

State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources

PETITION TO AMEND INTERIM INSTREAM FLOW STANDARDS

PALAUHULU STREAM, EAST MAUI

Instructions: Please print in ink or type and send completed petition with attachments to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. Petition must be accompanied by a non-refundable filing fee of \$25.00 payable to the Dept. of Land and Natural Resources. The Commission may not accept incomplete applications. For assistance, call the Regulation Branch at 587-0225.

1. PETITIONER

Firm/Name Na Moku 'Aupuni o Ko'olau Hui c/o Native Hawaiian Legal Corporation
Contact Person Alan Murakami, Attorney Ph. 521-2302
Address 1164 Bishop Street, Honolulu, Hawaii 96813

2. STREAMFLOW DATA

USGS stream gaging station 16522000 Data to follow. Gage Inactive
Location/Reach SEE ATTACHED Period of Record
(Attach a USGS map, scale 1"=2000', and a property tax map showing diversion location referenced to established property boundaries.)

TABLE 1. PERIOD OF RECORD AVERAGE MONTHLY STREAMFLOW WITHIN THE AFFECTED STREAM REACH, IN CFS

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
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STREAMFLOW DATA TABLES TO FOLLOW.

Annual Median flow in cfs =

TABLE 2. PROPOSED AVERAGE MONTHLY STREAMFLOW DIVERSION FROM AFFECTED STREAM REACH, IN CFS

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
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NONE. UNDETERMINED; SUFFICIENT FOR TARO FARMING AND/OR GATHERING.

Annual Median flow in cfs =

TABLE 3. AVERAGE MONTHLY STREAMFLOW IN AFFECTED STREAM REACH AFTER RESTORATION (min release flow), IN CFS

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
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NATURAL STREAMFLOW EXCEPT FOR EXERCISE OF APPURTENANT WATER RIGHTS.

Annual Median flow in cfs =

3. EXISTING INSTREAM AND OFFSTREAM WATER USES FOR ENTIRE STREAM REACH

TMK	OWNER	USE
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RESEARCH IN PROGRESS.

(If more space is necessary, attach an extended list following above format)

4. ANTICIPATED IMPACTS ON STREAM AND BASIS FOR SUCH IMPACTS:

RESTORATION OF INSTREAM NATURAL HABITAT AND BIOTA, AND BENEFICIAL APPURTENANT AND GATHERING USES.

(Attach supporting documentation, plans, letters, etc.)

NATIVE HAWAIIAN LEGAL CORPORATION

May 24, 2001

Signature

Alan Murakami
Attorney for Na Moku 'Aupuni o Ko'olau Hui

Perdoner

For Official Use

Date Received
Date Accepted

PALAUHULU

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16522600
 TARO PATCH FEEDER DITCH AT KEANAE, MAUI, HI
 PARAMETER CODE - 00060 DISCHARGE
 STATISTIC CODE - 00003 MEAN

CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT	CLASS	VALUE	TOTAL	ACCUM	PERCT
1	0.00	28	12419	100.00	13	0.41	2	12381	99.69	25	2.50	1897	11404	91.83
2	0.08	1	12391	99.77	14	0.48	1	12379	99.68	26	2.90	2107	9507	76.55
3	0.09	0	12390	99.77	15	0.56	0	12378	99.67	27	3.30	3544	7400	59.59
4	0.11	2	12390	99.77	16	0.65	1	12378	99.67	28	3.90	2097	3856	31.05
5	0.13	0	12388	99.75	17	0.75	2	12377	99.66	29	4.50	1085	1759	14.16
6	0.15	0	12388	99.75	18	0.87	0	12375	99.65	30	5.20	374	674	5.43
7	0.17	0	12388	99.75	19	1.00	2	12375	99.65	31	6.10	139	300	2.42
8	0.20	1	12388	99.75	20	1.20	6	12373	99.63	32	7.00	97	161	1.30
9	0.23	0	12387	99.74	21	1.40	5	12367	99.58	33	8.20	44	64	0.52
10	0.26	6	12387	99.74	22	1.60	11	12362	99.54	34	9.50	11	20	0.16
11	0.31	0	12381	99.69	23	1.80	83	12351	99.45	35	11.00	9	9	0.07
12	0.36	0	12381	99.69	24	2.10	864	12268	98.78					

DURATION CURVE STATISTICAL CHARACTERISTICS FOR ...
 STATION ID: 16522000 TARO PATCH FEEDER DITCH AT KEANAE, MAUI, HI
 PARAMETER CODE = 00060
 STATISTIC CODE - 00003 MEAN

DURATION DATA VALUES ARE INTERPOLATED FROM DURATION TABLE:
 DATA ARE NOT ANALYTICALLY FITTED TO A PARTICULAR STATISTICAL DISTRIBUTION,
 AND THE USER IS RESPONSIBLE FOR ASSESSMENT AND INTERPRETATION.

ADDITIONAL CONDITIONS FOR THIS RUN ARE:
 STATISTICS ARE BASED ON LOGARITHMS (BASE 10).
 NUMBER OF VALUES IS REDUCED FOR EACH NEAR-ZERO OR ZERO VALUE.

NUMBER OF VALUES = 19 (NUMBER OF NEAR-ZERO VALUES = 0)
 LISTING OF DATA FOLLOWS:

PERCENT OF TIME VALUE EQUALED OR EXCEEDED	DATA VALUE	
95.0	2.32	(LOG = 0.36503)
90.0	2.55	(LOG = 0.40617)
85.0	2.68	(LOG = 0.42794)
80.0	2.81	(LOG = 0.44866)
75.0	2.94	(LOG = 0.46784)
70.0	3.05	(LOG = 0.48494)
65.0	3.17	(LOG = 0.50138)
60.0	3.29	(LOG = 0.51723)
55.0	3.40	(LOG = 0.53102)
50.0	3.50	(LOG = 0.54426)
45.0	3.61	(LOG = 0.55711)
40.0	3.71	(LOG = 0.56959)
35.0	3.82	(LOG = 0.58171)
30.0	3.94	(LOG = 0.59520)
25.0	4.11	(LOG = 0.61436)
20.0	4.29	(LOG = 0.63272)
15.0	4.47	(LOG = 0.65034)
10.0	4.83	(LOG = 0.68427)
5.0	5.33	(LOG = 0.72654)

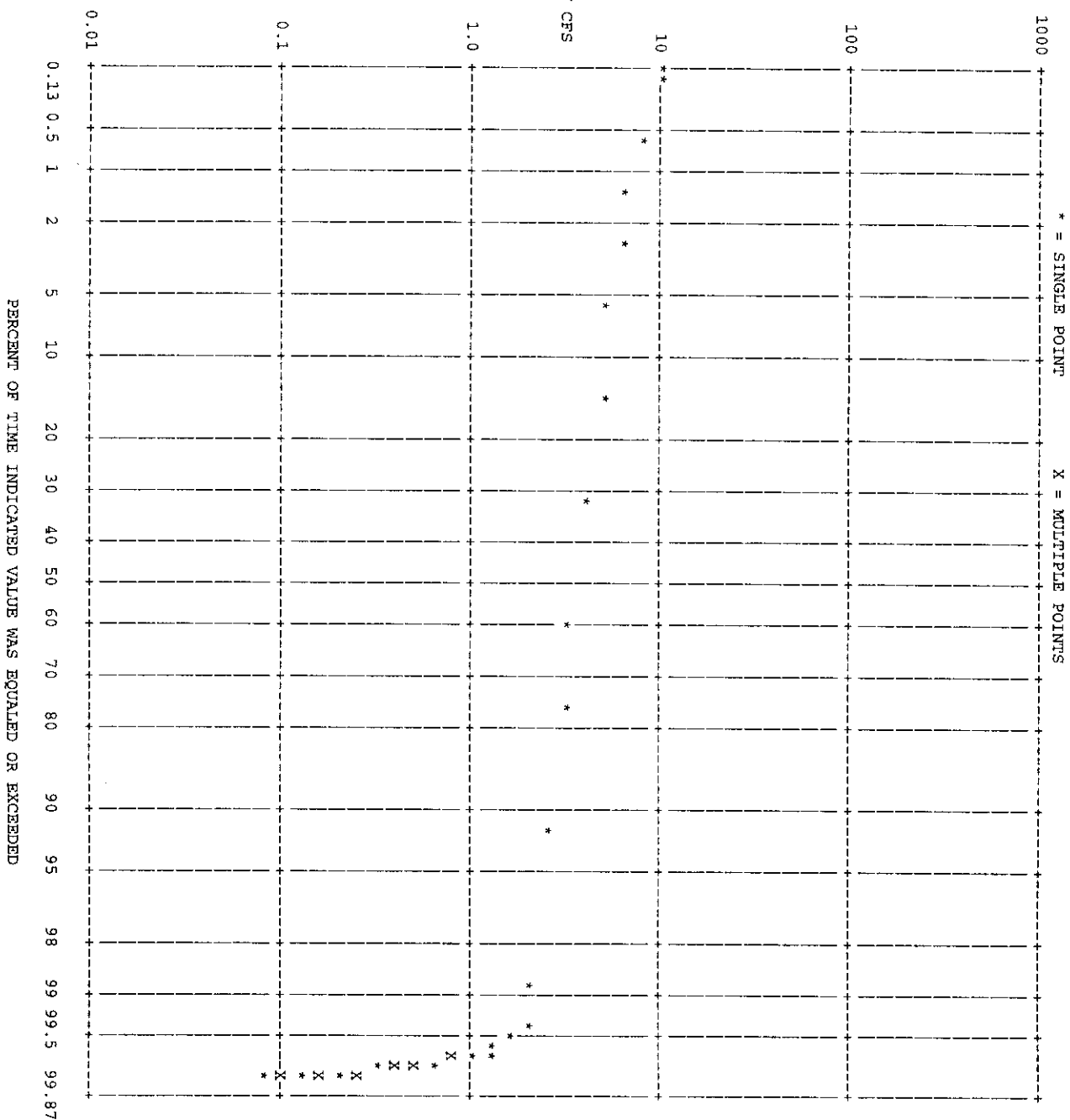
MEAN OF LOGS = 0.54244

STANDARD DEVIATION OF LOGS = 0.09647 (VARIABILITY INDEX ~ SEE USGS WSP 1542-A)

COEFFICIENT OF VARIATION = 0.17785

COEFFICIENT OF SKEW = 0.03848

LOG-NORMAL DURATION PLOT FOR PERIOD OCT TO SEP (YEARS 1934 - 1968)
 STATION ID: 16522000 TARO PATCH FEEDER DITCH AT KEANAE, MAUI, HI
 PARAMETER CODE - 00060 DISCHARGE
 STATISTIC CODE - 00003 MEAN



DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16522000
TARO PATCH FEEDER DITCH AT KEANAE, MAUI, HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

LOWEST MEAN VALUE AND RANKING FOR THE FOLLOWING NUMBER OF CONSECUTIVE DAYS
FOR PERIOD OCT TO SEP

WATER YEAR	1	3	7	14	30	60	90	120	183
RANGE	1	3	7	14	30	60	90	120	183
1935 1935	.12 3	.15 2	.51 3	1.00 2	1.63 2	2.61 11	3.04 18	3.35 23	3.46 20
1936 1936	2.40 27	2.47 26	2.49 23	2.54 19	2.72 20	2.94 19	3.07 20	3.18 19	3.30 17
1937 1937	.26 4	.26 3	.48 2	2.22 8	3.17 29	3.29 30	3.39 28	3.58 29	3.78 30
1938 1938	.51 5	1.84 8	2.44 22	2.99 30	3.09 28	3.22 26	3.31 25	3.39 24	3.53 22
1939 1939	.080 2	1.34 4	2.35 18	2.71 25	2.92 24	3.15 25	3.36 27	3.55 28	3.51 21
1940 1940	2.90 33	3.03 32	3.10 32	3.13 31	3.20 30	3.26 29	3.34 26	3.39 25	3.43 19
1941 1941	3.00 34	3.20 34	3.24 33	3.27 32	3.35 32	3.42 31	3.65 32	3.64 31	3.98 32
1942 1942	2.80 31	3.10 33	3.46 34	3.59 34	3.74 34	4.08 34	4.25 34	4.38 34	4.44 33
1943 1943	2.80 32	2.80 31	2.87 30	2.90 28	3.06 26	3.22 27	3.45 29	3.41 27	3.67 28
1944 1944	2.20 20	2.20 15	2.20 10	2.23 9	2.34 6	2.54 7	2.80 12	2.82 7	2.83 5
1945 1945	2.30 21	2.30 18	2.31 15	2.36 12	2.43 12	2.55 8	2.68 6	2.84 11	3.01 8
1946 1946	2.30 22	2.30 19	2.36 19	2.40 16	2.47 13	2.47 5	2.80 13	2.82 8	3.09 12
1947 1947	1.60 8	1.63 6	1.81 4	2.01 3	2.21 4	2.34 4	2.75 8	2.83 10	2.85 6
1948 1948	1.30 6	1.53 5	2.00 6	2.11 6	2.41 10	2.56 9	2.77 10	2.82 9	3.13 14
1949 1949	1.70 9	1.77 7	1.91 5	2.01 4	2.34 7	2.48 6	2.52 4	2.52 3	2.81 4
1950 1950	1.80 11	2.00 11	2.20 11	2.23 10	2.36 8	2.67 13	2.91 15	2.93 14	3.01 9
1951 1951	1.50 7	1.87 9	2.01 8	2.19 7	2.23 5	2.28 3	2.34 1	2.42 1	2.49 1
1952 1952	1.90 14	1.93 10	2.03 9	2.36 13	2.53 17	2.63 12	2.75 9	2.95 15	3.09 13
1953 1953	2.30 23	2.30 20	2.33 16	2.39 15	2.51 15	2.56 10	2.65 5	2.66 4	2.75 3
1954 1954	2.00 16	2.20 16	2.26 12	2.36 14	2.39 9	2.72 16	2.93 16	2.92 13	3.03 10
1955 1955	1.70 10	2.40 25	2.53 26	2.62 23	2.82 21	3.07 21	3.12 21	3.20 21	3.74 29
1956 1956	2.40 28	2.47 27	2.50 25	2.59 22	2.84 22	2.99 20	3.01 17	3.18 20	3.53 23
1957 1957	2.50 29	2.70 29	2.71 28	2.80 27	2.96 25	3.23 28	3.57 31	3.74 32	3.82 31
1958 1958	1.80 12	2.53 28	2.70 27	2.76 26	3.22 31	3.59 32	3.53 30	3.62 30	3.65 27
1959 1959	2.70 30	2.70 30	2.81 29	3.29 33	3.49 33	3.76 33	3.98 33	4.22 33	4.51 34
1960 1960	2.00 17	2.37 24	2.87 31	2.94 29	3.06 27	3.07 22	3.12 22	3.21 22	3.62 26
1961 1961	2.30 24	2.30 21	2.39 20	2.45 17	2.49 14	2.74 17	2.85 14	2.97 16	3.33 18
1962 1962	2.30 25	2.33 23	2.41 21	2.45 18	2.52 16	2.68 15	2.77 11	2.79 5	3.05 11
1963 1963	1.80 13	2.00 12	2.00 7	2.05 5	2.19 3	2.24 2	2.42 2	2.43 2	2.58 2
1964 1964	2.30 26	2.30 22	2.30 14	2.63 24	2.90 23	3.09 23	3.29 24	3.40 26	3.53 24
1965 1965	2.10 19	2.10 13	2.34 17	2.55 20	2.58 18	3.14 24	3.24 23	3.16 18	3.54 25
1966 1966	.0000 1	.0000 1	.0000 1	.0000 1	.13 1	1.76 1	2.49 3	2.85 12	2.92 7
1967 1967	2.00 18	2.13 14	2.49 24	2.58 21	2.63 19	2.86 18	3.06 19	3.15 17	3.28 16
1968 1968	1.90 15	2.20 17	2.27 13	2.31 11	2.42 11	2.67 14	2.71 7	2.80 6	3.21 15

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16522000
TARO PATCH FEEDER DITCH AT KEANAE, MAUI, HI
PARAMETER CODE - 00060 DISCHARGE
STATISTIC CODE - 00003 MEAN

HIGHEST MEAN VALUE AND RANKING FOR THE FOLLOWING NUMBER OF CONSECUTIVE DAYS
FOR PERIOD OCT TO SEP

WATER YEAR RANGE	1	3	7	15	30	60	90	120	183
1935 1935	7.60 24	6.13 21	5.17 21	4.93 15	4.59 17	4.43 16	4.28 11	4.12 12	3.82 18
1936 1936	5.70 34	5.20 32	4.96 26	4.77 22	4.70 14	4.47 13	4.34 9	4.29 7	4.20 6
1937 1937	6.00 31	5.50 27	5.11 24	4.81 20	4.53 19	4.37 18	4.30 10	4.25 9	4.16 7
1938 1938	6.20 29	5.77 24	5.16 22	4.74 24	4.52 21	4.10 23	4.01 23	3.95 19	3.91 13
1939 1939	7.00 27	5.07 33	4.61 30	4.47 29	4.30 26	4.07 25	3.98 24	3.80 25	3.74 23
1940 1940	7.70 21	6.53 17	5.51 15	5.00 14	4.45 24	4.07 26	3.81 27	3.67 27	3.62 27
1941 1941	12.0 1	9.73 3	7.37 3	6.31 4	5.64 2	5.45 3	5.27 3	5.21 1	5.09 1
1942 1942	9.90 7	8.03 8	7.07 6	6.39 2	5.80 1	5.61 1	5.42 1	5.08 2	4.93 2
1943 1943	7.70 22	5.80 23	4.87 28	4.79 21	4.47 23	4.31 20	4.14 19	3.98 18	3.87 15
1944 1944	6.50 28	5.30 30	4.13 34	3.77 34	3.56 34	3.54 33	3.46 32	3.40 32	3.24 32
1945 1945	5.90 33	5.53 26	5.00 25	4.65 27	4.11 28	3.77 29	3.62 29	3.45 30	3.50 28
1946 1946	8.70 14	5.57 25	4.91 27	4.87 19	4.64 15	4.49 12	4.22 13	4.04 16	3.81 19
1947 1947	9.30 10	7.30 14	6.60 8	4.55 28	3.84 33	3.39 34	3.27 34	3.14 34	3.17 33
1948 1948	12.0 2	8.53 6	5.49 16	4.75 23	4.33 25	4.08 24	3.87 25	3.78 26	3.64 25
1949 1949	6.20 30	5.40 29	4.56 32	4.37 31	3.93 32	3.64 32	3.39 33	3.22 33	3.29 31
1950 1950	7.60 25	6.03 22	4.77 29	4.45 30	3.99 30	3.73 31	3.60 30	3.45 31	3.37 30
1951 1951	7.30 26	5.27 31	4.59 31	4.03 33	3.95 31	3.81 28	3.63 28	3.51 29	3.17 34
1952 1952	6.00 32	4.70 34	4.53 33	4.27 32	4.06 29	3.88 27	3.86 26	3.82 24	3.64 26
1953 1953	7.70 23	5.47 28	5.16 23	4.92 16	4.73 13	4.60 10	4.23 12	4.00 17	3.69 24
1954 1954	8.50 16	7.87 11	5.49 17	4.90 17	4.51 22	4.26 21	4.09 21	4.12 13	3.90 14
1955 1955	12.0 3	10.2 2	9.09 1	6.61 1	5.56 4	4.94 5	4.90 4	4.80 5	4.73 4
1956 1956	12.0 4	8.60 5	7.21 5	6.33 3	5.28 7	4.50 11	4.20 16	4.10 14	3.94 10
1957 1957	9.10 11	7.97 10	6.10 12	5.62 8	4.93 11	4.45 14	4.21 14	4.13 11	4.03 9
1958 1958	9.80 8	8.03 9	6.53 9	6.13 6	5.42 6	4.78 7	4.46 8	4.23 10	4.11 8
1959 1959	11.0 6	10.3 1	7.61 2	6.03 7	5.62 3	5.48 2	5.31 2	5.07 3	4.78 3
1960 1960	12.0 5	9.00 4	7.26 4	6.23 5	5.56 5	5.09 4	4.89 5	4.88 4	4.61 5
1961 1961	9.80 9	7.43 13	6.06 14	5.18 13	4.60 16	4.25 22	4.10 20	3.94 20	3.87 16
1962 1962	8.10 19	6.43 18	5.20 20	4.89 18	4.57 18	4.35 19	4.07 22	3.87 23	3.92 12
1963 1963	8.20 18	6.43 19	6.11 11	5.55 11	5.22 8	4.76 8	4.54 7	4.36 6	3.93 11
1964 1964	8.00 20	7.00 16	6.47 10	5.62 9	5.03 10	4.43 17	4.15 18	3.91 22	3.79 20
1965 1965	8.60 15	7.03 15	5.44 18	4.74 25	4.53 20	4.44 15	4.21 15	4.07 15	3.87 17
1966 1966	9.10 12	7.77 12	6.64 7	5.59 10	5.22 9	4.80 6	4.57 6	4.26 8	3.78 21
1967 1967	8.40 17	6.30 20	5.41 19	4.69 26	4.12 27	3.75 30	3.60 31	3.62 28	3.42 29
1968 1968	8.80 13	8.17 7	6.09 13	5.41 12	4.75 12	4.65 9	4.19 17	3.92 21	3.78 22

DVSTAT - DAILY VALUES STATISTICAL PROGRAM

STATION ID - 16522000
 TARO PATCH FEEDER DITCH AT KEANAE, MAUI, HI
 PARAMETER CODE - 00060 DISCHARGE
 STATISTIC CODE - 00003 MEAN

ANNUAL AND/OR SEMI-ANNUAL VALUES

MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN LOW-VALUE ANALYSIS (OCT-SEP)			MEAN VALUE AND RANKING FOR PERIOD INCLUDED IN HIGH-VALUE ANALYSIS (OCT-SEP)		
WATER YEAR	RANGE		WATER YEAR	RANGE	
1935 1935	3.71	24	1935 1935	3.71	11
1936 1936	3.75	26	1936 1936	3.75	9
1937 1937	3.97	29	1937 1937	3.97	6
1938 1938	3.71	25	1938 1938	3.71	10
1939 1939	3.62	22	1939 1939	3.62	13
1940 1940	3.57	19	1940 1940	3.57	16
1941 1941	4.45	32	1941 1941	4.45	3
1942 1942	4.71	34	1942 1942	4.71	1
1943 1943	3.70	23	1943 1943	3.70	12
1944 1944	3.02	4	1944 1944	3.02	31
1945 1945	3.22	8	1945 1945	3.22	27
1946 1946	3.27	11	1946 1946	3.27	24
1947 1947	2.95	3	1947 1947	2.95	32
1948 1948	3.19	7	1948 1948	3.19	28
1949 1949	2.92	2	1949 1949	2.92	33
1950 1950	3.09	5	1950 1950	3.09	30
1951 1951	2.81	1	1951 1951	2.81	34
1952 1952	3.32	13	1952 1952	3.32	22
1953 1953	3.22	9	1953 1953	3.22	26
1954 1954	3.47	16	1954 1954	3.47	19
1955 1955	4.01	31	1955 1955	4.01	4
1956 1956	3.60	20	1956 1956	3.60	15
1957 1957	3.98	30	1957 1957	3.98	5
1958 1958	3.94	27	1958 1958	3.94	8
1959 1959	4.50	33	1959 1959	4.50	2
1960 1960	3.95	28	1960 1960	3.95	7
1961 1961	3.55	17	1961 1961	3.55	18
1962 1962	3.45	15	1962 1962	3.45	20
1963 1963	3.22	10	1963 1963	3.22	25
1964 1964	3.61	21	1964 1964	3.61	14
1965 1965	3.55	18	1965 1965	3.55	17
1966 1966	3.17	6	1966 1966	3.17	29
1967 1967	3.29	12	1967 1967	3.29	23
1968 1968	3.35	14	1968 1968	3.35	21