levels were tested in the commercial areas at Tapora, Huawai Bay and Kawau Island.

There was a very poor catch over the whole of the Kaipara. New sticks at Huawai Bay and Kawau caught well, but sticks left over from the previous year did not attract a new settlement except on the top two layers in the bundles. All experimental materials attracted a settlement of varying density.

There was a good settlement on trial sticks at Mangawhai and Whangateau; little at Bay of Islands and Whangapoua, less at Whakaki and none at Parengarenga.

Test racks showed the commercial field at Kawau to be at the correct height and that at Huawai Bay to be nine inches too low.

INTRODUCTION

If the rock oyster farming industry in New Zealand is to be examined there is the need for additional spat catching areas to be established. There is also the need to develop a material suitable for use in exposed areas. It is also necessary that the best methods be used in the established catching areas.

Marine Department experimental and commercial spat catching programmes are carried out with these objectives in mind.

METHODS

Commercial Areas

Standard bundles of 48" x 2" x ¼" asbestos cement sticks, 8 layers of 4 to the foot and bundles of concrete sticks 48" x 1" x 1"; 4 layers of 4 to the foot were used. These were set out on racks in the normal manner. Twenty thousand set out direct on the hard shore at Kaipara. Sticks were put into the water in December at Kaipara. At Mahurangi they were set out during the last two weeks of December, January and the first 2 weeks of February.

Experimental Materials

All plastics, aluminium and hardboard were made up into standard bundles as asbestos cement. 1" x 1" timber sticks were nailed up at 6" centres and set out 6 ladders high. All materials were set out on the one tide.

Experimental Areas

Standard bundles of asbestos cement sticks were used. These were set out on racks at various levels with the centre rack at the anticipated optimum catching level. All racks were constructed as would be the case in a commercial operation; that is single racks with none above the other. One hundred sticks were set out at each level. Throughout the whole operation ½" spacers were used between all layers in the bundles.

Counting

The count was made in April, the normal time at which sticks would be moved to the growing areas. Sticks were washed clean and rock oysters counted with the naked eye. Over the larger areas at Huawai Bay and Tapora three random bundles were taken for each time period and all sticks counted.

RESULTS

The catch obtained is set out in the following tables. Note re-levels and layers: level 1 is the highest rack in relation to the vertical tidal range; layer 1 is the top layer in each bundle.

TABLE 1 CATCH AT COMMERCIAL AREAS HUAWAI BAY AND TAPORA

Area	Type of Stick	Date Set Out	Catch at each layer in bundle								Average Catch per stick
			1	2	3	4	5	6	7	8	
Huawai Bay	A.C.	3.12.70	228	156	163	165	144	173	166	123	164
"	"	9.12.70	219	152	119	126	139	124	162	118	144
"	"	16.12.70	173	101	100	95	88	94	113	10	96
"	"	23.12.70	239	191	204	206	228	199	251	103	202
"	"	30.12.70	233	213	209	204	223	215	274	106	209
"	"	11.1.71	231	140	148	111	159	174	190	150	162
"	"	20.1.71	172	101	106	127	113	140	193	95	131
"	"	12.2.71	144	105	100	118	118	126	103	56	108
"	Conc.	9.12.70	102	128	133	140	-	-	-	-	125
"	"	15.12.70	60	126	183	224	-	-	-	-	148
"	"	6.1.71	133	133	164	160	-	-	-	-	147
"	"	11.1.71	114	122	171	186	-	-	-	-	148
"	"	20.1.71	110	124	156	161	-	-	-	-	137
Tapora	A.C.	Dec. 70	22	26	33	30	33	24	32	60	32
" Hardshore	"	Dec. 70	0	0	0	0	0	0	0	0	0
" "	Conc.	Dec. 70	0	0	0	0	0	0	0	0	0

TABLE 2 CATCH ON EXPERIMENTAL MATERIALS - HUAWAI BAY

Material	Average Catch at each layer in bundles 1	2	3	4	5	6	7	8	Average Catch per Stick
Hardwood tarred and cement dipped 1" x 1" x 72"	171	200	260	300	250	268	-	-	241
Asbestos cement 3 per foot 2" x ¼" x 48"	122	127	219	204	188	234	267	43	175
Pinus cement dipped 1" x 1" x 72"	91	146	232	206	180	140	-	-	165
Concrete 1" x 1" x 48"	60	126	183	224	-	-	-	-	148
Hardboard Forest Products experimental 2" x ¼" x 48" Type A	114	132	144	124	144	143	200	78	135
Asbestos cement	164	98	99	101	128	182	193	87	131
Acrylonitrile Butadienne Styrene 2" x ⅛" x 48"	144	88	120	128	128	160	200	80	131
Hardboard Forest Products experimental 2" x ¼" x 48" Type B	33	88	122	138	167	166	162	28	113
Australian hardwood tarred with BHP HO 32 1" x 1" x 72"	80	94	101	109	100	91	-	-	95
Aluminium 1½" x ⅛" x 48"	62	71	79	88	105	101	166	73	93
Rata tarred with BHP HO 32 1" x 1" x 72"	112	85	78	68	134	28	-	-	84
Fibreglass 2" x ⅛" x 48"	71	56	63	57	100	97	110	16	71
Polyvinyl chloride " "	42	62	54	67	84	107	114	12	68
Cellulose Acetate Butyrate " "	60	49	58	72	61	84	80	22	60
Polystyrene white " "	61	24	45	48	40	102	102	5	53
Polystyrene black " "	1	18	27	48	51	51	50	12	32

Catch at Kaipara on experimental materials averaged between 2 and 6 oysters per stick.
Plastics used were those readily available A.B.S. white, fibreglass semi opaque white, P.V.C. light grey, C.A.B. white, styrene white and black.

TABLE 3 CATCH AT VARIOUS LEVELS IN COMMERCIAL AREAS ON STANDARD ASBESTOS CEMENT STICKS

Area	Level	Date Set Out	Average catch per stick at each layer 1	2	3	4	5	6	7	8	Average per stick	Comments
Huawai Bay	1	7.1.71	66	65	73	70	88	121	135	75	86	Some barnacle Elminius modestus
	2	"	181	111	102	110	132	151	218	114	142	Clean catch
	3	"	167	117	119	113	143	172	238	103	146	Clean catch
	4	"	191	141	71	71	60	53	99	80	92	Heavy catch of Waltersipora Cucullatta
	5	"	164	98	99	101	128	182	193	87	131	Normal competitors. Ostrea s., Mirocosmus kura, Anomia walteri, waltersipora, Pomatoceros cariniferus
Kawau Island	1	9.7.71	204	212	207	248	262	245	299	252	241	Clean catch
	2	"	167	158	134	98	117	118	109	57	119	Heavy waltersipora
Tapora	1	14.12.70	4	2	5	7	10	9	12	6	6	Some barnacle
	2	"	11	10	12	22	21	26	29	46	22	Clean catch
	3	"	4	5	6	7	12	13	15	20	10	Many anomia walteri

TABLE 4 CATCH AT VARIOUS AREAS ON STANDARD ASBESTOS CEMENT STICKS

Area	Level	Date Set Out	Average catch at each layer 1	2	3	4	5	6	7	8	Average catch per stick
Parengarenga	1	5.1.71	0	0	0	0	0	0	0	0	0
"	2	"	0	0	0	0	0	0	0	0	0
"	3	"	0	0	0	0	0	0	0	0	0
Parekura Bay	1	14.1.71	4	3	5	8	9	7	13	14	8
"	2	"	11	13	12	12	18	15	9	1	12
"	3	"	16	10	14	14	12	25	24	4	15
"	4	"	24	18	30	28	24	36	33	16	26
" Ostrea sp.	5	22.12.70	100	136	398	450	525	680	740	775	Ostrea
Whakaki	1	9.12.70	7	12	12	18	16	16	28	22	16
"	2	"	10	16	19	23	23	19	22	8	18
"	3	"	10	22	18	30	29	25	23	13	21
"	4	"	10	13	14	17	17	21	24	11	16
"	5	"	26	32	38	24	51	44	63	36	39
Mangawhai	1	13.1.71	126	87	115	133	134	176	170	84	128
"	2	"	122	109	107	128	134	196	202	147	143
"	3	"	95	90	98	100	124	116	135	38	99
" Upper Basin	1	"	0	0	0	0	0	0	0	0	0
"	2	"	0	0	0	0	0	0	0	0	0
"	3	"	0	0	0	0	0	0	0	0	0
Whangateau	1	16.1.71	129	115	171	207	199	263	207	96	173
"	2	"	105	273	277	290	311	317	304	163	255
"	3	"	78	106	106	50	57	46	66	26	67
Whangapoua	1	18.1.71	40	41	44	44	58	69	51	23	43
"	2	"	43	58	58	54	47	60	54	33	51

DISCUSSION

Areas:

Perhaps the most significant event of the season was the extremely poor spat settlement over the whole of the Kaipara. The east coast areas - Mahurangi - Kawau - Whangateau - Mangawhai still appear to offer best prospects for a regular spatfall. Departmental racks at Huawai Bay are being raised for next season so that settlement of competitors will be lessened. There has been a marked increase in the occurrence of the polyzoan Waltersipora cucullatta at Mahurangi and Kawau over the past two years. It is recommended that caught sticks be removed from these areas by April in each season. Uncaught sticks should be taken ashore and left out of the water till the following January.

Materials:

None of the plastic materials appear to be suitable for commercial operations. Their main disadvantage is that oysters came off far too readily. It is doubtful if they could be retained on plastic sticks till maturity. Aluminium is too expensive to be economic. The proprietry hardboards under test show promise but cost will be the main factor to be overcome. With the continuing increases in the costs of local materials oyster farmers may have to consider importing hardwood oyster sticks and tar from the Newcastle area N.S.W.

CONCLUSION

Next season it is intended to further test the Mangawhai and Whangateau Harbours for suitable spat catching areas. All experimental materials will be again tested at Mahurangi on higher racks and at Kaipara. Timber sticks will be tested at Mangawhai. The development of a lightweight concrete stick is anticipated.

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