

SMALL BOAT STUDY - PUGET SOUND AND ADJACENT WATERS

PRESENTATION BY MR. RICHARD P. SELLEVOLD  
U. S. ARMY CORPS OF ENGINEERS  
TO THE  
PUGET SOUND TASK FORCE MEETING, SEATTLE, WASHINGTON  
21 SEPTEMBER 1967

CHART NO.

AS RESIDENTS OF THE PACIFIC NORTHWEST, YOU ARE WELL AWARE OF THE RECREATIONAL OPPORTUNITIES AVAILABLE IN THIS REGION. HOWEVER, UNLESS YOU ARE ONE OF THE BOATING PUBLIC OR DIRECTLY INVOLVED IN SERVING THIS SEGMENT OF RECREATION, YOU ARE PROBABLY NOT TOTALLY COGNIZANT OF ITS TREMENDOUS GROWTH IN POPULARITY OR THE DEMANDS WHICH THIS GROWTH HAS PLACED ON FEDERAL AND STATE AGENCIES, COMMUNITIES AND PRIVATE ENTERPRISE. IN THE PUGET SOUND AREA AN ESTIMATED 34 PERCENT OF THE POPULATION ENGAGES IN SOME FORM OF RECREATION BOATING AS COMPARED TO A NATIONAL AVERAGE OF 20 PERCENT. AN ESTIMATED \$51,000,000 WAS SPENT ON NEW BOATS AND MOTORS IN THE PUGET SOUND AREA IN 1966. SMALL BOATING IS BIG BUSINESS!

THERE HAS LONG BEEN A RECOGNIZED NEED FOR FACILITY PLANNING INFORMATION FOR RECREATION CRAFT BY BOTH THE CORPS OF ENGINEERS AND THE BUREAU OF OUTDOOR RECREATION. THE BASIC PROBLEM HAS ALWAYS BEEN "HOW MUCH AND WHERE?" STATE AGENCIES, SUCH AS PORT AUTHORITIES AND PARKS AND RECREATION COMMISSIONS HAVE



NEEDED INFORMATION ON RECREATION BOATER DEMANDS IN ORDER TO ALLOCATE THEIR LIMITED RESOURCES AND PLAN FOR THE FUTURE. MANY LOCAL COMMUNITIES HAVE RECENTLY ENTERED THE PICTURE AND, OF COURSE, INVESTMENTS BY PRIVATE ENTERPRISE ARE KEYED TO BOATER DEMAND. THE MORE RECENT EMPHASIS ON COMPREHENSIVE PLANNING HAS LEAD TO THE NEED FOR PLANNING INFORMATION ON WHICH TO WISELY COORDINATE AND ALLOCATE OUR WATER AND LAND RESOURCES.

THE CATALYST WHICH SPARKED THIS SMALL BOATING STUDY WAS PROVIDED BY THE COLUMBIA-NORTH PACIFIC AND THE PUGET SOUND AND ADJACENT WATERS COMPREHENSIVE WATER RESOURCE STUDIES. BOTH STUDIES ARE BEING CONDUCTED UNDER THE AUSPICES OF THE PACIFIC NORTHWEST RIVER BASIN COMMISSION. ALL OF THE FEDERAL, STATE AND LOCAL AGENCIES INVOLVED IN WATER RESOURCE DEVELOPMENT ARE PARTICIPANTS. THE COLUMBIA-NORTH PACIFIC STUDY WILL DEVELOP FRAMEWORK PLANS FOR WATER AND RELATED LAND RESOURCE DEVELOPMENT IN THE STATE OF WASHINGTON, WESTERN MONTANA, NORTHERN IDAHO AND OREGON. THE PUGET SOUND AND ADJACENT WATER STUDY IS SIMILAR IN NATURE, BUT FOCUSED IN MORE DETAIL ON THE RIVER BASINS SURROUNDING PUGET SOUND. THE CHALLENGE OF CONDUCTING A SMALL BOATING STUDY IN PUGET SOUND WAS ACCEPTED BY THE CORPS OF ENGINEERS AND THE BUREAU OF OUTDOOR RECREATION IN 1966. DURING THE COURSE OF THE STUDY SUBSTANTIAL



ASSISTANCE HAS BEEN PROVIDED BY THE WASHINGTON STATE DEPARTMENT OF COMMERCE AND ECONOMIC DEVELOPMENT, WASHINGTON STATE PARKS AND RECREATION COMMISSION, NORTHWEST MARINE INDUSTRIES, MARINA OPERATORS, NOT TO MENTION THE BOATING PUBLIC.

THE STUDY ENCOMPASSES A TWELVE COUNTY AREA IN NORTHWESTERN WASHINGTON AS SHOWN ON THIS CHART. NATURE HAS BESTOWED ON THE PUGET SOUND REGION A WEALTH OF SALTWATER HERITAGE. BETWEEN VANCOUVER ISLAND IN BRITISH COLUMBIA AND THE MAINLAND OF THE UNITED STATES LIE NEARLY 2,500 SQUARE MILES OF ALMOST LANDLOCKED SALTWATER. THE MOUNTAINS, SALTWATER BEACHES AND SHELTERED INLETS PROVIDE A SETTING WHICH IS ATTRACTIVE TO BOTH BUSINESS AND RECREATION. THE REPORT WILL MAKE INFORMATION AVAILABLE ON THE NUMBER AND TYPE OF REGISTERED AND NON-REGISTERED PLEASURE BOATS OWNED BY RESIDENTS OF THE PUGET SOUND AREA, THE RELATIONSHIP OF BOAT OWNERSHIP TO POPULATION AND THE DISTRIBUTION OF BOATS BY THREE STUDY AREA DIVISIONS -- NORTH, CENTRAL AND WEST -- AND BY NINETEEN SUBAREAS AS SHOWN ON THIS CHART.

THE STUDY MAY BE DIVIDED INTO THREE PHASES: (1) INVENTORY OF EXISTING FACILITIES; (2) DEVELOPMENT OF DATA ON EXISTING



BOATER DEMANDS; AND (3) THE FORECAST OF THIS DEMAND TO THE YEAR 2020. IN THE FIRST PHASE, A FIELD INVENTORY OF EXISTING BOATING FACILITIES WAS ACCOMPLISHED DURING THE SUMMER AND FALL OF 1966 BY AUTOMOBILE, BOAT AND AIRPLANE TO UPDATE AND SUPPLEMENT DATA FROM AVAILABLE STUDIES AND RECORDS. DURING THE COURSE OF THIS RECONNAISSANCE, MARINA OPERATORS WERE INTERVIEWED REGARDING THE SIZE, QUALITY OF FACILITIES, TYPES OF BOATS HANDLED, AND PRESENT AND PAST PATTERNS OF BOATING USE. THE ENTIRE SHORELINE OF PUGET SOUND AND ADJACENT WATERS WAS EXAMINED TO LOCATE SITES SUITABLE FOR MARINE FACILITY AND RECREATION DEVELOPMENT.

THE SECOND STEP IN THE STUDY WAS TO ESTABLISH EXISTING DEMAND FOR BOATING FACILITIES. TO OBTAIN AN ACCURATE MEASURE OF THIS DEMAND, A QUESTIONNAIRE SURVEY WAS UNDERTAKEN. DR. FRED DENMAN, MARKET ANALYST AT THE UNIVERSITY OF WASHINGTON, WAS EMPLOYED TO DEVELOP A STATISTICALLY RELIABLE QUESTIONNAIRE, TO GUIDE THE SURVEY AND ASSIST IN INTERPRETING THE RESULTS. ONE THOUSAND SIX HUNDRED QUESTIONNAIRES WERE MAILED BY THE PUGET SOUND AND ADJACENT WATERS TASK FORCE TO A RANDOM SAMPLING OF BOAT OWNERS IN THE NINETEEN SUBAREAS. ANOTHER 1,600 QUESTIONNAIRES WERE MAILED TO A STATEWIDE LISTING. SEVENTY PERCENT



OF THE QUESTIONNAIRES WERE RETURNED ILLUSTRATING A HIGH DEGREE OF INTEREST BY THE BOATING PUBLIC. A CHECK WAS MADE OF THE CHARACTERISTICS OF BOTH THE RESPONDENTS AND NON-RESPONDENTS TO ASSURE ACCURACY IN EXTRAPOLATING FROM THE QUESTIONNAIRE RETURNS.

FINALLY, PLEASURE BOAT OWNERSHIP PROJECTIONS FOR THE YEARS 1980, 2000, AND 2020 WERE CORRELATED WITH THE PRELIMINARY FORECASTS CONTAINED IN THE ECONOMIC STUDY OF PUGET SOUND AND ADJACENT WATERS MADE BY THE CONSULTING SERVICES CORPORATION AND WITH OTHER PLEASURE BOATING STUDIES AND NATIONAL TRENDS. AS THE FORECAST OF POPULATION GROWTH PROVIDED BY THE CONSULTING SERVICES CORPORATION IS PRELIMINARY IN NATURE, SOME MODIFICATION OF THE BOAT OWNERSHIP PROJECTIONS MAY BE REQUIRED PRIOR TO FINAL REPORT PUBLICATION.

THE INVENTORY AND QUESTIONNAIRE SURVEY HAVE DEVELOPED A TREMENDOUS AMOUNT OF INFORMATION ON THE BOATING PUBLIC, THEIR HABITS AND NEEDS. TODAY, IN THE SHORT TIME AVAILABLE, I CAN COVER ONLY SOME OF THE MAIN POINTS, WHEREAS WE WILL BE DRAWING NEW CONCLUSIONS FROM IT FOR SOME YEARS. HOWEVER, AS WITH ALL STUDIES OF THIS TYPE, PERIODIC UPDATING WILL BE REQUIRED PERHAPS IN THE NEXT 5 TO 10 YEARS.



THIS CHART MAKES A COMPARISON OF BOAT OWNERSHIP IN THE  
PUGET SOUND REGION WITH THE STRAITS OF GEORGIA IN BRITISH  
COLUMBIA, CALIFORNIA AND NATIONALLY. STRIKINGLY, THE STUDY  
AREA HAS OVER TWICE AS MANY BOATS PER PERSON AS THE NATION,  
90 BOATS PER 1,000 POPULATION AS COMPARED TO 40 BOATS PER  
1,000 NATIONALLY.

WITHIN THE PUGET SOUND STUDY AREA, PLEASURE BOAT DISTRI-  
BUTION IS ALSO SURPRISING, BUT LOGICAL. IN THE CENTRAL  
DIVISION WHICH INCLUDES THE METROPOLITAN AREAS OF SEATTLE,  
TACOMA, AND OLYMPIA, 86 PERCENT OF THE POPULATION OWNS  
81 PERCENT OF THE BOATS. OVER 9 PERCENT OF THE BOATS ARE LOCATED  
IN THE NORTH DIVISION, ALTHOUGH THIS DIVISION ONLY REPRESENTS  
8 PERCENT OF THE STUDY AREA POPULATION. SIMILARLY, THE  
WESTERN DIVISION WITH JUST OVER 6 PERCENT OF THE POPULATION  
HAS ALMOST 10 PERCENT OF THE BOATS. THIS APPARENT DISCREPANCY  
CAN BE EXPLAINED BY THE FACT THAT IN THE NORTH AND WESTERN  
DIVISIONS, THE POPULATION RESIDES NEAR SALTWATER AND THEIR  
RECREATION INTERESTS NATURALLY TEND IN THIS DIRECTION. IN THE  
CENTRAL DIVISION THE POPULATION IS DISTRIBUTED FURTHER INLAND  
AND MANY ARE ENTICED TO INLAND RECREATION AREAS.



THE WASHINGTON STATE DEPARTMENT OF COMMERCE AND ECONOMIC DEVELOPMENT CONDUCTED A PERSONAL INTERVIEW SURVEY IN 1965 TO ESTIMATE THE TOTAL NUMBER OF PLEASURE CRAFT IN THE STATE. THE SURVEY PRESENTED INFORMATION ON THE EXTENT OF BOAT REGISTRATION AND INCLUDED DATA ON BOAT TYPE AND OTHER CHARACTERISTICS. THE STATE ESTIMATES INDICATED THAT 38 PERCENT OF THE 223,000 BOATS IN WASHINGTON STATE WERE REGISTERED WITH THE COAST GUARD. EXAMINATION OF THE STATE SURVEY WITH REGARD TO THE TWELVE COUNTIES COMPOSING THE PUGET SOUND STUDY AREA REVEALED THAT 33 PERCENT OF ALL PLEASURE BOATS ARE REGISTERED. MODIFYING THIS PERCENTAGE TO INCLUDE NON-REGISTERED BOATS, WE FIND THAT THERE WERE APPROXIMATELY 186,000 PRIVATELY OWNED PLEASURE BOATS IN THE PUGET SOUND AREA IN 1966.

THIS CHART SHOWS PLEASURE BOAT DISTRIBUTION BY TYPE. NOTE 5  
THAT OVER 50 PERCENT OF ALL BOATS ARE IN THE OUTBOARD CLASS. ALTHOUGH THIS IS THE LARGEST SEGMENT OF THE BOATING PUBLIC, IT IS PROBABLY THE LEAST RECOGNIZED FROM THE STANDPOINT OF MARINE FACILITY DEVELOPMENT. THE TENDENCY HAS ALWAYS BEEN TO PROVIDE THE MOORAGES NECESSARY FOR THE LARGER INBOARD CRUISERS AND SAILBOATS WHILE TRAILER BOAT LAUNCHING FACILITIES



HAVE BEEN PROVIDED AS AN AFTERTHOUGHT, IF AT ALL.

A STUDY BY THE PUGET SOUND GOVERNMENTAL CONFERENCE REVEALED THAT RESIDENTS OF THE AREA PLACE A GREAT EMPHASIS ON BOATING WITH 8.3 ACTIVITY DAYS PER PERSON EXPENDED ANNUALLY FOR THIS FORM OF RECREATION AS COMPARED TO A NATIONAL AVERAGE OF 2.6 DAYS PER PERSON. OUR QUESTIONNAIRE SURVEY INDICATED THAT AN AVERAGE OF 168 HOURS A YEAR ARE SPENT BY REGISTERED BOAT OWNERS ON PUGET SOUND AND ADJACENT WATERS AND 75 PERCENT OF THESE HOURS ARE DEVOTED TO ONE DAY OR LESS CRUISES. THIS CHART REFLECTS BOATING ACTIVITY FOR EACH OF THE TWELVE MONTHS. NOTE THAT A THIRD OF THE BOATERS USE THEIR CRAFT AT LEAST ONCE A MONTH THROUGHOUT THE YEAR AGAIN TESTIFYING TO THE UNIQUE BOATING ENVIRONMENT OF THE AREA. OVER 83 PERCENT OF THE BOAT OWNERS USE THEIR CRAFT ONCE A MONTH DURING MAY THROUGH SEPTEMBER, THE PEAK BOATING SEASON. A TELEPHONE SURVEY OF MARINAS THROUGHOUT THE STUDY AREA REVEALED THAT 2 TO 5 PERCENT OF MOORAGES WERE RENTED BY BOATERS LIVING OUTSIDE THE STUDY AREA, REPRESENTING 300 TO 800 PLEASURE BOATS. A REVIEW OF THE STRAITS OF GEORGIA REPORT REVEALED THAT PERHAPS 300 TO 400 CANADIAN PLEASURE CRAFT NAVIGATE THE WATER OF THE NORTH DIVISION, PARTICULARLY AROUND THE SAN JUAN ISLANDS.



FURTHER, A TRAILER BOAT SURVEY UNDERTAKEN BY THE BUREAU OF OUTDOOR RECREATION AND THE CORPS IN 1967, INDICATES THAT AT LEAST 30 PERCENT OF WASHINGTON BOATERS, NON-RESIDENT TO THE STUDY AREA TRAILED THEIR CRAFT TO PUGET SOUND.

THESE LARGE NUMBERS OF BOATS CREATE A TREMENDOUS DEMAND FOR SHORESIDE FACILITIES. BASICALLY THIS DEMAND CAN BE SEPARATED INTO TWO TYPES:

1. SUMMER MOORAGE, WHICH IS USED FROM MID-APRIL THROUGH MID-SEPTEMBER. THIS TYPE MAY OR MAY NOT REQUIRE BREAKWATER PROTECTION FROM WIND GENERATED WAVE ACTION.

2. WINTER MOORAGE USED FROM MID-SEPTEMBER TO MID-APRIL USUALLY REQUIRING A BREAKWATER OR SHELTER FROM WINTER STORMS.

WE HAVE ALSO BEEN ABLE TO ISOLATE THE DEMAND FOR PERMANENT AND TEMPORARY MOORAGE, WET AND DRY STORAGE OR ANY COMBINATION OF THESE IN EACH OF THE NINETEEN SUBAREAS.

THIS CHART SHOWS THE SUMMER DEMAND IN EACH OF THE THREE DIVISIONS. HERE, A MOORAGE IS DEFINED AS SPACE TO STORE A BOAT EITHER ON LAND OR IN THE WATER. IN THE WESTERN DIVISION THERE ARE NOW AVAILABLE 1,750 MOORAGE SPACES. HOWEVER, THERE IS AN INDICATED NEED FOR AN ADDITIONAL 8,787 MOORAGE SPACES. IN THE NORTH DIVISION WITH ROUGHLY 1,800 AVAILABLE MOORAGES, AN



ADDITIONAL 6,794 MOORAGES ARE REQUIRED TO SATISFY THE EXISTING DEMAND. THE CENTRAL DIVISION HAS ALMOST 13,000 AVAILABLE MOORAGES BUT STILL IS IN NEED OF AN ADDITIONAL 7,571 MOORAGES. THE NEXT CHART SHOWS SIMILAR STATISTICS FOR WINTER MOORAGE, WITH A DEMAND FOR 3,869 ADDITIONAL MOORAGES IN THE WESTERN DIVISION, 1,868 IN THE NORTHERN DIVISION AND 5,751 IN THE CENTRAL DIVISION. FOR ALL OF PUGET SOUND THE INDICATED NEED IS FOR AN ADDITIONAL 23,152 SUMMER AND 15,097 WINTER MOORAGES NOW.

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AS NOTED EARLIER OVER 50 PERCENT OF THE REGISTERED BOATS IN PUGET SOUND ARE IN THE OUTBOARD CLASS. ONE OF THE GREATEST BUT LEAST RECOGNIZED NEEDS OF THIS SEGMENT OF THE BOATING PUBLIC ARE BOAT LAUNCHING RAMPS. DURING THE QUESTIONNAIRE SURVEY MANY BOATERS WENT OUT OF THEIR WAY TO ADD COMMENTS ON THE BACK OF THE QUESTIONNAIRE'S REFLECTING THE NEED FOR ADDITIONAL AND BETTER PLANNED LAUNCHING FACILITIES. THIS CHART SHOWS THE NUMBERS OF EXISTING BOAT LAUNCHING RAMP LANES BY DIVISION AND THE NEED FOR ADDITIONAL FACILITIES. THE WESTERN DIVISION SHOWS AN EXISTING NEED FOR 28 ADDITIONAL LANES. IN THE NORTHERN DIVISION THE EXISTING FACILITIES COME CLOSEST TO MEETING EXISTING DEMAND BUT THERE IS STILL A DEFICIENCY OF 13 LANES.

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IN THE CENTRAL DIVISION WHERE MOST OF THE OUTBOARD BOATS ARE LOCATED THERE IS A DEFICIENCY OF OVER 50 LANES. IF YOU HAPPEN TO BE ONE OF THE OUTBOARD ENTHUSIASTS, YOU ARE PROBABLY WELL AWARE THAT THERE IS NOT A SINGLE PUBLIC LAUNCHING RAMP BETWEEN SHILSHOE BAY IN SEATTLE AND MUKILTEO NEAR EVERETT. THE QUESTIONNAIRE SURVEY ONLY ISOLATED THE DEMAND FOR RAMPS. HOWEVER, THERE IS PROBABLY AN ADDITIONAL DEMAND FOR OTHER TYPES OF LAUNCHING FACILITIES SUCH AS LIFTS OR MARINE RAILWAYS. CONVERSLY, SOME OF THE DEMAND FOR RAMPS COULD BE SATISFIED BY THESE OTHER TYPES OF FACILITIES. THE SURVEY ALSO INDICATED THE NEED FOR PROTECTION OF RAMPS FROM STORM WAVES AND WAKES FROM PASSING DEEP DRAFT VESSELS. THE DIFFICULTIES ENCOUNTERED DURING ROUGH WATER TENDS TO AGGRAVATE CONGESTION AT RAMPS AS WELL AS INCREASE BOAT DAMAGE AND PERSONAL INJURY POTENTIAL. IT WAS ONLY ONE YEAR AGO THAT A LIFE WAS LOST AT MUKILTEO DUE TO THE BOW WAVES CAUSED BY A PASSING TANKER.

AS YOU CAN SEE, WE HAVE OUR PROBLEMS TODAY. THE PICTURE DOESN'T IMPROVE IF YOU LOOK FORWARD A FEW YEARS. THE CONSULTING SERVICES CORPORATION UNDER CONTRACT WITH THE PUGET SOUND TASK FORCE HAS DEVELOPED PRELIMINARY ECONOMIC PROJECTIONS FOR THE PUGET SOUND AREA. DETAILS OF THIS STUDY WERE PRESENTED AT



THE TASK FORCE MEETING ON 20 JUNE 1967. THIS CHART SUMMARIZES 10  
THESE FORECASTS AND SHOWS THE GROWTH EXPECTED IN EMPLOYMENT,  
POPULATION AND GROSS REGIONAL PRODUCT BETWEEN 1963 AND THE  
YEAR 2020. PRELIMINARY FORECASTS FOR THE SMALL BOATING STUDY  
WERE DEVELOPED FROM THESE POPULATION PROJECTIONS. STUDIES BY  
THE PUGET SOUND GOVERNMENTAL CONFERENCE AND N. P. LEA  
ASSOCIATES FOR THE STRAITS OF GEORGIA SERVED AS USEFUL GUIDE-  
LINES FOR THE PROJECTIONS OF THE STUDY AREA. BOTH STUDIES  
REPORTED PLEASURE BOAT GROWTH RATES IN EXCESS OF POPULATION  
GROWTHS. IN LIGHT OF THE PUGET SOUND GOVERNMENTAL CONFERENCE  
AND LEA STUDIES AND NATURAL TRENDS, PLEASURE BOAT GROWTH WAS  
FORECAST TO RISE AT A RATE 1 PERCENT GREATER THAN THE AVERAGE 11  
ANNUAL POPULATION GROWTH AS DEVELOPED BY CONSULTING  
SERVICES CORPORATION. ON THIS BASIS PLEASURE CRAFT IN THE AREA  
ARE EXPECTED TO INCREASE FROM 186,000 IN 1966 TO 299,000 IN 1980,  
REACHING 593,000 BY THE YEAR 2000 AND 1,239,000 BY 2020.

FUTURE NEED FOR MOORAGE FACILITIES WERE BASED ON THE  
ASSUMPTION THAT THE DEMAND IN EACH DIVISION WOULD INCREASE 12  
IN PROPORTION TO THE INCREASE IN TOTAL PLEASURE CRAFT. ON THIS  
BASIS, THE NEED FOR SUMMER MOORAGES BY 1980 IS PROJECTED AT  
60,800. OF THESE, ROUGHLY 13,000 WOULD BE REQUIRED IN THE



NORTHERN DIVISION, 33,000 IN THE CENTRAL DIVISION AND 14,000 IN THE WESTERN DIVISION. IN SHORT, WE NEED ALMOST 4 TIMES AS MANY SUMMER MOORAGES IN 1980 AS WE NOW HAVE. BY 2020 THE DEMAND HAS INCREASED TO 230,469 MOORAGES. SIMILAR GROWTH IS EXPECTED IN THE DEMAND FOR WINTER MOORAGES.

FUTURE LAUNCHING RAMP NEEDS WERE ALSO ASSUMED TO FOLLOW THE SAME RATE OF GROWTH AS FOR PLEASURE BOATS. THE TOTAL NUMBER OF LAUNCHING LANES REQUIRED IN 1980 IS EXPECTED TO BE ABOUT 440, WHICH IS TWICE THE NUMBER NOW IN THE PUGET SOUND AREA. BY THE YEAR 2000 NEARLY 4 TIMES AS MANY RAMPS AS NOW EXIST WILL BE NEEDED AS SHOWN ON THIS CHART. TOTAL DEMAND IS FORECAST AT 1,646 LANES BY 2020.

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I HAVE ONLY COVERED SOME OF THE MAIN CONCLUSIONS REACHED IN OUR STUDY TO DATE. HOWEVER, THIS COMPREHENSIVE STUDY OF SMALL BOATING NEEDS HAS DEVELOPED DATA IN A NUMBER OF OTHER AREAS CRITICAL TO WATERFRONT DEVELOPMENT. FOR INSTANCE, OVER 3,600 REGISTERED BOAT OWNERS NOW USE OR WOULD USE SALTWATER PICNICKING FACILITIES AND APPROXIMATELY 22,000 NOW USE OR WOULD USE NEW SALTWATER CAMPING FACILITIES. HARBORS OF REFUGE ARE NEEDED BY ABOUT 28,000 BOATERS SEEKING REFUGE FROM STORMS. PLEASURE BOAT DAMAGE DURING 1965 AND



1966 AVERAGED AN ESTIMATED \$950,000 ANNUALLY WITH MOST OF THE DAMAGE OCCURRING AS A RESULT OF FLOATING DEBRIS INDICATING THE NEED FOR FURTHER DEBRIS CONTROL.

TO SUMMARIZE, PLEASURE BOAT OWNERSHIP ALREADY EXTREMELY HIGH ON A PER CAPITA BASIS IS EXPECTED TO INCREASE DRAMATICALLY IN THE FUTURE. THIS INCREASE IN BOATS WILL RESULT IN A CORRESPONDINGLY GREATER DEMAND FOR BOATING FACILITIES. TODAY WE HAVE 9 MILES OF SHORELINE DEVOTED TO MARINAS, OUT OF A TOTAL OF 2,246 MILES OF SHORELINE ON PUGET SOUND. BASED ON THE STUDY RESULTS WE NEED AN ADDITIONAL 13 MILES WHICH WOULD BE EQUIVALENT TO 18 SMALL BOAT HARBORS THE SIZE OF SHILSHOE BAY RIGHT NOW. BY THE YEAR 2020, APPROXIMATELY 130 MILES OF SHORELINE WILL BE REQUIRED TO MEET DEMAND. THIS IS EQUIVALENT TO 168 NEW BASINS WHICH AT TODAY'S PRICES WILL COST APPROXIMATELY \$840,000,000. OVER 90 ADDITIONAL BOAT LAUNCHING LANES ARE NEEDED NOW WITH APPROXIMATELY 200 ACRES OF LAND FOR NECESSARY PARKING AND SHORESIDE FACILITIES.

THESE FIGURES PORTEND A TREMENDOUS IMPACT ON THE ECONOMY AND ON OUR WATER AND LAND RESOURCES. LAND AREA REQUIREMENTS WILL BE OF PRIME CONCERN TO PORT AUTHORITIES AND PARK AND RECREATION DEVELOPMENT AGENCIES, PARTICULARLY IN VIEW OF



COMPETING LAND USES. THIS CHART ILLUSTRATES THIS IMPACT. THE SMALL RED DOTS INDICATE EXISTING MARINA DEVELOPMENTS. THIS OVERLAY SHOWS THE ADDITIONAL REQUIREMENTS FOR SMALL BOAT BASINS NOW. TO THIS WE ADD THE REQUIREMENTS FOR SMALL BOAT BASINS BY 2020. OBVIOUSLY, WE MUST COMMENCE PLANNING FOR THESE REQUIREMENTS NOW. THE MARINE ENVIRONMENT OF PUGET SOUND IS ONE OF ITS GREATEST ASSETS. HOWEVER, ONLY BY WISELY DEVELOPING THIS ASSET TO THE PUBLIC BENEFIT CAN THE ULTIMATE REWARDS OF LIVING IN THE PACIFIC NORTHWEST BE ACHIEVED.