

5.3.18

SUPERFUND RECORDS CTR
Site: <u>New Bedford Harbor</u>
Break: <u>5.3.18</u>
Other: <u>46665</u>

Attachment E to AVE comments

Vol. VIII of RFA's continued

- 21297 New Bedford area lobstermen encounter more traffic in the areas they lobster in.
- 21298 New Bedford area lobstermen still lobster in the closed areas.
- 21299 New Bedford area lobstermen have increased their income from lobstering since the closures.
- 21300 New Bedford area lobstermen trap more lobsters now than they did before the closures.
- 21301 New Bedford area lobstermen use more lobster traps now than they did before the closures.
- 21302 More people want to get lobster licenses now than before the closures.
- 21303 The benefits to New Bedford area lobstermen outweigh the costs.

- 21304 Antone Mello resides at 10 Walsh Street, South Dartmouth, Massachusetts.
- 21305 Antone Mello does not currently hold a <sup>erc</sup> commercial lobsterman's license, and last held a commercial lobster fishing license approximately twelve to fourteen years ago.
- 21306 In 1986, Antone Mello had been employed as a printer or a printer's helper at Brittany Dye & Print located in New Bedford, Massachusetts for the previous 16 1/2 years.
- 21307 Antone Mello discontinued lobstering because the license fee increased from \$10.00 to \$100.00.
- 21308 Antone Mello lobstered for four years.
- 21309 During the four years that Antone Mello lobstered, he set twenty-five lobster pots per year.
- 21310 During the years that Antone Mello lobstered, he never sold any of the lobster he caught.
- 21311 Antone Mello never lobstered in Area I.

- 21312        Antone Mello never lobstered outside of Areas II and III.
- 21313        Antone Mello stopped lobstering prior to the closure of Area II to lobstering.
- 21314        Ernest Hassey lives at 1049 Tucker Road, North Dartmouth, Massachusetts.
- 21315        In 1986, Ernest Hassey had been employed at Cape Cod Sportswear, located in New Bedford, Massachusetts for the previous 32 years.
- 21316        Ernest Hassey first held a commercial lobsterman's license in 1976.
- 21317        From 1976 until May, 1986, Mr. Hassey lobstered between May and October.
- 21318        Ernest Hassey never sold any of the lobsters he caught.
- 21319        On average, for the years 1976 through 1978, Ernest Hassey lobstered twice a week between May and October.
- 21320        Between 1976 and 1986, Ernest Hassey lobstered, on average, between twenty-five and forty lobster pots per

year.

- 21321 Ernest Hassey did not suffer any financial loss because of the closure of Areas II and III to lobstering.
- 21322 When Ernest Hassey first started lobstering, he set his pots in Area II.
- 21323 After Area II was closed to lobstering, Ernest Hassey moved his pots from Area II to Area III.
- 21324 Ernest Hassey lobstered outside of Area III in 1985.
- 21325 Ernest Hassey set some of his lobster traps in Area III in 1984.
- 21326 Ernest Hassey observed lobster gear in Area III during the year 1985, and for the previous three to five years.
- 21327 Ernest Hassey generally goes bass fishing two or three times per week between May and October.
- 21328 Every time Ernest Hassey went bass fishing in 1985, he observed lobster pots in Area III.
- 21329 Ernest Hassey went cod fishing outside of Area III

during the early spring and late fall.

21330 Ernest Hassey stated that Area III is bounded on the south side by a straight line connecting Mishaum Point, bell No. 5, and Rocky Point.

21331 Ernest Hassey set his lobster pots outside Area III in 1984.

21332 In 1986 and during the previous three to five years, Ernest Hassey had observed nine or ten different-colored lobster floats in Area III.

21333 Ernest Hassey has never lobstered in Area I, and has never seen gear there.

21334 Ernest Hassey stated, in 1986, that he had docked a boat at the Coast Guard Auxiliary, north of the New Bedford Harbor hurricane barrier, for the previous thirty-five years.

21335 Ernest Hassey set his lobster traps south of Negro Ledge between 1980 and 1982.

21336 Ernest Hassey used about a gallon more of fuel when he moved from Area II to Area III.

- 21337 It took Ernest Hassey between five and ten minutes to steam to the area where he set his lobster pots in 1980.
- 21338 It took Ernest Hassey between five and ten minutes to steam to the area where he set his lobster pots in 1981.
- 21339 It took Ernest Hassey between five and ten minutes to steam to the area where he set his lobster pots in 1982.
- 21340 It took Ernest Hassey between five and ten minutes to steam to the area where he set his lobster pots in 1983.
- 21341 It took Ernest Hassey between five and ten minutes to steam to the area where he set his lobster pots in 1984.
- 21342 It took Ernest Hassey between five and ten minutes to steam to the area where he set his lobster pots in 1985.
- 21343 Ernest Hassey gave away all the lobsters that he caught to relatives and friends. He never sold lobsters on

the market.

- 21344 The supply of lobsters varies from year to year.
- 21345 In 1986, Ernest Hassey stated that he had gone bass fishing for thirty years, and had never gone fishing in Area I or Area III.
- 21346 The last time Ernest Hassey went bass fishing in Area II was nineteen to twenty-four years ago.
- 21347 In 1986, Ernest Hassey stated that he had lost very few lobster traps during the previous ten years.
- 21348 Ernest Hassey did not lose any more lobster pots during the years after closure than he did prior to the closure.
- 21349 Ernest Hassey has never spoken to anyone from the federal government concerning lobstering.
- 21350 Ernest Hassey has never spoken to Kenneth McConnell or Brian Morrison concerning lobstering.
- 21351 Joseph F. Arruda lives at 4 Lincoln Drive, Fairhaven, Massachusetts.

- 21352 Joseph F. Arruda worked as a full-time bench assembler at Chamberlain Manufacturing Company from June 2, 1977 to September 14, 1982.
- 21353 Joseph F. Arruda held a commercial lobsterman's license for ten years between 1972 and 1981.
- 21354 In January, 1982, Joseph F. Arruda sold his boat that he used for lobstering.
- 21355 In 1972, Joseph F. Arruda went lobstering on Saturdays and Sundays, and once or twice a week after work.
- 21356 From 1972 to 1981, Joseph F. Arruda set lobster traps in East Cove, and near West Island.
- 21357 Joseph F. Arruda always set his lobster pots in the same area.
- 21358 Joseph F. Arruda never set any lobster traps in Area I.
- 21359 Joseph F. Arruda never set any lobster traps in Area II.
- 21360 Joseph F. Arruda used between forty and one hundred

twenty lobster pots per year during the entire time that he held his commercial lobsterman's license.

21361 Joseph F. Arruda always removed his lobster pots from the water during the months of August and September.

21362 Joseph F. Arruda continued to go lobstering in the same areas after 1978 that he had lobstered in prior to 1978.

21363 Joseph F. Arruda never lobstered full-time.

21364 Joseph F. Arruda observed lobster pots in Area III in 1982.

21365 Antone Farias of 12 Orchard Street, Fairhaven, Massachusetts, is the cousin of Joseph F. Arruda.

21366 Joseph F. Arruda observed Antone Farias fishing for lobster in Area III in 1981.

21367 Joseph F. Arruda observed more than one hundred lobster pots in Area III in 1981.

21368 Joseph F. Arruda varied the number of lobster pots that he would set in the areas that he fished depending upon the month of the year.

- 21369 Joseph F. Arruda did not go lobstering during the months of January, February, and March.
- 21370 Joseph F. Arruda never made more than \$5,000.00 from lobstering in any year while he held a commercial lobsterman's license.
- 21371 Joseph F. Arruda sold some of the lobsters he caught and kept some for himself.
- 21372 Joseph F. Arruda never spoke to anyone from the federal or state government concerning the areas that he set his lobster traps.
- 21373 Joseph F. Arruda, while he held a commercial lobsterman's license, would generally place lobster pots approximately one-half mile south of the southerly tip of West Island.
- 21374 Joseph F. Arruda observed lobster pots in Area III in May 1986.
- 21375 Arthur Francis Dias lives at 20 Highland Street, South Dartmouth, Massachusetts.

- 21376 In 1986, was employed full-time as a welder at J.M. Newby Company, located in South Dartmouth, Massachusetts.
- 21377 Prior to his employment at J.M. Newby Company, Arthur Dias was employed for seventeen years as a machinist with Morse Cutting Tools, located in New Bedford, Massachusetts.
- 21378 Arthur Dias held a commercial lobsterman's license for approximately fifteen years between 1970 and 1985.
- 21379 Between 1970 and 1975, Arthur Dias sold most of the lobster he caught.
- 21380 Arthur Dias made approximately \$1,000.00 to \$2,000.00 per year from his lobstering activities during the years 1970 through 1975.
- 21381 Between 1970 and 1975, Arthur Dias lobstered in Areas II, III, and outside Area III.
- 21382 Between 1970 and 1975, Arthur Dias lobstered approximately fifty percent of the time outside of Area III.

- 21383 In 1975, thirty percent of Arthur Dias' catch came from outside of Area III.
- 21384 During the years 1977 through 1980, Arthur Dias spent less time lobstering on an average daily basis than he did for the years prior to 1977.
- 21385 During the years 1976 through 1981, Arthur Dias lobstered in Areas II, III, and outside III.
- 21386 During the years 1976 through 1981, Arthur Dias lobstered forty to fifty percent of the time outside of Area III.
- 21387 Arthur Dias stated that the supply of lobsters varies from year to year.
- 21388 In 1984, Arthur Dias let other lobstermen use his boat to go lobstering.
- 21389 Between 1970 and 1975, Arthur Dias set approximately forty to fifty traps.
- 21390 Arthur Dias lobstered approximately twelve hours per week in 1975.

- 21391 In 1983, Arthur Dias lobstered in Area III and outside Area III.
- 21392 In 1983, Arthur Dias lobstered approximately forty to fifty percent of the time outside Area III.
- 21393 In 1983, it took Arthur Dias approximately forty-five minutes to steam to the area where he set his lobster traps.
- 21394 In 1983, Arthur Dias lobstered approximately two to three times per week during the months that he lobstered.
- 21395 In 1983, Arthur Dias made approximately \$1,000.00 to \$1,500.00 from lobstering.
- 21396 In 1982, Arthur Dias lobstered in Area III and outside Area III.
- 21397 In 1982, Arthur Dias lobstered approximately forty to fifty percent of the time outside Area III.
- 21398 In 1986, Arthur Dias stated that he had observed lobster traps in Area III every year since 1979.
- 21399 Arthur Dias observed lobster traps in Area II and Area

III in May, 1986.

- 21400 Arthur Dias stopped lobstering in 1983 because he did not have the time and lost interest in lobstering.
- 21401 Arthur Dias stated that his decision to cease lobstering was unrelated to the closure of the harbor.
- 21402 Arthur Dias has never lobstered in Area I.
- 21403 Arthur Dias did not incur any additional expenses related to lobstering after 1979 other than the cost to repower his boat.
- 21404 Arthur Dias' lobster-related fuel expenses did not increase after 1979.
- 21405 Arthur Dias did not incur additional maintenance expenses after the closure.
- 21406 The time that it took Arthur Dias to set his lobster traps per trip did not increase from 1979 to 1980.
- 21407 Arthur Dias has never spoken to anyone from the federal government concerning this case.
- 21408 Arthur Dias has never spoken to any investigator concerning his lobstering activities.

- 21409 Arthur Dias used approximately forty lobster traps per year during the years that he lobstered.
- 21410 Arthur Dias always fished outside of Area III.
- 21411 Since 1976, Arthur Dias has used a forty-two foot boat to go lobstering.
- 21412 After 1977, Arthur Dias' lobstering activities declined due to the increase in lobstering in the areas where he fished.
- 21413 After the closure of Area II, Arthur Dias did not take longer trips to go lobstering.
- 21414 After the closure of Area II, Arthur Dias did not set more lobster traps than he set prior to the closure.
- 21415 After the closure of Area II, Arthur Dias did not change his lobstering habits.
- 21416 The Division of Marine Fisheries and the Department of Public Health have never taken any enforcement action against Arthur Dias.
- 21417 To Arthur Dias' knowledge, no agency has ever taken any enforcement action against any other lobsterman in the New Bedford Harbor area.

- 21418 Frederick Stanley Szela, Jr. lives at 171 Bayview Street, Fairhaven, Massachusetts.
- 21419 In 1986, Frederick Szela, Jr. was self-employed as a commercial lobsterman and held a commercial lobsterman's license for approximately sixteen to eighteen years.
- 21420 In 1986, Frederick Szela, Jr. stated that he was employed as a lobster fisherman for approximately sixteen or eighteen years.
- 21421 Frederick Szela, Jr. lobstered for approximately five or six years in the Clark's Point area and during that time he fished for lobster in Areas II and III.
- 21422 Frederick Szela, Jr. never set any lobster traps in Area I.
- 21423 During the first five to six years that Frederick Szela, Jr. operated as a commercial lobsterman, he used on an average of fifty to seventy-five pots per year.
- 21424 During the first five to six years that Frederick Szela, Jr. operated as a commercial lobsterman, he lobstered during the months of May, June, and July.

- 21425 Frederick Szela, Jr. does not know what percentage of his lobster catch was caught in Area II during the first five to six years that he operated as a commercial lobsterman.
- 21426 Frederick Szela, Jr. does not know what percentage of his lobster catch was caught in Area III during the first five to six years that he operated as a commercial lobsterman.
- 21427 Frederick Szela, Jr. never lobstered outside of Area III.
- 21428 During the first five to six years that Frederick Szela, Jr. operated as a commercial lobsterman, it took Mr. Szela approximately twenty to thirty-five minutes to steam to the area where he set his lobster traps.
- 21429 During the first five to six years that Frederick Szela, Jr. operated as a commercial lobsterman, he used on an average of eight to ten gallons per day of fuel in connection with his lobstering activity.
- 21430 During the first five to six years that Frederick Szela, Jr. operated as a commercial lobsterman, he

shared his lobster boat with his father, Frederick Szela, Sr., and his brother, who used it for quahogging.

21431 During the first five to six years that Frederick Szela, Jr. held a commercial lobsterman's license, his father, Frederick Szela, Sr., lobstered exclusively outside Area III.

21432 Frederick Szela, Jr. moved to outside of Area III near West Island after the closure.

21433 The closure of Areas II and III to lobstering did not affect Frederick Szela, Jr.

21434 Beginning 1981 or 1982, Frederick Szela, Jr. used one hundred traps on average.

21435 Prior to 1981, Frederick Szela, Jr. used an average of between fifty to seventy-five traps per year.

21436 In 1985, Frederick Szela, Jr. went lobstering from April or May until August.

21437 In 1985, Frederick Szela, Sr. made approximately fifty lobster fishing trips.

- 21438 Since he moved outside of Area III, Frederick Szela, Jr. made an average of fifty to seventy-five lobster fishing trips per year.
- 21439 After the closure of Area III, an average trip required Frederick Szela, Jr.'s steaming time increased by a maximum of fifteen minutes.
- 21440 Frederick Szela, Jr. stated that his current location outside of Area III is more convenient than his previous location.
- 21441 When Frederick Szela, Jr. first started lobstering, he used a twenty-seven-to-twenty-eight-foot lobster boat.
- 21442 Frederick Szela, Jr. bought a forty-foot lobster boat, in 1981 or 1982, because the old boat was rotten.
- 21443 Frederick Szela, Jr. was unaware of the official closure of Area II, in 1986.
- 21444 Frederick Szela Jr. observed lobster pots in Area III during the years 1985, 1984, 1983, 1982, and 1980.
- 21445 Frederick Szela, Jr. stated that he was not hurt by the

closure of Area II.

21446 During the year 1984, on an average lobster fishing trip during the summer months, Frederick Szela, Jr. observed three to four hundred lobster pots in Area III.

21447 Frederick Szela, Jr. did not incur any damage to his lobster pots in 1979-1984, except for damage from worms, other fishermen, and joyriders.

21448 During the last five years, Frederick Szela, Sr. has not gone lobstering in Areas I, II, or III.

21449 Frederick Szela, Jr. has not incurred any additional costs as a result of not being able to fish for lobster in Area II.

21450 Frederick Szela, Jr. has not incurred any additional costs as a result of not being able to fish for lobster in Area III.

21451 Frederick Szela, Jr. has not spoken to anyone from the federal or state government concerning his lobstering activities.

- 21452 Frederick Szela, Jr. has suffered no increased trap losses due to the closure.
- 21453 Frederick Szela, Jr. does not work at any other job during the months that he does not go lobstering.
- 21454 In 1986, Frederick Szela, Jr. stated that his income had increased over the previous five years
- 21455 Frederick Szela, Jr. is unaware of any lobstermen harmed by the closure.
- 21456 Frederick Szela, Jr. is not aware of anyone that has received any type of notice of violation for lobstering in Area II or III.
- 21457 Frederick Szela, Jr. worked approximately six hours per day on the days that he went lobstering during the months of May, June, and July.
- 21458 Frederick Szela, Jr. went lobstering approximately fifty to seventy days during the months of May, June, and July.
- 21459 Other than using one or two gallons more fuel per trip, Frederick Szela, Jr. has not incurred any additional

cost's associated with the closure of Areas II and III.

- 21460 Frederick Szela, Jr. was one of the New Bedford area lobstermen who sued Aerovox Incorporated.
- 21461 Prior to being employed with the Division of Marine Fisheries, Charles Connor was a self-employed commercial lobsterman for twenty years operating from the New Bedford Harbor.
- 21462 Charles Connor held a commercial lobsterman's license from 1963 to 1984.
- 21463 Charles Connor was a stockholder in Maria C., Inc. from 1974 to 1984.
- 21464 Charles Connor sold his shares of stock in Maria C., Inc. to James King, the current owner of Maria C., Inc., in 1984.
- 21465 Charles Connor lobstered in Areas II and III in 1963.
- 21466 The first time that Charles Connor went lobstering outside of Area III was in 1974 or 1975.
- 21467 Charles Connor decided to fish for lobsters outside of

Areas II and III because the lobster population in those areas dropped off drastically.

21468 The first year that Charles Connor lobstered outside Area III, he used twenty-five percent of his gear outside Area III.

21469 On May 28, 1986, Charles Connor did not know what percentage of his lobster catch was caught outside of Area III during the first year that he operated outside of Area III.

21470 Charles Connor used one hundred lobster pots for the months of January and February, 1978.

21471 Charles Connor observed lobster pots in Areas II and III in 1980.

21472 Charles Connor never set any lobster pots in Area I during the time that he held a commercial lobsterman's license.

21473 After September, 1979, Charles Connor set lobster traps in Area II only once, in 1981 or 1982, and caught twenty-seven to twenty-eight lobsters.

- 21474 Charles Connor last observed lobster pots in Areas II and III in 1983.
- 21475 Charles Connor last went lobstering in 1983.
- 21476 Charles Connor fished for lobster outside of Areas II and III in 1977.
- 21477 Charles Connor does not know what months he fished for lobster outside Areas II and III during the year 1977.
- 21478 Charles Connor caught seventy percent of his lobsters during the year 1977 in Area 10 which is set forth on the Massachusetts Division of Marine Fisheries Catch Report.
- 21479 Thirty percent of the lobsters caught by Charles Connor during the year 1977 was caught in Area II which is set forth on the Massachusetts Division of Marine Fisheries Catch Report.
- 21480 Charles Connor did not know what percent of the lobsters that he caught in Area 10 during the year 1977, was caught from Areas II and III.
- 21481 Charles Connor used four hundred lobster traps at some

point in time during the year 1977.

21482 Charles Connor used five hundred lobster pots at some point in time during the year 1976.

21483 In 1978, Charles Connor used two hundred to three hundred pots of his four hundred total pots outside of Area III.

21484 In 1979, Charles Connor fished for lobster in Area III.

21485 In 1980, Charles Connor fished for lobster in Area III.

21486 In 1981, Charles Connor fished for lobster in Area III.

21487 In 1982, Charles Connor fished for lobster in Area III.

21488 In 1983, Charles Connor fished for lobster in Area III.

21489 In 1983, Charles Connor fished for lobster solely in the months of April, May, and June.

21490 Charles Connor does not know what percentage of his lobster gear was set in Area III during the year 1982.

21491 Charles Connor observed lobster pots in Area III in

1980, 1981, 1982, and 1983.

- 21492 In 1982, on some trips Charles Connor baited lobster pots while he steamed out to the fishing grounds outside Area III.
- 21493 Charles Connor has never gone recreational fishing in New Bedford Harbor.
- 21494 To his knowledge, Charles Connor has never spoken to Kenneth McConnell.
- 21495 To his knowledge, Charles Connor has never spoken to Brian Morrison.
- 21496 Charles Connor was one of the New Bedford area lobstermen who sued Aerovox Incorporated and Cornell-Dubilier Electronics.
- 21497 Charles Connor spoke to an economist concerning information pertaining to the lobster fisheries and how it affected the lobstermen in the closed areas.
- 21498 To his knowledge, Charles Connor, as of May 28, 1986, did not know of anyone that had forfeited their lobsterman's license because of fishing for lobsters in

Areas I, II, or III.

- 21499 In 1978, during the months of June, July, and August, Charles Connor set two thirds of his lobster gear outside Area III.
- 21500 In 1976 through 1979, during the months other than June, July, and August, Charles Connor placed some of his pots outside Area III.
- 21501 In 1981, Charles Connor did not fish for lobster in January and February.
- 21502 In 1981, Charles Connor fished for lobster during the months of March, April, and May inside Area III.
- 21503 When Charles Connor held a commercial lobsterman's license, he would generally take his lobster gear out of the water during the months of August and September because of the worm season.
- 21504 During some of the years that Charles Connor went lobstering, he did not fish for lobster during the month of January.
- 21505 During some of the years that Charles Connor went

lobstering, he did not fish for lobster during the month of February.

21506 The Massachusetts Division of Marine Fisheries does not engage in any enforcement action with respect to the closure of Area III.

21507 Charles Connor is not aware of any enforcement of the ban of lobstering in Area III.

21508 Charles Connor observed an abundance of gear in Area III after the closure of Area III.

21509 During the years that Charles Connor went lobstering, he also went swordfishing.

21510 Charles Connor has gone swordfishing with his lobster boat while he was a commercial lobsterman.

21511 Thomas R. Vital currently lives at 786 Fisher Road, North Dartmouth, Massachusetts.

21512 Thomas Vital is a commercial lobster fisherman who currently holds a commercial lobsterman's license and has held a commercial lobsterman's license since approximately 1959.

- 21513 Thomas Vital is aware that Area I is closed to lobster fishing.
- 21514 Thomas Vital is aware that Area II is closed to lobster fishing.
- 21515 Thomas Vital is aware that Area III is closed to lobster fishing.
- 21516 Thomas Vital was one of the New Bedford area lobstermen that sued Aerovox, Inc.
- 21517 In 1968, Thomas Vital set his lobster traps in Areas II and III.
- 21518 In 1968 through 1971, Thomas Vital docked his lobster boat at Padanaram Harbor.
- 21519 In 1968, Thomas Vital used a fourteen-foot skiff to go lobstering for one half of the year and a sixteen-foot Novy to go lobstering during the other half of 1968.
- 21520 From 1971 to 1986, Thomas Vital used a thirty-six foot boat for lobstering.

- 21521 Since 1971, Thomas Vital has docked his lobster boat at New Bedford Harbor.
- 21522 In 1968, Thomas Vital went lobstering in May, June, July and August.
- 21523 From 1968 through 1971, Thomas Vital used seventy-five percent of his lobster gear in Area III during the summer months and twenty-five percent in Area II.
- 21524 In 1969 and 1970, Thomas Vital went lobstering in April through December.
- 21525 In 1971, Thomas Vital set lobster traps in Area II solely in January, February, March, April, October, November and December.
- 21526 In 1971, Thomas Vital set lobster traps in Area III from January through December.
- 21527 In 1971, Thomas Vital set lobster traps outside Area III in June, July and August.
- 21528 In 1971, Thomas Vital used three hundred lobster traps during the summer months only.

- 21529 In 1971, Thomas Vital set fifty percent of his lobster traps in Area II during the spring and fall months.
- 21530 In 1971, Thomas Vital set fifty percent of his lobster traps outside Area III during the summer months.
- 21531 From 1971 to 1975, Thomas Vital did not change the areas that he set his lobster traps.
- 21532 From 1971 to 1975, Thomas Vital used one hundred fifty to one hundred sixty lobster pots per month during the months of November, December, January, February and March.
- 21533 In 1985, Thomas Vital used one hundred fifty to one hundred sixty lobster pots during the months of November, December, January, February and March.
- 21534 From 1971 to 1975, Thomas Vital lost an average of fifty to seventy-five lobster pots per year.
- 21535 From 1975 to 1977, Thomas Vital lost an average of fifty to seventy-five lobster pots per year.
- 21536 In 1978 or 1979, Thomas Vital lost 250 traps due to a storm.

- 21537 From 1980 to 1985, Thomas Vital lost an average of fifty to one hundred lobster pots per year.
- 21538 Thomas Vital understands the date of the closure of Areas II and III to lobstering to be 1976.
- 21539 Thomas Vital set lobster traps in Area III after the closure of Area III.
- 21540 Thomas Vital observed lobster pots in Area III after the closure of Area III.
- 21541 Thomas Vital is aware of commercial lobstermen who did not abide by the ban on lobstering in Area III.
- 21542 Thomas Vital believes that Area III is officially closed but that the closure is not enforced.
- 21543 After the closure and up to 1983 Thomas Vital would lobster in Area III during the Spring and Fall months, but during Summer he would lobster exclusively outside of Area III.
- 21544 Thomas Vital observed lobster pots in Area III in 1986.

- 21545 Thomas Vital used an average of four hundred lobster traps per year for the last three years during the summer months.
- 21546 Thomas Vital used an average of one hundred fifty to two hundred lobster pots per year over the last three years during the spring and fall months.
- 21547 After the closure of Areas II and III, Thomas Vital has had his lobster pots vandalized by other lobstermen.
- 21548 On May 29, 1986, Thomas Vital used approximately thirty-two to thirty-four gallons of fuel for each lobstering trip.
- 21549 At the end of April, 1986, Thomas Vital paid fifty-seven cents per gallon for fuel for his lobster boat.
- 21550 Thomas Vital is a member of the Board of Directors of the Massachusetts Lobstermen's Association.
- 21551 Thomas Vital has been a member of the Board of Directors of the Massachusetts Lobstermen's Association for five years.
- 21552 Thomas Vital, after the closure of Area III, set

lobster traps on the line of Area III to monitor the flow of lobsters.

21553 It is the understanding of Thomas Vital that lobsters migrate.

21554 Lobsters migrate from Area III to the area outside Area III when the waters outside Area III become warmer.

21555 Representatives from the Massachusetts Division of Marine Fisheries attend the monthly meetings of the Massachusetts Lobstermen's Association.

21556 Thomas Vital took lobster samples for Battelle Memorial Institute during the fall of 1985.

21557 Donald Cobb accompanied Thomas Vital on a trip to obtain lobster samples for Battelle Memorial Institute.

21558 Thomas Vital received \$1,200.00 for taking lobster samples in the fall of 1985 for Battelle Memorial Institute.

21559 Thomas Vital received \$600.00 for taking lobster samples for Battelle Memorial Institute in the spring of 1985.

- 21560 On the first trip when lobster samples were taken by Mr. Vital for Battelle Memorial Institute, lobster samples were taken from Areas II, III and outside Area III.
- 21561 On the second trip taken by Mr. Vital when lobster samples were taken on behalf of Battelle Memorial Institute, lobster samples were taken from Areas I, II, III and outside Area III.
- 21562 Thomas Vital does not recall how many lobster samples were taken on the first or second trip that he made on behalf of Battelle Memorial Institute.
- 21563 Thomas Vital has not had any conversations with any investigators concerning this case.
- 21564 Stephen Boza lives at 220 Mount Pleasant Street, New Bedford, Massachusetts.
- 21565 Stephen Boza is self-employed as a commercial lobster fisherman.
- 21566 Stephen Boza is the sole stockholder of St. Nicholas Fishing Company.

- 21567 Stephen Boza operates his commercial lobsterman's business under a corporate name, the St. Nicholas Fishing Company.
- 21568 Stephen Boza currently holds a commercial lobsterman's license.
- 21569 Stephen Boza has held a commercial lobsterman's license since 1963.
- 21570 St. Nicholas Fishing Company has been incorporated for approximately ten years.
- 21571 From 1963 until 1968, Stephen Boza lobstered from April until September.
- 21572 From 1968 until 1985, Stephen Boza lobstered all year long.
- 21573 From 1963 through 1968, Stephen Boza set his lobster traps during the summer months outside Area III.
- 21574 In 1968, Stephen Boza fished for lobster inside and outside of Area III from April through September.

- 21575 In 1968, Stephen Boza lobstered in Area II from October through March.
- 21576 In September, 1985, Stephen Boza did not go lobstering because of Hurricane Gloria.
- 21577 Stephen Boza used, on average, 400 lobster traps between 1968 and 1986.
- 21578 After Area II was closed to lobstering, Stephen Boza generally set lobster traps in Area III between October and March, and set traps outside Area III between April and September.
- 21579 From 1980 to 1986, Stephen Boza has set lobster traps in Area III during the months of October, November, December, January, February, and March.
- 21580 In 1985, Stephen Boza set lobster traps in Area III.
- 21581 In 1985, Stephen Boza set lobster traps in Area III from January through December.
- 21582 In 1985, Stephen Boza set approximately 200 traps inside and 200 traps outside of Area III.

- 21583 In 1985, Stephen Boza set lobster traps east of Round Hill located in Dartmouth, Massachusetts.
- 21584 From 1975 to 1977, Stephen Boza set lobster traps east of Michaum Point located in Dartmouth, Massachusetts.
- 21585 From 1975 to 1977, Stephen Boza did not set any lobster traps in Area II during the months of April through August.
- 21586 In 1970 to 1975, Stephen Boza set fifty percent of his lobster traps inside Area III and fifty percent outside Area III during the months of April through August.
- 21587 In July, 1983, Stephen Boza earned \$18,000 lobstering outside of Area III.
- 21588 In 1975 through 1985, Stephen Boza set fifty percent of his lobster traps outside Area III and fifty percent inside Area III during the months of April through August.
- 21589 Stephen Boza used a thirty-seven-and-one-half foot long boat for lobstering since 1968.
- 21590 Stephen Boza loses an average of twenty lobster pots

per year.

- 21591 In 1984 Stephen Boza lost forty-three lobster pots.
- 21592 In 1985 Stephen Boza lost twenty-one lobster pots.
- 21593 Stephen Boza blames draggers for his lost lobster pots in 1984 and 1985.
- 21594 In 1980 Stephen Boza did not lose any lobster pots.
- 21595 In the years 1970-1975, Stephen Boza would lose more traps inside Area II than outside, due to the greater traffic.
- 21596 In 1981 Stephen Boza did not lose any lobster pots.
- 21597 In 1982 Stephen Boza did not lose any lobster pots.
- 21598 Stephen Boza is aware that Area III is closed to lobstering.
- 21599 Stephen Boza is aware that the ban on lobstering in Area III is not enforced.
- 21600 In the week prior to May 29, 1986, Stephen Boza set

fifty lobster pots in Area III.

- 21601 Stephen Boza lost nine lobster pots which were set in Area III in May, 1986.
- 21602 Not all of the New Bedford area commercial lobstermen fish for lobster during the winter months.
- 21603 Stephen Boza observed a commercial lobsterman by the name of Jake fishing for lobster in Area III in May, 1986.
- 21604 In 1985, during the months of April and May, Stephen Boza fished for lobster in Area III.
- 21605 Stephen Boza has lobstered in Area III every year, without interruption, since 1968.
- 21606 Stephen Boza can identify his lobster buoys from other commercial lobstermen's buoys.
- 21607 Stephen Boza observed over one thousand lobster pots in Area III in May, 1986.
- 21608 Prior to closure, Stephen Boza would usually place half of his traps in Area II and half outside during the

months April through August.

- 21609 Since closure, Stephen Boza would usually place half of his traps inside Area III and half outside.
- 21610 Stephen Boza observed Mr. Pelletier's lobster buoys in Area III in May, 1986.
- 21611 Stephen Boza observed Mr. Derico fishing for lobster in Area III in May, 1986.
- 21612 Stephen Boza observed Mr. Derico's lobster buoys in Area III in May, 1986.
- 21613 Stephen Boza observed Mr. Pelloquin fishing for lobster in Area III in May, 1986.
- 21614 Stephen Boza observed Mr. Pelloquin's lobster buoys in Area III in May, 1986.
- 21615 Stephen Boza observed Mr. Deblois fishing for lobster in Area III in May, 1986.
- 21616 Stephen Boza observed Mr. Deblois' lobster buoys in Area III in May, 1986.

- 21617 Stephen Boza observed Mr. Avellar fishing for lobster in Area III in May, 1986.
- 21618 Stephen Boza observed Mr. Avellar's lobster buoys in Area III in May, 1986.
- 21619 Stephen Boza has never been cited for violating the ban on lobstering in Area III.
- 21620 Stephen Boza is not aware of any lobsterman who has been cited for violating the ban on lobstering in Area II.
- 21621 Stephen Boza has never gone lobstering north of the New Bedford hurricane barrier.
- 21622 Stephen Boza lobstered in Area I prior to its closure.
- 21623 Stephen Boza was one of the New Bedford area lobstermen that sued Aerovox, Inc. and Cornell-Dubilier Electronics.
- 21624 Stephen Boza lost five lobster traps from September, 1985, to March, 1986.
- 21625 Stephen Boza has lost lobster pots set in Area III

after closure due to vessel traffic.

- 21626 Joseph Fernandes of 54 Yale Street, Fairhaven, Massachusetts, is the holder of Commercial Fisherman License No. 5683, issued by the Commonwealth of Massachusetts, Division of Marine Fisheries.
- 21627 Joseph Fernandes has held commercial license since 1972.
- 21628 Joseph Fernandes was one of twenty seven commercial lobstermen interviewed by Kenneth E. McConnell and/or Brian G. Morrison to obtain information on the effect of the closure of Areas I, II and III of the New Bedford Harbor to lobster fishing.
- 21629 Information obtained by Kenneth E. McConnell and Brian G. Morrison from the interview of Joseph Fernandes was utilized in the findings of the final draft of the report entitled: "ASSESSMENT OF ECONOMIC DAMAGES TO THE NATURAL RESOURCES OF NEW BEDFORD HARBOR: DAMAGES TO THE INSHORE LOBSTER FISHERY" ("Lobster Report").
- 21630 In calculating the present value of economic damages to the New Bedford lobster fishery caused by the closures of Areas I, II and III to lobster fishing, Kenneth E.

McConnell and Brian G. Morrison relied on information obtained from an interview with Mr. Joseph Fernandes.

- 21631 Joseph Fernandes has listed Fairhaven, Massachusetts, as his port of landing in every year in which he has applied to the Commonwealth of Massachusetts, Division of Marine Fisheries, for a commercial fisherman license.
- 21632 On May 28, 1986, the name of Joseph Fernandes' lobstering boat, "LITTLE JOE," was listed on his commercial fisherman's license.
- 21633 Joseph Fernandes has been employed as a full-time commercial lobsterman from approximately 1971 or 1972 through 1984 and in 1986.
- 21634 Joseph Fernandes was unable to fish for lobster in 1985 due to back surgery.
- 21635 Joseph Fernandes stated that he could not recall ever fishing for lobsters in Area I of New Bedford Harbor.
- 21636 Joseph Fernandes never fished for lobster in Area I of New Bedford Harbor because of the presence of large boats.

- 21637 Joseph Fernandes fished for lobster in Area II between 1971 and 1986.
- 21638 On May 28, 1986, Joseph Fernandes stated that he currently had twenty-nine lobster pots in place in Area II of New Bedford Harbor.
- 21639 Mr. Fernandes fished for lobster in Area III of New Bedford Harbor between 1971 and 1986.
- 21640 Joseph Fernandes has never fished for lobsters in any waters other than Areas II and III of New Bedford Harbor.
- 21641 On May 28, 1986, Joseph Fernandes stated that the supply of lobster in Areas II and III of New Bedford Harbor varied from year to year.
- 21642 Prior to 1979, the supply of lobsters would vary from year to year in Areas II and III of New Bedford Harbor.
- 21643 Prior to 1979, Joseph Fernandes yearly catches would vary from year to year.
- 21644 After 1979, Joseph Fernandes' yearly catches were about

the same.

- 21645 Mr. Fernandes takes his lobster pots out of the water during the month of July due to the presence of worms which attack the pots.
- 21646 On May 28, 1986, Joseph Fernandes stated that lobstermen holding commercial fisherman licenses and home permits were currently fishing for lobster in Area II of New Bedford Harbor, and that two to three hundred lobster pots could be found in Area II of New Bedford Harbor.
- 21647 In 1984, Joseph Fernandes placed at least fifty lobster pots in Area III of New Bedford Harbor, and estimated that in 1984, more than five hundred lobster pots were placed in Area III of New Bedford Harbor by lobster fishermen.
- 21648 Joseph Fernandes is aware of no changes in his fishing habits from 1971 to May 28, 1986.
- 21649 Joseph Fernandes left the lobster-fishing industry for several years due to his transfer to the day shift at Chamberlain Manufacturing Company.

- 21650 From 1971 to May 28, 1986, Joseph Fernandes used first a fifteen-foot boat and a twenty-foot boat to fish for lobster.
- 21651 From 1979 to the present, Joseph Fernandes' yearly net income has increased.
- 21652 Joseph Fernandes travel time to his lobster pots has increased by one hour due to the construction of the hurricane dike.
- 21653 Joseph Fernandes incurred no increased travel time due to the closure of Areas I, II and III.
- 21654 Joseph Fernandes is not aware of any increased cost to him due to the closure of Areas I, II and III.
- 21655 Joseph Fernandes moved his lobster pots once the hurricane dike was constructed to prevent their damage by vessel traffic.
- 21656 On May 28, 1986, Joseph Fernandes stated that the prime fishing months for lobstering are April, June, July, November, and December.
- 21657 On May 28, 1986, Joseph Fernandes had no memory of New

Bedford area lobstermen entering into a gentlemen's agreement in August, 1977, to voluntarily stop fishing in Areas I and II.

21658 Joseph Fernandes has always moored his lobster boats on Sconicut Neck, Fairhaven, Massachusetts.

21659 Arthur E. Lemberg of 44 Emmett Avenue, North Dartmouth, Massachusetts, is the former holder of commercial fisherman's license No. 6017 issued by the Commonwealth of Massachusetts Division of Marine Fisheries.

21660 Arthur Lemberg was one of twenty-seven commercial lobstermen interviewed by Kenneth E. McConnell and/or Brian G. Morrison in order to obtain information concerning the economic effect of the closures of Areas I, II, and III to lobster fishing industry.

21661 Arthur Lemberg was employed as a commercial lobsterman for approximately ten years between 1964 and 1975.

21662 Arthur Lemberg was employed as a dragger fisherman for one year after he stopped commercial lobstering.

21663 Arthur Lemberg lobstered between March and December.

- 21664 Arthur Lemberg's port of landing for each year he was licensed as a commercial lobsterman was Dartmouth, Massachusetts.
- 21665 Arthur Lemberg never fished for lobster in Area I of New Bedford Harbor.
- 21666 Arthur Lemberg lobstered in Areas II, III, and outside of Area III.
- 21667 Arthur Lemberg left the commercial lobstering industry in the middle 1970's due to a decrease in the supply of lobsters.
- 21668 Arthur Lemberg set approximately 20 to 25 percent of his traps in Area II, 25 to 30 percent in Area III, and 50 percent outside of Area III.
- 21669 Arthur Lemberg observed that, in the last two years in which he was employed as a commercial lobsterman, the supply of lobsters in Areas II and III had decreased.
- 21670 Arthur Lemberg discontinued commercial lobstering due to the decreasing supply of lobsters in the waters he fished.

- 21671 On May 28, 1986, Arthur Lemberg observed while he was employed as a commercial lobsterman that any increased lobster fishing costs he incurred were passed on to the consumer in the form of increased lobster prices.
- 21672 Arthur Lemberg built all his traps.
- 21673 Arthur Lemberg started lobstering with 35 traps and increased to about 350 lobster traps.
- 21674 During the time Arthur Lemberg lobstered in the New Bedford area, he did no change his routine.
- 21675 During the years in which Arthur Lemberg was employed as a commercial lobsterman, he experienced no higher trap loss in areas outside of Areas II and III than he experienced in Areas II and III.
- 21676 Robert Sakwa of 61 Farmfield Street, Fairhaven, Massachusetts, was one of twenty-seven commercial lobstermen interviewed to obtain information on the effect of the closure of Areas I, II, and III on lobster fishing, which information was subsequently utilized in the findings of the final draft of a report entitled: "ASSESSMENT OF ECONOMIC DAMAGES TO THE NATURAL RESOURCES OF NEW BEDFORD HARBOR: DAMAGES TO

THE INSHORE LOBSTER FISHERY."

- 21677 In calculating the present value of economic values to the New Bedford lobster fishery caused by the closure of Areas I, II, and III, Kenneth E. McConnell and Brian G. Morrison in their report entitled: "ASSESSMENT OF ECONOMIC DAMAGES TO THE NATURAL RESOURCES OF NEW BEDFORD HARBOR: DAMAGES TO THE INSHORE LOBSTER FISHERY," relied on information gained from an interview(s) with Robert Sakwa.
- 21678 On May 29, 1986, Robert Sakwa was the holder of state commercial fishing license, No. 8983.
- 21679 Robert Sakwa has held a license to fish for lobsters from 1964 to 1986.
- 21680 Prior to 1981, or 1982, Robert Sakwa's port of landing was West Island, Fairhaven, Massachusetts.
- 21681 Robert Sakwa's port of landing from 1981 or 1982 up to and including May 29, 1986, was Union Wharf, Fairhaven, Massachusetts.
- 21682 Between 1968 and 1976, Robert Sakwa was employed as a part-time lobster fisherman.

- 21683 From 1976 up to and including May 29, 1986, Robert Sakwa was employed as a full-time lobster fisherman.
- 21684 From 1964 up to and including May 29, 1986, Robert Sakwa has never fished for lobster in Area I.
- 21685 In 1964, Robert Sakwa used approximately twenty to twenty five lobster traps.
- 21686 In 1965, Robert Sakwa used approximately forty to fifty lobster traps.
- 21687 In 1967, Robert Sakwa used approximately seventy-five lobster traps.
- 21688 From 1974 to 1977, Robert Sakwa used approximately two hundred fifty lobster traps.
- 21689 From 1978 to 1981, Robert Sakwa owned approximately three hundred lobster traps.
- 21690 In 1982, Robert Sakwa owned approximately three hundred seventy-five to four hundred lobster traps.
- 21691 On May 29, 1986, Robert Sakwa owned approximately two

hundred fifty lobster traps.

- 21692 In 1985, Robert Sakwa owned approximately three hundred seventy-five lobster traps.
- 21693 From 1964 to 1966, Robert Sakwa fished for lobster from a twelve-foot flat bottom skiff with a five-and-one-half horse power outboard engine.
- 21694 From 1967 to 1970, Robert Sakwa fished for lobster from a sixteen-foot boat with a five-and-one-half horse power outboard engine.
- 21695 From 1970 to 1973, Robert Sakwa fished for lobster from a twenty-foot-flat-bottom skiff with a twenty horse power engine.
- 21696 From 1974 to 1978, Robert Sakwa fished for lobster from a twenty-eight-foot-inboard lobster boat.
- 21697 From middle 1978 up to and including May 29, 1986, Robert Sakwa fished for lobster from a thirty-nine-foot Navy boat.
- 21698 Robert Sakwa lobstered in Area II from 1964 until that area closed.

- 21699 Robert Sakwa has fished for lobster in Area III in every year from 1966 or 1967 up to May 29, 1986.
- 21700 On May 29, 1986, Robert Sakwa stated that he presently places approximately twenty five to thirty percent of his lobster traps in Area III. Robert Sakwa has placed approximately 25 to 30 percent of his lobster traps in Area III since 1984.
- 21701 From approximately 1966 to 1983, Robert Sakwa placed approximately forty to fifty percent of his lobster traps in Area III.
- 21702 Robert Sakwa has fished in the waters surrounding the Elizabeth Island every year since he acquired his twenty-eight-foot fishing boat in 1974.
- 21703 Since 1974, Robert Sakwa has placed approximately 40 percent of his lobster traps in the waters surrounding the Elizabeth Islands.
- 21704 In the years 1981, 1982, and 1984, Robert Sakwa placed between seventy-five to eighty lobster pots in Nomans Island area located off of Martha's Vineyard during August and September.

- 21705 On May 29, 1986, Robert Sakwa stated that the supply of lobster in Area II varied from year to year.
- 21706 During the years that Robert Sakwa fished for lobster in Area II, the supply of lobster would vary from season to season.
- 21707 Following the closure of Area II, Robert Sakwa did not significantly increase the number of traps which placed in the waters off the Elizabeth Islands.
- 21708 Subsequent to the closure of Area II, Robert Sakwa did not set more traps in the waters off of Nomans Island.
- 21709 Subsequent to the closure of Area II, the traps that Robert Sakwa had previously set in Area II were reset in Area III, in the waters between Area III and the middle of the channel of Buzzards Bay, and in the area in back of West Island.
- 21710 In 1985, Robert Sakwa was employed as a quahog fisherman during the months of January, February, March, and April, and was employed as a lobster fisherman in the months of May, June, July, August, and October.

- 21711 In 1982, Robert Sakwa decided to shift the concentration of his fishing business to quahog fishing.
- 21712 In 1984, Robert Sakwa fished for quahogs in the months of January, February, March and April, and for lobster in the months of May, June, July, August, and November.
- 21713 Robert Sakwa sold some of his lobster traps because he preferred quahog fishing.
- 21714 On May 29, 1986, Robert Sakwa stated that he is presently fishing more for quahogs than lobsters, because he can make more money in fewer hours.
- 21715 On May 29, 1986, Robert Sakwa stated that he fishes for quahogs in that portion of Area II is open to quahog fishing, and in Area III, which is not affected by the closure.
- 21716 In 1986, Robert Sakwa fished approximately one hundred lobster traps.
- 21717 On May 29, 1986, Robert Sakwa stated that he plans to set approximately twenty-five to thirty percent of his

lobster traps in Area III and twenty percent outside of Area III in 1986.

- 21718 Robert Sakwa sustains a yearly trap loss of approximately twenty percent depending upon whether he places them in higher traffic areas.
- 21719 In 1981, Robert Sakwa lost approximately seventy traps in the waters off of Nomans Island as a result of a storm.
- 21720 On May 29, 1986, Robert Sakwa stated that the trap loss incurred by him outside of Area III is approximately the same as the trap loss incurred by him in Area III.
- 21721 On May 29, 1986, Robert Sakwa stated, based upon his experience as a lobsterman, that the price of lobster has increased from year to year since 1964.
- 21722 Robert Sakwa stated that the price of lobster decreased in 1985 because the market was flooded.
- 21723 In 1977 or 1978, Robert Sakwa was told by Mr. Jack Powers of the Division of Law Enforcement that the Department of Public Health, and not the Division of Law Enforcement, was in charge of enforcing the closure

of New Bedford Harbor.

21724 From September, 1979 to May 29, 1986, Robert Sakwa has seen individuals fishing for lobsters in Area II.

21725 On May 29, 1986, Robert Sakwa stated that individuals, including commercial lobstermen, were presently fishing for lobsters in Area III.

21726 Robert Sakwa stated that in 1984, there were approximately ten different colored-lobster-trap buoys in Area III.

21727 Robert Sakwa's understanding of the August, 1977, gentlemen's agreement entered into by the New Bedford area fishermen was that New Bedford Area lobstermen agreed to stay out of Area II.

21728 Robert Sakwa attended the meeting at which the gentlemen's agreement was established and agreed to stay out of Area II.

21729 The number of lobster fishing trips Robert Sakwa made outside of Area III has remained approximately the same.

- 21730 In response to receiving a letter from a state agency, Robert Sakwa removed his lobster pots from Area III on one occasion.
- 21731 Subsequent to the closure of New Bedford Harbor to lobster fishing, Robert Sakwa did not reduce his efforts to catch Lobsters in the months of October through December.
- 21732 On May 29, 1986, Robert Sakwa stated that the closure of New Bedford Harbor to lobster fishing did not induce him to convert his fishing boat from a straight lobstering rig to a quahogging rig in 1982, and that he probably would have converted his boat from a straight lobstering rig to a quahogging rig in 1982 notwithstanding the closure of New Bedford Harbor.
- 21733 Richard Russell of 20 Little River Road, South Dartmouth, Massachusetts, was one of twenty-seven commercial lobstermen interviewed to obtain information on the effect of the closure of Areas I, II, and III to lobster fishing, the information from which was subsequently utilized in the findings of the final draft of a report entitled: "ASSESSMENT OF ECONOMIC DAMAGES TO THE NATURAL RESOURCES OF NEW BEDFORD HARBOR: DAMAGES TO THE INSHORE LOBSTER FISHERY."

- 21734 In calculating the present value of economic damages to the New Bedford fishermen caused by the closures of Areas I, II, and III of New Bedford Harbor, Kenneth McConnell and Brian Morrison relied on information obtained from an interview with Mr. Richard Russell.
- 21735 Richard Russell first obtained a lobstering license in 1967.
- 21736 Richard Russell was self employed as a commercial lobsterman, shellfisher, contractor, and fireman.
- 21737 On May 28, 1986, Richard Russell stated that he held a commercial lobsterman's license between 1967 and 1980, and from 1985 forward.
- 21738 Richard Russell was a full-time lobsterman except between 1967 and 1970 when he lobstered part-time.
- 21739 In 1981, 1982, and 1983, the Commonwealth of Massachusetts did not issue Richard Russell a commercial lobstering license because he failed to meet the application deadline for the license. Richard Russell did not fish for lobsters in 1981, 1982, and 1983.

- 21740 During the years in which Richard Russell was employed as a commercial lobsterman, his port of landing was always Padanaram, South Dartmouth, Massachusetts.
- 21741 In the years Richard Russell lobstered, he would begin in March or April, continue through July, resume in the middle of September, and continue to mid-December.
- 21742 During the years Richard Russell has fished for lobster, he would take his wooden lobster pots out of the water at the end of July due to the presence of Torito worms.
- 21743 During the years, Richard Russell lobstered, he derived approximately 50% of his income from lobster fishing and 50% from shellfishing.
- 21744 Richard Russell never fished for lobsters in Area I.
- 21745 From 1968 to the time of their respective closures, approximately 50% of Richard Russell's traps were placed in Areas II and III, and 50% of his lobster traps were placed outside. Of those traps set in Areas II and III, the majority were in Area III.

- 21746 Richard Russell began lobstering in 1968 with approximately fifty traps. In 1986, he had approximately 150 to 200 traps.
- 21747 On May 28, 1986, Richard Russell stated that there is currently no effective enforcement of the lobster fishing ban in Area III and that Area III was not closed to lobster fishing.
- 21748 Subsequent to his 1972 purchase of a thirty-seven foot Novy boat, and prior to the closure, Richard Russell would place approximately fifty percent of his lobster traps in an area of water south of Area III.
- 21749 On May 28, 1986, Richard Russell stated that from 1968 through 1979, the supply of lobsters in Areas II and III would vary from week to week.
- 21750 On May 28, 1986, Richard Russell stated the peak years for lobster fishing were in the middle 1960's. Subsequent to the middle 1960's, the supply of lobsters in the New Bedford area waters decreased.
- 21751 Subsequent to the closure of Areas II and III, Richard Russell fished for lobsters in the waters south of Area III from Wilkes Ledge to Great Ledge.

- 21752 Subsequent to the closure of Areas II and III, Richard Russell set his lobster traps in the area extending into the mouth of the Slocum River, the Little River area, and approaching Gooseberry Neck.
- 21753 Subsequent to the closure of Areas II and III, Richard Russell would work on his boat when travelling to the waters outside the Area III.
- 21754 Subsequent to the closure of Areas II and III, Richard Russell used the same number of lobster traps.
- 21755 Subsequent to the closure of Areas II and III, Richard Russell would make the same number of trips per year to fish for lobster.
- 21756 Richard Russell stated that he lost approximately twenty to twenty-five pots after the closure.
- 21757 Richard Russell did not fish for lobsters in 1984.
- 21758 On May 28, 1986, Richard Russell stated that he was aware of individuals fishing for lobsters in Areas I, II, and III.

- 21759 In 1986, Richard Russell stated that it was very difficult to fish because of boating traffic.
- 21760 On May 28, 1986, Richard Russell stated that he was aware of the presence of lobster buoys in Areas I, II, and III.
- 21761 Since 1979 Richard Russell has observed lobster buoys in Areas I, II and III.
- 21762 Richard Russell was notified on one occasion to remove his lobstering gear from the closed area.
- 21763 On May 28, 1986, Richard Russell stated that the Department of Marine Fisheries will notify lobster fishermen that they must remove their lobster gear from closed areas before they will confiscate the gear.
- 21764 On May 28, 1986, Richard Russell stated that the Department of Marine Fisheries will not confiscate lobstering gear of fishermen placed in closed areas of New Bedford Harbor until the lobstermen have been notified.
- 21765 On May 28, 1986, Richard Russell stated that there are presently lobster pots in Area III off of Round Hill

Beach.

21766 On May 28, 1986, Richard Russell stated that commercial lobstermen tend to place their lobster traps along the closure line of Area III.

21767 Subsequent to 1979, Richard Russell has seen lobster pots in the Ricketson's Point area of Area II.

21768 Frederick Szela, Sr. lobstered for approximately thirty years.

21769 Frederick Szela, Sr. has a commercial lobstering license.

21770 Frederick Szela, Sr. made approximately fifty lobstering trips in 1985.

21771 Frederick Szela, Sr. shared a boat with his son.

21772 Frederick Szela, Sr. did not lobster in 1986.

21773 Frederick Szela, Sr. did not lobster in Areas I, II, or III between 1980 and 1985.

21774 Walter Dixon of 28 Mendall Road, Rochester,

Massachusetts, was one of twenty-seven commercial lobstermen interviewed to obtain information concerning the effect of the closure of Areas I, II, and III to lobster fishing information which was subsequently utilized in the findings of the final draft of a report entitled: "ASSESSMENT OF ECONOMIC ]DAMAGES TO THE NATURAL RESOURCES OF NEW BEDFORD HARBOR: DAMAGES TO THE INSHORE LOBSTER FISHERY."

21775 In calculating the present value of economic damages to the New Bedford lobster fishery caused by the closure of Areas I, II, and III, Kenneth McConnell and Brian Morrison relied on information gained from an interview with Walter Dixon.

21776 On May 28, 1986, Walter Dixon was employed as a full-time commercial fisherman for the prior twenty years, with the exception of time spent in the Navy in 1967 and 1968.

21777 Walter Dixon had held a commercial lobster license since 1968 or 1969.

21778 During the first ten years in which Walter Dixon was employed as a commercial fisherman, his port of landing was Mattapoissett. Since 1976 or 1977, Walter Dixon's

port of landing has been Fairhaven.

- 21779 Walter Dixon changed his port of landing from Mattapoisett to Fairhaven in order to save on fuel expenses.
- 21780 Walter Dixon began lobstering in the Buzzards Bay area in approximately 1966.
- 21781 Except for a one-and-one-half to two-week period in 1979, when he set two lobster traps in Area I in protest of the closure, Walter Dixon never lobstered in Area I.
- 21782 Walter Dixon has fished in all of Massachusetts waters, and in Rhode Island.
- 21783 Prior to 1976, Walter Dixon never fished for lobsters in Area II.
- 21784 Prior to 1976, Walter Dixon never fished for lobsters in Area III.
- 21785 Walter Dixon fished for lobsters in Area II in 1978 and 1979 after changing his port of landing from Mattapoisett to Fairhaven.

- 21786 Walter Dixon would fish for lobsters in Area II in the months of June and July and the first week of August in 1978 and 1979.
- 21787 Walter Dixon would set approximately seventy to one hundred traps in Area II in the years 1978 and 1979.
- 21788 In 1979 Walter Dixon lobstered with four hundred lobster pots, placing seventy lobster pots in Area II and approximately twenty lobster pots in Area III.
- 21789 Every year Walter Dixon removes his lobster pots from the water in the month of June, a shedding month for lobsters, and fishes for striped bass.
- 21790 From 1970 to 1975, Walter Dixon would lose approximately thirty percent of his traps per year.
- 21791 From 1970 to 1975, Walter Dixon would fish in the waters off Mattapoisett, Marion, and West Island.
- 21792 During the years 1970 to 1975, Walter Dixon did not incur a greater trap loss in one area he fished as compared to another.

- 21793        Walter Dixon has not fished for lobsters between 1983 and May 28, 1986.
- 21794        From 1978 to 1982 Walter Dixon fished for lobsters in Area III.
- 21795        In 1978 and 1979 Walter Dixon lobstered in Area II.
- 21796        In 1982 Walter Dixon placed fifteen to twenty traps in Area III.
- 21797        In 1981 Walter Dixon placed fifteen to twenty lobster traps in Area III.
- 21798        In 1980 Walter Dixon placed approximately thirty lobster traps in Area III.
- 21799        In 1979 Walter Dixon placed one hundred lobster traps in Area III.
- 21800        In 1979 Walter Dixon lost over one hundred lobster traps.
- 21801        From 1979 to 1982, Walter Dixon fished with approximately four hundred lobster traps.

- 21802 From 1970 to 1976, Walter Dixon had approximately two hundred to two hundred fifty lobster traps.
- 21803 Lobster-trap loss is usually greatest in areas where there is heavy boat traffic.
- 21804 On May 28, 1986, Walter Dixon stated that he would fish for lobsters inside of boat channels because he would catch more lobsters in those areas.
- 21805 In 1979 Walter Dixon increased the number of traps he fished in order to confuse other fishermen.
- 21806 Between 1979 and 1982, Walter Dixon set 400 to 450 lobster traps.
- 21807 Subsequent to 1976, the length of Walter Dixon's fishing trips doubled because he was fishing more gear and taking longer trips to search for new fishing grounds.
- 21808 After Walter Dixon's move from his port of landing in Mattapoissett to Fairhaven in 1976, he began to make longer fishing trips.
- 21809 In 1977, 1978, and 1979, Walter Dixon fished for

lobsters in the waters off Martha's Vineyard.

21810 Walter Dixon used the same boat until he discontinued lobstering.

21811 Walter Dixon made more money when he moved to Fairhaven.

21812 In 1980 Walter Dixon's range for lobster fishing decreased as he decreased his lobstering operations.

21813 1979 was Walter Dixon's best lobstering year.

21814 In 1978 or 1979, Walter Dixon decided to double his lobstering gear and fish new areas in order to earn more revenue.

21815 From 1978 until the time he discontinued his lobstering operation, Walter Dixon sold his lobsters on Martha's Vineyard, earning approximately \$1.00 more per pound than by selling them on the mainland.

21816 On May 28, 1986, Walter Dixon stated that the price of lobster increased from year to year during the years in which he fished for lobsters.

- 21817        On May 28, 1986, Walter Dixon stated that the quality of lobsters has declined every year following 1976 due to overfishing.
- 21818        On May 28, 1986, Walter Dixon stated that he was aware that Areas I and II had been closed to lobstering.
- 21819        On May 28, 1986, Walter Dixon was not aware that Area III had been closed to lobstering.
- 21820        Walter Dixon stated that there has been more gear in the New Bedford Harbor since 1980.
- 21821        On May 28, 1986, Walter Dixon stated that the closing of certain parts of Buzzards Bay to lobstering has not led to the overharvesting of lobsters.
- 21822        On May 28, 1986, Walter Dixon stated that the closing of any area of Buzzards Bay to lobster fishing does not affect a knowledgeable fisherman.
- 21823        The size of the catch per trip does not change as a fisherman moves farther away from Areas I, II, and III.
- 21824        No state or local government agency has ever taken an enforcement action against Walter Dixon with respect to

fishing for lobsters in Areas I or II.

21825 From 1976 to the time Walter Dixon discontinued fishing for lobster, he placed in excess of ninety percent of his lobster traps outside of Areas II and III.

21826 From September, 1979, to the end of 1980, Walter Dixon kept approximately fifteen lobster traps in Area III in the month of July.

21827 In 1981 Walter Dixon had fifteen to twenty lobster traps in Area III.

21828 In 1982 Walter Dixon placed fifteen to twenty lobster traps in Area III.

21829 On May 28, 1986, Walter Dixon stated that he is aware that lobster activities continued in Areas I and II subsequent to September, 1979.

21830 In 1985 Walter Dixon observed baited traps in Area II with no buoys attached to them.

21831 From September, 1979 to May 28, 1986, Walter Dixon observed lobster traps in Area III whenever he steamed out of the New Bedford Harbor.

- 21832 In 1985, Walter Dixon observed baited lobster traps in the area of the Egg Islands.
- 21833 On May 28, 1986, Walter Dixon held a commercial fisherman's license, although he no longer lobstered.
- 21834 Walter Dixon was elected as a delegate to the Massachusetts Lobstering Association in 1980.
- 21835 Walter Dixon took part in the Massachusetts Lobstering Associations' suit against Aerovox.
- 21836 Thomas Egan of 62 George Street, South Dartmouth, Massachusetts, was one of twenty-seven commercial lobstermen interviewed to obtain information on the effect of the closure of Areas I, II, and III to lobster fishing, which information was subsequently utilized in the findings of the final draft of a report entitled: "ASSESSMENT OF ECONOMIC DAMAGES TO THE NATURAL RESOURCES OF NEW BEDFORD HARBOR: DAMAGES TO THE INSHORE LOBSTER FISHERY."
- 21837 In calculating the present value of economic damages to the New Bedford lobster fishery caused by the closure of Areas I, II, and III of New Bedford Harbor, Kenneth

McConnell and Brian Morrison relied on information learned from an interview with Thomas Egan.

- 21838 Thomas Egan was employed as the Director of Major Custom Programs at Mupac Corporation of Brockton, Massachusetts for the three years prior to May 29, 1986.
- 21839 Thomas Egan has never been employed as a full-time commercial lobsterman.
- 21840 From 1964 up to May 29, 1986, Thomas Egan held a commercial lobsterman's license.
- 21841 On May 28, 1986, Thomas Egan was the holder of commercial lobsterman's license No. 0174.
- 21842 Except for 1984 and 1985, when Thomas Egan's listed port of landing was Menemsha, Martha's Vineyard, his port of landing has been South Dartmouth, Massachusetts.
- 21843 Between 1964 and 1986, Thomas Egan used his lobster license each year except from 1974 to 1976.
- 21844 Thomas Egan has never fished for lobsters in Area I.

- 21845 Thomas Egan lobstered in Area II from 1965 until it was closed.
- 21846 From 1964 to 1969, Thomas Egan used a fourteen-foot skiff with a twenty-five horsepower outboard engine to fish for lobsters. From August, 1969 to 1971 or 1972, Thomas Egan used a twenty-eight foot lobster boat for fishing for lobsters. From 1971 or 1972 to 1974, Thomas Egan owned a twenty-foot fiberglass hull with a eighty-five horsepower engine for lobster fishing.
- 21847 Thomas Egan has not personally fished for lobsters since 1974.
- 21848 Between 1964 and 1975 Thomas Egan's son, Anthony Egan, fished under the authority of Thomas Egan's commercial fisherman's license.
- 21849 In 1976 and 1977, Thomas Egan's license was not used.
- 21850 In 1978, 1979, 1980, and 1981, Gary Sherman of Westport, Massachusetts fished for lobsters under the authority of Thomas Egan's commercial lobsterman's license.

- 21851 Thomas Egan did not personally lobster under the authority of his license between 1978 and 1981 but submitted catch reports reflecting Mr. Sherman's activities
- 21852 From 1974 to 1980, Thomas Egan occasionally fished for lobster as a helper and observer of the way in which his license was being treated.
- 21853 In 1982 through 1986, James White of South Dartmouth, Massachusetts fished under the authority of Thomas Egan's commercial lobsterman's license.
- 21854 From 1982 to 1986, Thomas Egan submitted catch reports to the Division of Marine Fisheries reflecting Mr. White's activities
- 21855 From 1964 to 1974, Thomas Egan fished under the authority of his commercial lobsterman's license.
- 21856 From 1965 to 1974, Thomas Egan fished for lobsters in Area II of New Bedford Harbor.
- 21857 In 1964, Thomas Egan used approximately twenty lobster traps.

- 21858 In 1965 and 1966 Thomas Egan owned approximately twenty-five to thirty lobster traps.
- 21859 In 1967 and 1968, Thomas Egan owned thirty to forty lobster traps.
- 21860 In 1969 Thomas Egan owned approximately seventy-five lobster traps.
- 21861 In 1970 and 1971, Thomas Egan owned approximately one hundred to one hundred twenty-five lobster traps.
- 21862 From 1972 to 1974, Thomas Egan reduced the number of his traps by approximately thirty percent per year and had zero traps at the end of 1974.
- 21863 In 1986, Thomas Egan owned 180 lobster traps.
- 21864 In 1964 Thomas Egan placed no lobster traps in Area II and 100% of his lobster traps in Area III.
- 21865 From 1965 through 1968, Thomas Egan placed approximately fifty percent of his lobster traps in Area II, and fifty percent in Area III.
- 21866 From 1969 through 1974, Thomas Egan placed

approximately ten percent of his traps in Area II, and ninety percent in Area III.

21867 In 1964 Thomas Egan placed one hundred percent of his traps in Area II.

21868 From 1965 to 1974, all traps that were not placed in Area II by Thomas Egan were placed in Area II.

21869 In the middle 1960's, Thomas Egan worked as a deckhand helper in the lobstering operations of Walter Manning.

21870 Thomas Egan allowed Sherman and White to use his license because lobstering was only his secondary job.

21871 On May 29, 1986, Thomas Egan stated that he was involved in a joint venture with James White of South Dartmouth, Massachusetts, to catch lobsters outside of Areas I, II and III.

21872 Prior to entering into his joint venture with James White, Thomas Egan had not incurred any additional costs in fishing for lobster as a result of the closure of Areas I, II, and III.

21873 From September, 1979, to May 29, 1986, Thomas Egan

observed lobster fishing in areas marked I, II, or III.

21874 On May 29, 1986, Thomas Egan stated that he presently observed a fairly high population of lobster traps near the southerly bounds of Area III.

21875 On May 29, 1986, Thomas Egan stated that Area II is primarily fished for lobster by non-commercial ten-pot-type people at the present time.

21876 On May 29, 1986, Thomas Egan stated that he believed there were quite a few commercial and non-commercial people fishing for lobsters in Area III.

21877 Thomas Egan stated that between 1964 and 1974 the lobster supply remained stable year to year.

21878 Thomas Egan's interpretation of the boundary on the southerly side of Area III was different from that delineated on the map marked Egan Exhibit No. 6.

21879 In 1983 or 1984, Thomas Egan received a letter from the law enforcement division of the Commonwealth of Massachusetts Division of Marine Fisheries, to remove two traps that had been placed on the edge of Area II by an individual using his license.

- 21880 From 1975 to 1986, Thomas Egan fished for lobsters on a very occasional basis.
- 21881 In 1975 Thomas Egan fished for lobsters a couple of times per month.
- 21882 Thomas Egan had no lobster pots.
- 21883 In 1975 Thomas Egan's son had fifteen lobster pots.
- 21884 In 1976 Thomas Egan did not fish for lobster in any capacity.
- 21885 In 1977 Thomas Egan made occasional trips, a couple of times per month, to fish for lobster.
- 21886 In 1977 Thomas Egan would fish for lobster with various friends using his friends' boats.
- 21887 In 1977 and 1979 Thomas Egan did not own any lobster traps.
- 21888 From 1979 through 1985, Thomas Egan's lobstering activities were primarily as an observer as to how his license is being used.

- 21889 From 1979 through 1985, Thomas Egan would go on lobstering trips approximately twice a month to observe the use of his lobsterman's license.
- 21890 During the period of 1979 through 1985, Thomas Egan's lobster license was used to lobster in Area III.
- 21891 In 1979 approximately twenty-five to thirty traps were used by the individual fishing under Thomas Egan's license.
- 21892 In 1979 twenty-five to thirty pots being fished under Thomas Egan's commercial lobsterman's license were placed in the Westport area, outside Area III.
- 21893 In 1980, 1981, and 1982, twenty-five to thirty lobster pots were being fished under Thomas Egan's commercial lobsterman's license outside Area III.
- 21894 In 1982 James White, fishing under the authority of Thomas Egan's lobsterman's license, fished approximately twenty-five to thirty lobster traps.
- 21895 In 1983 James White, fishing under the authority of Thomas Egan's commercial lobsterman's license, fished

approximately fifty traps outside of Area III.

- 21896 In 1984, James White, fishing under the authority of Thomas Egan's commercial lobsterman's license, fished approximately seventy-five traps outside Area III.
- 21897 In 1985 James White, fishing under the authority of Thomas Egan's commercial lobsterman's license, fished approximately one hundred traps outside Area III.
- 21898 On May 29, 1986, Thomas Egan stated that in 1983 James White's total annual harvest of lobster poundage increased over 1982.
- 21899 On May 29, 1986, Thomas Egan stated that in 1984 James White's total lobster harvest increased over 1983.
- 21900 In 1983, 1984, and 1985, James White's lobster yield on a per-trap basis was fairly constant.
- 21901 James White's trap losses decreased as he went further outside of Area III.
- 21902 Between 1982 and 1985, James White's per trap harvest of lobster was fairly constant.

- 21903        Between 1978 and 1980, Mr. Sherman's harvest of lobsters remained constant.
- 21904        Antone Farias of 12 Orchard Street, Fairhaven, Massachusetts, was one of twenty-seven commercial lobstermen interviewed to obtain information on effect of the closure of Areas I, II and III to lobster fishing, which information was subsequently used and relied upon in the findings of the final draft of a report entitled: "ASSESSMENT OF ECONOMIC DAMAGES TO THE NATURAL RESOURCES OF NEW BEDFORD HARBOR: AND DAMAGES TO THE INSURED LOBSTER FISHERY."
- 21905        In calculating the present value of economic damages to the New Bedford lobster fishery caused by the closures of Areas I, II and III, Kenneth McConnell and Brian Morrison relied on information gained from an interview with Mr. Antone Farias.
- 21906        Antone Farias retired from Chamberlain Manufacturing Company in August, 1984, where he had been employed.
- 21907        On May 29, 1986, Antone Farias was employed part-time as a commercial lobsterman.
- 21908        Antone Farias began lobstering in 1936 when he was 14

years old.

- 21909 On May 29, 1986, Antone Farias held a lobster license No. 2560.
- 21910 Antone Farias has held a lobster license from approximately 1947 up to and including May 29, 1986.
- 21911 Antone Farias never fished for lobsters in Area I.
- 21912 Antone Farias fished for lobsters in Area II in the 1940's for about one year.
- 21913 West Island, Fairhaven, Massachusetts, has been Antone Farias's port of landing from the mid-1960's to the present.
- 21914 In 1965 Antone Farias would place approximately 50 pots inside Area III, the remainder outside Area III.
- 21915 Between 1965 and 1977, Antone Farias did not change his lobstering grounds.
- 21916 Antone Farias fished for lobsters inside of Area III from 1981 up to and including May 29, 1986.

- 21917 In 1965, Antone Farias had approximately one hundred fifty to two hundred lobster traps.
- 21918 In 1970, Antone Farias had approximately two hundred to two hundred fifty lobster traps.
- 21919 Antone Farias used 300 lobster traps from the late 1970's until 1986.
- 21920 Antone Farias loses approximately fifty to sixty lobster traps per year.
- 21921 On May 29, 1986, Antone Farias stated that he always placed the bulk of his lobster pots outside of Area III.
- 21922 On May 29, 1986, Antone Farias stated that his fishing habits have changed from the past due to changing weather patterns.
- 21923 During the years in which Antone Farias has fished for lobster, he has fished in the shallow water in the spring and fall, and in deeper water in the summer.
- 21924 The closure of Area III to lobster fishing has not increased the length of Antone Farias' lobster trips.

- 21925        The closure of Area III to lobster fishing has not increased Antone Farias' fuel costs.
- 21926        The closure of Area III has not had any effect on the size of Mr. Farias's lobster catches.
- 21927        In 1985, after his retirement, Antone Farias began fishing in the waters off the Elizabeth Islands.
- 21928        The closure of Area III to lobster fishing has not resulted in greater trap losses for Mr. Farias.
- 21929        On May 29, 1986, Antone Farias stated that he is losing more traps than he did in the 1960's and the 1970's because of increased boat traffic travelling through his lobstering grounds.
- 21930        In 1985, Antone Farias owned two-hundred fifty traps and lost approximately sixty-five.
- 21931        Antone Farias has increased the number of his traps to three hundred because he has more time to lobster fish since retiring from Chamberlain Manufacturing.
- 21932        On May 29, 1986, Antone Farias stated that the closure

of Area III has no effect on the number of traps he loses yearly.

- 21933 Antone Farias stated that after the closure lobstermen moved further out because of too many people fishing.
- 21934 On May 29, 1986, Antone Farias stated that it takes him five minutes to reach his first lobster pots from his port of landing on West Island.
- 21935 It takes Antone Farias approximately thirty minutes to steam from West Island to the area in which he presently fishes for lobsters off the Elizabeth Islands.
- 21936 In 1980 Antone Farias was notified by the Division of Marine Fisheries or the Department of Public Health that he was fishing for lobster in Area III and that he had to remove his gear.
- 21937 In 1985, Antone Farias began fishing west of Weepecket Islands, and placed approximately thirty lobster pots there.
- 21938 In 1986, Antone Farias placed approximately thirty lobster pots west of Weepecket Island.

- 21939        On May 29, 1986, Antone Farias stated that the closure of Area III to lobster fishing has not increased his steaming time.
- 21940        On May 29, 1986, Antone Farias stated that he fishes south of the Number 10 buoy since retiring from Chamberlain Manufacturing because he has more time to fish.
- 21941        In February, 1986, Brian Morrison spoke to Antone Farias regarding the New Bedford area lobstering industry.
- 21942        Antone Farias received no letters from any state agency asking him to release his lobster catch reports to them.
- 21943        Antone Farias trades in his outboard engine every year in order that he will have a warranty and due to wear and tear.
- 21944        Antone Farias stated that the closure of areas to lobstering has not made lobster fishing more difficult for him.

21945 On May 29, 1986, Antone Farias stated that the closure of Area III is not being enforced and that fishermen are lobstering in Area III.

21946 The increased area in which Antone Farias lobsters is not due to the closure of Areas I, II and III.

Lobstering RFA's (From Plaintiff's Interview Notes)

21947 Stanley Baron, Jr. used to lobster in the closed area, as well as other areas, from March to June.

21948 Stanley Baron, Jr. used to lobster outside of the closed area from July through September.

21949 Stanley Baron, Jr. stated that 25 to 30 percent of his trap loss was due to traffic.

21950 Stanley Baron, Jr. lobstered from 1970 to 1973.

21951 Stanley Baron, Jr. stopped lobstering to start his own business.

21952 When Stanley Baron, Jr. left his business, he went to work for Bruces Splicing and Rigging, and was

subsequently laid off.

- 21953 Stanley Baron, Jr. stated, in 1986, that he returned to lobstering after he was laid off in June 1982 and had lobstered since.
- 21954 Stanley Baron, Jr. lobstered in various areas in New Bedford, and later moved to Dartmouth.
- 21955 Stanley Baron, Jr. bought a new boat in August 1982 when he received his new lobstering license.
- 21956 Stanley Baron, Jr. started lobstering in Area II, and gradually moved to Area III.
- 21957 Stanley Baron, Jr. started lobstering with 35 traps, and had a 150 traps in 1973 before he quit.
- 21958 Stanley Baron, Jr. would set pots outside of Areas II and III.
- 21959 In 1982, Stanley Baron, Jr. set pots inside and outside of Area III.
- 21960 After 1982, Stanley Baron, Jr. continued to stay outside of Area III.

- 21961 Stanley Baron, Jr. did not stay outside of Area III, after 1982, because of the closure.
- 21962 In 1986, Stanley Baron, Jr. stated that the closure was not enforced.
- 21963 In 1986, Stanley Baron Jr. had 210 to 215 pots.
- 21964 Stanley Baron, Jr. stated that there was a run of good lobstering in 1986.
- 21965 Stanley Baron, Jr. stated that the catch in Area III, in 1982, was excellent.
- 21966 In 1986, Stanley Baron, Jr. anticipated getting 100 more pots by the following year.
- 21967 If Areas II and II were reopened, Stanley Baron, Jr. would still continue to set pots in the Elizabeth Islands.
- 21968 Stanley Baron, Jr. experienced no change in the amount of his catch due to the closure.
- 21969 Stanley Baron, Jr. states that changes in catch are due

to natural cycles.

- 21970 Stanley Baron, Jr. stated that his fuel costs are tax deductible.
- 21971 Richard Perentz went lobstering wherever the lobsters were.
- 21972 In 1986, Walter Wlodyka lobstered 150 pots between May and August.
- 21973 Walter Wlodyka stated that the closed area was extremely crowded.
- 21974 Walter Wlodyka stated that his increased trap loss was due to increased vessel traffic.
- 21975 Walter Wlodyka stated that his decreased catch is due to too many people with lobstering licenses.
- 21976 Charles Connor started lobstering full-time in 1963 with about 25 traps.
- 21977 Charles Connor last lobstered in 1983.
- 21978 Charles Connor left lobstering because it became too

competitive.

21979 Charles Connor always lobstered out of New Bedford.

21980 In 1963 to 1965 or 1966, Charles Connor set 100 to 125 traps in Areas II and III.

21981 From 1965 or 1966 until approximately 1969, Charles Connor set traps outside of Area III and in the Elizabeth's.

21982 Charles Connor set 25% of his traps in Area III and 75% of his traps in the Elizabeth's during the summer.

21983 Charles Connor set 60% of his traps in Areas II and III and 40% of his traps outside of Area III between November and January.

21984 Charles Connor usually didn't lobster in February.

21985 In 1974, Charles Connor bought a bigger boat and had over 400 pots.

21986 Charles Connor's lobstering pattern remained the same after the closure of Area III.

- 21987        Following with closure, Charles Connor set 25% of his traps in Area III and the rest in the steamer track and the Elizabeth's.
- 21988        Charles Connor's increased trap loss is due primarily to heavy traffic in the Elizabeth's.
- 21989        Charles Connor's fuel costs increased because his old boat had a smaller, more economical engine.
- 21990        Fuel prices have decreased from \$1.00 per gallon when Charles Connor lobstered to 50¢ per gallon in 1986.
- 21991        Charles Connor stated that the decrease in his catch was due to more competition following the closure.
- 21992        Charles Connor stated that illegal fisherman make more money.
- 21993        Charles Connor stated that there is an abundance of lobsters in Areas II and III.
- 21994        Fred Szela, Sr. stated that if you can prove that you lost a lot of traps (200 to 300 traps), the DMF will reimburse you.

- 21995 Fred Szela, Sr. lobstered about 100 to 120 traps.
- 21996 Fred Szela, Sr. used to have about with a gas engine which used 35 to 50 gallons per day or 6 gallons per hour of steaming.
- 21997 In 1986, Fred Szela, Sr. had a diesel engine boat which used 20 to 25 gallons per day or 1 1/2 gallons per hour of steaming.
- 21998 Tom Vital made more money after the closure.
- 21999 Tom Vital stated that higher costs were due to inflation.
- 21999a Tom Vital used to lobster in Areas II and III.
- 21999b Tom Vital goes out further to lay pots.
- 21999c In 1986, Tom Vital set 30 out of 400 pots in the closed area to monitor lobster movement.

#### New Interview

- 21999d One June 4, 1990, Thomas Vital stated that he lobsters seven days a week, fifty-two weeks per year.

- 21999e      Thomas Vital uses more fuel, in 1990 because he has a bigger boat.
- 21999f      Thomas Vital stated, on June 4, 1990, that he could not attribute the purchase of a new boat to the closure.
- 21999g      Thomas Vital stated that the amount of his catch depended on the time of the year.
- 21999h      On June, 4, 1990, Thomas Vital stated that he sets approximately 500 lobster traps.
- 21999i      Thomas Vital stated that he lost more traps after the closure because of increased traffic, summer boaters, big draggers, ice, and yachting.
- 21999j      On June 4, 1990, Thomas Vital stated that he catches, on average, approximately 30,000 pounds of lobster per year.
- 21999k      The 2 parts per million tolerance level established by the FDA is not evidence that in fact fish, shellfish or lobsters containing in excess of 2-parts per million have been injured, destroyed or lost.

- 21999l        The tolerance level of 2 parts per million established by the FDA is not evidence that fish or lobsters containing that level are in fact unfit for human consumption.
- 21999m        There is no evidence that fish and lobsters in the New Bedford area will be unfit for human consumption.
- 21999n        There is no evidence that fish and lobsters in the New Bedford Harbor will be unfit for human consumption because of PCB contamination.
- 21999o        Fish and lobsters within Area I were unfit for human consumption because of non-PCB contaminants before the FDA established the tolerance level for PCB's.
- 21999p        Tests by the department of Public Health in the spring of 1984 revealing PCB levels in lobsters in excess of 2 parts per million were the product of a short-term re-suspension of PCB-laden sediment as a result of storm events.
- 21999q        The Division of Marine Fisheries conducted surveys of lobsters taken from Area III during the early 1980's which indicated body burdens of PCB's in lobsters of 1

part per million.

21999r        The lobster stock in Areas I, II and III of the New Bedford Harbor has increased since the 1979 closure of those areas to lobstering.

21999s        The Division of Marine Fisheries is unaware of any studies, investigations, field observations, establishing or implicating PCB's as a cause of mortality in lobsters.

21999t        Lobster catches, statewide, have increased dramatically.

21999u        Between 1975 and 1980, the number of new applications for lobstering licenses in each year exceeded the number of licenses available.

21999v        Since 1975, the Division of Marine Fisheries has maintained a waiting list of new applicants for lobstering licenses.

21999w        Lobstermen continue to lobster in Area II.

21999x        Lobstermen continue to lobster in Area III.

21999y All commercial lobstermen do not comply with the closure of Area II.

21999z All commercial lobstermen do not comply with the closure of Area III.

21999aa The number of licensed commercial lobstermen fishing in the New Bedford Harbor area has increased since the closure.

21999bb Lobstermen, who discontinue lobstering, do not suffer an economic loss as a result of their discontinuing lobstering.

21999cc Some lobstermen discontinued lobstering in the New Bedford Harbor area after the closure for reasons that were unrelated to the closure.

1375L

**RE: ALLEGED INJURY DUE TO DREDGING**

- 22000 "New Bedford Harbor" as used in requests 22000-22570 includes Areas I, II, and III of the Acushnet River and New Bedford Harbor.
- 22001 Currently regulated materials, as used herein, includes all materials regulated by state and federal agencies with respect to harbor dredging, including in addition to PCBs: a) metals, b) oil and grease, and c) coliform bacteria.
- 22002 The presence of PCBs in natural resources of New Bedford Harbor has not decreased the value of those resources to persons who use them.
- 22003 The presence of PCBs in natural resources of New Bedford Harbor has no negative effect on some or all users because of the currently regulated materials, other than PCBs, which are also present.
- 22004 The presence of PCBs in natural resources of New Bedford Harbor has no negative effect on all users because of the currently regulated materials, other than PCBs, which are also present.
- 22005 If PCBs were not present in New Bedford Harbor or if PCBs were present in lower concentrations than exist now, the value of the natural resources to users would not increase.
- 22006 If PCBs were not present in New Bedford Harbor or if PCBs were present in lower concentrations than exist now, the value of the natural resources to users would not increase, due to the presence of currently regulated materials other than PCBs.
- 22007 If PCBs were not present in New Bedford Harbor or if PCBs were present in lower concentrations than exist now, and no other currently regulated materials were present, the value of the natural resources to users would not increase.
- 22008 If PCBs were not present in New Bedford Harbor or if PCBs were present in lower concentrations than exist now, because of the presence of currently regulated materials other than PCBs, it is uncertain whether the value of the natural resources to users would increase or decrease.
- 22009 If PCBs were not present in New Bedford Harbor or if PCBs were present in lower concentrations than exist now, and no other currently regulated materials were present, it is uncertain whether the value of the natural resources in New Bedford Harbor to users would increase or decrease.
- 22010 Because of the presence of currently regulated materials other than PCBs in the New Bedford Harbor, there is no public loss of value of the natural resources of the harbor as a result of the presence of PCBs in the harbor.

- 22011 Even if there were no other currently regulated materials present, there would be no public loss of value of the natural resources of the harbor as a result of the presence of PCBs.
- 22012 Because of the presence of currently regulated materials other than PCBs in the New Bedford Harbor, it is uncertain that there is a public loss of value of the natural resources of the harbor as a result of PCBs in the harbor.
- 22013 Even if there were no other currently regulated materials present, it is uncertain that there would be a public loss of value of the natural resources of the harbor as a result of the presence of PCBs.
- 22014 State and federal permitting authorities have not imposed any conditions on dredging projects in the New Bedford harbor which have not been imposed elsewhere.
- 22015 It is uncertain that state and federal permitting authorities have imposed any conditions on dredging projects in the New Bedford Harbor which would not have been imposed had there been no PCBs present in the dredged materials.
- 22016 State and federal permitting authorities have not imposed any conditions on dredging projects in the New Bedford Harbor which would not have been imposed had PCBs been present in lower concentrations in the dredged materials.
- 22017 It is not known which sediments in the harbor contain PCBs.
- 22018 The concentration of PCBs does not remain constant throughout all levels of sediments in the harbor.
- 22019 It is not known which sediments in the harbor contain currently regulated materials other than PCBs.
- 22020 It is not known if the concentration of currently regulated materials other than PCBs remains constant throughout all levels of sediments in the harbor.
- 22021 Because of the presence of currently regulated materials other than PCBs in the New Bedford Harbor, the value of the natural resources of the harbor to current and potential sponsors of dredging projects has not been and will not be diminished as a result of the presence of PCBs in the harbor.
- 22022 Even if there were no other currently regulated materials present, the value of the natural resources of the harbor to current and potential sponsors of dredging projects would not be diminished as a result of the presence of PCBs.

- 22023 The value of the natural resources of the harbor to current and potential sponsors of dredging projects has not been and will not be diminished as a result of the presence of PCBs in the harbor.
- 22024 Sponsors of dredging projects in the harbor have not incurred and will not incur costs as a result of the presence of PCBs in the harbor.
- 22025 Simply because harbor users are willing to pay the costs of complying with permit conditions imposed by permitting authorities with knowledge of the presence of PCBs and other contaminants in the harbor, it is not possible to conclude that those users are willing to pay at least that amount for a harbor free of PCBs.
- 22026 Simply because harbor users are willing to pay the costs of complying with permit conditions imposed by permitting authorities with knowledge of the presence of PCBs and currently regulated materials other than PCBs in the harbor, it is not possible to conclude that those users are willing to pay at least that amount for a harbor free of PCBs unless it is known what permit conditions would be required if PCBs were not present and the level of currently regulated materials other than PCBs remained the same.
- 22027 Simply because harbor users are willing to pay the costs of complying with permit conditions imposed by permitting authorities with knowledge of the presence of PCBs and currently regulated materials other than PCBs in the harbor, it is not possible to conclude that those users are willing to pay at least that amount for a harbor free of PCBs unless it is known what permit conditions would be required if PCBs were not present or the concentration of PCBs were reduced and the level of other currently regulated materials remained the same.
- 22028 It is not known what harbor users would be willing to pay for a harbor free of PCBs.
- 22029 It is not known if harbor users would be willing to pay anything to eliminate PCBs in the harbor.
- 22030 It is not known if harbor users would be willing to pay anything to reduce the level of PCBs in the harbor.
- 22031 It is not known if harbor users would be willing to pay anything to eliminate or to reduce PCBs in the harbor if the currently regulated materials other than PCBs were to remain at present levels.
- 22032 Harbor users would be unwilling to pay anything to eliminate PCBs in the harbor if the currently regulated materials other than PCBs were to remain at present levels.
- 22033 Harbor users would be unwilling to pay anything to reduce PCBs in the harbor if the currently regulated materials other than PCBs were to remain at present levels.

- 22034 The presence of PCBs in the harbor does not constitute injury to an economic input.
- 22035 Whether or not any sponsor of dredging projects has incurred costs due to the presence of PCBs in New Bedford Harbor, such costs are not a proper basis for determining what, if any, injury has occurred to natural resources in New Bedford Harbor.
- 22036 Any change in costs of dredging projects resulting from the presence of PCBs is not an appropriate "proxy" for determining what, if any, injury has occurred to natural resources in New Bedford Harbor.
- 22037 Sponsors of dredging projects in the harbor do not have to use more of economic inputs such as capital and labor than they would if the harbor did not contain PCBs.
- 22038 It is not more expensive for sponsors of dredging projects in the harbor to produce the same level of goods and services than it would be if the harbor did not contain PCBs.
- 22039 The goods and services produced by the sponsors of dredging projects in the harbor cost no more to produce than they would if the harbor did not contain PCBs.
- 22040 The presence of PCBs in the harbor has not resulted in a reduction in the level of goods and services produced by sponsors of dredging projects, and has not increased the cost of the goods and services produced by the sponsors of dredging projects and has not reduced consumption of the goods and services produced by the sponsors of the dredging projects.
- 22041 There is no competent evidence to support the use of a 3 percent real discount rate.
- 22042 Michael T. Huguenin has conducted no study to support the use of a 3 percent real discount rate.
- 22043 Michael T. Huguenin is not aware of a any valid economic reason to use a 3 percent real discount rate.
- 22044 If the planning time for a dredging project increases, then the costs of the project may increase or decrease.
- 22045 There has been a decrease in real dollar dredging costs over the past decade.
- 22046 It is unknown if any dredging projects will be carried out in the harbor in the future.
- 22047 It is unknown where any dredging projects, if any, may be carried out in the harbor in the future.

- 22048 The scope of dredging projects, if any, which may be carried out in the harbor in the future is unknown.
- 22049 It is unknown if future dredging projects in the harbor will be subject to conditions imposed by state and federal permitting authorities because of the presence of PCBs in the harbor.
- 22050 If future dredging projects in the harbor will be subject to conditions imposed by state and federal permitting authorities because of the presence of PCBs in the harbor, it is unknown what those conditions will be.
- 22051 Dredging projects currently under construction or being planned in the harbor will not incur any additional costs in order to comply with conditions imposed upon their sponsors by permitting authorities as a result of the presence of PCBs in the harbor.
- 22052 It is not known what, if any, increased costs dredging projects currently under construction or being planned in the harbor will incur in order to comply with conditions imposed upon their sponsors by permitting authorities as a result of the presence of PCBs in the harbor.
- 22053 There have not been nor will there be any delays in the issuance of permits by state and federal permitting authorities as a result of the presence of PCBs in the harbor.
- 22054 Applications for permits and authorizations for dredging projects in the harbor take no longer to prepare than they would take if the harbor did not contain PCBs.
- 22055 Processing of permits and authorizations for dredging projects in the harbor, by state and federal permitting authorities, takes no longer than it would take if the harbor did not contain PCBs.
- 22056 There have been no delays due to PCBs in obtaining permits and authorizations for dredging projects in the harbor which have resulted in increased costs to the dredging project sponsors.
- 22057 There will be no delays due to PCBs in obtaining permits and authorizations for dredging projects in the harbor which will result in increased costs to the dredging project sponsors.
- 22058 The presence of PCBs in the harbor has not prevented the sponsors of dredging projects in the harbor from realizing as many revenues as they would have realized if the harbor did not contain PCBs.
- 22059 In some permits for harbor dredging, agencies have not required monitoring during dredging operations of levels of PCBs in ambient water, levels of PCBs in effluents, and levels of PCBs in disposal area water.

- 22060 Requirements are imposed by permitting authorities for the presence in dredge material of currently regulated materials other than PCBs.
- 22061 There have been no material increased costs for projects in the New Bedford Harbor due to construction requirements caused by the presence of PCB's.
- 22062 There is no competent evidence that it is more costly to dispose of dredge materials containing PCB's than it is to dispose of dredge materials containing currently regulated materials other than PCBs.
- 22063 Kenneth M. Childs, Jr. has never been qualified as an expert witness on natural resources damages.
- 22064 Kenneth M. Childs, Jr. is not an expert on natural resources damages.
- 22065 Kenneth M. Childs, Jr. worked on a project on behalf of Fairhaven Marine and during the course of that project the dredged materials were disposed of in the harbor.
- 22066 Dredged materials from a Fairhaven Marine project were disposed of in the harbor.
- 22067 Kenneth M. Childs, Jr. was instructed to estimate dredging project costs (1) as if the dredge spoils were clean (i.e., contained no currently regulated materials), and (2) as if the dredge spoils contained PCBs.
- 22068 Kenneth M. Childs, Jr. based his calculations upon these instructions.
- 22069 Kenneth M. Childs, Jr. was not advised of the presence in the dredge spoils of currently regulated materials other than PCBs.
- 22070 Kenneth M. Childs, Jr., during the course of his calculation, did not consider the presence in the dredge sediments of currently regulated materials other than PCBs.
- 22071 Kenneth M. Childs, Jr., during the course of his calculation, made no calculations relating to the potential costs of dredging, assuming the presence of currently regulated materials other than PCBs in amounts which actually exist for those projects.
- 22072 For each project in which Kenneth M. Childs, Jr. made calculations of the costs of dredging, the potential dredge sediments contain currently regulated materials other than PCBs.
- 22073 Kenneth M. Childs, Jr., during the course of his work on this project, never contacted any state or federal officials with respect to permitting requirements.

- 22074 Kenneth M. Childs, Jr. at no time during the course of his work on this project contacted any state or federal officials who would have knowledge of permitting requirements for the dredging projects to which he attempted to assign costs.
- 22075 Kenneth M. Childs, Jr., during the course of his efforts on this project, became aware of the presence in the general New Bedford Harbor area of currently regulated materials other than PCBs, including both "oil and grease" and heavy metals.
- 22076 Kenneth M. Childs, Jr. did become aware during the course of his efforts in this project that the general New Bedford Harbor area contains currently regulated materials other than PCBs, including both "oil and grease" and heavy metals.
- 22077 Kenneth M. Childs, Jr., during the course of his efforts on this project, became aware of the presence of E. Coli bacteria in the sediment of the general New Bedford Harbor area.
- 22078 Kenneth M. Childs, Jr., during the course of his efforts on this project, had no and did not learn of any information about the presence of pesticides in the New Bedford Harbor.
- 22079 Kenneth M. Childs, Jr. did not investigate for the presence of pesticides in the New Bedford Harbor during the course of his efforts on the project.
- 22080 Kenneth M. Childs, Jr., is unfamiliar with the meaning of the term polynuclear aromatic hydrocarbons.
- 22081 Kenneth M. Childs, Jr., is unfamiliar with the meaning of the term polynuclear aromatic hydrocarbons and did not seek to become familiar with the meaning of this term during the course of the project.
- 22082 Kenneth M. Childs, Jr., during the course of his efforts on the project, had no information as to the specific levels of currently regulated materials other than PCBs in the dredge spoils for which he attempted to provide cost estimates.
- 22083 Kenneth M. Childs, Jr. had no information as to the specific levels of currently regulated materials other than PCBs in the dredge spoils for which he attempted to provide cost estimates.
- 22084 Kenneth M. Childs, Jr. did not know if a silt curtain could be required in circumstances other than when PCBs are present in the dredge materials when he did his work and when he was deposited.
- 22085 Kenneth M. Childs, Jr. did not know if a silt curtain could be required in circumstances other than when PCBs are present in the dredge materials when he did his work and when he was deposited.

- 22086 The circumstances in which a permitting agency would be concerned about disturbing bottom materials in a dredging project are not limited to circumstances in which PCBs are present in the dredging material.
- 22087 Kenneth M. Childs, Jr. did not know the circumstances under which a permitting agency is concerned with turbidity in dredging projects when he did his work and when he was deposed.
- 22088 Kenneth M. Childs, Jr. did not know the purpose of seasonal restrictions which might be placed on dredging when he did his work and when he was deposed.
- 22089 Kenneth M. Childs, Jr. made no effort to find out the basis for such seasonal restrictions.
- 22090 Kenneth M. Childs, Jr. has never worked on a project in which a dredge disposal site was required to be covered.
- 22091 Kenneth M. Childs, Jr. has never worked on a dredging project in which the disposal site was required to be lined.
- 22092 Kenneth M. Childs, Jr. had no information whether placing fill behind bulkheads will be a disposal option for dredging projects, if any, that may be conducted in the New Bedford Harbor.
- 22093 There is no competent evidence that placing fill behind bulkheads will not be a disposal option for dredging projects, if any, that may be conducted in New Bedford Harbor.
- 22094 Kenneth M. Childs, Jr. had no knowledge or information as to any dredging projects in the New Bedford Harbor area that were not proceeding because of the presence of PCBs.
- 22095 There is no competent evidence that any dredging projects in the New Bedford Harbor area are not proceeding because of the presence of PCBs.
- 22096 There is no competent evidence that any dredging projects in the New Bedford Harbor area have been delayed because of the presence of PCBs.
- 22097 Kenneth M. Childs, Jr. did not provide his clients with any information as to the actual cost of construction of dredging projects in New Bedford Harbor involving spoils that did not contain PCBs.
- 22098 Kenneth M. Childs, Jr. did not provide his clients with any information as to the estimated cost of construction of dredging projects in New Bedford Harbor involving spoils that contain currently regulated materials other than PCBs.

- 22099 There is no competent evidence of the actual cost of construction of dredging projects in the New Bedford Harbor involving spoils that did not contain PCBs.
- 22100 Kenneth M. Childs, Jr. had no knowledge or information as to any project in the New Bedford Harbor area in which the preparation of an environmental impact report was required solely because of the presence of PCBs.
- 22101 There is no competent evidence that an environmental impact report was required for any project in the New Bedford Harbor area solely because of the presence of PCBs.
- 22102 Kenneth M. Childs, Jr., during the course of his efforts on the project, was not familiar with Department of Interior regulations issued with respect to the calculation of natural resource damages.
- 22103 Kenneth M. Childs, Jr. had no knowledge or information of any businesses which had been forced to move to temporary quarters because of delays in getting dredging permits.
- 22104 There is no competent evidence that any business was forced to move to temporary quarters because of delays in getting dredging permits.
- 22105 There are currently no dredging projects under construction in New Bedford Harbor.
- 22106 Dredging projects currently under construction or being planned in the Harbor will incur a total cost of less than \$549,515.00 in order to comply with conditions imposed by permitting authorities as a result of the presence of PCBs in the harbor, if indeed any such costs are imposed at all.
- 22107 Kenneth M. Childs, Jr., during the course of his efforts on the project, merely assumed that the projects for which he prepared cost estimates were delayed because of the presence of PCBs.
- 22108 Kenneth M. Childs, Jr., during the course of his efforts on the project, was aware of a dredging project which had been delayed as a result of the presence of currently regulated materials other than PCBs.
- 22109 Kenneth M. Childs, Jr. included the cost of silt curtains in his cost estimates because his experience had been that such curtains were not used where PCBs were not present.
- 22110 There is no competent evidence that silt curtains are used for dredging projects only when PCBs are present in the dredged materials.
- 22111 Silt curtains are specified for dredging projects under a variety of conditions.

- 22112 Michael T. Huguenin and Kenneth M. Childs, Jr. prepared the document entitled "Assessment of Economic Damages Associated with the Use of New Bedford Harbor Sediments" (hereinafter the IEC report). [Attachment Q.VIII.b.1]
- 22113 Attachment Q.VIII.b.1 is a true and accurate copy of Michael Huguenin and Kenneth Childs' Assessments of Economic Damages Associated with the Use of New Bedford Harbor Sediments."
- 22114 No subsequent report or draft reports addressing the subject of economic damages associated with the use of New Bedford Harbor sediments have been prepared by IEC or other government witnesses or supporting personnel or firms.
- 22115 In the initial phase of research on the cost of dredging projects, the IEC staff relied on the estimates of the engineers and staff associated with the individual dredging projects.
- 22116 None of the IEC project engineers themselves made estimates of the total additional costs allegedly associated with the presence of PCBs in the sediments before reaching their conclusions.
- 22117 Michael T. Huguenin was aware that for projects that have not yet received permits, it is not possible to state with certainty what permit conditions will be specified.
- 22118 For projects that have not yet received permits, it is not possible to state with certainty what permit conditions will be specified.
- 22119 Michael T. Huguenin based his cost estimates on assumptions that projects which had not yet received permits would bear the same types of conditions as those which have received permits.
- 22120 There is no competent evidence that projects which have not yet received permits will face the same types of permit conditions as those projects which have received permits.
- 22121 IEC was not able to gather sufficient data to conclude that permit issuance was being delayed due to the presence of PCBs.
- 22122 There is no competent evidence that permit issuance has been delayed due to the presence of PCBs.
- 22123 Permit issuance has not been delayed due to the presence of PCBs.
- 22124 Michael T. Huguenin did not know whether waterfront construction projects would continue to incur added costs due to the presence of PCBs.
- 22125 There is no competent evidence that waterfront construction projects will incur added costs due to the presence of PCBs.

- 22126 Michael T. Huguenin used the term "baseline" in the IEC report to refer to conditions where there would be present in dredge materials currently regulated materials other than PCBs. [Attachment Q.VIII.b.1]
- 22127 Michael T. Huguenin's baseline cost would include the cost of a lined disposal pit and a cap for the disposal of dredge materials if such conditions were required by the presence of currently regulated materials other than PCBs.
- 22128 When his opinions were formed and when he testified at deposition, Michael T. Huguenin was only vaguely familiar with the proposed natural resource damage assessment regulations promulgated by the Department of the Interior.
- 22129 When asked at his deposition, Michael T. Huguenin was not familiar with the proposed natural resource damage assessment regulations promulgated by the Department of the Interior.
- 22130 When asked at his deposition, Michael T. Huguenin was not familiar with the term "baseline" as it is used in the proposed natural resource damage assessment regulations promulgated by the Department of the Interior.
- 22131 During the course of his efforts on the project, Michael T. Huguenin had no familiarity with the term "baseline" as it is used in the proposed natural resource damage assessment regulations promulgated by the Department of the Interior.
- 22132 Michael T. Huguenin was instructed by NOAA's technical representative to use a real discount rate of 3 percent in damage assessment calculations.
- 22133 Michael T. Huguenin relied on those instructions in performing his work on the project.
- 22134 Michael T. Huguenin was aware that a real discount rate of 10 percent is mentioned in Department of Interior regulations.
- 22135 A real discount rate of 10 percent is mentioned in Department of Interior regulations.
- 22136 Michael T. Huguenin was aware that a real discount rate of 10 percent is mandated by the Office of Management and Budget for assessing regulations of the U.S. Environmental Protection Agency.
- 22137 Attachment Q.VIII.b.2 is a true and accurate copy of regulations proposed by the U.S. Environmental Protection Agency (43 CFR Part 11; OMB Circular a-94 Revised (Mar. 27, 1972)).
- 22138 A real discount rate of 10 percent is mandated by the Office of Management and Budget for assessing the costs and benefits of regulations

proposed by the U.S. Environmental Protection Agency (43 CFR Part 11; OMB Circular a-94 Revised (Mar. 27, 1972)). [Attachment Q.VIII.b.2]

- 22139 Michael T. Huguenin in previous studies has used a real discount rate of 10 percent.
- 22140 Michael T. Huguenin believed that the Department of Interior recommended use of a 10 percent discount rate.
- 22141 Michael T. Huguenin's firm made no attempts to confirm the cost data developed by Kenneth M. Childs, Jr.
- 22142 Michael T. Huguenin has never been qualified as an expert witness on natural resources damages.
- 22143 Michael T. Huguenin is not an expert on natural resources damages.
- 22144 Walter Williams does not know the costs of hydraulic dredging, excavating with a clamshell bucket or removing sediment from a barge and putting it into a disposal site.
- 22145 Norman Meade shared responsibility for the IEC project with Michael T. Huguenin.
- 22146 Attachment Q.VIII.b.3 is a true and accurate copy of "The Use of Economic Analysis in Valuing Natural Resource Damages, Environmental Law Institute (June 1984)."
- 22147 Norman Meade was editor of *The Use of Economic Analysis in Valuing Natural Resource Damages*, Environmental Law Institute, Washington, D.C., June 1984 [Attachment Q.VIII.b.3].
- 22148 Norman Meade did not know whether all of the sediments in the projects under consideration contained heavy metals or in what amounts.
- 22149 Norman Meade has never participated in a damage assessment other than ones which dealt with oil and petroleum products.
- 22150 Norman Meade is unaware of the existence of any natural resource damage assessment with respect to damage caused by heavy metals.
- 22151 The methods used in the IEC study have never been used in any other natural resources damage assessment.
- 22152 In doing his work, Norman Meade did not discuss with permitting authorities the requirements which would result from the presence of heavy metals in dredge materials.

- 22153 Norman Meade is aware that permitting requirements are imposed for the presence in dredge material of currently regulated materials other than PCBs.
- 22154 Norman Meade did not know the amount of total increased costs for all projects in the New Bedford Harbor due to construction requirements caused by the presence of PCBs.
- 22155 Norman Meade did not have any knowledge of what proportion of the PCBs present in the harbor has accumulated since 1980.
- 22156 Norman Meade did not know whether dredge materials with elevated levels of heavy metals would be more costly to dispose of than dredge materials with PCBs present.
- 22157 Kenneth M. Childs, Jr. and Michael T. Huguenin, in the IEC report, attribute most of the damages allegedly related to PCBs to a City of New Bedford dredging project and a Harbormaster dredging project. [Attachment Q.VIII.b.1]
- 22158 Kenneth M. Childs, Jr. and Michael T. Huguenin, in the IEC report, claim that the City of New Bedford plans a dredging project which would require dredging 200,000 cubic yards of material. [Attachment Q.VIII.b.1]
- 22159 Kenneth M. Childs, Jr. and Michael T. Huguenin offer no evidence that the City of New Bedford plans a dredging project which would require dredging 200,000 cubic yards.
- 22160 Kenneth M. Childs, Jr. and Michael T. Huguenin, in the IEC report, claim that the Harbormaster plans a dredging project which would require dredging 1,650,000 cubic yards of material. [Attachment Q.VIII.b.1]
- 22161 Kenneth M. Childs, Jr. and Michael T. Huguenin offer no evidence that the Harbormaster plans a dredging project which would require dredging 1,650,000 cubic yards of material.
- 22162 Marty Manley is the New Bedford Harbor Development Commissioner.
- 22163 Marty Manley states that the City of New Bedford has no plans to conduct any large dredging projects in the New Bedford Harbor.
- 22164 Marty Manley states that the City of New Bedford has no plans to conduct any dredging projects in the New Bedford Harbor that would require dredging 200,000 cubic yards or more of material.
- 22165 Kenneth M. Childs, Jr. and Michael T. Huguenin, in the IEC report, compute the incremental cost of future dredging projects using their estimate of the cost of disposal of spoils contaminated with PCBs compared to their estimate of the costs of disposal for the spoils had they not contained any PCBs. [Attachment Q.VIII.b.1]

- 22166 Kenneth M. Childs, Jr. and Michael T. Huguenin's estimate of incremental or added costs is fatally flawed because they attribute costs to PCB contamination which would have been incurred in the absence of PCB contamination.
- 22167 Kenneth M. Childs, Jr. and Michael T. Huguenin, in the IEC report, estimate future costs of dredging due to PCB contamination based on an estimate of future quantities of material to be dredged. [Attachment Q.VIII.b.1]
- 22168 Kenneth Mr. Childs, Jr. and Michael T. Huguenin base their estimate of the future quantities of material to be dredged in part on the dredging projects of The Gear Locker, Packer, Kelley, Lindberg Marine, Route 6 bridge, Palmer Island Marina, and the Skipper Motor Inn Marina.
- 22169 Kenneth M. Childs, Jr. and Michael T. Huguenin assume these projects would occur in a five year span and use an estimate of these projects total dredging requirements, divided by 5, as an estimate of the future annual level of dredging projects.
- 22170 Kenneth M. Childs, Jr. and Michael T. Huguenin's estimate of the future level of dredging is flawed.
- 22171 Kenneth M. Childs, Jr. and Michael T. Huguenin implicitly assume that the dredging projects then planned would all be completed and that similar dredging projects would need to be completed in the future.
- 22172 Kenneth M. Childs, Jr. and Michael T. Huguenin implicitly assume that marina projects can continually be added to the New Bedford Harbor.
- 22173 Kenneth M. Childs, Jr. and Michael T. Huguenin fail to consider that a demand for new marina projects might not exist in the future.
- 22174 Kenneth M. Childs, Jr. and Michael T. Huguenin fail to consider that the New Bedford Harbor cannot physically accommodate new or expanded marinas at the rate they assume.
- 22175 Even if the Route 6 bridge project were completed, it is not appropriate to assume, as Kenneth M. Childs, Jr. and Michael T. Huguenin did, that another Route 6 bridge project would also need to be completed in the future.
- 22176 Even if the Route 6 bridge project were completed, it would not need to be replaced every 5 years on average as the methodology of Kenneth M. Childs, Jr. and Michael T. Huguenin assumes.
- 22177 Kenneth M. Childs, Jr. and Michael T. Huguenin, in the IEC report, improperly assume that projects like the Route 6 bridge project are good estimates of the future level of dredging that would be required in the New Bedford Harbor. [Attachment Q.VIII.b.1]

- 22178 The Route 6 bridge project, if it were replaced, would be a one-time project, and would not need to be replaced again within at least the next 25 years.
- 22179 Because the Route 6 bridge project would not need replacement any time soon if it were replaced now, it is improper to assume that the dredging required in bridge replacement would be repeated regularly in the future.
- 22180 The Route 6 Bridge project was canceled.
- 22181 The Gear Locker Project was canceled.
- 22182 The D. N. Kelley, Linberg Marine (Fairhaven Marine), Palmer Island Marina, and Skipper Motor Inn Marina have been canceled, indefinitely postponed, or resulted in the dredging of materials in substantially less quantity than projected in the IEC report.
- 22183 Kenneth M. Childs, Jr. and Michael T. Huguenin's estimate of future dredging projects is substantially overstated.
- 22184 Future dredging requirements (if any) for the New Bedford harbor area are minimal.
- 22185 To determine the existence of incremental dredging and disposal expenses (of any) due to the presence of PCBs, it must be established that a dredging project will occur.
- 22186 To determine the existence of incremental dredging and disposal expenses (if any) due to the presence of PCBs, the required procedures for dredging and disposing of the materials absent contamination by PCBs must be ascertained.
- 22187 The required procedures for dredging and disposing of materials absent contamination by PCBs depend on the levels and types of currently regulated materials other than PCBs in the material to be dredged.
- 22188 The incremental dredging and disposal expenses (if any) due to the presence of PCBs depend on the levels and types of currently regulated materials other than PCBs in the material to be dredged.
- 22189 There are no incremental dredging and disposal expenses due to the presence of PCBs if, absent contamination by PCBs, the same procedures are required by the presence of currently regulated materials other than PCBs.
- 22190 To determine the existence of the impact (if any) from PCBs on the cancellation of a project which involves dredging, the reasons for the cancellation of the project must be determined.

- 22191 The presence of PCBs does not have any impact on the cancellation of a project which involves dredging, if the project would have been canceled independent of the need for dredging.
- 22192 The presence of PCBs does not have any impact on the cancellation of a project which involves dredging, if substantially the same procedures for dredging and disposing of materials would have been required absent contamination by PCBs.
- 22193 Kenneth M. Childs, Jr. and Michael T. Huguenin did not estimate the incremental costs (if any) due to the presence of PCB's in canceled projects, because of the difficulty of identifying the reasons for a project's cancellation.
- 22194 Stephen R. Bliven is Assistant Director of the Coastal Zone Management (CZM) Office.
- 22195 Stephen R. Bliven testified that fine grain sediments often call for a different disposal option than do more coarsely-grained sediments.
- 22196 A different disposal method is often indicated by the presence of fine-grained sediments, as opposed to the disposal method used for more coarsely-grained sediments.
- 22197 Suitable sites for dredge disposal are becoming increasingly difficult to find.
- 22198 If dredge materials are contaminated in any way, including by the presence of saltwater, they cannot be placed near a source of fresh water.
- 22199 CZM has similar concerns for the disposal of dredging materials containing either heavy metals or PCBs.
- 22200 CZM is concerned over the disposal location of dredge materials which contain coliform bacteria.
- 22201 CZM's policy is that dredge materials containing heavy metals should not be disposed of in the ocean.
- 22202 CZM's policy is that dredge materials containing coliform bacteria should not be disposed of in the ocean.
- 22203 CZM's policy regarding the ocean disposal of dredge materials containing PCBs is no more restrictive than it is with respect to dredge materials containing heavy metals or coliform bacteria.
- 22204 Robert Tierney was the Commissioner of the Massachusetts Department of Public Works in 1987.
- 22205 In December 1987 Robert Tierney announced a decision to rehabilitate the Route 6 Bridge.

- 22206 Attachment Q.VIII.b.4 is a true and accurate copy of the Engineering Report prepared for the Massachusetts Department of Public Works by A. G. Lichtenstein & Associates, Inc. entitled "Preliminary In-Depth Inspection, Rating and Evaluation Report: Swing Span Bridge Route 6, over Acushnet River, New Bedford -- Fairhaven Massachusetts."
- 22207 In making the decision, Robert Tierney had access to an engineering report prepared for the Massachusetts Department of Public Works by A.G. Lichtenstein & Associates, Inc. entitled "Preliminary In-Depth Inspection, Rating and Evaluation Report: Swing Span Bridge Route 6, Over Acushnet River, New Bedford -- Fairhaven Massachusetts" (the Engineering Report). [Attachment Q.VIII.b.4]
- 22208 The Engineering Report contained a detailed analysis of the existing foundations of the Route 6 Bridge. [Attachment Q.VIII.b.4]
- 22209 The Engineering Report found that the strength of the existing foundations of the Route 6 Bridge made rehabilitation feasible.
- 22210 The Engineering Report concluded that rehabilitation would result in "full unrestricted, reliable operation for the long term" of the Route 6 Bridge.
- 22211 The rehabilitation project for the Route 6 Bridge will result in full unrestricted, reliable operation of the bridge for the long term.
- 22212 The Engineering Report estimated that rehabilitating the Route 6 bridge would prolong its useful life by several decades.
- 22213 Rehabilitating the Route 6 Bridge should prolong its useful life by several decades.
- 22214 The Engineering Report found that the strength of the existing foundations of the Route 6 Bridge made rehabilitation attractive from a cost standpoint, relative to building a new bridge.
- 22215 The strength of the existing foundations of the Route 6 Bridge make rehabilitation attractive from a cost standpoint, relative to building a new bridge.
- 22216 The Engineering Report estimated the costs of rehabilitating the Route 6 Bridge at \$8,081,500. [Attachment Q.VIII.b.4]
- 22217 Rehabilitating the Route 6 Bridge is expected to cost \$8,081,500.
- 22218 The Revised Environmental Assessment by the Massachusetts Department of Public Works estimated the costs of constructing a new bridge at approximately 30 million dollars.
- 22219 Constructing a new bridge would have cost approximately 30 million dollars.

- 22220 -- The Engineering Report recommended rehabilitating the Route 6 Bridge.
- 22221 --- Citizens of New Bedford and Fairhaven had protested the extra expense associated with building a new Route 6 bridge as opposed to rehabilitating the existing bridge.
- 22222 -- The decision to rehabilitate the Route 6 Bridge was motivated in part by the lower costs in comparison to constructing a new bridge.
- 22223 --- The decision to rehabilitate the Route 6 Bridge was largely motivated by the lower costs in comparison to constructing a new bridge.
- 22224 --- Attachment Q.VIII.b.5 is a true and accurate copy of a study prepared for the Massachusetts Department of Public Works entitled "Bridge Type Study [Revised]: Replacement of Draw and Approach Bridges No. F-1-2-N-6-1, Route 6 over New Bedford Harbor, Fairhaven -- New Bedford."
- 22225 --- In making the decision to rehabilitate the Route 6 Bridge, Robert Tierney had access to a study prepared for the Massachusetts Department of Public Works entitled "Bridge Type Study [Revised]: Replacement of Draw and Approach Bridges No. F-1-2-N-6-1, Route 6 Over New Bedford Harbor, Fairhaven -- New Bedford." [Attachment Q.VIII.b.5]
- 22226 --- The Bridge Type Study estimated that replacing the Route 6 Bridge would require dredging 16,200 cubic yards of sediment. [Attachment Q.VIII.b.5]
- 22227 -- Constructing a new bridge would have required dredging 16,200 cubic yards of sediment.
- 22228 --- The Bridge Type Study estimated the total costs of dredging and disposal at \$218,000. [Attachment Q.VIII.b.5]
- 22229 --- The total costs of dredging and disposal associated with constructing a new Route 6 Bridge would have been approximately \$218,000.
- 22230 --- The cost estimates of the Bridge Type Study were relied upon by the Department of Public Works in making the decision with respect to the Route 6 Bridge.
- 22231 --- Total dredging and disposal expenses were an insignificant part of the cost difference between rehabilitating the Route 6 Bridge and constructing a new bridge.
- 22232 --- The Bridge Type Study's total estimated expenses of dredging and disposal were an insignificant part of the cost difference between rehabilitating the Route 6 Bridge and constructing a new bridge.
- 22233 --- The Bridge Type Study's total estimated expenses of dredging and disposal were approximately 1% of the cost difference between rehabilitating the Route 6 Bridge and constructing a new bridge. [Attachment Q.VIII.b.5]

- 22234 Kenneth Childs' estimates of dredging and disposal expenses were not included in the files which were accessed by the Department of Public Works in making the decision with respect to the Route 6 Bridge.
- 22235 The Department of Public Works did not use Kenneth Childs' estimates of dredging and disposal expenses in making the decision with respect to the Route 6 Bridge.
- 22236 Kenneth Childs' estimated expenses of dredging and disposal were an insignificant part of the cost difference between rehabilitating the Route 6 Bridge and constructing a new bridge.
- 22237 Kenneth Childs' total estimated dredging expenses for the Route 6 Bridge project are less than 5 percent of the total difference in estimated costs between rehabilitating the Route 6 Bridge and constructing a new bridge.
- 22238 Rehabilitating the Route 6 Bridge would have been attractive from a cost standpoint relative to constructing a new bridge, even if no dredging had been required for a new bridge.
- 22239 John Bullard, the Mayor of New Bedford, preferred rehabilitating the Route 6 Bridge over building a new bridge.
- 22240 John Bullard, the Mayor of New Bedford, had communicated his preference for rehabilitating the Route 6 Bridge to the Massachusetts Department of Public Works as early as 1986.
- 22241 Plans to build a new bridge did not contemplate any funding from the City Government of New Bedford, either for construction or dredging.
- 22242 John Bullard's opposition to building a new bridge was unrelated to the estimated expenses of dredging and disposal.
- 22243 The decision to rehabilitate the Route 6 Bridge was unaffected by dredging and disposal expenses.
- 22244 Dredging and disposal expenses did not play a significant role in the decision to rehabilitate the Route 6 Bridge.
- 22245 The rehabilitation work intended for the Route 6 bridge is estimated to take less than eighteen months.
- 22246 Construction work for a new bridge was estimated to take three years.
- 22247 The rehabilitation work intended for the Route 6 bridge should take considerably less time than the construction work that was planned for a new bridge.
- 22248 The Route 6 bridge will be able to remain open to traffic during most of the period of rehabilitation.

- 22249 The Bridge Type Study predicted that if the Route 6 Bridge were replaced with a new bridge, traffic would have to be closed until construction were complete.
- 22250 Construction of a new Route 6 Bridge would have required traffic to be closed until construction was complete.
- 22251 During the construction period of a new bridge, diverted traffic would have had to go over roads which were not well-suited to heavy vehicles.
- 22252 Citizens of New Bedford and Fairhaven protested the adverse effects of rerouting traffic over roads in poor condition during the construction period for a new bridge.
- 22253 The detour route which was contemplated as part of the plan to construct a new bridge crossed through residential areas.
- 22254 During the construction period of a new bridge, diverted traffic would have significantly increased air and noise pollution in the vicinity of the detour routes.
- 22255 Citizens of New Bedford and Fairhaven protested the adverse air and noise pollution effects that the rerouting of traffic would have created during the construction period for a new bridge.
- 22256 During the construction period of a new bridge, rerouting traffic would have adversely impacted access to local businesses in the vicinity of the bridge.
- 22257 Citizens of New Bedford and Fairhaven protested the adverse effects on local business in the vicinity of the bridge that rerouting traffic would have created.
- 22258 Plans to build a new bridge had been delayed by a dispute over the rerouting of traffic.
- 22259 Rerouting of traffic was one of the controlling factors in delaying the project to construct a new bridge.
- 22260 The rehabilitation work on the Route 6 Bridge is expected to cause significantly less interference with traffic than constructing a new bridge.
- 22261 The decision to rehabilitate the Route 6 Bridge was motivated in part by the lesser impact on traffic relative to building a new bridge.
- 22262 The decision to rehabilitate the Route 6 Bridge was largely motivated by the lesser impact on traffic relative to building a new bridge.
- 22263 The rehabilitation work on the Route 6 Bridge is expected to cause less interference with navigation than constructing a new bridge.

- 22264 The decision to rehabilitate the Route 6 Bridge was motivated in part by the lesser impact on navigation relative to building a new bridge.
- 22265 The Route 6 Bridge is a historic resource.
- 22266 Citizens of New Bedford and Fairhaven announced support for rehabilitating the Route 6 Bridge as the preservation of a historic resource.
- 22267 Rehabilitation will preserve the historic value of the Route 6 Bridge.
- 22268 The decision to rehabilitate was motivated in part by a desire to preserve the historic value of the Route 6 bridge.
- 22269 Constructing a new bridge would have required the destruction of approximately one half acre of adjacent parkland.
- 22270 Citizens of New Bedford and Fairhaven had protested the destruction of adjacent parkland required for constructing a new bridge.
- 22271 Rehabilitating the Route 6 Bridge will preserve the adjacent parkland.
- 22272 The decision to rehabilitate the Route 6 Bridge was motivated in part by a desire to preserve the adjacent parkland.
- 22273 John Mahoney prepared and sent Walter Williams and Frank Bracaglia a memorandum dated July 27, 1984 on a meeting held on July 25, 1984 on the effect of PCB contamination on the projects. [Attachment Q.VIII.b.6]
- 22274 Attachment Q.VIII.b.6 is a true, accurate, and genuine copy of the Mahoney memorandum described above.
- 22275 John Mahoney of Sverdrup & Parcel wrote a meeting memorandum dated July 27, 1984, which is marked DPW Williams Ex. 1. [Q.VIII.b.6]
- 22276 In his July 27, 1984 memorandum, Mahoney stated in part that factors such as the need for detour routes, the effect on businesses and the choice of navigational clearance have had a significant effect on the progress of the Route 6 Bridge project.
- 22277 At the time the decision was made to rehabilitate the Route 6 Bridge, Frank Bracaglia was responsible for the Environmental Section of Systems Planning and Development in the Department of Public Works.
- 22278 At the time the decision was made to rehabilitate the Route 6 Bridge, Frank Bracaglia was responsible for assessing the environmental impact of building a new bridge.
- 22279 At the time the decision was made to rehabilitate the Route 6 Bridge, Frank Bracaglia supported the alternative project of building a new bridge.

- 22280 Plans to build a new Route 6 Bridge were rejected despite the support of the Environmental Section of Systems Planning and Development within the Department of Public Works.
- 22281 There is no evidence that plans to build a new Route 6 Bridge were rejected because of the level of PCBs in the Acushnet River.
- 22282 The abandonment of plans to build a new Route 6 bridge was not caused by the level of PCBs in the Acushnet River.
- 22283 The abandonment of plans to build a new Route 6 bridge was motivated by factors unrelated to the level of PCBs in the Acushnet River.
- 22284 Rehabilitating the Route 6 bridge is not expected to require dredging.
- 22285 Because no dredging is anticipated for rehabilitating the Route 6 bridge, the dredging and disposal costs estimated in the Bridge Type Study report will not be incurred.
- 22286 Because no dredging is anticipated for rehabilitating the Route 6 Bridge, the dredging and disposal costs estimated by Kenneth M. Childs, Jr. will not be incurred.
- 22287 Kenneth M. Childs, Jr. estimated that there were no incremental testing costs due to the presence of PCBs in the Route 6 Bridge project sediments.
- 22288 No increased testing costs due to the presence of PCBs in the Route 6 Bridge project were incurred.
- 22289 Rehabilitating the Route 6 Bridge will not require the design or planning of disposal options for dredged materials.
- 22290 The Department of Public Works did not incur \$191,000 for the design or planning of disposal options for dredged materials associated with the Route 6 Bridge project.
- 22291 There is no competent evidence as to the existence of any expenses incurred by the Department of Public Works for the design or planning of disposal options for dredged materials associated with the Route 6 Bridge project.
- 22292 The Department of Public Works terminated the contract which had called for design and planning of disposal options for dredged materials associated with the Route 6 Bridge project.
- 22293 The Department of Public Works would have had to plan and design disposal options for dredged materials even had they not contained PCBs.

- 22294 Kenneth M. Childs, Jr. assumed that the requirements for the dredge spoils would include a lined pit and a cap for the Route 6 Bridge project.
- 22295 Kenneth M. Childs, Jr., during the course of estimating cost for the Route 6 Bridge project, assumed that the permits would require the dredge material to be disposed of in a lined pit and covered after disposal.
- 22296 No decision was ever made regarding the treatment of PCBs in the top one foot of the sediment associated with the Route 6 Bridge project.
- 22297 Below approximately the top foot of sediments associated with the Route 6 Bridge project, levels of PCBs are substantially less than above that level.
- 22298 No decision was ever made with respect to the dredging or disposal methods that would have been used in the project to construct a new Route 6 Bridge.
- 22299 There is no competent evidence that, if the Route 6 Bridge project were ever undertaken, the spoils would be disposed of in the manner assumed by Childs in making his calculations.
- 22300 Walter Williams did not know where the dredge material would be placed if the sediment from the Route 6 Bridge project were free from all currently regulated materials including PCBs.
- 22301 The dredge materials for the proposed Route 6 Bridge project contain heavy metals.
- 22302 The dredge materials for the proposed Route 6 Bridge project contain copper, lead and several other metals.
- 22303 Walter Williams did not know how sediments which contain cadmium, lead or other metals must be disposed of.
- 22304 During his conversations with Mr. Bracaglia and Mr. Williams, Norman Meade did not recall discussing the presence of currently regulated materials other than PCBs with respect to the dredge materials for the proposed Route 6 Bridge project.
- 22305 In assessing damages attributed to PCBs in dredge materials, Norman Meade did not consider the costs which would have been incurred if there had been heavy metals in the sediments but there had not been any PCBs.
- 22306 Norman Meade did not know of any project in which the Massachusetts Environmental Affairs Office required the preparation of an EIR solely because of concern with PCBs.

- 22307 The Massachusetts Environmental Affairs Office has never required the preparation of an EIR solely because of concern with PCBs.
- 22308 Norman Meade is aware that permitting requirements are imposed for the presence in dredge material of currently regulated materials other than PCBs.
- 22309 Frank A. Bracaglia did not know if the commitments regarding disposal of dredge materials from the proposed Route 6 Bridge project, which were made in the environmental assessment, would be required in the absence of PCBs.
- 22310 Frank A. Bracaglia did not know if the commitments regarding disposal of dredge materials from the proposed Route 6 Bridge project which were made in the environmental assessment would be required due to the presence of organics and heavy metals.
- 22311 Frank A. Bracaglia was not aware of any conditions with regard to the proposed Route 6 Bridge project which will be imposed or that the DPW will have to agree on as a result of the presence of PCBs in the dredge material, that would not exist because of the presence of heavy metals.
- 22312 Frank A. Bracaglia was not told by the Corps of Engineers that the presence of heavy metals in the dredge material of the proposed Route 6 Bridge project would not require special precautions.
- 22313 Frank A. Bracaglia was unaware of any location where ocean dumping of the dredge materials from the Route 6 Bridge project could take place, even if PCBs were not present in the dredge materials.
- 22314 Frank A. Bracaglia was aware that upon reaching threshold concentrations of heavy metals in dredge materials, special measures must be taken to deal with them.
- 22315 Frank A. Bracaglia stated that an environmental assessment for the proposed Route 6 Bridge project would have been required even if PCBs were not present in the dredge materials.
- 22316 Frank A. Bracaglia had no knowledge of the additional costs, if any, which might be imposed on the proposed Route 6 Bridge project as a result of the presence in dredge materials of currently regulated materials.
- 22317 Frank A. Bracaglia did not know the cost of disposing of dredge materials from the proposed Route 6 Bridge project if these materials did not contain currently regulated materials.
- 22318 Frank A. Bracaglia knew of no study which would determine the additional costs, if any, which might be imposed on the proposed Route 6 Bridge project as a result of the presence in dredge materials of currently regulated materials.

- 22319 DPW has not itself prepared any studies which would determine the additional costs, if any, which might be imposed on the proposed Route 6 Bridge project as a result of the presence in dredge materials of currently regulated materials.
- 22320 Frank A. Bracaglia was unaware of any agency which had addressed the question of how the dredge materials from the proposed Route 6 Bridge project would have to be handled in the absence of PCBs.
- 22321 No agency has addressed the question of how the dredge materials from the proposed Route 6 Bridge project would have to be handled in the absence of PCBs in those dredge materials.
- 22322 Walter Williams did not know if any DPW employee was familiar with the procedure for disposing of sediments which contain cadmium, lead or other metals.
- 22323 Frank A. Bracaglia did not know the cost of dredging the proposed Route 6 Bridge project in the absence of currently regulated materials.
- 22324 Frank A. Bracaglia did not know of any person in the DPW who could provide the cost of disposing of dredge materials that contain heavy metals.
- 22325 There is no competent evidence that any DPW employee is knowledgeable with regard to disposal of dredge materials containing currently regulated materials other than PCBs.
- 22326 There is no person employed by the DPW who knows of the cost of disposing of dredge materials that contain heavy metals.
- 22327 There is no competent evidence showing how dredge materials from the Route 6 Bridge project containing cadmium, lead or other metals would be disposed of if the materials were free of PCBs.
- 22328 The commitments included in the environmental assessment regarding disposal of dredge materials from the proposed Route 6 Bridge project would be required in the absence of PCBs due to the presence of organics and heavy metals.
- 22329 There are no conditions with regard to the proposed Route 6 Bridge project which would be imposed or that the DPW would have to agree on as a result of the presence of PCBs in the dredge material, that would not exist because of the presence of heavy metals.
- 22330 The presence of heavy metals in the dredge material of the proposed Route 6 Bridge project would have required special precautions.
- 22331 There is no location where ocean dumping of the dredge materials from the proposed Route 6 Bridge project could take place, even if PCBs were not present in the dredge material.

- 22332 An environmental assessment for the proposed Route 6 Bridge project would have been required even if PCBs were not present in the dredge materials.
- 22333 Regardless of the presence of currently regulated materials in the dredge material for the proposed Route 6 Bridge project, a Section 404 permit under the Clean Water Act would have to be obtained from the Corps of Engineers.
- 22334 In his July 27, 1984 memorandum, Mahoney stated that Norman Meade found that the effects of the presence of PCBs are difficult to separate from the effects of other conditions in the area.
- 22335 Walter Williams testified, after reviewing Mahoney's July 27, 1984 meeting memorandum, that its contents accurately reflected the events which occurred at the meeting described therein.
- 22336 Mahoney's July 27, 1984 memorandum accurately described the events which occurred at the meeting described therein.
- 22337 None of the costs shown on Childs' Revised Exhibit 4-3 for the Gear Locker project have actually been incurred.
- 22338 Kenneth M. Childs, Jr. did not have any information on the levels of PCBs in the dredge materials for the Gear Locker project when he did his work and when he was deposed.
- 22339 Kenneth M. Childs, Jr. did not have any information on the levels of other contaminants in the dredge materials for the Gear Locker project when he did his work and when he was deposed.
- 22340 Kenneth M. Childs, Jr. did not have any information on the procedures which would have been required for dredging and disposing the materials for the Gear Locker project absent contamination by PCBs when he did his work and when he was deposed.
- 22341 Kenneth M. Childs, Jr., had no knowledge or information as to whether the silt curtain required as a permit requirement for the Gear Locker would have been required absent PCBs when he did his work and when he was deposed.
- 22342 Kenneth M. Childs, Jr., had no knowledge or information as to whether the silt curtain required as a permit requirement for the Gear Locker was required due to the contamination of oil and grease when he did his work and when he was deposed.
- 22343 Judith M. Perry is an environmental analyst with the New England Interstate Water Pollution Control Commission, a division of the DEP.

- 22344 At her deposition, Judith M. Perry testified that the silt curtain required as part of the permitting requirements for the Gear Locker project was not imposed solely due to the presence of PCBs, but also because of the high percentage of oil and grease in the dredge material.
- 22345 The silt curtain required as part of the permitting requirements for the Gear Locker project was imposed in part because of the high percentage of oil and grease in the dredge material.
- 22346 The cost of the silt curtain required as part of the permitting requirements for the Gear Locker project cannot be attributed to the presence of PCBs in the dredge material.
- 22347 There is no competent evidence establishing why the Gear Locker project was canceled.
- 22348 There is no competent evidence indicating that the Gear Locker project was canceled due to procedures required for dredging and disposing of materials.
- 22349 There is no competent evidence indicating that the Gear Locker project was canceled due to the existence of required procedures for dredging and disposing of materials contaminated by PCBs, which would not have been required for currently regulated materials other than PCBs.
- 22350 The elutriate tests conducted for the Gear Locker project as required by the Army Corps of Engineers were not required as a result of PCB contamination.
- 22351 The elutriate tests conducted for the Gear Locker project as required by the Army Corps of Engineers were not solely required as a result of PCB contamination.
- 22352 No evidence has been presented to indicate that the Gear Locker incurred any costs as a result of elutriate testing of sediment to be dredged for the Gear Locker project.
- 22353 No evidence has been present to indicate what costs the Gear Locker incurred as a result of any elutriate testing.
- 22354 The costs incurred by the Gear Locker for its elutriate tests were not substantial.
- 22355 The costs incurred by the Gear Locker for its elutriate tests would have been incurred regardless of the presence of PCB contamination.
- 22356 Elutriate testing of the materials to be dredged for the Gear Locker project would have been required as a result of other contaminants in the dredged material.

- 22357 Plaintiffs allege that, for the proposed dredging for the Gear Locker project, the Army Corps required "a mechanical dredge with a watertight bucket must be used to perform the dredging operation to control turbidity and prevent leakage of PCB contaminated effluent."
- 22358 The actual language of the Army permit with respect to the previous RFA reads "a mechanical dredge with a watertight bucket must be used to perform the dredging operation to control turbidity and prevent leakage of effluent."
- 22359 The Army Corps did not mention PCBs in its permit to dredge.
- 22360 The Army Corps was concerned about the leakage of effluent for reasons other than the presence of PCBs.
- 22361 The Army Corps was concerned about the leakage of effluent due to the presence of contaminants other than PCBs.
- 22362 The Army Corps was concerned about the leakage of effluent for reasons unrelated to the presence of any contaminants.
- 22363 In addition to its concerns about contaminants, the Army Corps was concerned about the leakage of effluent for reasons unrelated to the presence of any contaminants.
- 22364 No evidence has been presented to indicate that the Gear Locker incurred costs of \$15,000 in obtaining the state and federal permits required for the Gear Locker project.
- 22365 Plaintiffs assert that "The conditions to prevent the escape of PCBs imposed on The Gear Locker project in the state and federal permits caused The Gear Locker to abandon its project."
- 22366 No evidence has been presented to indicate that state and federal permits required special conditions to "prevent the escape of PCBs".
- 22367 Plaintiffs assert that "The additional requirements necessary to control the release of PCBs into the environment substantially increase the costs of The Gear Locker project."
- 22368 No evidence has been presented to indicate that these conditions would have resulted in "substantial costs".
- 22369 Plaintiffs assert that "These additional costs caused The Gear Locker to abandon the project."
- 22370 No evidence has been presented to indicate that these special conditions caused The Gear Locker to abandon the project.

- 22371 No evidence has been presented to indicate that there were no other contributing factors to the decision to cancel the Gear Locker project.
- 22372 Coastal Zone Management expressed its environmental concerns about the Skipper project to the Massachusetts Environmental Protection Agency in a memorandum dated March 24, 1987 from Richard F. Delaney to Steve Davis. [Attachment Q.VIII.b.7]
- 22373 Attachment Q.VIII.b.7 is a true and accurate copy of the March 24, 1987 memorandum from Richard F. Delaney to Steve Davis.
- 22374 In his March 24, 1987 memo expressing environmental concerns over the Skipper project, Richard F. Delaney did not once mention PCB's.
- 22375 In his March 24, 1987 memo, Richard F. Delaney expressed concern with several environmental factors of the Skipper project unrelated to PCB's.
- 22376 In his March 24, 1987 memo, Richard F. Delaney expressed concern with the environmental impact of the Skipper project on existing clamflats, stemming motor-boat prop wash, hydrocarbons and other pollutants from automatic bilge pumps, and fuel leakage.
- 22377 Motor-boat prop wash, hydrocarbons and other pollutants from automatic bilge pumps, and fuel leakage associated with the Skipper project as planned in March 1987 posed a threat to the existing clamflats.
- 22378 In his March 24, 1987 memo, Richard F. Delaney expressed concern with spillage of fuel from the fueling facility of the Skipper project into the waterway.
- 22379 Spillage of fuel from the fueling facility of the Skipper project as planned in March 1987 posed a threat of contaminating the waterway.
- 22380 In his March 24, 1987 memo, Richard F. Delaney expressed concern with delineation of the State/Federal Harbor Line so that no piers of the Skipper project would extend beyond that line.
- 22381 In his March 24, 1987 memo, Richard F. Delaney expressed concern with the noise impact that would be caused by the proximity of the Skipper project site to a nearby school.
- 22382 The Skipper project as planned in March 1987 would have had adverse noise impact on a nearby school.
- 22383 In his March 24, 1987 memo, Richard F. Delaney expressed concern with the filling of an existing rip-rap wall in the Skipper project so that it would extend to meet the existing solid fill pier.
- 22384 The dredge materials for the Skipper project contain currently regulated materials other than PCBs.

- 22385 The Skipper Marine currently has 86 boat slips which have been installed without dredging.
- 22386 No competent evidence exists which indicates that dredging was actually performed as part of the Skipper project.
- 22387 Because no dredging has been performed for the Skipper project, the dredging costs of \$445,600 estimated by Kenneth M. Childs, Jr. have not been incurred.
- 22388 No evidence has been presented to indicate that the Skipper project incurred any incremental dredging or disposal costs due to PCB contamination.
- 22389 If the Skipper Marine had engaged in dredging, the same costs for dredging and disposal would have been required regardless of the presence of PCB's.
- 22390 No evidence has been presented to indicate that dredging and disposal costs for the Skipper project would have been lower if there were no PCBs present.
- 22391 If the Skipper Marine had engaged in dredging, the same procedures for dredging and disposal would have been required regardless of the presence of PCB's.
- 22392 No evidence has been presented to indicate that the required dredging and disposal procedures for the Skipper project would have been different if there were no PCBs present.
- 22393 Ocean disposal would not have been permitted of the dredge materials from the Skipper project, even if they did not contain PCB's.
- 22394 Dredge materials from the Skipper project, even if they did not contain contaminants, could not be placed in the Fairhaven landfill because of the presence of saltwater in those materials.
- 22395 Dredge materials from the Skipper project, even if they did not contain PCBs, or currently regulated materials other than PCBs, could not be placed in the Fairhaven landfill because of the presence of saltwater in the materials.
- 22396 Norman Meade did not speak with the sponsor of the Skipper Motor Inn Marina project about the presence in the dredge materials of currently regulated materials other than PCBs.
- 22397 The Skipper project would have incurred most of the disposal costs that it incurred regardless of whether PCB contamination was present.

- 22398 The Skipper project would have incurred all of its actual disposal costs regardless of whether PCB contamination was present.
- 22399 The Skipper project would have incurred most of the dredging costs that it incurred regardless of whether PCB contamination was present.
- 22400 The requested total of \$1,036.51, on the invoice from Gidley Laboratories for work performed on the Skipper Project, included compensation for services unrelated to PCB's.
- 22401 PCB's were only one of nine substances which were tested for by Gidley Laboratories.
- 22402 Gidley laboratories tested for arsenic, cadmium, chromium, lead, copper, specific conductance, bacteria coliform, and for mollusks.
- 22403 Of the \$337 requested for Skipper Marina Sediment Tests by Gidley Laboratories, only \$165 was attributable to tests for PCB's.
- 22404 The 34 hours of consulting services listed in the invoice by Gidley laboratories included services unrelated to PCB's.
- 22405 Of the 34 hours of consulting serves listed in the invoice by Gidley laboratories, Only the descriptions of 1 and 1 half hours of services specifically mention PCB's.
- 22406 There is no competent evidence that the majority of the services listed in the invoice by Gidley laboratories for the Skipper Project would not have been required absent PCB's in the sediments.
- 22407 The sediment to be dredged from the Acushnet River Estuary for the Palmer's Cove project is not contaminated with PCBs according to EPA standards.
- 22408 Not all of the sediment to be dredged from the Acushnet River Estuary for the Palmer's Cove project is contaminated with PCBs according to EPA standards.
- 22409 Not all of the sediment to be dredged from the Acushnet River Estuary for the Palmer's Cove project is contaminated with PCBs according to DEP standards.
- 22410 Attachment Q.VIII.b.8 is a true and accurate copy of the Water Quality Certificate application for the Palmer's Cove project.
- 22411 According to the Water Quality Certificate application for the Palmer's Cove project, certain of the sediment tests indicated PCB concentrations below .5 ppm. [Attachment Q.VIII.b.8]

- 22412 Because of the presence of heavy metals at elevated levels in the Palmer's Cove sediment, special dredging techniques would be required according to DEP regulations.
- 22413 According to the Water Quality Certificate application for the Palmer's Cove project, submitted to the Division of Water Pollution Control, ten parts per billion is the EPA standard for 24 hour acute toxicity in seawater for PCBs. [Attachment Q.VIII.b.8]
- 22414 Ten parts per billion is the EPA standard for 24 hour acute toxicity in seawater for PCBs.
- 22415 According to the Water Quality Certificate application for the Palmer's Cove project, ten parts per billion is the EPA standard for 24 hour average toxicity in seawater for PCBs.
- 22416 Ten parts per billion is the EPA standard for 24 hour average toxicity in seawater for PCBs.
- 22417 According to the Water Quality Certificate application for the Palmer's Cove project, ten parts per billion is the EPA standard for 24 hour acute toxicity in seawater for PCBs.
- 22418 According to the Water Quality Certificate application for the Palmer's Cove project, elutriate tests conducted in May 1988 revealed that PCB levels were "only a third of the EPA standard of the approximately 10 ppb for Aquatic life (24-hour average toxicity in salt water)" [Attachment Q.VIII.b.8]
- 22419 PCB levels in the elutriate were only a third of the EPA standard of the approximately 10 ppb for Aquatic life.
- 22420 According to the Water Quality Certificate application for the Palmer's Cove project, additional bulk sediment and elutriate sampling and analyses were performed in April 1989.
- 22421 Additional bulk sediment and elutriate sampling and analyses were performed in April 1989.
- 22422 According to the Water Quality Certificate application for the Palmer's Cove project, the results of the April 1989 testing "indicate relatively low levels of PCBs in the bulk and elutriate of both silt and non-silt areas."
- 22423 There were relatively low levels of PCBs in the bulk and elutriate of both silt and non-silt areas.
- 22424 According to the Water Quality Certificate application for the Palmer's Cove project, "10 ppb is the EPA standard for 24 hour acute toxicity in seawater for PCBs, and Palmer's Cove sediments were well below those levels." [Attachment Q.VIII.b.8]

- 22425 Palmer's Cove sediments were well below the EPA standard for 24 hour acute toxicity in seawater for PCBs.
- 22426 Attachment Q.VIII.b.9 is a true and accurate copy of regulations promulgated by the Massachusetts Division of Water Pollution Control entitled "314 CMR 9.00: Certification for Dredging, Dredged Material Disposal and Filling in Waters."
- 22427 According to the Massachusetts Division of Water Pollution Control Regulations 314 CMR 9.00: Certification for Dredging, Dredged Material Disposal and Filling in Waters, PCB concentrations in dredge material of .5 ppm are classified as Category One, of .5 ppm to 1 ppm are classified as Category Two, and greater than 1 ppm is classified as Category Three. [Attachment Q.VIII.b.9]
- 22428 According to the Water Quality Certificate application for the Palmer's Cove project, PCB concentrations in the Palmer's Cove sediment were well below .5 ppm. [Q.VIII.b.8]
- 22429 PCB concentrations in the Palmer's Cove sediment were well below .5 ppm.
- 22430 The Palmer's Cove silt area sediments are not contaminated with more than one ppm PCBs.
- 22431 Because the Palmer's Cove silt area sediments are not contaminated with more than 1 ppm PCBs, special dredging techniques are not required by the Division of Water Pollution Control pursuant to its regulations at 314 CMR 9.03.
- 22432 Because the Palmer's Cove silt area sediments contain PCB concentrations below .5 ppm, special dredging techniques are not required by the Division of Water Pollution Control pursuant to its regulations at 314 CMR 9.03.
- 22433 Because the PCB concentrations in the Palmer's Cove silt area sediments are below .5 ppm, disposal of the dredge materials in a deep containment cell lined with steel sheet piling and capped with clay is not required as a result of PCB contamination.
- 22434 The Old New Bedford Waterfront Corp. will not incur added costs for the dredging and disposal of the sediments as part of the Palmer's Cove project because of PCB contamination of the sediments.
- 22435 The Old New Bedford Waterfront Corp. will not incur added costs for the disposal of the sediments from the Palmer's Cove project due to PCB contamination of the sediments because all of the special disposal techniques that would be required would be required because of the presence of currently regulated materials other than PCBs.

- 22436 Organic wastes and toxic chemicals other than PCBs are present in the sediments which would be dredged for the Palmer's Cove project.
- 22437 Dredging for the Palmer's Cove project would resuspend organic wastes and other toxic chemicals than PCBs.
- 22438 Because of the presence of currently regulated materials other than PCBs, any special disposal conditions for the Palmer's Cove sediments would be required even in the absence of PCBs.
- 22439 Because heavy metals are more susceptible to leaching than are PCBs, any special linings required at the disposal site would be required as a result of contamination by heavy metals regardless of the presence of PCBs.
- 22440 Because PCBs bond to other sediment and have low solubility in water, special linings in disposal sites are unlikely to be required as a result of the presence of PCBs.
- 22441 The Old New Bedford Waterfront Corp. did not incur added costs in testing the sediments to be dredged as part of the Palmer's Cove project because the sediments to be dredged were contaminated with PCBs.
- 22442 According to the Army Corps of Engineers, silt curtains will not be required for the Palmer's Cove dredging.
- 22443 Silt curtains will not be required for the Palmer's Cove dredging.
- 22444 No evidence is presented that special dredging techniques would be required for the Palmer's Cove site solely as a result of PCB contamination.
- 22445 There is no evidence that additional elutriate tests for the Palmers Cove project were required as a result of PCB contamination.
- 22446 Additional elutriate tests were required for the Palmer's Cove project due to the presence of PAH contaminants.
- 22447 Additional elutriate tests were required for the Palmer's Cove project due to the presence of dissolved metal contaminants.
- 22448 No evidence is presented that in the absence of PCB contamination, additional elutriate tests would not have been required.
- 22449 No evidence is presented as to the amount of any additional costs resulting from additional elutriate testing.
- 22450 No evidence is presented that any additional costs would have been the result solely of PCB contamination.

- 22451 The proposed Palmer Cove Waterfront Park would be located at the site of the Standard Times Field in New Bedford.
- 22452 The location of the proposed Palmer Cove Waterfront Park at the Standard Times Field in New Bedford is also a proposed location of a new waste water treatment plant for the City of New Bedford.
- 22453 The Mayor of New Bedford currently supports a proposal to locate the waste water treatment plant at Fort Rodman, but opposition to the Fort Rodman site exists.
- 22454 The City's potential plans for a waste water treatment plant at the site of the proposed Palmer's Cove Waterfront Park indicate that the Palmer's Cove Waterfront Park is unlikely to receive the necessary approval from the City to proceed.
- 22455 Were the City of New Bedford to acquire the Standard Times Field by eminent domain for the wastewater treatment plant, the waterfront park would not be built.
- 22456 If the wastewater treatment plant is built, no dredging will be required.
- 22457 No evidence has been presented that would indicate that the Old New Bedford Waterfront Corporation has submitted any building plans for the Palmer's Cove project to the City of New Bedford for necessary approval.
- 22458 No evidence has been presented to indicate the financial feasibility of the Palmer's Cove project, even in the absence of any concerns of currently regulated material.
- 22459 The proposed location of the Palmer's Cove project is an undesirable location for a marina.
- 22460 The proposed location of the Palmer's Cove project is an undesirable location for a marina due to the low water levels at low tide.
- 22461 The proposed location of the Palmer's Cove project is an undesirable location for a marina due to the presence of a large bedrock outcrop extending well into the harbor which would require special techniques to remove.
- 22462 The presence of the bedrock outcrop at the proposed location of the Palmer's Cove project would render the construction of a marina there financially infeasible.
- 22463 The level of the water at low tide would render the construction of a marina at the site of the proposed Palmer's Cove project financially infeasible.

- 22464 No evidence has been presented to indicate that the presence of a large bedrock outcrop at the site of the proposed Palmer's Cove project would not render the location of a marina there physically infeasible.
- 22465 No evidence has been presented to indicate that the presence of a large bedrock outcrop at the site of the proposed Palmer's Cove project would not render the location of a marina there financially infeasible.
- 22466 No evidence has been presented to indicate that the low water levels at low tide at the site of the proposed Palmer's Cove project would not render the location of a marina there physically infeasible.
- 22467 No evidence has been presented to indicate that the low water levels at low tide at the site of the proposed Palmer's Cove project would not render the location of a marina there financially infeasible.
- 22468 No evidence has been presented to indicate that the Palmer's Cove project is financially and physically feasible.
- 22469 No evidence has been presented to indicate that the Palmer's Cove project is a desirable location for a marina.
- 22470 No evidence has been presented to indicate that the necessary financial arrangements have been made to proceed with the development of the Palmer's Cove project.
- 22471 No evidence has been presented to indicate that the Palmer's Cove project could obtain financing to proceed with development.
- 22472 The proposed site for the Palmer's Cove project is currently zoned for port use under Massachusetts General Law 1131.
- 22473 Use of the proposed site for the Palmer's Cove project would require that the site be "dedesignated" from Industrial use to Commercial use.
- 22474 Dedesignation of the site from Industrial use to Commercial use would require approval by Federal authorities.
- 22475 Dedesignation of the site from Industrial use to Commercial use would require approval by state authorities.
- 22476 Dedesignation of the site from Industrial use to Commercial use would require approval by local authorities.
- 22477 Dedesignation of the site from Industrial to Commercial use is governed by Massachusetts General Law 1131.
- 22478 No evidence has been presented to indicate that the Old New Bedford Waterfront Corporation has sought the necessary approval for dedesignation of the site from Industrial to Commercial use from federal authorities.

- 22479 No evidence has been presented to indicate that the Old New Bedford Waterfront Corporation has sought the necessary approval for dedesignation of the site from Industrial to Commercial use from state authorities.
- 22480 No evidence has been presented to indicate that the Old New Bedford Waterfront Corporation has sought the necessary approval for dedesignation of the site from Industrial to Commercial use from local authorities.
- 22481 No evidence has been presented to indicate that the Old New Bedford Waterfront Corporation has received the necessary approval for dedesignation of the site from Industrial to Commercial use from federal authorities.
- 22482 No evidence has been presented to indicate that the Old New Bedford Waterfront Corporation has received the necessary approval for dedesignation of the site from Industrial to Commercial use from state authorities.
- 22483 No evidence has been presented to indicate that the Old New Bedford Waterfront Corporation has received the necessary approval for dedesignation of the site from Industrial to Commercial use from local authorities.
- 22484 Kenneth M. Childs, Jr. did not know the level of PCBs in the dredge spoils of the Packer Project.
- 22485 Kenneth M. Childs, Jr. was not told of the presence of any metals or "oil and grease" in the dredge spoils of the Packer Project.
- 22486 Metals and "oil and grease" are present in the dredge spoils from the Packer project.
- 22487 Kenneth M. Childs, Jr. had no specific information as to the level of PCBs contained in the dredge spoils from the Packer project.
- 22488 Kenneth M. Childs, Jr. did not know and did not confirm by reviewing the permit files whether the liner in the containment site for the Packer project was required due to the presence of PCBs.
- 22489 The liner in the containment for the Packer project was not required by the presence of PCBs.
- 22490 Kenneth M. Childs, Jr. did not know whether or not a cap would have been required for disposal on land of dredge materials containing metals.
- 22491 There is no competent evidence that dredge materials containing metals are allowed to be disposed on land without a cap or cover.
- 22492 Michael T. Huguenin was aware that the only project which has received its final permits was the Packer project.

- 22493 The only project which has received its final dredging permits as of May 1990 is the Packer project.
- 22494 Michael T. Huguenin was unaware of the metals concentrations found in the dredge materials at the Packer project.
- 22495 The presence of PCBs in the dredged materials of the Packer project did not preclude the placement of the materials directly on shore.
- 22496 The presence of PCBs in the sediment did not preclude the Packer project from placing dredged materials behind a sealed, walled bulkhead.
- 22497 The presence of PCBs in the sediment from the Packer project did not require that the sediments be placed in a disposal area lined with a protective gravel layer and a polypropylene liner, capped with a silt-clay barrier, and dewatered through an adjustable sluice structure and sand filter.
- 22498 The requirement that the dredge materials from the Packer project be placed in a disposal area lined with a protective gravel layer and a polypropylene liner, capped with a silt-clay barrier, and dewatered through an adjustable sluice structure and sand filter was not solely due to PCB contamination.
- 22499 In the absence of PCB contamination, the disposal area would have required lining with a protective gravel layer.
- 22500 In the absence of PCB contamination, the disposal area would have required a polypropylene liner.
- 22501 The presence of heavy metals in the dredge materials is more likely to require special liners in the disposal area because heavy metals are more susceptible to leaching than are PCBs.
- 22502 PCBs bond to other sediment and are less susceptible to leaching than are heavy metals.
- 22503 PCBs have low solubility in water and are thus less susceptible to leaching than are heavy metals.
- 22504 In the absence of PCB contamination, the disposal area would have required capping with a silt-clay barrier.
- 22505 In the absence of PCB contamination, the disposal area would have required an adjustable sluice structure and sand filter.
- 22506 R.M. Packer has not incurred costs of at least \$47,015 in added construction costs in order to implement measures aimed at minimizing the resuspension and release of PCBs from the dredging operations and dredged materials.

- 22507 R.M. Packer incurred no added construction costs as a result solely of PCB contamination.
- 22508 R.M. Packer has not incurred costs of at least \$2705 in order to meet permit application requirements solely due to the presence of PCBs.
- 22509 Kenneth M. Childs, Jr. and Michael T. Huguenin, in the IEC report, attribute the cost of excavating the disposal pit solely to the presence of PCBs. [Attachment Q.VIII.b.1]
- 22510 Excavation of a disposal pit would have been required for the Packer Project regardless of the presence of PCBs.
- 22511 Kenneth M. Childs, Jr. and Michael T. Huguenin, in the IEC report, attribute the cost of filling behind the bulkhead for the Packer project solely to the presence of PCBs. [Attachment Q.VIII.b.1]
- 22512 Filling behind the bulkhead would have been required for the Packer project regardless of the presence of PCBs.
- 22513 The incremental costs that Kenneth M. Childs, Jr. and Michael T. Huguenin attribute to PCBs in the Packer project are not costs that are solely the result of PCBs.
- 22514 All of the incremental costs of the Packer Project that Kenneth M. Childs, Jr. and Michael T. Huguenin attribute to PCBs in the IEC report are costs that would have been incurred even in the absence of PCB contamination.
- 22515 Most of the incremental costs of the Packer project that Kenneth M. Childs, Jr. and Michael T. Huguenin attribute to PCBs in the IEC report are costs that would have been incurred even in the absence of PCB contamination.
- 22516 Some of the incremental costs of the Packer project that Kenneth M. Childs, Jr. and Michael T. Huguenin attribute to PCBs in the IEC report are costs that would have been incurred even in the absence of PCB contamination.
- 22517 With respect to the Packer Project, certain test results from samples were submitted to the DEQE which indicate cadmium and "oil and grease" present at levels which, according to the DEQE dredging regulations, are categorized as category 1 and type B.
- 22518 The Packer test results indicate combined cadmium and "oil and grease" levels with respect to sediments that were dredged which, under the DEQE dredging regulations:
- (a) would not normally allow open ocean disposal at high energy sandy sites; or

- (b) would not normally allow unconfined placement in-harbor; or
- (c) would not normally allow use for beach replenishment; and
- (d) which would require effluent control or land or in-harbor disposal with bulkheading.

22519 The Packer test results indicate cadmium and "oil and grease" present at levels which, according to the DEQE dredging regulations, are categorized as category 1 and type B.

22520 The Packer test results indicate combined chromium and "oil and grease" levels with respect to sediments that were dredged which, under the DEQE dredging regulations:

- (a) would not normally allow open ocean disposal at high energy sandy sites; or
- (b) would not normally allow unconfined placement in-harbor; or
- (c) would not normally allow use for beach replenishment; and
- (d) which would require effluent control or land or in-harbor disposal with bulkheading.

22521 The Packer test results indicate copper and "oil and grease" present at levels which, according to the DEQE dredging regulations, are categorized as category 1 and type B.

22522 The Packer test results indicate combined copper and "oil and grease" levels with respect to sediments that were dredged which, under the DEQE dredging regulations:

- (a) would not normally allow open ocean disposal at high energy sandy sites; or
- (b) would not normally allow unconfined placement in-harbor; or
- (c) would not normally allow use for beach replenishment; and
- (d) which would require effluent control or land or in-harbor disposal with bulkheading.

22523 The Packer test results indicate lead and "oil and grease" present at levels which, according to the DEQE dredging regulations, are categorized as category 1 and type B.

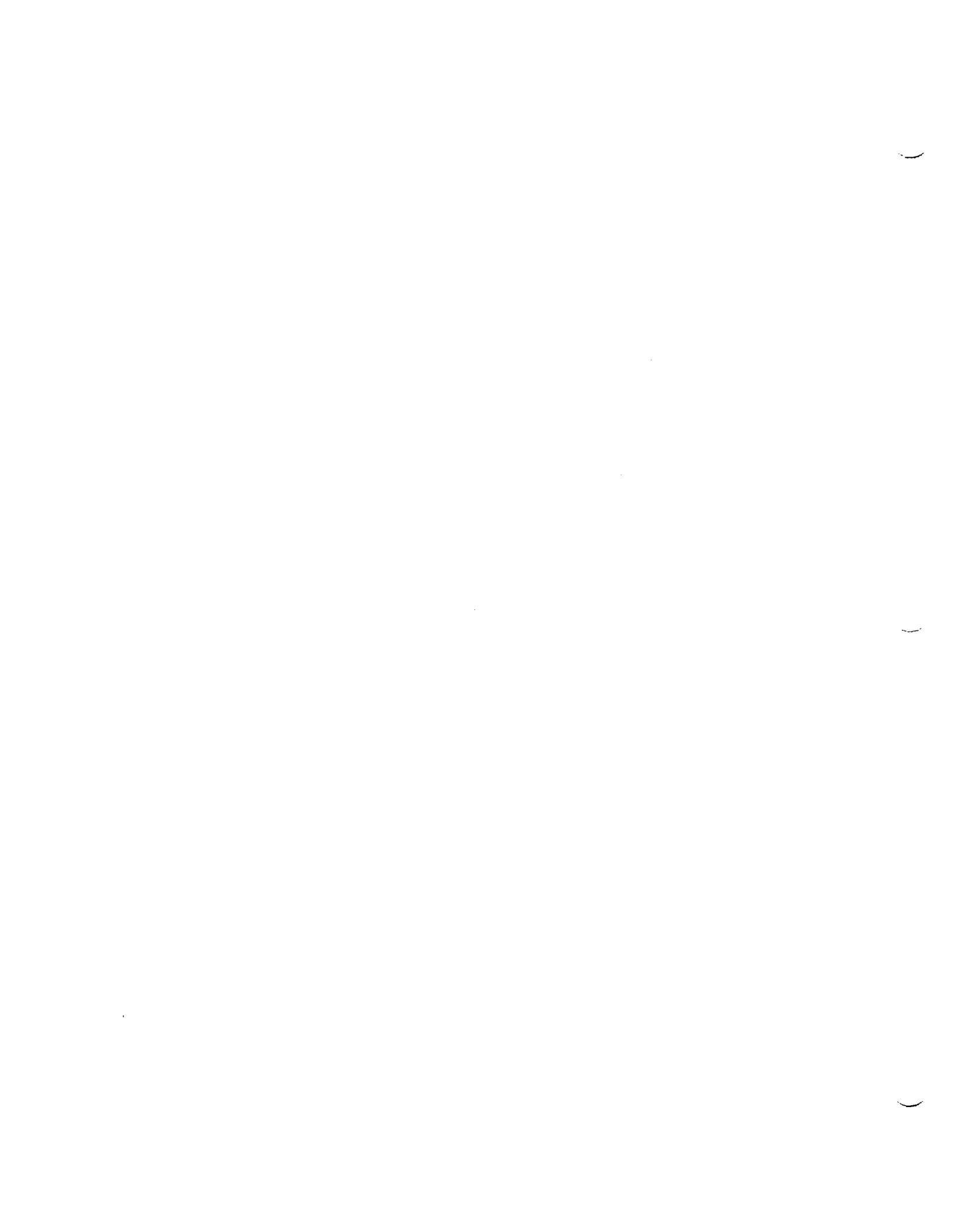
- 22524 The Packer test results indicate combined lead and "oil and grease" levels with respect to sediments that were dredged which, under the DEQE dredging regulations:
- (a) would not normally allow open ocean disposal at high energy sandy sites; or
  - (b) would not normally allow unconfined placement in-harbor; or
  - (c) would not normally allow use for beach replenishment; and
  - (d) which would require effluent control or land or in-harbor disposal with bulkheading.
- 22525 The Packer test results indicate mercury and "oil and grease" present at levels which, according to the DEQE dredging regulations, are categorized as category 1 and type B.
- 22526 The Packer test results indicate combined mercury and "oil and grease" levels with respect to sediments that were dredged which, under the DEQE dredging regulations:
- (a) would not normally allow open ocean disposal at high energy sandy sites; or
  - (b) would not normally allow unconfined placement in-harbor; or
  - (c) would not normally allow use for beach replenishment; and
  - (d) which would require effluent control or land or in-harbor disposal with bulkheading.
- 22527 Attachment Q.VIII.b.10 is a true and accurate copy of the "Permit Compliance Inspection Report" completed by EPA aquatic biologist Edward Reiner on December 12, 1984.
- 22528 A "Permit Compliance Inspection Report" completed by EPA aquatic biologist Edward Reiner on December 12, 1984 indicates that his review of the Packer project showed that the plans which had been approved for disposal of the dredged materials were not complied with. [Attachment Q.VIII.b.10]
- 22529 The plans which were approved for disposal of the dredged materials for the Packer project were not complied with.
- 22530 The "Permit Compliance Inspection Report" noted that the "12 inch protective gravel layer as in plans--is more like a three inch sand layer". [Attachment Q.VIII.b.10]

- 22531 A sand layer of approximately three inches was used in the Packer project instead of a 12-inch protective gravel layer.
- 22532 Kenneth Childs estimated that the 12" gravel layer would cost \$5,400, and attributed the costs to PCB contamination.
- 22533 Edward Reiner noted in the "Permit Compliance Inspection Report" that other conditions imposed on the project had not been complied with.
- 22534 Edward Reiner noted in the "Permit Compliance Inspection Report" that "some dredge spoils appears to be outside the lined disposal site. [Attachment Q.VIII.b.10]
- 22535 The Packer Project did not incur the costs that Kenneth Childs alleges since some of the conditions imposed on the project were not complied with.
- 22536 The Army Corps of Engineers has recently conducted a sounding study of the New Bedford Harbor.
- 22537 The sounding study was conducted to map the depths of the New Bedford Harbor in the shipping channel.
- 22538 The Army Corps of Engineers has received only one complaint with respect to the depth of the shipping channel in the New Bedford harbor.
- 22539 The Army Corps of Engineers conducted its recent sounding study in response to this single complaint.
- 22540 The Army Corps of Engineers relies on information from users of harbors in order to determine the need for sounding studies and possible dredging of shipping channels.
- 22541 The Army Corps of Engineers has indicated that the New Bedford Harbor is not a harbor that shoals rapidly.
- 22542 The Army Corps of Engineers has indicated that the sounding study of the New Bedford Harbor will lead to the conclusion that the shipping channel will not need dredging.
- 22543 The sounding study indicates that the shipping channel does not need dredging.
- 22544 The shipping channel does not need dredging.
- 22545 The Army Corps of Engineers has indicated that the New Bedford Harbor was originally dredged to 27'.
- 22546 The Army Corps of Engineers has indicated that PCBs are not the sole pollutant of concern to the Army Corps of Engineers.

- 22547 The Army Corps of Engineers has indicated that the total concentration of all pollutants is of concern to the Army Corps of Engineers.
- 22548 The Army Corps of Engineers has indicated that a study of the potential dredge materials in the shipping channel would only be made in the event that dredging was recommended for the shipping channel.
- 22549 The New Bedford Harbor does not shoal rapidly.
- 22550 The New Bedford Harbor was originally dredged to 27'.
- 22551 PCBs are not the sole pollutant of concern to the Army Corps of Engineers.
- 22552 The total concentration of all pollutants is of concern to the Army Corps of Engineers.
- 22553 The Army Corps of Engineers will conduct a study of the potential dredge materials in the shipping channel only in the event that dredging was recommended for the shipping channel.
- 22554 Because the Army Corps has no plans to dredge the New Bedford shipping channel, it has conducted no study of the toxicity of the potential dredge materials.
- 22555 Because the extent of the contamination of the shipping channel of the New Bedford Harbor is not known, it is not known that pollutants in the shipping channel would hamper the dredging operation were it to be conducted.
- 22556 Were the New Bedford Harbor shipping channel to be dredged, it is not known what, if any, special dredging techniques would have to be observed as a result of pollutants in the sediment.
- 22557 Were the dredging of the New Bedford Harbor shipping channel to take place and were special dredging techniques required as a result of pollutants in the sediment, it is not known that special techniques would be required solely as a result of PCB contamination.
- 22558 No evidence has been presented as to the costs of any special dredging techniques which might be required as a result of pollutants in the sediment were dredging of the New Bedford Harbor shipping channel to occur.
- 22559 There is no competent evidence indicating that the Corps of Engineers intends to dredge 1,650,000 cubic yards of material in the vicinity of New Bedford Harbor.
- 22560 There is no competent evidence indicating when the Corps of Engineer intends to undertake more dredging in the vicinity of New Bedford Harbor.

- 22561 There is no competent evidence indicating the volume of material that the Corps of Engineers will dredge in the future.
- 22562 There is no competent evidence indicating where in the vicinity of New Bedford Harbor the Corps of Engineers will dredge in the future.
- 22563 There is no competent evidence indicating the levels of PCBs in material that the Corps of Engineers might dredge in the vicinity of New Bedford Harbor in the future.
- 22564 There is no competent evidence indicating the levels of PCBs along the shipping channel into New Bedford Harbor.
- 22565 There are currently regulated materials other than PCBs in material that the Corps of Engineers might dredge in the vicinity of New Bedford Harbor in the future.
- 22566 There are currently regulated materials other than PCBs along the shipping channel into New Bedford Harbor.
- 22567 There is no competent evidence indicating the exact procedures which would be required for dredging and disposing of materials if the Corps of Engineers decided to dredge in the vicinity of New Bedford Harbor in the future.
- 22568 There is no competent evidence indicating the exact procedures which would be required for the Corps of Engineers' dredging and disposing of materials absent contamination by PCBs.
- 22569 There is no competent evidence indicating that the procedures which would be required for the Corps of Engineers' dredging and disposing of materials would be any different from the procedures required absent contamination by PCBs.
- 22570 There is no competent evidence that the Corps of Engineers will face any incremental costs in the dredging and disposal of materials due to the presence of PCBs.
- 22571 Kenneth M. Childs, Jr. and Michael T. Huguenin, in the IEC report, claim that the Harbormaster plans a dredging project which would require dredging 1,650,000 cubic yards of material. [Attachment Q.VIII.b.1]
- 22572 Kenneth M. Childs, Jr. and Michael T. Huguenin offer no evidence that the Harbormaster or the Corps of Engineers plans a dredging project which would require dredging 1,650,000 cubic yards of material.
- 22573 Marty Manley is the New Bedford Harbor Development Commissioner.
- 22574 Marty Manley states that the City of New Bedford has no plans to conduct any large dredging projects in the New Bedford Harbor.

- 22575 Marty Manley states that the New Bedford Harbor can easily handle vessels with drafts of 28'.
- 22576 Marty Manley states that there is not a draft limit of 26' for vessels entering the New Bedford Harbor.
- 22577 Officials at the New Bedford State Pier indicate that the New Bedford Harbor can easily handle vessels with drafts of 28'.
- 22578 Officials at the New Bedford State Pier indicate that there is not a draft limit of 26' for vessels entering the New Bedford Harbor.
- 22579 Officials at the New Bedford State Pier are unaware of any vessels that have not been allowed to enter the Harbor on account of shoaling.
- 22580 Marty Manley is unaware of any vessels that have not been allowed to enter the Harbor on account of shoaling.



**RE: ALLEGED INJURY TO BEACH USE AND RECREATIONAL FISHING**

- 23000 Dr. McConnell's attempt to determine whether, and to what extent if at all, beach use has been affected by PCBs is flawed because:
- a. In general, the survey technique he employs cannot fairly and accurately demonstrate the cause-effect hypothesis he claims;
  - b. If such a survey technique were able to demonstrate such a cause-effect hypothesis, it could not be used to fairly and accurately measure levels of values associated with such an effect; and
  - c. In any event the manner in which the McConnell survey was executed was flawed and introduced bias and errors such that no conclusions as to possible changes in beach use in the hypothetical circumstances of PCBs being removed can be reached from using it.
- 23001 Contingent use (behavior) surveys are inherently invalid for the purposes plaintiffs purport to use them.
- 23002 Contingent use (behavior) surveys are generally invalid for the purposes plaintiffs purport to use them.
- 23003 Contingent use (behavior) surveys require a careful testing of their validity and reliability before they are used in the manner purported by the plaintiffs.
- 23004 If a survey of the type used by Dr. McConnell has any validity with respect to the conclusions he seeks to draw, then the two surveys conducted under the direction of Charles Cicchetti (the May and September 1987 defendant surveys) described below demonstrate that distortions in the McConnell survey skewed the results.
- 23005 In 1987, as a means of testing the reliability and validity of Plaintiffs' survey, Dr. Charles J. Cicchetti, employed at National Economic Research Associates (NERA), commissioned Mathematica Policy Research (MPR) to conduct a telephone survey regarding the beach use and recreational fishing activities of residents of New Bedford, Fairhaven and Dartmouth.
- 23006 In May 1987, MPR conducted a telephone survey under Dr. Cicchetti's direction in which 75% of the individuals who had been interviewed in the March 1986 McConnell survey conducted by Decision Resources Corporation were recontacted and interviewed again.
- 23007 During September 1987, under Dr. Cicchetti's direction, MPR conducted a second telephone survey regarding the beach use and recreational fishing.

- 23008 The May 1987 survey is referred to here as the May 1987 Defendant Survey" and the September, 1987 survey is referred to here as the "September 1987 Defendant Survey".
- 23009 MPR's mailing address is Mathematica Policy Research, Inc. P.O. Box 2393, Princeton New Jersey 08543-2393.
- 23010 MPR is in the business of performing market and public opinion research, principally by means of surveys conducted by telephone, by mail, or in face-to-face interviews and is nationally recognized for their ability and experience in conducting this type of policy research.
- 23011 There are two forms of each survey instrument, one in English and the other in Portuguese.
- 23012 Attachment Q.VIII.c.1 contains a true and accurate copy of the English form of the May 1987 Defendant survey instrument.
- 23013 Attachment Q.VIII.c.2 is a true and accurate copy of the Portuguese version of the survey questionnaire translated for MPR by Berlitz and verified through creation of a back translation.
- 23014 Attachment Q.VIII.c.3 contains a true and accurate copy of the English form of the September 1987 Defendant survey instrument.
- 23015 Attachment Q.VIII.c.4 contains a true and accurate copy of the Portuguese form of the September 1987 Defendant survey instrument.
- 23016 Each question and instruction on the Portuguese forms of the survey instruments are accurate translations of the corresponding questions or instruction on the English form of the survey instrument.
- 23017 As a first step in the design and execution of the May 1987 Defendant survey, Dr. Cicchetti developed the substance needed to write a questionnaire and wrote a proposed survey design.
- 23018 Dr. Cicchetti then provided a draft questionnaire to guide MPR to prepare a final form.
- 23019 MPR staff reformatted the May 1987 Defendant survey questionnaire to make it consistent with MPR's customary interviewer instructions, skip logic and recording conventions.
- 23020 Dr. Cicchetti had final authority in determining the substance and form of each question or instruction in the May 1987 Defendant survey instrument.
- 23021 The final form of the May 1987 Defendant survey instrument was developed by MPR in accordance with the specifications of and subject to approval by Dr. Cicchetti.

- 23022 Stanley Presser, a survey consultant, Anne Ciemnecki and Patti Rossi, the survey manager, supervised MPR's work on the survey instrument.
- 23023 On May 7, 1987, MPR conducted a pretest telephone survey of residents of New Bedford, Fairhaven, and Dartmouth (the "pretest") using the May 1987 Defendant survey questionnaire.
- 23024 One purpose of the pretest of the survey was to test the adequacy of an initial set of questions and instructions.
- 23025 Experience in administering the pretest survey instrument led MPR to modify several questions.
- a. A decision was made to probe a range rather than an exact number of visits to the beach.
  - b. A follow-up question was added to probe the reasons that some respondents were unsure about the safety of swimming.
  - c. The year 1986 was added to help respondents focus on what "last year" meant.
- 23026 A random sample was selected for the pretest of the May 1987 Defendant survey by identifying exchanges in the New Bedford area and adding a four-digit random number to the three-digit exchange.
- 23027 Interviewers employed by MPR called each household in the pretest survey sample.
- 23028 The pretest interviews were conducted by two interviewers, a supervisor, and one of the survey directors, Anne Ciemnecki.
- 23029 The pretest interviewers were monitored by the MPR survey manager, Patti Rossi and Stanley Presser, a survey consultant.
- 23030 Interviewers employed by MPR made contact with and completed interviews for the pretest survey of individuals from each of 32 households.
- 23031 Each interview in the pretest survey was conducted in conformity with the questions and instructions set forth on the pretest survey instrument used for that interview.
- 23032 The responses given by each respondent in the pretest were recorded contemporaneously on a copy of the pretest instrument.
- 23033 All question-appropriate responses given by respondents in the pilot survey were recorded accurately.

- 23034 A copy of MPR's discussion of its professional standards and procedures followed in conducting the May 1987 Defendant survey is included in Attachment Q.VIII.c.5.
- 23035 The May 1987 Defendant survey was conducted by MPR under the supervision of Dr. Cicchetti in late May 1987.
- 23036 The sample of households in New Bedford, Fairhaven, and Dartmouth for use in the recreation survey was provided to MPR on May 7, 1987.
- 23037 The sample was provided as photocopies of the final page of the government questionnaires which contained the respondent's identification number, street address, community name, zip code and telephone number.
- 23038 In some cases, the respondent's name was included.
- 23039 In addition to this information, the pages provided to MPR showed the respondent's age range and sex.
- 23040 Of the 545 individuals in 1986 in the McConnell survey, 415 were surveyed in English with no name given, 80 in English with a name given in the sample, 34 in Portuguese with no name given in the sample, and 7 in Portuguese with a name given in the sample.
- 23041 There were also 9 problem surveys where there was incomplete information on the respondent's identify.
- 23042 All interviews of persons from households in the sample list were conducted by telephone by trained and experienced interviewers employed by MPR. A total of 18 interviewers were trained for this study. Twelve of the interviewers were experienced MPR interviewers.
- 23043 The May 1987 Defendant survey instrument contains "skip patterns" -- that is, for certain questions, instructions in the survey instrument require that if one type of response is given the interviewer must skip one or more questions in the numerical series on the form, whereas if a different response is given the interviewer is required to proceed to the next question in series.
- 23044 Before beginning the administration of the survey instrument, each interviewer participating in administering the recreation survey was thoroughly briefed regarding the skip patterns in the survey instrument. A total of 7 separate training sessions were held.
- 23045 Each interviewer was also thoroughly briefed regarding the proper way to ask each question on the survey instrument and appropriate methods to probe for acceptable answers (e.g., specific numbers rather than qualitative responses) without biasing the response.

- 23046 The MPR interviewers who participated in administering the recreation survey were trained to maintain objectivity in asking questions, including avoiding remarks or intonations that might tend to bias responses.
- 23047 Interviewers and survey staff were not informed of the details of the litigation for which the study was conducted.
- 23048 The MPR interviewers who participated in administering the May 1987 Defendant recreation survey maintained such objectivity at all times in asking questions of respondents in the survey.
- 23049 The MPR interviewers who participated in administering the recreation survey and their immediate supervisors were unaware of the identify of the party for whom the May 1987 Defendant survey was being conducted and of the purpose for which the survey results were to be used.
- 23050 If respondents asked about sponsorship of the study, they were told that MPR's client was National Economic Research Associates, a research firm interested in recreational and leisure activities.
- 23051 The purpose of the recreation survey conducted by MPR was to recontact the respondents to the earlier McConnell survey.
- 23052 The procedures followed by MPR in conducting the May 1987 Defendant survey were intended to maximize the response rate. In cases where a respondent asked the interviewer to call back at a more convenient time, the interviewer asked the respondent to specify the time, carefully recorded the response, and called again at the specified time.
- 23053 A letter was also sent to the home of each potential respondent telling them that they would be called soon and interviewed about recreation in the New Bedford area because they had been interviewed the previous year. This introductory letter was signed by Patti Rossi of MPR.
- 23054 401 interviews were completed in the course of the May 1987 Defendant survey.
- 23055 The completion rate for the May 1987 Defendant survey was 75.2 percent.
- 23056 Each respondent who was interviewed in the 1986 McConnell survey had to meet the following criteria at the time of the interview:
- a. is a current resident of New Bedford, Dartmouth, or Fairhaven;
  - b. has lived in the New Bedford Harbor area for at least one year;
  - c. is at least 18 years of age; and
  - d. is one of the members of the household who decides which beaches to visit (for questions relating to beach use) or where to

saltwater fish (for fishing questions), or knows where members of his or her household go to saltwater fish (for fishing questions).

- 23057 Each person contacted in the course of the McConnell survey who met the listed criteria, if willing to be interviewed, was interviewed and counted as a respondent.
- 23058 The May 1987 Defendant survey sought to reach each McConnell survey respondent again.
- 23059 In the May 1987 Defendant survey, each respondent who was determined to be of Portuguese descent was given the option of having the interview conducted in Portuguese.
- 23060 Each interview in the May 1987 Defendant survey was conducted in conformity with the questions and instructions set forth on the survey instrument.
- 23061 The responses given by each respondent in the May 1987 Defendant survey were recorded contemporaneously on a copy of the survey instrument.
- 23062 All question-appropriate responses given by respondents in the recreation survey were recorded accurately.
- 23063 All responses to the recreation survey were coded by MPR employees, subject to strict supervision and quality control procedures, for entry into a computer data processing system.
- 23064 The coders of responses from the May 1987 Defendant survey and their immediate supervisors were unaware of the identify of the parties for whom the survey was being conducted and of the purpose for which the survey results were to be used.
- 23065 Entry of the coded data into the computer data processing system was conducted with 100 percent verification (double-entry) by an outside supplier.
- 23066 The data processors who entered data from the May 1987 Defendant survey and their supervisors were unaware of the identity of the parties for whom the survey was conducted and of the purpose for which the survey results were to be used.
- 23067 The description of the survey procedure in Attachment Q.VIII.c.5 is accurate.
- 23068 The description of interviewing procedures in Attachment Q.VIII.c.5 is accurate.
- 23069 The description of data processing procedures in Attachment Q.VIII.c.5 is accurate.

- 23070 The MPR telephone interviewers were given the telephone numbers of the households and contact sheets and conducted interviews in May.
- 23071 After asking the respondent whether they wished to be interviewed in English or in Portuguese, the interviewer used a screening questionnaire to determine whether the respondent was in fact an individual who had been interviewed in the survey of the previous year.
- 23072 The interviewer first asked the respondent question S1 to verify the telephone number.
- 23073 The interviewer then read an introduction explaining that they were from Mathematica Policy Research and their interest in surveying recreational activities in the New Bedford area.
- 23074 The interviewer asked to speak to the named person who had been interviewed by DRC in the McConnell survey the previous year. See question S2 in Attachment Q.VIII.c.1.
- 23075 If the named person answered, the interviewer went to question 1 of the May 1987 Defendant survey and commenced the main survey.
- 23076 If the named person from the contact sheet was not acknowledged by the person answering the phone, the interviewer asked to speak with the man/woman whose age corresponded with the interview recorded by DRC in the McConnell survey.
- 23077 The person answering to the correct sex and age screen was then asked whether they remembered "being interviewed by telephone a little more than a year ago about going to the beaches in your area."
- 23078 All respondents passing the sex and age screen who answered yes to recalling the previous interview were interviewed.
- 23079 If the first person passing the sex and age screen answered no, they did not recall being interviewed, the interviewer asked for another person who lived in the house and met the sex and age screen and the interviewer repeated the introduction.
- 23080 If the second person passing the sex and age screen recalled the interview from the previous year, the interviewer skipped to question 1 and they were interviewed. See question S5.
- 23081 If they too answered that they did not recall being interviewed, they were asked whether there was any man or woman of the appropriate age "living in your household" in March 1986.
- 23082 If the answer was yes, the MPR interviewer asked for current contact information on that person. See question S 6.

- 23083 If the answer was no, the respondent was asked whether the dialed number was their telephone number in March, 1986. See question S7.
- 23084 If the answer was no, the interview was terminated with the notation "no longer at phone number".
- 23085 If the answer was yes, the interviewer proceeded to question S8, verifying the address. See S8.
- 23086 Those persons answering yes (phone number and address matched) were asked whether, as far as they knew, there was "anyone in your household interviewed about going to New Bedford beaches last year". See S 9.
- 23087 If they answered yes, then the interviewer asked for the correct person, read the introduction and repeated the screening questionnaire.
- 23088 If the person said no, then the respondent who remained on the telephone was interviewed. See S9.
- 23089 A completion rate of 73.6 percent was achieved (not including the partially completed interviews).
- 23090 Excluding the "moved out of area" as ineligible, the response rate was 75.2 percent.
- 23091 The refusal rate was 8.3 percent of all eligible sample points.
- 23092 When the interviewer found an eligible respondent, they turned to the survey instrument and commenced the interview with question 1.
- 23093 All respondents in the recreation survey were asked question 1 through 43 with appropriate skip patterns being observed.
- 23094 All question appropriate responses provided to the MPR interviewers were written on the questionnaire.
- 23095 Responses from these questionnaires were coded and key punched by MPR and the compilation of results were provided to Dr. Cicchetti in a computer printout provided as an attachment to this document.
- 23096 Attachment Q.VIII.c.6 is a true and accurate copy of a computer printout that contains the numeric results of the May 1987 Defendant survey.
- 23097 The box labeled Attachment Q.VIII.c.6a contains true and accurate copies of all completed survey forms from the May 1987 Defendant survey.
- 23098 A second survey was conducted under Dr. Charles J. Cicchetti's direction for Defendants by MPR in September, 1987.

- 23099 The second survey provided a fresh perspective on the recollections of respondents to the recreation surveys.
- 23100 As in the case of the May survey, MPR conducted the September 1987 Defendant survey according to the highest professional standards of survey research.
- 23101 Dr. Cicchetti provided a draft questionnaire to Mathematica Policy Research (MPR) for the September 1987 Defendant survey.
- 23102 MPR reformatted the draft questionnaire to be consistent with MPR's interviewer instructions, skip logic, and recording conventions.
- 23103 On September 8, 9 and 10 the September 1987 Defendant survey questionnaire was pretested in MPR's telephone center. Thirty one pre-test interviews were conducted.
- 23104 Attachment Q.VIII.c.7 contains a survey follow up memorandum written by the MPR project manager to report on the procedures followed in conducting the September 1987 Defendant survey to document the maintenance of professional standards of data acquisition and management.
- 23105 The MPR report (Attachment Q.VIII.c.7) provides a description of training and supervision of interviewers, procedures to be followed to guarantee neutral administration of the survey, methods for maintaining data integrity and reporting procedures.
- 23106 The description of the survey procedure in Attachment Q.VIII.c.7 is accurate.
- 23107 The description of interviewing procedures in Attachment Q.VIII.c.7 is accurate.
- 23108 The description of data processing procedures in Attachment Q.VIII.c.7 is accurate.
- 23109 As in the case of the May 1987 Defendant survey, precautions to maintain neutrality were stressed in each phase of the September 1987 Defendant survey: interviewing, keypunch, coding and data processing.
- 23110 Each person contacted in the course of the recreation survey who met the criterion of having been interviewed in the May 1987 Defendant survey was interviewed, if willing, and counted as a respondent.
- 23111 Each respondent was given the opportunity to respond to the interview in Portuguese.
- 23112 Attachment Q.VIII.c.8 is a true and accurate copy of a computer printout that contains the numeric results of the September 1987 Defendant survey.

- 23113 The boxes labeled Attachment Q.VIII.c.8a contain true and accurate copies of all completed survey forms from the September 1987 Defendant survey.
- 23114 The computer tape labeled Attachment Q.VIII.c.8b accurately contains all numeric data obtained from responses to the May and September 1987 Defendant surveys.
- 23115 The computer tape labeled Attachment Q.VIII.c.8b is written in SAS transport mode.
- 23116 SAS is a widely used, commercially available statistical software package.
- 23117 The file labeled MAY on Attachment Q.VIII.c.8b contains data from the May 1987 Defendant survey.
- 23118 The file labeled SEPT on Attachment Q.VIII.c.8b contains data from the September 1987 Defendant survey.
- 23119 Attachment Q.VIII.c.8c contains a tape description providing information necessary to read the tape (Attachment Q.VIII.c.8b.)
- 23120 McConnell attributes to a factor known as "awareness of PCBs" an important role in assessing the overall impact of environmental damage on the residents of the New Bedford area.
- 23121 To measure the "awareness of PCBs", Plaintiff's experts plaintiff conducted a survey of residents discussed elsewhere as the McConnell survey.
- 23122 The McConnell survey found that 41% of the respondents were aware of PCBs when asked a general question about knowledge of substances in the water.
- 23123 Thirty seven percent of the respondents to the McConnell survey were found to be aware of PCBs when prompted with a question about awareness of PCBs.
- 23124 To obtain the first observation -- the 41% core sample -- the McConnell survey asked (question 10) "What specific substances, if any, do you think are damaging the environmental quality of New Bedford Harbor?"
- 23125 Question 10 in the McConnell survey was not the first question that asked about the environmental quality of New Bedford Harbor.
- 23126 Before asking this question (question 10), the plaintiff asked (question 9) "On a scale of 1 to 10 where 10 is excellent and 1 is very poor, how would you rate the environmental quality of New Bedford Harbor?"
- 23127 By asking the scaling question (question 9), the McConnell survey cued the respondent by aligning the respondent's perceptions on the axis of excellent to poor environmental quality.

- 23128 By wording the question to always have the phrase "1 is very poor" before the question "How would you rate the quality of New Bedford harbor, the wording of the question biases the response toward the poor end of the scale."
- 23129 Answering a question about perceived substances in the harbor (question 10) after rating the harbor's environmental quality (question 9) is inherently biasing.
- 23130 A more neutral scale question (question 9) would rotate the description of the scale to alternate respondents.
- 23131 A more neutral sequence of questions would not cue the question 10 with question 9.
- 23132 Many of the 41% of the respondents to the McConnell survey who were found to be aware of the PCBs in New Bedford Harbor mentioned something other than PCBs prior to mentioning PCBs in terms of awareness of substances damaging the environmental quality of New Bedford Harbor.
- 23133 Some of the 41% of the respondents to the McConnell survey who were found to be aware of the PCBs in New Bedford Harbor mentioned something other than PCBs prior to mentioning PCBs in terms of awareness but only PCB awareness was reported.
- 23134 Most of the 41% of the respondents who were found to be aware of PCBs in New Bedford Harbor in response to Question 10 also mentioned other specific substances that they believe are damaging the environmental quality of New Bedford Harbor.
- 23135 Many of the 41% of the respondents who were found to be aware of PCBs in New Bedford Harbor in response to Question 10 also mentioned other specific substances that they believe are damaging the environmental quality of New Bedford Harbor.
- 23136 Some of the 41% of the respondents who were found to be aware of PCBs in New Bedford Harbor in response to Question 10 also mentioned other specific substances that they believe are damaging the environmental quality of New Bedford Harbor.
- 23137 Many of the 41% having awareness of PCBs were not beach goers.
- 23138 Some of the 41% having awareness of PCBs were not beach goers.
- 23139 Professor McConnell claims that an additional 37% of the respondents were aware of PCBs based on their answers to question 11 "Do you believe that the harbor is contaminated with PCBs?"

- 23140 Question 11 of the McConnell survey following question 10 about substances in the water invited a response affirming PCB presence.
- 23141 The May 1987 Defendant survey asked about PCB use without prompting the respondent.
- 23142 The May 1987 Defendant survey asked first whether the respondent felt that the water was unsafe.
- 23143 After asking why the respondent felt the water was unsafe (Question 25) the May 1987 Defendant survey asked for details (how was the water unsafe?) without prompting the respondent.
- 23144 The May 1987 Defendant survey resulted in the identification of a long list of reasons why residents of the New Bedford area believe that the water is unsafe.
- 23145 According to the May 1987 Defendant survey, residents of the New Bedford area believe that the water is unsafe because of sewage, glass, cans and other debris, garbage, the fishing industry, the factories the treatment plant, oil, and suds in the water among other factors.
- 23146 The May 1987 Defendant survey found that there are many concerns in addition to PCBs that the residents of the New Bedford area have about the effect of substances in the water on their beaches.
- 23147 The 1986 McConnell survey derived its estimate of the impact of PCBs on recreational use of the beaches by asking (question 14) "If all PCBs had been cleaned up from New Bedford Harbor as of January 1st of this year, how often would you visit the following beaches...?"
- 23148 Question 14 of the McConnell survey followed question 10, "are there contaminants?", question 11 (for non PCB mentioners) "is it contaminated with PCBs?", question 12 "when did you find out?," and question 13, "how did you find out?"
- 23149 In the McConnell survey, by the time that the respondents are asked to assume that the PCBs would be cleaned up, they have been thoroughly conditioned to believe that PCBs are present in the water and are a major hazard.
- 23150 By the time that the respondent is asked to assume that the PCBs would be cleaned up, they have been thoroughly cued to believe that PCBs are dangerous to humans.
- 23151 The McConnell survey's sequence of questions cues respondents to have the worst possible views of New Bedford Harbor environmental quality.

- 23152 By suggesting that PCBs would be removed but omitting the fact that other contaminants would not be cleaned up, the McConnell questionnaire implies a greater remedy than could be expected from the removal of PCBs alone.
- 23153 Most respondents interpreted the McConnell question to ask what would be their beach use if all contaminants were removed from the harbor.
- 23154 Many respondents interpreted the McConnell question to ask what would be their beach use if all contaminants were removed from the harbor.
- 23155 Some respondents interpreted the McConnell question to ask what would be their beach use if all contaminants were removed from the harbor.
- 23156 The McConnell survey sequence creates maximum expectations for the effects of a clean up of PCBs.
- 23157 The McConnell survey biases the calculation of "potential increased use," the factor that is used to calculate lost recreational value.
- 23158 The May 1987 Defendant survey asked the equivalent of McConnell's question 14 in a more neutral way.
- 23159 The May 1987 Defendant survey asked "now suppose that all the PCBs had been removed at the beginning of last year, but other contaminants in the water were not removed. Would you have gone to these beaches more often in 1986?" (question 28, May 1987 Defendant survey)
- 23160 Answers to the May 1987 Defendant survey confirmed that respondents to the McConnell survey were improperly conditioned to want to increase their beach use absent PCBs.
- 23161 The question of whether planned use is a realistic measure of intention is an important question since planned "potential increased used" is at the heart of the calculation of lost recreation value.
- 23162 One of the primary goals of the 1987 Defendant surveys was to examine the extent to which the stated planned behavior of the survey respondents (in the May 1987 Defendant survey) corresponded with the subsequent actual beach use (measured in the September 1987 Defendant survey.)
- 23163 To examine the question of how planned and actual use compared the May 1987 Defendant survey recontacted the previous year's respondents to record their actual beachgoing experience.
- 23164 The respondents who were interviewed in the May 1987 MPR survey were asked how many times they had actually visited the beach during the previous summer (1986).
- 23165 There was some concern that this May 1987 measure might be less accurate than would be desirable. Respondents to the May 1987 survey

would have some problem with fading memory in recalling their actual beach use from the previous summer (at least nine months previously). Hence, a second test was conducted in September 1987.

- 23166 In the May 1987 Defendant survey, a randomly selected half of the respondents were asked to estimate prospectively what their planned beach use would be in 1987 between Memorial Day and Labor Day.
- 23167 These respondents were then resurveyed in September 1987 to determine how their 1987 actual use compared with their May 1987 planned use.
- 23168 Three hundred and forty four (344) of the May 1987 Defendants survey respondents were recontacted and were interviewed in the September 1987 Defendant Survey.
- 23169 Four of the respondents were subsequently dropped from the beach trip analysis because evidence suggested that they may not have been the same people who had been interviewed in the household in May.
- 23170 The September 1987 Defendant follow-up survey completed 340 re-interviews. Sixty-three of the May 1987 respondents were not available to MPR for follow-up interviews.
- 23171 The comparison of the demographic characteristics of the 340 respondents who were reinterviewed with the 63 who were not reinterviewed shows that in terms of the important characteristics of the two samples, the two populations were similar.
- 23172 In the September 1987 Defendant Survey, 161 respondents belonged to the random group who had been asked how many trips they planned to take between May and September.
- 23173 The only difference in terms of age between the May 1987 and September 1987 Defendant survey populations was that a somewhat higher proportion of people between the ages of 25 and 44 were reinterviewed and fewer people over 65 were reinterviewed.
- 23174 A higher proportion of females were recontacted than were left out in the September 1987 Defendant survey.
- 23175 The distributions of years of education are about the same for the May and September 1987 Defendant survey groups.
- 23176 Given the basic demographic similarities between the May and September 1987 Defendant survey groups, comparisons of perceptions in May with actual behavior during the summer offers a useful perspective on the validity of reported "plans."
- 23177 The results of the May survey showed that the number of beach trips that people told MPR's interviewers that they had taken in 1986 bore no

statistical relationship to the number of trips that respondents had told the plaintiffs that they planned to take except that, in general, planned trips exceeded actual trips by a statistically significant amount.

- 23178 The comparison of the May and September 1987 Defendant survey results permit one to analyze the difference between the reported planned and actual trips to the beach.
- 23179 The mean estimate for the difference between the planned and actual trips to East Beach was 2.86 trips.
- 23180 The mean estimate for the difference between the planned and actual trips to West Beach was 3.50 trips.
- 23181 The mean estimate for the difference between the planned and actual trips to East and West Beach was 5.29 trips.
- 23182 The mean estimate for the difference between the planned and actual trips to Fort Phoenix Beach was 3.29 trips.
- 23183 The number of planned trips thus exceeded the actual trips when the September and May 1987 Defendant surveys were analyzed.
- 23184 T-statistics can be calculated to evaluate the difference between the planned and actual trips.
- 23185 The t-statistic allows a test of the hypothesis that there is no difference between two values.
- 23186 A low t-statistic would indicate that the hypothesis that there is no difference between the means cannot be rejected.
- 23187 Table Q.VIII.c.1 reports t-statistics to test the hypothesis that there was no difference between the number of planned and actual beach trips in the summer of 1987.
- 23188 The t-statistic calculated to test the relationship between the planned and actual trips to East Beach was 1.55.
- 23189 The t-statistic calculated to test the relationship between the planned and actual trips to West Beach was 2.73.
- 23190 Thus, the hypothesis that there is no difference between planned and actual trips to West Beach can be rejected at the 1 percent level.
- 23191 The difference between planned and actual trips to West Beach is statistically significant.
- 23192 The t-statistic calculated to test the relationship between the planned and actual trips to East and West Beaches was 2.71

Table Q.VIII.c.1

**RESULTS OF PAIRED T-TESTS  
FOR DIFFERENCE BETWEEN PLANNED  
AND ACTUAL SUMMER 1987 VISITS**

Even Respondents<sup>1</sup>

People Who Attend the Beach<sup>2</sup>

Hypothesis: Planned Visits = Actual Visits  
(A high t-statistic rejects the hypothesis)

	<u>Mean of Planned Minus Actual Trips<sup>3</sup></u>	<u>t-Statistic<sup>4</sup></u>	<u>Probability That Planned Trips Do Not Equal Actual Trips</u>	<u>Number of Observations</u>
East Beach	2.86	1.55	0.870	37
West Beach	3.50	2.73	0.990	31
East & West Beaches	5.29	2.71	0.990	45
Fort Phoenix Beach	3.79	2.32	0.975	43

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<sup>1</sup> Includes respondents with even phone numbers who were resurveyed. In May, these people were surveyed regarding their planned summer 1987 trips.

<sup>2</sup> If a respondent neither planned nor made trips to a particular beach, he is not included in the row for that beach in this table. (Double zeroes are removed.)

<sup>3</sup> This mean is calculated by first subtracting actual trips from planned trips for each respondent. The mean is the mean of the difference between planned and actual trips.

Table Q.VIII.c.1 (cont.)

**RESULTS OF PAIRED T-TESTS  
FOR DIFFERENCE BETWEEN PLANNED  
AND ACTUAL SUMMER 1987 VISITS**

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4 The t-statistic is calculated as follows:

$$t = \frac{MD}{S_{MD}}$$

where:

$$MD = \frac{1}{n} \sum_{i=1}^n D_i$$

and  $D_i$  is planned trips minus actual trips for the  $i^{\text{th}}$  person;

$S_{MD}$  = standard deviation of MD.

- 23193 Thus, the hypothesis that there is no difference between planned and actual trips to East Beach can be rejected at the 1 percent level.
- 23194 The difference between planned and actual trips to East Beach is statistically significant.
- 23195 The t-statistic calculated to test the relationship between the planned and actual trips to Fort Phoenix Beach was 2.32.
- 23196 Thus, the hypothesis that there is no difference between planned and actual trips to Fort Phoenix Beach can be rejected at the 5 percent level.
- 23197 The difference between planned and actual trips to Fort Phoenix Beach is statistically significant.
- 23198 Correlation coefficients were calculated to analyze the relationship between planned and actual trips.
- 23199 A correlation coefficient is a statistic that measures the relationship between two values.
- 23200 The correlation coefficient is always between plus one and minus one; a coefficient of zero means that there is no correlation between the two variables; a coefficient of 1 or -1 means that there is a perfect linear relationship.
- 23201 Table Q.VIII.c.2 contains correlation coefficients relating planned and actual beach visits in summer 1987.
- 23202 The correlation coefficient for the relationship between planned and actual trips to East Beach was -0.23.
- 23203 The correlation coefficient for the relationship between planned and actual trips to West Beach was 0.43.
- 23204 The correlation coefficient for the relationship between planned and actual trips to East and West Beaches was 0.10.
- 23205 The correlation coefficient for the relationship between planned and actual trips to Fort Phoenix Beach was 0.07.
- 23206 The correlation coefficient shows that there is no relationship between the planned and actual trips to the beach as reported in the May 1987 and September 1987 Defendant surveys.
- 23207 The correlation coefficient shows that there is little relationship between the planned and actual trips to the beach as reported in the May 1987 and September 1987 Defendant surveys.

Table Q.VIII.c.2

**CORRELATION OF PLANNED SUMMER 1987 BEACH VISITS  
WITH ACTUAL VISITS**

Even Respondents<sup>1</sup>

People Who Attend the Beach<sup>2</sup>

	<u>Correlation Coefficient</u>	<u>Number of Observations</u>	<u>Level of Confidence That There Is No Relationship Between Planned and Actual Trips<sup>3</sup></u>
East Beach	-0.23	37	0.174
West Beach	0.42	31	0.109
East & West Beaches	0.10	45	0.517
Fort Phoenix Beach	0.07	43	0.662

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<sup>1</sup> Includes respondents with even phone numbers who were resurveyed. In May, these people were surveyed regarding their planned summer 1987 trips.

<sup>2</sup> If a respondent neither planned nor made trips to a particular beach, he is not included in the row for that beach in this table. (Double zeros are removed.)

<sup>3</sup> Strictly speaking, a (1-x) percent confidence interval includes a correlation value of zero, where x is the value in column 3. For example, since the level of confidence is 0.174 for East Beach, this means that an 82.6 percent confidence interval includes zero because (1 - 0.174 = 0.826).

- 23208 The correlation coefficient shows that there is a moderate relationship between the planned and actual trips to the beach as reported in the May 1987 and September 1987 Defendant surveys.
- 23209 The May 1987 and September 1987 Defendant survey results confirmed the conclusion that although, in general, respondents report more planned trips than actual trips there is no statistically significant relationship between these two measures.
- 23210 Since the 1987 surveys showed that there was a weak correlation between the planned and actual reported trips, reports of planned intention to go to the beach such as those used by the plaintiff in calculating lost beach use, are not a reliable measure of actual lost beach use.
- 23211 Professor McConnell attributes great significance to the reported perception of PCBs in the water (as recorded in the March 1986 McConnell survey).
- 23212 Professor McConnell, in fact, bases his calculation of lost beach use on the hypothetical plans that respondent's to the March 1986 McConnell survey reported when asked how much they would visit the beach if all PCBs had been removed from the water on January 1 1986.
- 23213 Professor McConnell found that the respondents to the March 1986 survey indicated that they would increase their beach use if PCBs had been removed as of January 1 of 1986. (question 14)
- 23214 The McConnell question about PCB removal (question 14) was asked of all respondents to the survey who mentioned PCBs when asked about substances in the water or who said they knew about PCBs in the water (78%).
- 23215 By asking the question in the manner employed in the March 1986 survey, Professor McConnell included in his observation both those who may not have felt that PCBs were a problem and those who did.
- 23216 Professor McConnell is counting both those concerned with PCBs and those who are not concerned about PCBs in calculating lost beach use which he later attributes to the presence of PCBs.
- 23217 The May 1987 Defendant survey found that not all respondents felt that the water was unsafe.
- 23218 Notwithstanding general survey limitations and the flaws in Plaintiffs' survey in particular, more than half (52.6%) of the respondents to the May 1987 Defendant survey believed that the "water at East, West and Fort Phoenix Beaches [was] safe to swim in" or, if they had concerns, the concerns were not associated with PCBs. (Question 22, May 1987 Defendant survey)
- 23219 Whether or not respondents to the surveys were aware of PCBs in the water in the New Bedford area, many felt that the water was safe.

- 23220 Whether or not respondents to the surveys were aware of PCBs in the water in the New Bedford area, some felt that the water was safe.
- 23221 By asking both those who thought that the water was unsafe and those who did not feel that the water was unsafe the number of times that they would visit the beaches if PCBs had been removed as of January 1, Professor McConnell mixed two different types of respondents together.
- 23222 Some of those who felt that the water was safe may have increased the number of trips that they planned to take after they were asked the hypothetical question (what if PCBs were removed as of January 1).
- 23223 Increases in the planned usage (the difference between the planned trips with PCB removal and without PCB removal) for those who felt that the water was safe in the first place could not be attributable to the PCB removal.
- 23224 The 1987 Defendant surveys included questions about PCB removal in a more neutral manner.
- 23225 In the May 1987 Defendant survey, respondents who thought that the water was unsafe were asked why they thought that safety was in question. (Question 25)
- 23226 Then only the uncontaminated sample of respondents, those who thought that PCBs were a problem, were asked whether the removal of PCBs would affect their planned beach use.
- 23227 Of the respondents to the May 1987 Defendant survey, 23.6% stated that they would not attend the beach more often if PCBs were removed from the water.
- 23228 Of the respondents to the May 1987 Defendant survey, 20.8% stated that they would attend the beach more often if PCBs were removed from the water.
- 23229 Of the respondents to the May 1987 Defendant survey, 3% stated that they did not know or refused to answer the question.
- 23230 These three groups collectively account for 47.4 percent of the sample; i.e., they consist of those respondents that believed the water was unsafe.
- 23231 Of the 20.8% of the respondents to the May 1987 Defendant survey who felt that they would increase their use of the beach if PCBs were removed, 77.4% stated that (on second thought) they would not increase their use when they were asked the follow up question "Now suppose that all the PCBs had been removed at the beginning of last year, but other contaminants in the water were not removed, would you have gone to these beaches more often in 1986?"

- 23232 Of the 20.8% of the respondents to the May 1987 Defendant survey who felt that they would increase their use of the beach if PCBs were removed, only 17.9% stated that they would increase their use when they were asked the follow up question "Now suppose that all the PCBs had been removed at the beginning of last year, but other contaminants in the water were not removed, would you have gone to these beaches more often in 1986?"
- 23233 Only 4.2% of the respondents to the May 1987 Defendant survey (20% of the 2.5% who did not know whether they would increase their beach use if PCBs were removed and 17.9% of the 20.8% of those who said that they would increase their beach use) said that they would use the beach more if PCBs were removed, even if other contaminants were not removed.
- 23234 A second purpose of the September 1987 Defendant survey was to determine whether awareness of PCBs conveyed through government reports appears to have a relationship to concerns about beach and water safety.
- 23235 In July, 1987 the Massachusetts Department of Public Health released a study discussing the health effects of PCBs in the New Bedford area.
- 23236 Seventy seven percent of the respondents to the September 1987 Defendant survey stated that they had heard of the study. [Introduce table 13]
- 23237 Forty eight percent of those who had heard about it responded that the study showed that the effect of PCBs on the health of people in the New Bedford area was not as bad as previously thought.
- 23238 Sixteen percent of the respondents to the September 1987 study who were aware of the state's study on PCBs said they did not know what the study showed.
- 23239 In addition, the September 1987 Defendant survey shows that people's views of this study do not appear to change their views on the safety of the water for swimming at East, West and Fort Phoenix Beaches.
- 23240 The views of respondents to the September 1987 Defendant survey toward water safety can be compared to the views of respondents in May 1987 Defendant survey before the state published its PCB report.
- 23241 Those who felt that the results of the study were not as bad as they thought and those who did not know what the results meant represented two-thirds of those who were aware of the study.
- 23242 In their work on contingent valuation Mitchell and Carson (1989) [Using Surveys to Value Public Goods: The Contingent Valuation Method, Robert C. Mitchell and Richard T. Carson, Resources for the Future, 1989] define reliability as "the extent to which the variance of [contingent values] is due to random sources, or 'noise'" (p.211).

- 23243 Mitchell and Carson note three sources of such noise: (1) the true variation of values across the population being sampled. (2) the specific procedures used in the contingent-valuation survey and (3) the fact that only a portion of the population of interest is generally sampled. Issues raised in the case of the New Bedford survey involve the second factor: the procedures used in the plaintiff's survey.
- 23244 The McConnell survey produces data which, even if it were accurate, would not be reliable as a predictor of actual behavior.
- 23245 The plaintiff submits the stories of 13 individuals living in the New Bedford area.
- 23246 These individuals include some who were interviewed in the 1986 McConnell survey.
- 23247 At least 8 of the 13 households were interviewed in the 1986 McConnell survey.
- 23248 The questionnaires of respondents whose names have been separated from their surveys may account for the source of other stories.
- 23249 The stories include information that would have had to have been gathered in addition to the surveys.
- 23250 The eight identifiable individuals whose stories are told do not represent a balanced nor statistically reliable subsample of the respondents to the McConnell survey.
- 23251 The individuals who are reported in the stories are more likely to have been concerned about PCBs than were the population as a whole.
- 23252 Seven of the stories were from individuals whom McConnell reported to be aware of PCBs without prompting (a sample that was only 41 percent of the population of the New Bedford area).
- 23253 Seven of the eight individuals stated that they would visit the beach more often if PCBs were removed from the water.
- 23254 The one individual who did not spontaneously raise concerns with PCBs and who had to be prompted to remember PCBs was one of those who responded he would increase his beach use if they were removed.
- 23255 From the eight individuals whose stories appear in the government's RFAs, five were identifiable as interviewees in the later 1987 Defendant surveys; four of these individuals were interviewed in both the May 1987 and September 1987 Defendant surveys.
- 23256 Of the five who were surveyed by Defendants, only four of the five were still able to identify PCBs without prompting in the interview taken in 1987.

- 23257 Three of the five stated that they would increase their beach use if PCBs were removed.
- 23258 But none of the respondents who were interviewed in the Defendant surveys in 1987 would increase their beach use if PCBs only, and not other contaminants, were removed.
- 23259 For all of the four individuals who were interviewed in the Defendant survey, the relationship between planned and actual beach use was not a reliable predictor of their activity.
- 23260 In one case an individual went to the beach twice as many times as he thought he would.
- 23261 In two other cases the respondents did not go to the beach at all in spite of their stated intention to go as many as twenty two times collectively.
- 23262 To the extent that they can be found, the eight stories presented reveal respondents who demonstrate that their responses to surveys are not a tool that can be relied upon to supply a measure of lost recreational use in the case of New Bedford harbor.
- 23263 Attachment Q.VIII.c.9 is a true and accurate copy of the original article, "Exact Consumer's Surplus and Deadweight Loss," by Jerry A. Hausman, *American Economic Review*, September 1981, is written by a recognized expert in demand theory and benefit estimation and addresses the issue of how to measure benefits correctly, given particular estimated demand functions, and is genuine.
- 23264 The opinions contained in this document are accurate and reliable and relied upon by experts in economics.
- 23265 Jerry A. Hausman is Professor of Economics at Massachusetts Institute of Technology.
- 23266 Professor Hausman is the recipient of the 1985 John Bates Clark award, awarded biennially by the American Economics Association for significant contribution to economics.
- 23267 Professor Hausman's article shows that exact measures of consumer surplus can be calculated from properly estimated linear and log-linear demand functions.
- 23268 Professor Hausman's analysis starts with the expenditure function.
- 23269 From the expenditure function, the article then defines compensating variation and equivalent variation. These measures are alternative theoretically correct measures of consumer surplus.

- 23270 Professor Hausman demonstrates how, under certain theoretical assumptions, estimated demand functions can be used to calculate compensating variation.
- 23271 In particular, Professor Hausman notes that so long as the derivatives of the compensated demand functions satisfy the properties of symmetry and negative semidefiniteness of the Slutsky matrix and the adding up condition, the indirect utility function can be recovered by integration.
- 23272 If the conditions just noted are not satisfied by the demand functions, then there is no theoretical basis for calculating benefits from demand functions.
- 23273 In the case of a system of two linear demand functions with no income variable, the symmetry condition requires that the cross price coefficients be equal.
- 23274 The expenditure function is derived by inverting the indirect utility function.
- 23275 In the case of the linear demand function, Professor Hausman shows that compensating variation varies across individuals, based on their incomes, other socioeconomic characteristics, and the prices they face.
- 23276 Professor McConnell is the author of "The Damages to Recreational Activities from PCB's in the New Bedford Harbor."
- 23277 Attachment Q.VIII.c.10 is a true and accurate copy of the report prepared by Kenneth McConnell, and Industrial Economics, Incorporated for the National Ocean and Atmospheric Administration, "The Damages to Recreational Activities from PCBs in the New Bedford Harbor." This report was submitted to the court in the Aerovox case in the Spring of 1986.
- 23278 Attachment Q.VIII.c.11 is a true and accurate copy of the December 1986 report by Professor McConnell, "The Damages to Recreation Activities from PCBs in the New Bedford Harbor."
- 23279 Professor McConnell's estimated demand functions for planned beach attendance changed from his Spring 1986 report to his December 1986 report.
- 23280 Professor McConnell's estimated demand functions for planned beach attendance changed from his December 1986 report to the models reported in the government RFAs in AVX.
- 23281 The government has not submitted a revised McConnell recreation report even though Professor McConnell's results have changed since his December 1986 report.
- 23282 The reason for the change from the December 1986 result is not clearly documented in the government RFAs.

- 23283 It is difficult to replicate Professor McConnell's current calculations absent further documentation.
- 23284 The data source for all three of Dr. McConnell's estimated beach demand models is the same. In each case, all of the survey observations come from the 1986 McConnell survey.
- 23285 The data set used by Dr. McConnell in each of his reports represents a subset of the data base of responses to the survey.
- 23286 The structure of the model used by Dr. McConnell has changed in each of the three reports he has authored.
- 23287 When the structure of the model changes, the data set changes as well.
- 23288 The survey undertaken for Dr. McConnell had a total of 538 responses to the questionnaires.
- 23289 In the first report, Spring 1986, Dr. McConnell's model used a limited set of the survey observations -- 410 for East/West Beaches and 412 for Fort Phoenix Beach.
- 23290 In the Spring 1986 report, Dr. McConnell discarded observations that were incomplete or observations from those who did not go to the beach in 1985.
- 23291 In the December 1986 report, Dr. McConnell uses 495 observations.
- 23292 The additional observations from Spring 1986 to December 1985 were inserted into the data set used by Dr. McConnell by making assumptions about the nature of the previously discarded observations.
- 23293 In December 1986, Dr. McConnell changed his assumption from Spring 1986 and assumed that households that had no beach visits in 1985 did not plan to visit any beaches in 1986 -- i.e., these observations were set equal to zero.
- 23294 In his survey, Professor McConnell failed to ask respondents who reported no beach use in 1985 about their plan to use this beach in 1986.
- 23295 This data assumption has the effect of attributing all non-attendance to PCBs.
- 23296 This assumption biases Professor McConnell's estimated effect of PCBs upward.
- 23297 In December 1986, Dr. McConnell changed his assumption from Spring 1986 and assumed that households that indicated no awareness of PCBs would have planned trips without PCBs equal to planned trips with PCBs.

- 23298 The data set used by Dr. McConnell in 1990 differed from the data set used in Dr. McConnell's December 1986 report.
- 23299 The RFAs submitted by the government in AVX provide insufficient documentation to tell whether the data set used in Professor McConnell's December 1986 report is the same as used by Professor McConnell in 1990.
- 23300 Professor McConnell's estimated demand function for beach attendance has changed from his December 1986 report to his 1990 results as presented in the government RFAs.
- 23301 Thus, either Professor McConnell's data set has changed, his model specification has changed, or both.
- 23302 The data set used by Dr. McConnell in December 1986 differed from the data set used in Dr. McConnell's Spring 1986 report.
- 23303 Using different data sets will change the results of statistical estimation.
- 23304 Using different data sets will make different specifications of the demand model appear valid depending on the particular data set used.
- 23305 The appendix to the December 1986 recreation report states on p. 32 that "benefit or damage estimates are derived from the expenditure function."
- 23306 The estimated demand model in the Spring 1986 recreation study uses data that are less contaminated by arbitrary assumptions than the data used in Professor McConnell's subsequent analyses.
- 23307 The estimated beach demand model in Professor McConnell's Spring 1986 recreation study is seriously flawed.
- 23308 Exhibits 7 and 8 of the Spring 1986 recreation report present the demand functions used in Professor McConnell's calculations quantifying injury.
- 23309 In Exhibit 7 of the report, the coefficient of Fort Phoenix Beach cost in the East/West model is -2.7 and the coefficient of East Beach cost in the Fort Phoenix model is 3.5.
- 23310 The difference in the values of these coefficients is statistically significant with greater than 99 percent probability.
- 23311 The difference in the values of these coefficients is statistically significant with greater than 99 percent probability.
- 23312 Because the cross price coefficients between Fort Phoenix Beach and East/West Beach differ, the estimated demand functions in Exhibit 7 are not consistent with economic demand theory.

- 23313 Because the cross price coefficients are not equal, it is impossible to derive the expenditure function for beach attendance.
- 23314 Because of the difference in these cross price terms, the areas under the demand curves estimated by Professor McConnell are not a true estimate of benefits or valuation of beach days.
- 23315 In Exhibit 8 of the Spring 1986 recreation report, the coefficient of Fort Phoenix Beach cost in the East/West model is -4.5 and the coefficient of East Beach cost in the Fort Phoenix model is 2.1
- 23316 The difference in the values of these coefficients is statistically significant with greater than 95 percent probability.
- 23317 The difference in the values of these coefficients is statistically significant with greater than 99 percent probability.
- 23318 Because the cross price coefficients differ, the estimated demand functions in Exhibit 8 are not consistent with economic demand theory.
- 23319 Because these cross price coefficients are not equal, it is impossible to derive the expenditure function for beach attendance.
- 23320 Because of the differences in these cross price terms, the areas under the demand curves are not a true estimate of benefits or damages.
- 23321 The demand curves in Exhibits 7 and 8 are intended to explain how beach attendance varies with the costs of attending a beach and its competing beaches under two different scenarios of PCB perceptions.
- 23322 The East/West model in Exhibit 7 estimates that an increase in the cost of parking at Fort Phoenix beach would reduce the attendance at East and West Beaches.
- 23323 The East/West model in Exhibit 8 estimates that an increase in the cost of parking at Fort Phoenix beach would reduce the attendance at East and West Beaches.
- 23324 In the current RFAs, Dr. McConnell respecifies his model of beach attendance.
- 23325 Dr. McConnell has made changes in the estimation model.
- 23326 These changes are not documented in any reports or materials that have been submitted to the respondents.
- 23327 The estimated coefficients in the present model are different from those estimated in either of the 1986 reports.

- 23328 The estimated coefficients in the current model are different from those in the previous models with greater than 95% probability.
- 23329 For the model of demand with PCBs, the cross-price elasticities of demand for East/West Beaches and Fort Phoenix Beach are not the same.
- 23330 These coefficients are different with greater than 95% probability.
- 23331 These coefficients are different with greater than 99% probability.
- 23332 Because these cross-price coefficients are not equal, it is impossible to derive the expenditure function for beach attendance.
- 23333 Because of the differences in these cross-price terms, the areas under the demand curves are not true estimates of the benefits or valuation of beach days.
- 23334 On page 9 of the December 1986 report, Dr. McConnell states that Fort Phoenix and East/West Beaches are considered to be within the same choice set for New Bedford area households.
- 23335 If Fort Phoenix and East/West Beaches are within the same choice set for New Bedford area households, then they are substitute beaches for households in the New Bedford area.
- 23336 For the model of demand without PCBs, both cross price elasticities are not significantly different from zero.
- 23337 A cross-price elasticity of zero means that the goods are not related in the market.
- 23338 Economic theory states that substitutes should have positive and equal cross-price elasticities of demand.
- 23339 The article cited above by Dr. Hausman shows that substitutes should have positive and equal cross-price elasticities of demand.
- 23340 Since these estimated cross-price elasticities are not significantly different from 0, the model is improperly specified or East/West Beaches and Fort Phoenix Beach are not substitutes.
- 23341 Models which measure substitution should measure the relationship among substitutes accurately.
- 23342 The model estimated by Dr. McConnell suffers from multicollinearity.
- 23343 Dr. McConnell further states on page 9 of his December 1986 report that there exists substantial collinearity among distances to the various beaches.

- 23344 Dr. McConnell states on page 9 of his December 1986 report that this collinearity makes it difficult to reliably test whether one site is a substitute beach while another site is not a substitute.
- 23345 *Econometric Methods* by Johnston is a standard text in graduate level econometrics.
- 23346 According to Johnston, multicollinearity causes the precision of estimation to fall (p. 160).
- 23347 Johnston states further that investigators are sometimes led to drop variables incorrectly from an analysis (p. 160).
- 23348 Finally, Johnston states that estimates of coefficients are very sensitive to particular sets of sample data. The addition of a few more observations can sometimes produce dramatic shifts in some of the coefficients (p. 160).
- 23349 Models with multicollinear data may fail to distinguish among important variables.
- 23350 Models which seek to measure cross-price elasticity of substitution should seek to measure that term accurately.
- 23351 Previous versions of Dr. McConnell's models (Spring and December 1986) estimated the cross-price elasticity of demand at significance levels in excess of 95 percent.
- 23352 Each version of Dr. McConnell's model has coefficients that are significantly different from each other.
- 23353 These differences are the results of different model specifications.
- 23354 These differences are the results of multicollinearity and the resultant impacts of small changes in data sets from one model to another.
- 23355 If the cross-price elasticity estimates are not statistically significant, then the estimates of consumers' surplus will change.
- 23356 Attachment Q.VIII.c.12 is a true and accurate copy of the original article by Kenneth E. McConnell, "The Economics of Outdoor Recreation," which is Chapter 15 of A. V. Kneese and J. L. Sweeney, eds. *Handbook of Natural Resource and Energy Economics*, Vol. II 1985, and is genuine.
- 23357 On page 690 of the article of Attachment Q.VIII.c.12, Professor McConnell states that incorrect estimation of travel costs will bias consumer surplus. He also states that, in the case of the linear demand model, when the measured travel cost is some multiple of the true cost, the consumer surplus is biased by the same multiple.

- 23358 In the case of the linear demand model, if travel costs are overestimated by 25 percent, consumer surplus is also overestimated by 25 percent.
- 23359 Professor McConnell's injury estimates of the value of a lost beach attendance day are based upon the differences in consumer surplus produced by his hypothetical 1986 without PCBs and planned 1986 demand functions.
- 23360 The current (1990) version of Dr. McConnell's model has coefficients of cross-price elasticity of demand which are contrary to Dr. McConnell's previous models and to economic theory.
- 23361 Models of substitution with significant cross-price elasticities of demand have been estimated by Dr. McConnell.
- 23362 In Spring 1986, Dr. McConnell's model of Fort Phoenix Beach attendance estimated that the cross-price elasticity of demand for Fort Phoenix Beach and East/West Beaches was positive and different from zero with 99 percent probability.
- 23363 In December 1986, Dr. McConnell's model of Fort Phoenix Beach attendance estimated that the cross-price elasticity of demand for Fort Phoenix Beach and East/West Beaches was positive but not significantly different from zero.
- 23364 In Spring 1986, Dr. McConnell's model of East/West Beach attendance estimated that the cross-price elasticity of demand for East/West Beaches and for Fort Phoenix Beach was negative and not significantly different from zero.
- 23365 In December 1986, Dr. McConnell's model of East/West Beach attendance estimated that the cross-price elasticity of demand for East/West Beaches and for Fort Phoenix Beach was negative and not significantly different from zero.
- 23366 In Spring 1986, Dr. McConnell's model of Fort Phoenix Beach attendance estimated that Fort Phoenix Beach and East/West Beaches were substitutes.
- 23367 At the same time, Dr. McConnell's model of East/West Beach attendance estimated that the same two beaches were complements.
- 23368 In December 1986, Dr. McConnell's models both estimated that Fort Phoenix Beach and East/West Beaches were complements.
- 23369 Two goods can be substitutes or complements but not both.
- 23370 Dr. McConnell's models give contradictory information regarding the relationships of demand for East/West Beaches and Fort Phoenix Beach.

- 23371 The own price coefficients in the East/West models in Exhibits 7 and 8 of Professor McConnell's recreation report are not statistically different.
- 23372 The own price coefficients in the Fort Phoenix models in Exhibits 7 and 8 of Professor McConnell's recreation report are not statistically different.
- 23373 If a linear demand functions shifts, but the own price coefficients remain the same, then Professor McConnell's damage calculation becomes: 1) calculate the difference in the squared number of visits and 2) divide this difference by minus twice the own price coefficient.
- 23374 If a linear demand function shifts, but the own price coefficients remain the same, then if travel costs are overestimated by 25 percent, the differences in consumer surplus produced by the two demand functions (at the same price) are overestimated by 25 percent.
- 23375 The components of the travel cost estimates used in the recreation damage study are 1) the distances from respondents' homes to beaches, 2) a single cost per mile estimate, 3) respondents' reported times to travel to the beaches and 4) respondent-specific cost of time estimates.
- 23376 On page 690 of Attachment Q.VIII.c.12, Professor McConnell reports that "a summary of the costs per mile is given by Dwyer, Kelley, and Bowes (1977) where, for 27 travel-cost models, the cost per mile of travel varies from 1.5 cents to 10 cents."
- 23377 The mileage cost estimate used by Dr. McConnell in the 1986 report and in the current RFAs is \$0.084 per mile. This figure is assigned to all round trips to the beaches.
- 23378 This mileage figure applies to individuals only in the case of single-occupant vehicles.
- 23379 For multiple-occupant vehicles, this figure is an overestimate of the true costs per person.
- 23380 Analysts working under the direction and control of Dr. Cicchetti, estimated that travel costs are actually \$0.0742 per mile. This figure is based on the American Automobile Association's composite value for the year 1985.
- 23381 Dr. McConnell, using data from the American Automobile Association, claimed that \$0.084/mile was the proper travel cost to use for beachgoers in 1986.
- 23382 The figure of \$0.084/mile assumes that all beachgoers used mid-size cars.
- 23383 Dr. McConnell has provided no evidence that he has researched the characteristics of the auto fleet in New Bedford.

- 23384 Dr. McConnell has provided no evidence that he has researched the characteristics of the automobiles owned by New Bedford beachgoers.
- 23385 Dr. McConnell does not know the types of vehicles used by New Bedford drivers.
- 23386 Dr. McConnell does not know the types of vehicles used by beachgoers.
- 23387 Dr. McConnell does not know of, nor adjust for, multipassenger vehicle use in his beach attendance analysis.
- 23388 In the absence of knowledge about the types of vehicles used by New Bedford beachgoers, it is not prudent to make assumptions about the fleet characteristics.
- 23389 There is no justification for using any figure other than the average cost per mile as calculated by the American Automobile Association.
- 23390 On page 693 of Attachment Q.VIII.c.12, Professor McConnell notes that Cesario (1976) estimates that the value of time is one-third of the wage rate. In a 1981 study with Strand, Professor McConnell produces a value of time of about 60 percent of the wage rate.
- 23391 Exhibit 6 of McConnell's Recreation Study shows that all respondents in households with less than \$50,000 income were assigned values of time greater than 60 percent of the wages in the household.
- 23392 The value of travel time is no greater than one-third of the wage rate.
- 23393 The value of travel time is no greater than 60 percent of the wage rate.
- 23394 Respondents' estimates of the travel times to the beaches are not exact measures of the true travel times.
- 23395 In footnote 3, page 16 of his recreation study, Professor McConnell states "The survey sought from each respondent the estimated time to travel to the beach of concern. There were many non-responses to this question. Further, the answers seemed highly variable." Professor McConnell proceeds to describe how he averaged travel times for Census tract-beach combinations.
- 23396 The average travel times for a particular household equal the travel times for its Census tract plus or minus deviation terms.
- 23397 These deviations from the Census average times introduce the errors in variables problem in the estimation of Professor McConnell's demand models.

- 23398 Professor McConnell's demand models have as their dependent variables estimates of the number of beach trips the respondents themselves will make.
- 23399 The cost to visit a particular beach includes the cost of travel and the respondent's value of the time required to travel to the beach.
- 23400 Professor McConnell uses the average value of time for the households' spouses in estimating the time costs to travel to a particular beach.
- 23401 This value may not be the same as the respondent's value of time.
- 23402 This value applies only to single occupant vehicles.
- 23403 Trips taken in private vehicles with more than one occupant reduce the mileage cost per person.
- 23404 Trips by bicycle or walking have no mileage costs.
- 23405 Professor McConnell assigns the same parking costs for Fort Phoenix and Demarest Lloyd to all respondents without seasonal passes, regardless of auto occupancy.
- 23406 On page 691 of Attachment Q.VIII.c.12, Professor McConnell notes that measurement errors, such as errors inherent in respondents' reported travel times, can result in overstating the consumer surplus.
- 23407 The combination of 1) high estimates for the mileage cost of travel, 2) high estimates for the value of travel time, and 3) errors in respondents' reported travel times in Professor McConnell's study, result in an overestimate of damages.
- 23408 On pages 699 to 701 of Attachment Q.VIII.c.12, Professor McConnell notes that the estimate of consumer surplus is sensitive to the functional form of the demand model.
- 23409 Professor McConnell cites a study by Zeimer, Musser, and Hill (Attachment Q.VIII.c.13) in which the linear model produced a consumer surplus about three times that of a semi-log model.
- 23410 Professor McConnell further notes that the bulk of empirical experience supports the semi-log model.
- 23411 Use of the linear model in the recreation damage report has overstated damages by at least a factor of three.
- 23412 On page 709 of Attachment Q.VIII.c.12, Professor McConnell states regarding models of recreation activities that "one of the earliest and still most thorough piece (sic) of research on forecasting models is the work of Cicchetti (1973)."

- 23413 Professor McConnell reports that Cicchetti established the importance of age, income, and supply variables in recreation demand functions.
- 23414 None of the types of variables identified by Cicchetti appear in the demand models reported in the recreation damage study.
- 23415 The survey data used to estimate these demand models contains age, income, and other socioeconomic variables.
- 23416 A major component in Professor McConnell's damage estimates is the proportion of New Bedford households that perceive PCBs.
- 23417 Professor McConnell's estimate of this proportion is based on the responses to two survey questions.
- 23418 In the first of these questions, respondents were asked what specific substances or chemicals, if any, did they think were damaging the environmental quality of New Bedford Harbor. Two hundred twenty-one (221) respondents (41.1 percent) identified PCBs.
- 23419 In the second of these questions, all of those who did not identify PCBs as damaging the environment in the first question (with the exception of those who thought there were no chemicals or substances damaging the environment) were asked whether they believed that the harbor was contaminated with PCBs. Two hundred (200) respondents answered affirmatively.
- 23420 Professor McConnell's estimate of the proportion of households that perceive PCBs equals the sum of the 221 respondents identifying PCBs in the first question and the 200 respondents answering affirmatively in the second question divided by 538 (the number of respondents for the beach use part of the survey).
- 23421 Both questions stated to the respondents that New Bedford Harbor is contaminated.
- 23422 The second question identified PCBs as a possible substance in the harbor.
- 23423 The form and sequence of these two questions produces an upward bias of the estimated proportion of New Bedford households that are aware of PCBs.
- 23424 Professor McConnell assumes that awareness of PCBs has grown over time and will continue to grow.
- 23425 Survey respondents cannot report accurately on when they became aware of PCBs.

- 23426 In the recreation survey, of the 421 respondents classified by Professor McConnell as perceiving PCBs, 119 plan to visit East or West Beach at least one in 1986.
- 23427 Of these 119 respondents, 32 reported that they would visit East or West Beach fewer times if PCBs were removed.
- 23428 In McConnell's recreation survey, of the 421 respondents classified as perceiving PCBs, 107 plan to visit Fort Phoenix Beach at least once in 1986.
- 23429 Of these 107 respondents, 27 respondents reported that they would visit East or West Beach fewer times if PCBs were removed.
- 23430 The May 1987 Defendant survey, performed under the direction and control of Dr. Cicchetti, established that residents of New Bedford are concerned about other pollutants in addition to PCBs.
- 23431 Once the survey questions are corrected for the interviewees knowledge of other pollutants, few indicated plans to increase beach use based on the removal of PCBs alone.
- 23432 Once the interviewees are informed that only PCBs are to be removed from the harbor, the differences between the with PCBs case and without PCBs cases do not support Dr. McConnell's claim that median trips per household would increase by 50% and 80% at East/West Beaches and Fort Phoenix Beach, respectively.
- 23433 Even if the survey had any applicability, analysis of beachgoing preferences when only PCBs are removed from the harbor shows that planned median trips per household will increase by just 1% of the figure claimed in the December, 1986 report by Dr. McConnell.
- 23434 Since the change in planned beach attendance, using a question about removal of PCBs only is just 1% of the figure given in Dr. McConnell's December, 1986 report, the relationship between Professor McConnell's estimates and Dr. Cicchetti's analysis will continue to be valid.
- 23435 Making an adjustment for existing congestion at the East/West and Fort Phoenix Beaches further reduces the expected change in attendance at those beaches if only PCBs are removed from the harbor.
- 23436 The two 1987 Defendant surveys, conducted under the supervision and control of Dr. Cicchetti, has shown that individuals cannot predict their own patterns of beach attendance in advance.
- 23437 The reported increases in planned attendance at the East/West Beaches and at Fort Phoenix Beach with only PCBs removed, is the highest hypothetical value for the potential change in attendance at those three beaches.

- 23438 This number is only slightly greater than zero.
- 23439 If individuals are unable to predict their attendance at the beach with any degree of statistical certainty, then the proper value for the potential increase in beach attendance given removal of PCBs only, is zero.
- 23440 The change in planned beach attendance if only PCBs are removed but if all other pollutants remain is small.
- 23441 In the recreation report, Professor McConnell discusses the aggregation problem that arises for households that visit both East/West and Fort Phoenix beaches.
- 23442 Professor McConnell shows that the sum of the areas under the demand curves for the two beaches is some unknown multiple of the true change in benefits.
- 23443 In the Spring 1986 recreation study, Professor McConnell assumes that this multiple equals one.
- 23444 Attachment Q.VIII.c.14 is the earlier version (dated April 30, 1986) of Professor McConnell's recreation damage study, and is a true and accurate copy of the original and is genuine.
- 23445 In the draft of the recreation report (Attachment Q.VIII.c.14), Professor McConnell assumed that this multiple equaled 0.5.
- 23446 Professor McConnell's change in assumptions concerning this unknown multiple has arbitrarily increased his estimated damages.
- 23447 In the current set of RFAs, Dr. McConnell has introduced a figure called the benefit of access (see Table VII.D-7). This figure purports to measure the value of a beach access day at the East/West Beaches and Fort Phoenix Beach with and without PCBs.
- 23448 Dr. McConnell defines consumer surplus as the area under a linear demand curve and above the cost (see footnote 3, page 24, of Dr. McConnell's December 1986 report).
- 23449 Dr. McConnell defines the area representing the consumer surplus as equal to  $x^2/(-2b)$ , where  $x$  is the level of trips and  $b$  is the own-price coefficient for the beach in question (see pages 10-11 of Dr. McConnell's December 1986 report).
- 23450 Dr. McConnell is defining the benefits of access as the area under a linear demand curve and above the cost as represented by the formula  $X^2/(-2b)$ .
- 23451 Dr. McConnell states that a robust estimate of trips for a representative user is the median (see page 10 of Dr. McConnell's December 1986 report).

- 23452 Dr. McConnell states that the median trips per user aware of PCBs is used to calculate the benefits of access at each beach in Exhibit 9 of the December 1986 report (see page 12 of Dr. McConnell's December 1986 report).
- 23453 Dr. McConnell states that the median trips per user aware of PCBs is used to calculate the benefits of access at each beach in Table VII.D-7 of the current set of RFAs (see statement 3281 of the current set of RFAs).
- 23454 The benefits of access per user aware of PCBs in Exhibit 9 of the December 1986 report can be calculated by using the formula,  $X^2/(-2b)$ , where x is the median trips per household from Exhibit 9.
- 23455 Using the formula supplied by Dr. McConnell in the December 1986 recreation report, it is not possible to obtain his beach access benefits from the estimated coefficients shown in Tables VII.D-5 and VII.D-6 of the government RFAs in Aerovox.
- 23456 Dr. McConnell has undertaken additional undocumented analyses as a basis for these Tables.
- 23457 Using the formula supplied by Dr. McConnell in the December 1986 recreation report, the benefit of beach access at East/West Beach for a day with PCBs would be \$5.25, not \$7.16.
- 23458 Dr. McConnell scales up his estimate of the benefit of beach access by an unknown factor.
- 23459 The congestion adjustments made to the 1986 damage estimates of Dr. McConnell can be performed on the current estimated benefits of beach access.
- 23460 In his December 1986 recreation report, Dr. McConnell assumes that there are 60 beach days that will draw peak crowds to the beach.
- 23461 In his December 1986 recreation report, Dr. McConnell accounts for the impact of beach congestion on consumer surplus by adjusting the CS figure as follows:
- CS without congestion =  $X^2/(-2b)$ , where b is the slope of the linear demand curve.
- 23462 The reduction in consumer surplus introduced by congestion leads Dr. McConnell to introduce an adjustment factor, K, by which he seeks to account for congestion. K is always less than or equal to 1. The new formula adjusts the CS formula as follows:
- 23463 McConnell assumes the value of K, without estimating it.

$$CS \text{ with congestion} = \frac{X^2 \{1 - (1-K)^2\}}{-2b}$$

- 23464 K is comprised of two parameters, the proportion of annual use which occurs in the summer and is subject to rationing and the proportional reduction in use due to rationing.
- 23465 Dr. McConnell does not estimate these two parameters.
- 23466 Dr. McConnell assumes values for the components of K and therefore for K itself.
- 23467 The number of peak days in the summer influences the values of the components of K.
- 23468 If the number of peak days is less than 60, then K will fall.
- 23469 If K falls, then the estimated CS due to no PCBs will fall also.
- 23470 The formulae used by Dr. McConnell in his estimates of congestion effects are given on pages 15-17 of his December 1986 report.
- 23471 These same formulae can be used to analyze the effects of using peak beach day numbers different from 60.
- 23472 These formulae can be used on the demand curves estimated in any of the McConnell reports.
- 23473 These formulae can be used to adjust the demand curves estimated in the Spring 1986 McConnell report.
- 23474 These formulae can be used to adjust the demand curves estimated in the December 1986 McConnell report.
- 23475 These formulae can be used to adjust the demand curves estimated in the 1990 McConnell RFAs.
- 23476 Using fewer peak days per season reduces the benefit associated with any individual beach day.
- 23477 Dr. McConnell overestimated the number of peak beach days in the New Bedford area.
- 23478 Dr. McConnell's formulae can be used with corrected peak beach day data.
- 23479 Using the Consumer Surplus formula of Dr. McConnell's December 1986 report with Dr. McConnell's capacity adjustment from that same report would reduce the value of Beach access to \$4.69 for East/West Beach

with PCBs, \$4.97 for East/West Beach without PCBs, and \$12.09 for Fort Phoenix Beach without PCBs.

- 23480 Despite the inherent flaws in Dr. McConnell's approach, there would be a substantial reduction in estimated benefits of beach use if Dr. McConnell's 1986 consumer surplus formula and capacity adjustments are used.
- 23481 Econometric methods for analyzing truncated demand variables, such as visits to particular beaches are described in several recent text books, including G. S. Maddala, *Limited Dependent Variables*, 1983, C. F. Manski and D. McFadden, *Structural Analysis of Discrete Data with Econometric Applications*, 1981; T. Amemiya, *Advanced Econometrics*, 1985; and G. G. Judge, W. E. Griffiths, R. C. Hill, H. Lutkepohl, and T. C. Lee, *The Theory and Practice of Econometrics*, 1985.
- 23482 Tobit analysis is one of several methods that have been used to analyze truncated demand variables.
- 23483 The results of the Tobit model are sensitive to outliers, a definition which includes observations on the dependent variable that are substantially higher or lower than the average value for the dependent variable.
- 23484 Attachment Q.VIII.c.15 is a true and accurate copy of a memo from V. Kerry Smith to Ted McConnell, Mike Huguenin and Norman Meade and is genuine.
- 23485 In Attachment Q.VIII.c.15, Professor Smith notes that the valuation of time is important to any results.
- 23486 In Attachment Q.VIII.c.15, Professor Smith advised Professor McConnell to collect information on 1) what the survey respondents did before becoming aware of PCBs and 2) what adjustments they made after finding out about PCBs.
- 23487 Professor McConnell's recreation survey did not contain questions on recreation activities before respondents became aware of PCBs.
- 23488 Professor McConnell's recreation survey did not contain questions on what adjustments respondents made in their beach use after becoming aware of PCBs.
- 23489 In Attachment Q.VIII.c.15, Professor Smith advised Professor McConnell of the need to obtain evidence on the accuracy of hypothetical responses.
- 23490 In Attachment Q.VIII.c.15, Professor Smith raises the possibility of the need to make adjustments in the hypothetical responses.
- 23491 Professor McConnell has no evidence on the accuracy of the hypothetical responses in the survey.

- 23492 The hypothetical estimates of beach use if PCBs were removed are overstated and should be adjusted downward.
- 23493 In Attachment Q.VIII.c.15, Professor Smith expressed concern as to whether or not the questions on changes in visits to the beaches would be sufficient to implement Professor McConnell's theory.
- 23494 In Attachment Q.VIII.c.15, Professor Smith questioned whether respondents should be asked about how quality and congestion would change at the beaches as the result of the PCB clean up.
- 23495 Professor McConnell's survey did not include any questions regarding respondents' perceptions of the quality and congestion at the beaches.
- 23496 Dr. McConnell believes that awareness of PCBs will reduce beach attendance.
- 23497 There are a number of manufacturing facilities on New Bedford Harbor.
- 23498 These facilities are known to dump their effluents in the Harbor.
- 23499 There are a number of waste treatment facilities on New Bedford Harbor.
- 23500 These facilities are known to dump effluents into the harbor.
- 23501 There are a number of power plant facilities on New Bedford Harbor.
- 23502 These facilities are known to dump effluents into the harbor.
- 23503 New Bedford Harbor is known to contain other chemicals in addition to PCBs.
- 23504 New Bedford Harbor is known to contain organic materials.
- 23505 Residents of New Bedford are aware of the presence of other substances in the Harbor in addition to PCBs.
- 23506 The May 1987 Defendant survey demonstrates that Dr. McConnell's conclusion that a hypothetical removal of PCB's alone would cause more than a small change in the willingness of people to make greater use of the East, West, and Fort Phoenix Beaches is incorrect.
- 23507 Few respondents to the May 1987 Defendant survey indicated that they would change their use of the East, West, and Fort Phoenix Beaches if only PCBs were removed from the Harbor.
- 23508 The presence or absence of PCBs in the Harbor is just one of the attributes that beachgoers include in their decisions about whether to go to a particular beach.

- 23509 Other attributes include weather, aesthetics, crowding, ease of parking, presence or absence of waves, and the presence of other contaminants.
- 23510 Dr. McConnell's assertion regarding the effect of PCB awareness on beach use is testable with his data.
- 23511 The correct form for such a hypothesis test is to include PCB awareness in the model to estimate beach attendance.
- 23512 News concerning the presence of PCBs in New Bedford Harbor was released on at least seven occasions between Fall, 1975 and Fall, 1981.
- 23513 Signs at the East, West, and Fort Phoenix Beaches contain warnings concerning the presence of PCBs in the Harbor.
- 23514 Beaches in and around New Bedford Harbor are closed periodically during the summer on account of high levels of coliform bacteria.
- 23515 Such closures are well publicized.
- 23516 Some residents of the area are aware of the presence of pollutants other than PCBs in the water of New Bedford Harbor.
- 23517 Many residents of the area are aware of the presence of pollutants other than PCBs in the water of New Bedford Harbor.
- 23518 Most residents of the area are aware of the presence of pollutants other than PCBs in the water of New Bedford Harbor.
- 23519 In the estimation of the effects of PCB perceptions on recreational fishing, a critical component is the estimate of how many fishing trips currently made in New Bedford Harbor are of longer distance than they otherwise would have been.
- 23520 Professor McConnell's analysis critically depends on the proportion of respondents who fish who also answered affirmatively to the question on whether they avoid certain areas.
- 23521 Professor McConnell estimates that 63 percent of households with members who fish and who are aware of PCBs have avoided certain areas.
- 23522 Professor McConnell's estimate is based on responses to Question 20 of the recreation survey, in which 63 percent of the respondents who were asked this question reportedly responded affirmatively when asked whether they avoid certain areas.
- 23523 The same respondents who were asked Question 20 also answered Question 19.

- 23524 In response to Question 19: "Has the presence of PCBs in the area north of Ricketson's and Wilbur Points changed the fishing habits of you or anyone in your household", 44 percent of the respondents answered in the negative.
- 23525 The proportion of negative respondents to Question 19 implies that at most 56 percent of the respondents could have made any particular adjustment in fishing habits in response to PCBs.
- 23526 The answers to Questions 19 and 20 are inconsistent.
- 23527 Of the 44 respondents who answered "yes" or "don't know" to Question 19, 32 respondents reported in response to Question 20 that they avoid certain areas.
- 23528 The 32 respondents who answered affirmatively to avoiding certain areas are 41 percent of the 78 respondents who were asked Questions 19 and 20.
- 23529 Even using Professor McConnell's flawed approach, the proportion of recreational anglers who avoid certain areas because of PCBs can be no higher than 41 percent.
- 23530 The recreation survey did not ask how frequently respondents believed that they avoided certain areas.
- 23531 There is no evidence from the survey or elsewhere on what proportion of current fishing trips in New Bedford Harbor are of longer distance as a result of avoiding certain areas.
- 23532 Professor McConnell assumes that all such trips in New Bedford Harbor are longer.
- 23533 In the earlier version of the recreation study (Attachment Q.VIII.c.14), Professor McConnell assumed that 30 percent of current fishing trips made by respondents who reported that they avoid certain areas are longer than they otherwise would have been.
- 23534 Based on the data and information used by Professor McConnell, it is impossible to determine whether any percentage of longer fishing trips between zero and 100 is valid.
- 23535 Respondents reporting that they avoid certain areas were not asked where they go as a result of avoiding areas.
- 23536 Respondents reporting that they avoid certain areas were not asked whether the areas where they now fish in New Bedford Harbor are different than where they fished after they became aware of PCBs.

- 23537 Depending on home location, if an angler were to avoid a certain area, he could incur reduced travel costs in traveling to a different area.
- 23538 Based on the data and information used by Professor McConnell, it is impossible to determine how much additional travel cost is incurred for each trip that is changed by anglers avoiding certain areas.
- 23539 Because of the unavailability of data and information in support of the key components in his calculation of the effects of PCB perceptions on recreational fishing, Professor McConnell's estimate is not reliable in statistical terms.
- 23540 Professor McConnell's analysis of recreation injury depends, in part, on what respondents to a survey say they will do if circumstances change, and not on what they have actually been observed to do.
- 23541 Basing analyses of injury on survey responses to hypothetical conditions is called a contingent valuation survey.
- 23542 Because many economists still view the approach as "experimental," there is a large body of literature that suggests that great care should be used by the analyst that bases most of his analysis on the contingent valuation (CV) approach.
- 23543 Professor V. K. Smith stated on page 213 of his article: "To Keep or Toss the Contingent Valuation Method," in R. G. Cummings, D. S. Brookshire and W. D. Shulze, *Experimental Methods for Assessing Environmental Benefits*, U.S. Environmental Protection Agency, the Office of Policy Analysis, n.d. (released in 1984) Vol. I.B. (See Attachment Q.VIII.c.16) "[W]e can draw no conclusion on [the] accuracy [of CV methods] based on what we know from research to date. . . . [C]ontingent valuation experiments should be regarded as *experiments* that may permit economists to understand decision processes in areas where unfamiliar or new choices must be made."
- 23544 According to the disk containing the survey data used by Professor McConnell [provided in Aerovox] (henceforth referred to as McConnell's survey data), the average number of times that people visited Fort Phoenix Beach in 1985 was 2.74.
- 23545 According to McConnell's survey data, the average number of times that people visited East Beach in 1985 was 7.42.
- 23546 According to McConnell's survey data, the average number of times that people visited West Beach in 1985 was 5.23.
- 23547 According to McConnell's survey data, the average number of planned visits to Fort Phoenix Beach in 1986 is 3.05.

- 23548 According to McConnell's survey data, the average number of planned visits to East Beach in 1986 is 6.99.
- 23549 According to McConnell's survey data, the average number of planned visits to West Beach in 1986 is 5.21.
- 23550 According to McConnell's survey data, the average number of planned visits to Fort Phoenix Beach in 1986 if PCBs were removed is 7.58.
- 23551 According to the May 1987 Defendant survey, only 14 of 404 respondents planned more visits to Fort Phoenix Beach if only PCBs were removed from the Harbor.
- 23552 According to McConnell's survey data, the average number of planned visits to East Beach in 1986 if PCBs were removed is 9.23.
- 23553 According to the May 1987 Defendant survey, only 13 of 404 respondents planned more visits to East Beach if only PCBs were removed from the Harbor.
- 23554 According to McConnell's survey data, the average number of planned visits to West Beach in 1986 if PCBs were removed is 8.49.
- 23555 According to the May 1987 Defendant survey, only 11 of 404 respondents planned more visits to West Beach if only PCBs were removed from the Harbor.
- 23556 According to McConnell's survey data, 386 of the 538 people in the survey (72 percent) visited area beaches in 1985.
- 23557 The survey relied on by Professor McConnell did not mention to respondents that beach crowds might be larger if PCBs were removed from the harbor.
- 23558 In his beach recreation study, Professor McConnell estimates that there are 51,498 households in the New Bedford area. If that were true and if 72 percent of these people go to beaches, then there potentially would be 37,079 beachgoers.
- 23559 McConnell's survey data, together with his figure for the number of households, implies that 259,182 ( $37079 \times 6.99$ ) visits to East Beach are planned for 1986.
- 23560 Professor McConnell estimates that, in 1986, 78.2 percent of the households believe that PCBs are in New Bedford Harbor.
- 23561 According to McConnell's data, there are potentially 40,271 ( $0.782 \times 51498$ ) households that believe that PCBs are in New Bedford Harbor.

- 23562 According to McConnell's data, the average number of visits to East Beach by people who do not believe that PCBs are in New Bedford Harbor is 2.88.
- 23563 According to McConnell's data, the average number of visits to West Beach by people who do not believe that PCBs are in New Bedford Harbor is 1.08.
- 23564 According to McConnell's data, the average number of visits to Fort Phoenix Beach by people who do not believe that PCBs are in New Bedford Harbor is 1.60.
- 23565 Together, McConnell's data imply that, if PCBs were removed, there would be 404,038 visits to East Beach in 1986.
- $$404038 = (0.782 \times 51498 \times 9.23) + (.218 \times 51498 \times 2.88)$$
- 23566 The data relied on by Professor McConnell imply that there would be an increase in visits to East Beach in 1986 of 144,856 if all residents of the New Bedford area perceived that PCBs were removed from New Bedford Harbor.  $144856 = 404038 - 259182$ .
- 23567 Most visits to East Beach are made in the summer.
- 23568 Christine Ruff, an employee of Industrial Economics, Inc. prepared estimates of capacity at several beaches including East Beach, West Beach and Fort Phoenix Beach.
- 23569 Ms. Ruff's estimates of capacity were sent to Professor McConnell along with a letter on April 28, 1986.
- 23570 Attachment Q.VIII.c.17 is a true and accurate copy of the letter from Christine Ruff to Professor McConnell and the estimates of beach capacity and is genuine.
- 23571 According to Attachment Q.VIII.c.17, there are 29.6 peak beach days in the summer.
- 23572 29.6 is the appropriate number of peak beach days for use in calculating capacity at East Beach.
- 23573 29.6 is the appropriate number of peak beach days for use in calculating capacity at West Beach.
- 23574 29.6 is the appropriate number of peak beach days for use in calculating capacity at Fort Phoenix Beach.
- 23575 The data relied on by Professor McConnell imply that, if the 144,856 extra visits to East Beach were spread evenly over 29.6 days, there would be

4894 extra visits each peak beach day during the summer if PCBs were removed from the harbor.

- 23576 According to information presented in Exhibit 2 of Professor McConnell's December 1986 recreation study, there are 400 parking spaces at East Beach.
- 23577 According to information presented in Exhibit 2 of Professor McConnell's Spring 1986 recreation study, there were 200 parking spaces at East Beach.
- 23578 According to Attachment Q.VIII.c.17, there are 200 parking spaces at East Beach.
- 23579 In both recreation studies, Professor McConnell indicates that this information "was developed from site visits and discussions with local and state officials."
- 23580 Professor McConnell never indicates the basis on which he increased the number of parking spaces at East Beach.
- 23581 According to information presented in Exhibit 2 of Professor McConnell's recreation study, East Beach is 0.25 miles long and 125 feet wide.
- 23582 According to IEC estimates shown in Attachment Q.VIII.c.17, the annual capacity at East Beach ranges from a low of 17,760 using parking capacity to 293,040 using beach space capacity.
- 23583 This same capacity figure, when computed using the data as they appear in Exhibit 2 of Professor McConnell's December 1986 recreation report, ranges from 35,520 to 293,040.
- 23584 The extra 144,856 beach visits in 1986 that are implied by Professor McConnell's survey would increase congestion at East Beach.
- 23585 The extra 4894 visits to East Beach every peak beach day would increase beach congestion.
- 23586 East Beach is crowded.
- 23587 The letter to Professor McConnell in Attachment Q.VIII.c.17 from an IEC employee, Christine Ruff, says that discussions with beach personnel suggest that East Beach, West Beach and Fort Phoenix Beach are crowded on hot summer weekends.
- 23588 There is not enough parking at East Beach to handle the increased number of visits implied by Professor McConnell's data.

- 23589 McConnell's survey data, together with his figure for the number of households, implies that 113,091 (37079 x 3.05) visits to Fort Phoenix Beach are planned for 1985.
- 23590 McConnell's survey data, together with his figure for the number of households implies that 193,182 (37079 x 5.21) visits to West Beach are planned for 1986.
- 23591 Together, McConnell's data imply that, if PCBs were removed there would be 323,220 visits to Fort Phoenix Beach in 1986.  
$$323220 = (0.782 \times 51498 \times 7.58) + (0.218 \times 51498 \times 1.60)$$
- 23592 The data relied on by Professor McConnell imply that there would be an increase in visits to Fort Phoenix Beach in 1986 of 210,129 if all residents of the New Bedford area perceived that PCBs were removed from New Bedford Harbor.  $210129 = 323220 - 113091$ . This is an increase of 185 percent over the number of planned visits in 1986 that are implied by McConnell's data.
- 23593 Together, McConnell's data imply that, if PCBs were removed, there would be 354,029 visits to West Beach in 1986.  
$$354029 = (0.782 \times 51498 \times 8.49) + (0.218 \times 51498 \times 1.08)$$
- 23594 The data relied on by Professor McConnell imply that there would be an increase in visits to West Beach in 1986 of 160,847 if all residents of the New Bedford area perceived that PCBs were removed from New Bedford Harbor.  $160847 = 354029 - 193182$ . This is an increase of 83 percent over the number of planned visits in 1986 that are implied by McConnell's data.
- 23595 Most visits to Fort Phoenix Beach are made in the summer.
- 23596 Most visits to West Beach are made in the summer.
- 23597 The data relied on by Professor McConnell imply that, if the 210,129 extra visits to Fort Phoenix Beach were spread evenly over 29.6 days, there would be 7099 extra visits to Fort Phoenix Beach each peak beach day during the summer if PCBs were removed from the harbor.
- 23598 According to information presented in Exhibit 2 of Professor McConnell's December 1986 recreation study, there are 450 parking spaces at Fort Phoenix Beach.
- 23599 According to information presented in Exhibit 2 of Professor McConnell's Spring 1986 recreation study, there were 150 parking spaces at Fort Phoenix Beach.
- 23600 According to the IEC estimates in Attachment Q.VIII.c.17, there are 250 parking spaces at Fort Phoenix Beach.

- 23601 In both recreation studies, Professor McConnell indicates that this information "was developed from site visits and discussions with local and state officials."
- 23602 Professor McConnell never indicates the basis on which he increased the number of parking spaces at Fort Phoenix Beach.
- 23603 According to information presented in Exhibit 2 of Professor McConnell's recreation study, Fort Phoenix Beach covers 21 acres which include a 2400 foot long beach.
- 23604 According to IEC estimates shown in Attachment Q.VIII.c.17, the annual capacity at Fort Phoenix Beach ranges from 22,200 using parking capacity to 639,360 using beach space capacity.
- 23605 This same Fort Phoenix Beach annual capacity figure when computed using the data as they appear in Exhibit 2 of Professor McConnell's Spring 1986 recreation study ranges from 13,320 to 639,360 for Fort Phoenix Beach.
- 23606 This same Fort Phoenix Beach annual capacity figure when computed using the data as they appear in Exhibit 2 of Professor McConnell's December 1986 recreation study ranges from 39,960 to 639,360 for Fort Phoenix Beach.
- 23607 The extra 210,129 visits to Fort Phoenix Beach in 1986 that are implied by Professor McConnell's survey would increase congestion at Fort Phoenix Beach.
- 23608 The extra 7099 visits to Fort Phoenix Beach every peak beach day would increase beach congestion.
- 23609 Fort Phoenix Beach is crowded.
- 23610 There is not enough parking at Fort Phoenix Beach to handle the increased number of visits implied by Professor McConnell's data.
- 23611 The data relied on by Professor McConnell imply that, if the 160,847 extra visits to West Beach were spread evenly over 29.6 days, there would be 5434 extra visits to West Beach each peak beach day during the summer if PCBs were removed from the harbor.
- 23612 According to information presented in Exhibit 2 of Professor McConnell's December 1986 recreation study, there are 245 parking spaces at West Beach.
- 23613 According to information presented in Exhibit 2 of Professor McConnell's Spring 1986 recreation study, there were 100 parking spaces at West Beach.

- 23614 In both recreation studies, Professor McConnell indicates that this information "was developed from site visits and discussions with local and state officials."
- 23615 Professor McConnell never states the basis on which he increased the number of parking spaces at West Beach.
- 23616 According to information presented in Exhibit 2 of Professor McConnell's recreation study, West Beach is 0.5 miles long and 100 feet wide.
- 23617 According to IEc estimates shown in Attachment Q.VIII.c.17, the annual capacity at West Beach ranges from 26,640 to 468,864.
- 23618 This same capacity figure when computed using the data as they appear in Exhibit 2 of Professor McConnell's Spring 1986 recreation study ranges from 8,880 to 468,864 for West Beach.
- 23619 This same capacity figure when computed using the data as they appear in Exhibit 2 of Professor McConnell's December 1986 recreation study ranges from 21,756 to 468,864.
- 23620 The extra 160,847 visits to West Beach in 1986 that are implied by Professor McConnell's survey would increase congestion at West Beach.
- 23621 The extra 5434 visits to West Beach every peak beach day would increase beach congestion.
- 23622 West Beach is crowded.
- 23623 There is not enough parking at West Beach to handle the increased number of visits implied by Professor McConnell's data.
- 23624 The presence of additional users of a natural resource such as a beach may interfere with the activities of some existing users.
- 23625 Congestion can decrease recreators' willingness to pay to use natural resources such as beaches.
- 23626 Congestion can decrease the consumer surplus associated with the use of natural resources such as beaches.
- 23627 Dr. McConnell calculates a figure for the consumer surplus associated with the removal of PCBs from New Bedford Harbor.
- 23628 This figure is based on the estimated equations reported in Dr. McConnell's 1990 report.
- 23629 The current government RFAs do not indicate that Professor McConnell made any adjustments to the reported changes in consumer surplus to account for congestion at the East/West and Fort Phoenix Beaches.

- 23630 If Professor McConnell had accounted for the effects of added beach congestion, his estimate of damages would have been lower.
- 23631 The impacts of crowding on the value of one day of beach access can be estimated using the 1990 model estimated by Dr. McConnell.
- 23632 Table Q.VIII.c.3, below, shows the adjustments to Dr. McConnell's benefit of access estimate with consideration for the loss of consumer surplus (CS) when crowding occurs.

Table Q.VIII.c.3

BENEFITS OF ACCESS

	<u>East/West Beach 1986 with PCBs</u>	<u>East/West Beach 1986 w/o PCBs</u>	<u>Fort Phoenix 1986 with PCBs</u>	<u>Fort Phoenix 1986 w/o PCBs</u>
McConnell's 1990 Report	\$7.16	\$11.25	\$7.72	\$15.58
Using the CS Formula w/o Capacity Adjustment	5.25	8.09	9.06	15.11
Using the CS Formula with Capacity Adjustment for 60 Beach Days	5.25	6.23	9.06	13.84
Using the CS Formula with Capacity Adjustment for 37 Beach Days	4.69	4.97	9.06	12.09
Using the CS Formula with Capacity Adjustment for 29.6 Beach Days	4.27	4.49	9.05	11.38

- 23633 Dr. McConnell overestimates the benefit of Beach access at East/West Beaches with PCBs by \$1.91 (26.6%).
- 23634 Dr. McConnell overestimates the benefit of Beach access at East/West Beaches with PCBs by \$2.47 (34.5%).
- 23635 Dr. McConnell overestimates the benefit of Beach access at East/West Beaches with PCBs by \$2.89 (40.4%).
- 23636 Dr. McConnell overestimates the benefit of Beach access at East/West Beaches without PCBs by \$3.16 (28.1%).
- 23637 Dr. McConnell overestimates the benefit of Beach access at East/West Beaches without PCBs by \$5.02 (44.6%).

- 23638 Dr. McConnell overestimates the benefit of Beach access at East/West Beaches with PCBs by \$6.28 (55.8%).
- 23639 Dr. McConnell overestimates the benefit of Beach access at East/West Beaches with PCBs by \$6.76 (60.1%).
- 23640 Dr. McConnell overestimates the benefit of beach access at Fort Phoenix Beach without PCBs by \$0.47 (3%).
- 23641 Dr. McConnell overestimates the benefit of beach access at Fort Phoenix Beach without PCBs by \$1.74 (11.2%).
- 23642 Dr. McConnell overestimates the benefit of beach access at Fort Phoenix Beach without PCBs by \$3.49 (22.4%).
- 23643 Dr. McConnell overestimates the benefit of beach access at Fort Phoenix Beach without PCBs by \$4.20 (27%).
- 23644 Residents of the area choose to visit East, West, and Fort Phoenix Beaches in numbers sufficient to cause crowding at those beaches.
- 23645 Peak beach day attendance at East, West, and Fort Phoenix Beaches causes congestion at those beaches.
- 23646 Parking lots at East, West, and Fort Phoenix Beaches are full on peak beach days.
- 23647 The Government has admitted in the Aerovox case that 29.6 peak beach days is the figure that is supplied by Christine Ruff of IEc for Dr. McConnell.
- 23648 This figure of 29.6 peak beach days is derived from estimates of capacity adjusted for temperature in the New Bedford area.
- 23649 There are no more than 37 peak beach days for the beaches in and around New Bedford Harbor.
- 23650 The Department of Environmental Management of the Commonwealth of Massachusetts published the report, "Massachusetts Outdoors: Statewide Comprehensive Outdoor Recreation Plan" in December, 1976.
- 23651 On page 96 of this report, the authors estimate that there are 37 peak beach days per season in New Bedford.
- 23652 There are no more than 29.6 peak beach days for the beaches in and around New Bedford Harbor.
- 23653 Dr. McConnell had knowledge that 60 peak beach days was not an accepted figure for the New Bedford area.

- 23654 Dr. McConnell's assumption of 60 peak beach days in the New Bedford area is not supported by evidence.
- 23655 An estimate of 29.6 peak beach days in the New Bedford area is supported by evidence gathered by IEC.
- 23656 An estimate of 37 peak beach days in the New Bedford area is supported by evidence provided by the Commonwealth of Massachusetts.
- 23657 Congestion reduces the enjoyment of people visiting beaches.
- 23658 Congestion has reduced the enjoyment of people visiting the beaches studied by Professor McConnell.
- 23659 Most respondents to the May 1987 Defendant survey listed congestion as a primary reason for not visiting East Beach more often.
- 23660 Many respondents to the May 1987 Defendant survey listed congestion as a primary reason for not visiting East Beach more often.
- 23661 Most respondents to the May 1987 Defendant survey listed congestion as a primary reason for not visiting West Beach more often.
- 23662 Many respondents to the May 1987 Defendant survey listed congestion as a primary reason for not visiting West Beach more often.
- 23663 Most respondents to the May 1987 Defendant survey listed congestion as a primary reason for not visiting Fort Phoenix Beach more often.
- 23664 Many respondents to the May 1987 Defendant survey listed congestion as a primary reason for not visiting Fort Phoenix Beach more often.
- 23665 People are willing to spend time and money driving to less crowded beaches.
- 23666 Beachgoers weigh congestion and crowding along with convenience as factors which influence their beach attendance.
- 23667 Congestion decreases the value of a visit to a particular beach.
- 23668 Congestion has reduced the value of a visit to East Beach.
- 23669 Congestion has reduced the value of a visit to West Beach.
- 23670 Congestion has reduced the value of a visit to Fort Phoenix Beach.
- 23671 It is possible to estimate the effects of congestion on recreators' demand for beaches.

- 23672 There are examples in economic literature that show how to estimate the effects of congestion on recreators' willingness to pay to recreate. For example, Charles J. Cicchetti and V. Kerry Smith have shown that congestion can decrease hikers' willingness to pay to use wilderness areas (see Attachment Q.VIII.c.18).
- 23673 Attachment Q.VIII.c.19 is a true and accurate copy of the original article by Kenneth E. McConnell, "Comment: Valuing Congested Recreation Sites," published in *Journal of Environmental Economics and Management*, No. 7, 1980 and is genuine.
- 23674 The following is a true and accurate quote from the foregoing article by Professor McConnell (p. 390). "For an individual with preferences  $U(x,t,q)$ , consumer's surplus depends upon congestion and the number of trips. Consumer's surplus is the 'excess of the price which he would be willing to pay rather than go without the thing'. . . . When dealing with congested sites one must take great care in defining 'the thing'. A given number of trips with high congestion is a thing different from the same number of trips with low congestion. A day at the beach with no room for the blanket and crowded waters is quite different from a day at the same beach with few competitors for sand and surf."
- 23675 In the article shown in Attachment Q.VIII.c.19, Professor McConnell says that the value of consumer's surplus declines as the amount of congestion increases.
- 23676 In the article shown in Attachment Q.VIII.c.19, Professor McConnell shows two diagrams, one on page 390 and one on page 392. Both diagrams show that demand curves for the use of recreation sites are lower the greater is congestion.
- 23677 The demand curve estimated by Professor McConnell in his New Bedford study for a situation where PCBs are removed from New Bedford Harbor does not account for how the added beach congestion would affect beachgoers' demand.
- 23678 Attachment Q.VIII.c.20 is a true and accurate copy of the original article by Kenneth E. McConnell, "Congestion and Willingness to Pay: A Study of Beach Use," published in *Land Economics*, May 1977 and is genuine.
- 23679 In the foregoing article, Professor McConnell discusses the estimation of the effect of beach congestion on consumer surplus of beachgoers in densely populated areas of Rhode Island. Professor McConnell's results show that congestion reduces beachgoers' consumer surplus.
- 23680 In the foregoing article, Professor McConnell states: "the coefficient on congestion suggests that an extra 100 people per acre on the average beach reduces the average individual's surplus per day by about 25 percent" (p. 191).

- 23681 Professor McConnell should have lowered his estimates of consumer surplus in the New Bedford recreation study to account for added beach congestion.
- 23682 Beach congestion can be so great that the capacity of the beach limits the number of people who visit it.
- 23683 Professor McConnell's analysis in the New Bedford recreation study implicitly assumes that all of the people in the New Bedford area that he assumes would desire to make extra beach visits if PCBs were removed would be able to make these visits.
- 23684 Consumer surplus can be calculated only for goods actually consumed.
- 23685 In the case of beach recreation, the good that is consumed is one or more days of beach attendance.
- 23686 If this good is not consumed then there is no consumer surplus that can be calculated.
- 23687 If a beach is not visited due to congestion or capacity constraints then there is no consumer surplus associated with a visit that is not made.
- 23688 If desired beach visits cannot be made due to congestion or capacity constraints, then there is no change in consumer surplus associated with the desire to visit a beach more frequently due to removal of a pollutant.
- 23689 Where a beach suffers from congestion or capacity constraints, there is no loss in consumer surplus due to a stated desire to visit the beach more often if such visits cannot in fact be carried out.
- 23690 A report prepared for the Environmental Law Institute in June, 1984 by Edward J. Yang, Roger C. Dower and Mark Menefee (Attachment Q.VIII.c.21) disfavors contingent valuation methods for purposes similar to this case because survey respondents may attempt to influence the outcome of the survey.
- 23691 *Strategic bias* is a form of bias inherent in survey research. It refers to the possibility that survey responses are influenced by how people think the results will be used and interpreted. If, for example, the respondent believes that "high" values elicited in the survey will suggest an outcome which is somehow favorable to the respondent, the respondent has an incentive to overstate the amount that he or she would use or value a resource.
- 23692 *Information bias* is a form of bias inherent in survey research. The accuracy of a contingent valuation survey depends on, among other things, the extent and accuracy of the information available to the respondents.

- 23693 *Hypothetical bias* is a form of bias inherent in survey research. It refers to the unknown differences between the way people respond to the survey and the way in which they would actually behave.
- 23694 It is well-established in D. R. Chase and M. Harada, "Response Error in Self-Reported Recreation Participation," *Journal of Leisure Research*, Vol. 16, 1984, pp. 322-329 (see Attachment Q.VIII.c.22) that people over-report behavioral intentions for recreation activities.
- 23695 Robert Mitchell and Richard Carson wrote a report for Resources for the Future entitled *Threats to Reliability and Validity in Contingent Valuation Surveys* (1985), (see Attachment Q.VIII.c.23) in which they prepared a list of "Threats to Validity in Contingent Valuation." The biases discussed below are outlined in this report.
- 23696 One class of bias is incentives to misrepresent responses which occur when a respondent intentionally or unintentionally misrepresents his or her quantity demanded for the contingent good.
- 23697 Strategic bias is a bias in the incentive to misrepresent class of biases.
- 23698 Compliance bias is a bias in the incentive to misrepresent class of biases.
- 23699 Compliance bias can be broken down into the following two types of biases: 1) sponsor bias, where a respondent gives a response which differs from his or her true quantity demand of the contingent good in an attempt to comply with the presumed expectations of the sponsor (or imputed sponsor); 2) interviewer bias, where a respondent gives a response amount which differs from his or her true quantity demanded for the contingent good in an attempt to either please or gain status in the eyes of a particular interviewer.
- 23700 A second class of bias is misspecification of the market scenario. This bias occurs when a respondent does not respond to the correct contingent market. The survey questions presume that the *intended* scenario is correct. The errors occur because the respondent does not understand the market as the researcher intends it to be understood.
- 23701 An example of this type of bias is when respondents report their expected beach attendance for a hypothetical situation when PCBs are removed. There is bias if respondents think that the harbor will be free of other pollutants when the question only mentions PCB removal.
- 23702 Amenity misspecifications/biases are where the perceived good being discussed differs from the intended good. This can occur in part or in whole where a respondent envisions a larger or smaller entity than the intended good. This is sometimes referred to as part-whole bias. Part-whole bias can occur in these areas: 1) geographical part-whole, where a respondent is thinking of a good whose spatial attributes are larger or smaller than the spatial attributes of the intended good; 2) benefit part-

whole, where a respondent includes a broader or narrower range of benefits in his definition of a good than intended by the researcher; 3) policy-package part-whole, where a respondent is thinking of a broader or narrower policy package than the one intended by the researcher.

- 23703 Metric bias occurs where a respondent is thinking of the amenity on a different metric than the one intended by the researcher.
- 23704 Probability of provision bias occurs where a respondent is thinking of a good whose probability of provision differs from that intended by the researcher.
- 23705 Method of provision can cause bias if the intended method of provision is either misperceived or itself valued in a way not intended by the researcher.
- 23706 Instrument context bias occurs when the intended context or reference frame conveyed by the preliminary nonscenario material differs from that perceived by the respondent.
- 23707 Question order can cause bias if a sequence of questions has an effect on a respondent's reported quantity demanded.
- 23708 Another class of bias is aggregation bias which is bias caused by incorrect aggregation procedures.
- 23709 Sampling design bias occurs when the sample design imperfectly represents the population.
- 23710 Response rate bias occurs when those who complete the interview or questionnaire imperfectly represent the population.
- 23711 Item non-response bias occurs when those who answer a question imperfectly represent the population.
- 23712 The quality of air or water is an environmental commodity that is not normally traded in the market.
- 23713 Economists have established merit orders for methods of data gathering and for methods of economic analysis of natural resources damages.
- 23714 The U.S. Court of Appeals (86-1529) has stated that market-based values are to be used where possible and that economic valuation methods are to be ranked as to their reliability.
- 23715 These merit orders as described in the economic literature and by the U.S. Court of Appeals establish a clear preference for indirect (market-based) rather than direct (survey-based) data concerning valuation of environmental commodities.

- 23716 Data on observable behavior, including expenditures for driving to the beach and paying admission fees are generally preferred as to data on hypothetical behavior.
- 23717 Economists generally distinguish between nominal demand and effective demand.
- 23718 Nominal demand is the quantity of a good that people would like to consume.
- 23719 Effective demand is the quantity of a good that people can purchase given their incomes and other constraints on their expenditures (that is, the prices of other goods).
- 23720 Surveys which ask for responses to hypothetical consumption choices without specifying a cost or means of payment measure nominal demand.
- 23721 Observed behavior of consumers in recreation choices is a measure of effective demand.
- 23722 The U.S. Court of Appeals for the District of Columbia has indicated a preference for basing economic damage estimation models on observable behaviors.
- 23723 Data on observed behavior is more accurate than responses to questions concerning hypothetical behavior.
- 23724 Where data from surveys and observed behavior are in disagreement, the observed behavior should be accepted as more accurate.
- 23725 An agency of the Commonwealth, as part of its official duties, records and maintains attendance statistics for the beaches at Fort Phoenix State Beach Reservation, Demarest Lloyd State Park and Horseneck Beach State Reservation.
- 23726 Such data exist and are gathered by the Commonwealth of Massachusetts and the city of New Bedford on regular bases throughout the beach season.
- 23727 The data on beach attendance fairly represent the true attendance at the beaches for which such data were gathered in the New Bedford area.
- 23728 Such data are consistent from one year to another since the employees work under the direction of clearly specified rules for estimating attendance.
- 23729 Consistent data can be used to estimate a time series.
- 23730 Common time series used by economists include employment and income data at the federal and state levels. Such data are gathered by the same government agencies year after year.

- 23731 Personnel at the government agencies which gather economic data change from one year to another.
- 23732 Consistency in the data sets at the federal and state levels is ensured by adherence to rules in the gathering and processing of employment, income, and other economic data.
- 23733 Data on beach attendance can be used to test the hypothesis that PCB awareness affects attendance at selected beaches.
- 23734 The officially-recorded monthly attendance statistics for the beaches at Fort Phoenix State Beach Reservation, Demarest Lloyd State Park and Horseneck Beach State Reservation for the period January 1973 to December 1985, obtained from an official custodian of the statistics, Johanna M. Zabriskie, Division of Forests and Parks, Department of Environmental Management, Executive Office of Environmental Offices, Commonwealth of Massachusetts, are set forth accurately in Attachment Q.VIII.c.24.
- 23735 The officially-recorded annual attendance statistics for the beaches at Fort Phoenix State Beach Reservation, Demarest Lloyd State Park and Horseneck Beach State Reservation for Fiscal Years 1986 to 1990, obtained from Gordon Graham, Department of Environmental Management, Executive Office of Environmental Offices, Commonwealth of Massachusetts, are set forth accurately in Attachment Q.VIII.c.24a.
- 23736 An agency of the federal government, as part of its official duties, records and maintains climatological statistics for the New Bedford area.
- 23737 The officially-recorded monthly climatological statistics for the New Bedford area for the period January 1971-December 1985, obtained from official custodian of the statistics, John Witerski, Information Services Division, National Climate Data Center, U.S. Department of Commerce, are set forth accurately in Attachment Q.VIII.c.25.
- 23738 The City of New Bedford Recreation Commission, as part of its official duties, records and maintains statistics for East Beach and West Beach in the city of New Bedford.
- 23739 The officially-recorded weekly attendance statistics at East and West Beaches for the period 1971 to 1985, obtained from an official custodian of the statistics, Barry Meunier, Director of Recreation, City of New Bedford, are set forth accurately in Attachment Q.VIII.c.26.
- 23740 The officially-recorded weekly attendance statistics at East and West Beaches for the period 1986 to 1989, obtained from an official custodian of the statistics, Barry Meunier, Director of Recreation, City of New Bedford, are set forth accurately in Attachment Q.VIII.c.26a.

- 23741 The New Bedford Recreation Commission's recorded fee is zero for East and West Beaches for the period 1971-1985, obtained from an official custodian of the statistics, Barry Meunier, Director of Recreation, City of New Bedford Recreation Commission.
- 23742 An agency of the Commonwealth, as part of its official duties, maintains financial statistics for the beaches at Demarest Lloyd State Park, Horseneck Beach State Reservation, and Fort Phoenix Beach State Reservation.
- 23743 The officially-recorded fees for entrance to the beaches at Demarest Lloyd State Park, Horseneck Beach State Reservation and Fort Phoenix State Reservation are listed below for the period 1971-1985, obtained from an official custodian of the statistics, Johanna M. Zabriskie, Division of Forests and Parks, Department of Environmental Management, Executive Office of Environmental Affairs, Commonwealth of Massachusetts.

<u>Beach</u>	<u>Fee</u>
Demarest Lloyd State Park	1973-1981: \$2.00/car
Horseneck Beach State Reservation	\$15.00/season pass
Fort Phoenix State Reservation	1982-1985: \$3.00/car
	\$20.00/season pass

- 23744 The U.S. Department of Commerce, Bureau of Economic Analysis, publishes annual population statistics for metropolitan areas.
- 23745 Attachment Q.VIII.c.27 is a true and accurate copy of a computer printout from the Data Resources, Inc. computer system showing annual population data for the New Bedford, Fall River-Attleboro area for the years 1965 through 1984 and is genuine.
- 23746 The data presented in Attachment Q.VIII.c.27 are correct.
- 23747 The data presented in Attachment Q.VIII.c.27 are one appropriate measure of population trends in the New Bedford area.
- 23748 Beach attendance statistics for Fort Phoenix Beach and East and West Beaches do not suggest that PCBs have had any effect on beach attendance.
- 23749 Publicly available attendance data for these beaches indicate that beach attendance is most influenced by the weather.
- 23750 There was no discernable decline in beach attendance that could be attributed to PCBs, and beachgoing patterns were the same before and after the initiation of publicity regarding PCBs in New Bedford Harbor.
- 23751 The Massachusetts Department of Environmental Management maintains attendance data for Fort Phoenix Beach. These data are calculated by counting the number of daily parking permits issued and multiplying the

total by an average number of people per car. An estimate of the number of visits by people who bicycle or walk in or use season car passes is added to the daily total.

- 23752 The method of data collection at Fort Phoenix is consistent month after month and year after year. This consistency facilitates the use of the data to analyze trends in beach attendance over time.
- 23753 The data on beach attendance at Fort Phoenix are available monthly from 1973 through 1985.
- 23754 Analysis of Fort Phoenix Beach attendance data show that attendance could be explained by two things: (1) the temperature, and (2) the real price of an entrance ticket.
- 23755 The most important factor explaining monthly attendance at Fort Phoenix Beach is the temperature. The temperature measure that seems to explain beachgoing best is the daily maximum temperature.
- 23756 People are also more likely to go to the beach if the price of a ticket is low. Between 1973 and 1981, the entrance fee for Fort Phoenix Beach was \$2.00 per car. The fee was increased to \$3.00 in 1982. Meanwhile, the prices of "other things" were on a general upward trend, so that the real entrance fee (the fee relative to the prices of other goods) actually declined each year between 1973 and 1981, jumped up in 1982 and declined again each year through 1985. The real price of entrance is expressed in 1971 dollars by deflating the entrance fee by the annual Consumer Price Index which is an index of the prices of "other things."
- 23757 Two types of tests on the Fort Phoenix Beach and East/West Beach attendance data can be used to find out whether there was any effect of PCBs on beach attendance. The first test is called a shifter test. It tests whether, holding other things such as weather constant, beach attendance has shifted downward in the years after the public became aware of the presence of PCBs in the harbor.
- 23758 The use of shifter tests involves the use of what are called dummy variables. Dummy variables, or shifter variables, are either "off" or "on" and are used to distinguish between alternative states of the world.
- 23759 In this case, the dummy variables are used to test the hypothesis that a critical threshold of awareness of PCBs was reached sometime in the early 1980s and that beach use declined as a result.
- 23760 The use of dummy variables or shifter terms to test for the effects of an unquantifiable change in the world is common and well accepted by economists.

- 23761 Mendelsohn used a dummy variable or shifter term in his analysis of New Bedford area property values. Mendelsohn's shifter variable differentiated between the periods before and after the public became aware of PCBs.
- 23762 The second test is called an interaction test or an F-test. It tests whether the interaction between attendance and other variables, such as weather, has changed due to the presence of PCBs.
- 23763 The interaction or F-test is commonly used and accepted by economists.
- 23764 Prior to performing the tests, analysts working under Dr. Cicchetti used linear regressions to examine the beach attendance data. Table Q.VIII.c.4 summarizes the results of the Fort Phoenix Beach regression analysis. The regression analysis shows, as expected, that beach attendance is higher when temperatures are higher and lower when the entrance fee is higher.
- 23765 The model shown in Table Q.VIII.c.4 is the result of testing a variety of beach attendance models. Other factors were considered for inclusion in the model, such as local population, income, per capita income and rainfall. It was found that the effect of rainfall, defined as inches of total precipitation, was not significantly different from zero. The other locally-defined variables (population, income and employment) could not be used at the same time as the real entrance fee for statistical reasons.
- 23766 The local variables are highly negatively correlated with the real entrance fee and are highly correlated with each other.
- 23767 The entrance fee was chosen instead of these variables because it was more important to beachgoing than the other factors.
- 23768 Using any of the other local variables instead of the entrance fee would not have altered our conclusions regarding PCB effects.
- 23769 The model of Fort Phoenix Beach attendance shown in Table Q.VIII.c.4 is the basis of shifter and interaction tests to find out whether there is any effect of PCBs on attendance.
- 23770 This model shows that beach attendance is, in part, determined by temperatures and entrance fees. For example, according to the model, 6,979 people will attend Fort Phoenix Beach in a month where the average maximum temperature is 80 degrees and the real entrance fee (in 1971 dollars) is \$1.50. [Beach Attendance = Constant + (temperature coefficient x temperature) + (real entrance fee coefficient x real entrance fee); or  $6979 = -2552.76 + (151.92 \times 80) - (1748.13 \times 1.50)$ .]
- 23771 If some people in New Bedford decided not to go to the beach because they were worried about PCBs, attendance, under the circumstances of the example, should be below 6,979.

Table Q.VIII.c.4

**FORT PHOENIX BEACH ATTENDANCE MODEL  
MONTHLY DATA  
1973-1985**

Model: Total Fort Phoenix Beach Attendance  
Attendance = a + [b x Maximum Temperature] + [c x Real Entrance Fee]

<u>Explanatory Variable</u>	<u>Coefficient</u> (1)	<u>t-Statistic</u> (2)
Constant	-2552.76	-2.04
Maximum Temperature (F°)	151.92	11.75
Real Entrance Fee (1971 dollars)	-1748.13	-2.14

Number of Observations: 156

Summary Statistics

R<sup>2</sup> = 0.4760  
 Adjusted R<sup>2</sup> = 0.4691  
 Durbin-Watson = 1.6970  
 Standard Error of the Regression = 2525.13  
 Mean of Dependent Variable = 4214.76  
 Standard Deviation of the Dependent Variable = 3465.66

- 23772 The shifter test was used to determine whether attendance was lower than otherwise expected during the period after the publicity surrounding PCBs in New Bedford Harbor after correcting for temperature and real entrance fee.
- 23773 This test was conducted by adding a variable to the beach attendance model. This variable would capture shifts in the beach attendance pattern that might have occurred after a particular year.
- 23774 To test the hypothesis that PCBs influenced beachgoing at Fort Phoenix beginning in 1980 a dummy variable that identifies the years 1980 and beyond as being different from the years prior to 1980 was included in the regression model.
- 23775 If some event, such as the publicity of PCBs, had negatively influenced beachgoing in 1980 and afterwards, holding temperature and the real entrance fee constant, the coefficient on the shifter would be negative.
- 23776 In tests for this influence on the beach attendance data, the shifter failed to be statistically significant.
- 23777 There was not a negative effect on beach attendance beginning in 1980. In fact, the coefficient of the shifter was positive, though not significantly different from zero. This indicated that attendance might have been slightly higher than expected after 1980, but a scientist would say that there was no statistically significant effect.
- 23778 If in fact PCBs did effect beach attendance, the influence of public awareness of PCBs perhaps did not begin in 1980. There were several years in which PCBs could have begun affecting beachgoing, if they had any effect at all. Since we do not know with certainty when people may have begun to curtail their beachgoing, if in fact they did, test for potential PCB effects beginning in each year from 1976 through 1982 were conducted.
- 23779 These tests showed that there was no year after which there was a downward shift in beach attendance. Thus, no negative effect of PCBs on beach attendance could be detected.
- 23780 The results of these tests are reported in Table Q.VIII.c.5. The results show that the coefficients were always positive and not significantly different from zero.
- 23781 These results indicate that awareness of PCBs did not serve to reduce the number of people who attend Fort Phoenix Beach.
- 23782 The shifter test assumes that if the awareness of PCBs has an effect on beach attendance it is to lower the beach attendance at any given temperature level but not to affect the underlying relationship between temperature and beach attendance.

Table Q.VIII.c.5

**RESULTS OF SHIFTER TEST FOR  
PCB EFFECT ON FORT PHOENIX BEACH ATTENDANCE**

<u>1st Year of Possible PCB Effect</u>	<u>Coefficient of Shifter<sup>1</sup></u> (1)	<u>t-Statistic<sup>2</sup></u> (2)	<u>Statistically Significant PCB Effect on Beach Attendance</u> (3)
1976	206	0.25	None
1977	935	1.19	None
1978	865	1.19	None
1979	815	1.28	None
1980	749	1.38	None
1981	504	1.06	None
1982	444	0.98	None

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<sup>1</sup> The coefficient equals the number of additional people who will visit the beach each month in the years after the PCB effect begins.

<sup>2</sup> The models each have 156 observations and 152 degrees of freedom. In order for the effect to be significantly different from zero at the 95 percent level, the t-statistic has to be 1.96 or higher.

- 23783 If awareness of PCBs affect beachgoing, such awareness may have a different kind of effect than that implicitly assumed in the shifter test. Awareness of PCBs may affect the additional number of people who are attracted to the beach by an increase in temperature.
- 23784 A second type of test can be used to detect any influence of PCBs on beach attendance. The F-test asks the question of whether one model or two models should be used to explain beach attendance. The two models proposed in the test are a pre-PCB-publicity model and a post-PCB-publicity model.
- 23785 The results of the test provided strong support for the notion that one model, rather than two, best described beach attendance for the entire period 1973 through 1985.
- 23786 This means that there was no detectable effect of PCBs on beachgoing behavior.
- 23787 To perform the F-test, three models of beach attendance were estimated: (1) for the period prior to PCB publicity; (2) for the period during and after PCB publicity; and (3) for the entire interval spanning the two periods.
- 23788 If beach attendance is explained better using two separate models, the F-statistic calculated by the test would be high.
- 23789 When the F-statistic is above a statistically defined critical value, the use of two separate models would be recommended.
- 23790 The F-test was performed several times to test whether PCB awareness had an effect on beach attendance after different years. Table Q.VIII.c.6 shows the results of the tests. In all cases, the F-statistics are below the critical value of 2.65. This means that the same model could be applied to the entire period and that there was no measurable PCB awareness interaction effect.
- 23791 PCB awareness had no effect on attendance at Fort Phoenix Beach.
- 23792 The New Bedford Recreation Department collects attendance statistics for East and West Beaches. Attendance is estimated by a city recreation employee every day throughout the summer. The estimates are usually made in the early afternoon.
- 23793 Data on total attendance at East and West Beaches can be combined to create monthly data by calculating the average weekly attendance in each month. Monthly averages were calculated for June, July, August and September of each year.
- 23794 A regression analysis of the East and West Beach data found that beachgoing was most influenced by the temperature.

Table Q.VIII.c.6

RESULTS OF INTERACTION TEST FOR  
DIFFERENCE IN FORT PHOENIX BEACH ATTENDANCE  
BEHAVIOR BEFORE AND AFTER PCBs

<u>1st Year of Possible PCB Effect</u>	<u>F-Statistic<sup>1</sup></u> (1)	<u>Significant Difference in Beach Attendance Behavior Before and After PCBs</u> (2)
1976	0.8863	None
1977	1.2067	None
1978	0.7804	None
1979	0.6750	None
1980	0.6750	None
1981	0.5176	None
1982	0.9927	None

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<sup>1</sup> All of the calculated F-statistics have 3 degrees of freedom in the numerator and 150 degrees of freedom in the denominator. The Critical F is 2.65 at the 95 percent significance level.

- 23795 As with Fort Phoenix Beach, the temperature measure that best explained attendance at East and West Beaches was the monthly average of the daily maximum temperatures.
- 23796 This was the only variable in the East/West model. No price variable was used since there was no entry fee for East and West Beaches.
- 23797 Other variables that were considered for inclusion in the model were rainfall and local variables such as population, income and per capita income. However, none of these variables had effects that were significantly different from zero.
- 23798 Table Q.VIII.c.7 shows the results of the regression model.
- 23799 The same two tests, shifter and interaction, can be used to identify any influence of PCBs on East/West beachgoing as were used for Fort Phoenix Beach.
- 23800 The results of the test that used shifters or indicator variables for the post-PCB-publicity periods are summarized in Table Q.VIII.c.8. There was no downward trend in beach attendance that can be attributed to PCBs.
- 23801 The tests for PCB effects that began in 1976, 1977, 1978, 1979 and 1980 show no significant trends.
- 23802 The tests for PCB effects that began in 1981 and 1982 show significant trends, but these trends are upward. This means that something (some factor other than PCBs) contributed to increased attendance after 1981.
- 23803 If knowledge of PCBs had turned people away from the beach, we would not have expected to see this upward trend in attendance.
- 23804 Awareness of PCBs did not reduce attendance at East and West Beaches.
- 23805 F-tests were performed to see whether it is appropriate to use different models of beach attendance for the pre- and post-PCB-awareness periods.
- 23806 The results of these F-tests are shown in Table Q.VIII.c.9. In all cases, the F-statistics were below the critical value of 3.18 for the degrees of freedom involved. These tests showed that, regardless of when PCB awareness may have begun, the same model may be applied to the entire period and that there is no measurable PCB awareness effect.
- 23807 The results of the two tests for influence of PCBs on Fort Phoenix and East/West Beaches attendance show that there were no downward shifts in the post-PCB-awareness period. The results hold without exception, regardless of whether it was hypothesized that the influence of PCBs began in 1976, 1977, 1978, 1979, 1980, 1981 or 1982.

Table Q.VIII.c.7

**EAST AND WEST BEACH ATTENDANCE MODEL  
JUNE-SEPTEMBER  
1971-1986**

Model: Average Weekly Attendance by Month  
Attendance = a + [b x Maximum Temperature]

<u>Explanatory Variable</u>	<u>Coefficient</u> (1)	<u>t-Statistic</u> (2)
Constant	-40963.79	-5.19
Maximum Temperature (F°)	596.59	5.90

Number of Observations: 56 (Data are not available for June 1980, September 1980, September 1982 and June 1984)

Summary Statistics

R<sup>2</sup> = 0.3917  
Adjusted R<sup>2</sup> = 0.3804  
Durbin-Watson = 1.7731  
Standard Error of the Regression = 3301.98  
Mean of Dependent Variable = 5516.65  
Standard Deviation of the Dependent Variable = 4195.03

Table Q.VIII.c.8

**RESULTS OF SHIFTER TEST FOR  
PCB EFFECT ON ATTENDANCE AT EAST AND WEST BEACHES**

<u>1st Year of Possible PCB Effect</u>	<u>Coefficient of Shifter<sup>1</sup></u> (1)	<u>t-Statistic<sup>2</sup></u> (2)	<u>Statistically Significant PCB Effect on Beach Attendance</u> (3)
1976	675	0.66	None
1977	1178	1.27	None
1978	1269	1.41	None
1979	1283	1.42	None
1980	1703	1.87	None
1981	2154	2.31	Increased Attendance
1982	2481	2.50	Increased Attendance

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<sup>1</sup> The coefficient equals the number of additional people who will visit the beach each month in the years after the PCB effect begins.

<sup>2</sup> The models each have 56 observations and 53 degrees of freedom. In order for the effect to be significantly different from zero at the 95 percent level, the t-statistic has to be 2 or higher.

Table Q.VIII.9

**RESULTS OF INTERACTION TEST FOR  
DIFFERENCE IN ATTENDANCE  
BEHAVIOR AT EAST AND WEST BEACHES**

<u>1st Year of Possible PCB Effect</u>	<u>F-Statistic<sup>1</sup></u> (1)	<u>Statistically Significant Difference in Beach Attendance Behavior Before and After PCBs</u> (2)
1976	0.2676	None
1977	1.0565	None
1978	1.1044	None
1979	1.0565	None
1980	1.7931	None
1981	2.6243	None
1982	3.1141	None

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<sup>1</sup> All of the calculated F-statistics have 2 degrees of freedom in the numerator and 52 degrees of freedom in the denominator. The Critical F is 3.18 at the 95 percent significance level.

- 23808 Also, the results were statistically very clear. No matter what initial year was chosen, the tests did not show any downward shift in attendance.
- 23809 If any unexplained shifts existed in the post-PCB-publicity period, the effects were not downward but upward.
- 23810 There is no demonstrable evidence in this case that beach attendance has been reduced by PCB awareness.
- 23811 Dr. McConnell's approach was based on the hypothesis that the awareness of PCBs decreases beach use.
- 23812 The analysts, working under the direction and control of Dr. Cicchetti, tested this hypothesis that PCB awareness decreases beach use, based on Professor McConnell's survey data.
- 23813 The standard approach for testing whether perceptions have an effect on behavior is to estimate a model of actual behavior in which perceptions are among the explanatory variables.
- 23814 If perceptions do, in fact, influence the decision to attend a particular beach, they should show up as statistically significant determinants of beach attendance behavior.
- 23815 Using Dr. McConnell's survey data, the planned 1986 visits can be used as a measure of a type of behavior.
- 23816 The perception variable to be tested is the one that indicates whether respondents are aware of PCBs.
- 23817 The other variables in such a model are identical to those in a standard travel cost model of beach demand.
- 23818 A test of Professor McConnell's hypothesis on beach awareness can be conducted by adding the PCB awareness variable to a typical travel cost model.
- 23819 Such a model assumes that beach attendance has no effect on people's awareness of PCBs in New Bedford Harbor.
- 23820 An alternative assumption is that, although PCB awareness reduces beach attendance, the awareness is caused, in part, by beach attendance. In technical terms, the alternative assumption is that there is mutual causality between awareness and attendance.
- 23821 If this alternative assumption is valid, then simply including PCB awareness as an explanatory variable in a model of beach demand will produce biased results.

- 23822 An alternative statistical technique can be used that mitigates the potential bias from mutual causality between awareness and beach attendance.
- 23823 The technique is a two-stage method. In the first stage, we estimate a model that explains PCB awareness.
- 23824 Other explanatory variables in such a model include the demographic ones contained in Dr. McConnell's survey data.
- 23825 This model (called the awareness model, hereafter) calculates the probabilities that survey respondents are aware of PCBs, given what is known from the survey about their demographic characteristics.
- 23826 The results of this model give predicted PCB awareness probabilities.
- 23827 In the second state, predicted PCB awareness probability can be entered as an explanatory variable in the travel cost model of beach attendance.
- 23828 A probit model can be used to estimate the probability that a respondent was aware of PCBs, given his or her demographic characteristics.
- 23829 Because the PCB awareness variable is a dichotomous variable (respondents are classified as either aware or not aware of PCBs), probit analysis, a method for modeling dichotomous dependent variables, is used to estimate the awareness model.
- 23830 Mathematically, the model is as follows:
- Probability of awareness = F (V)
- where V =  $a_0 + a_1 \times \text{Dem}_1 + a_2 \times \text{Dem}_2 + \dots + a_n \times \text{Dem}_n$ ,  
F = the standard normal probability distribution function,  
Dem = demographic variable (1 to n),  
 $a_n$  = coefficient to be estimated.
- 23831 The probability of awareness is assumed to be estimated using a standard normal probability distribution function.
- 23832 The demographic variables in Dr. McConnell's survey include residence status, household size, respondent's education, respondent's estimated wage rate, respondent's age, household income, and respondent's marital status.
- 23833 Table Q.VIII.c.10 presents the probit model of PCB awareness using the preceding demographic variables as regressors (independent variables).
- 23834 Table Q.VIII.c.10 shows that education is the strongest determinant of PCB awareness. Its coefficient has a positive sign and it is highly statistically significant. That is, people with more education are more likely to be aware of PCBs.

- 23835 The wage rate and marital status make marginally significant (positive) contributions to PCB awareness.
- 23836 None of the remaining demographic variables contribute to the explanation of PCB awareness, as indicated by their t-statistics which are close to zero.

Table Q.VIII.c.10

PROBIT MODEL COEFFICIENTS: PCB PERCEPTION

<u>Variable</u>	<u>Coefficient</u> (1)	<u>t-Statistic</u> (2)
Constant	-1.2977733	-1.537
Residence Status	-0.3275551	-0.596
No. in Household over 18	-0.0297031	-0.522
Education	0.1490862	3.672
Wage (Opportunity Cost) <sup>1</sup>	0.0571887	1.972
Income	-0.0000010	-0.161
Age	-0.0041472	-0.945
Marital Status	0.1732467	1.252

Number of Observations: 496

- 23837 Dr. McConnell's hypothesis is that PCB awareness exerts a negative influence on beach attendance at East/West and Fort Phoenix Beaches.
- 23838 If Dr. McConnell's hypothesis is true then the coefficient of PCB awareness in the second stage model should be negative and significantly different from zero for actual beach trips and for planned beach trips.
- 23839 Two versions of the model of planned 1986 beach trips were estimated. The first uses the dichotomous PCB awareness variable obtained directly from the McConnell survey as an explanatory variable.
- 23840 In the second version, the awareness probability predicted from the first stage probit model is used in place of the dichotomous variable.
- 23841 Table Q.VIII.c.11 presents the first version of the model.

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<sup>1</sup> Dr. McConnell's estimated opportunity cost per hour (Exhibit 5 in McConnell recreation report) for a given income level.

- 23842 Dr. McConnell's hypothesis regarding PCB awareness and beach attendance implied that the coefficient of the PCB awareness variable should be negative and statistically significant.
- 23843 In contrast, the coefficient of this variable is positive, but insignificant.
- 23844 In Table Q.VIII.c.11 the variable for perception of PCBs as they affect planned beach trips is positive but not significantly different from zero.
- 23845 The second version of the model is presented in Table Q.VIII.c.12.
- 23846 In Table Q.VIII.c.12, the variable for perception of PCBs as they affect planned beach trips is positive and significantly different from zero at the 99% probably level.
- 23847 There is no evidence that PCB awareness has a negative influence on planned beach trips.
- 23848 There is no evidence that PCB awareness has a negative influence on actual beach trips.
- 23849 Educational attainment is the most important variable in explaining PCB awareness.

Table Q.VIII.c.11

DEMAND COEFFICIENTS FOR PLANNED 1986 TRIPS: WITH PCBs  
PCB PERCEPTION VARIABLES -- ACTUAL VALUES

<u>Variable</u>	<u>Coefficient</u> (1)	<u>t-Statistic</u> (2)
Constant	43.8197100	2.111
Cross Price <sup>1</sup>	2.9407995	2.411
Cost of East/West <sup>2</sup>	-17.4295119	-4.526
Cost of Substitute <sup>2</sup>	-0.5010907	-0.137
Fort Phoenix Pass <sup>2</sup>	40.5406671	2.332
Dummy for East/West <sup>3</sup>	-60.3853533	-2.545
Cost of Fort Phoenix <sup>4</sup>	-5.6639121	-2.891
Cost of Substitute <sup>4</sup>	-1.1598758	-0.766
Fort Phoenix Pass <sup>4</sup>	-6.0727296	-0.775
Perception of PCBs <sup>5</sup>	2.5858352	1.273
Sigma	42.8952200	9.858
Log Likelihood	-1570.02196	
Number of Observations	992	

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<sup>1</sup> Cross Price = Fort Phoenix cost for East/West observations,  
= East/West cost for Fort Phoenix observations.

<sup>2</sup> Positive values for East/West observations only, zero for Fort Phoenix observations.

<sup>3</sup> Dummy for East/West = 1 for East/West observations,  
= 0 for Fort Phoenix observations.

<sup>4</sup> Positive values for Fort Phoenix observations only, zero for East/West observations.

<sup>5</sup> Perception of PCBs = 1 if respondent answered yes to Q11 or indicated PCBs in Q10; 0 otherwise.

Table Q.VIII.c.12

DEMAND COEFFICIENTS FOR PLANNED 1986 TRIPS: WITH PCBs  
PCB PERCEPTION VARIABLES -- ESTIMATED VALUES

<u>Variable</u>	<u>Coefficient</u> (1)	<u>t-Statistic</u> (2)
Constant	2.4092648	0.091
Cross Price <sup>1</sup>	2.5971501	2.109
Cost of East/West <sup>2</sup>	-17.8985240	-4.638
Cost of Substitute <sup>2</sup>	-0.9295622	-0.255
Fort Phoenix Pass <sup>2</sup>	39.3962423	2.272
Dummy for East/West <sup>3</sup>	-31.1756673	-1.183
Cost of Fort Phoenix <sup>4</sup>	-6.1078042	-3.085
Cost of Substitute <sup>4</sup>	-1.4800789	-0.971
Fort Phoenix Pass <sup>4</sup>	-7.4650951	-0.948
Perception of PCBs <sup>5</sup>	22.9189697	2.770
Sigma	42.7785000	9.861
Log Likelihood	-1566.9	
Number of Observations	992	

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<sup>1</sup> Cross Price = Fort Phoenix cost for East/West observations,  
= East/West cost for Fort Phoenix observations.

<sup>2</sup> Positive values for East/West observations only, zero for Fort Phoenix observations.

<sup>3</sup> Dummy for East/West = 1 for East/West observations,  
= 0 for Fort Phoenix observations.

<sup>4</sup> Positive values for Fort Phoenix observations only, zero for East/West observations.

<sup>5</sup> Prediction from Probit equation (Table Q.VIII.c.10) for perception of PCBs.

- 23850 PCB awareness does not reduce attendance at the East/West and Fort Phoenix Beaches.
- 23851 The opinions of interviewees concerning the influence of PCBs on their own beach attendance are not consistent with their responses on awareness of PCBs and beach attendance plans.
- 23852 People who are aware of PCBs are more likely to go to the East/West and Fort Phoenix Beaches than are people who are unaware of PCBs.
- 23853 The analysts, working under the direction and control of Dr. Cicchetti, showed that beach attendance was not correlated with awareness of PCBs.
- 23854 All statistical tests reported above indicate that there was no measurable impact of PCB publicity or awareness on the use of various beaches in and around the New Bedford area.
- 23855 Beach use was not affected by knowledge concerning PCBs.
- 23856 All respondents in the McConnell survey who indicated that they were aware of PCBs with or without prompting (i.e., those identifying PCBs in answer to question 10 or answering affirmatively to Question 11) were asked Question 15 "do you or anyone in your household go saltwater fishing in the New Bedford area?"
- 23857 With this question, the McConnell survey identified households that fish.
- 23858 Those answering affirmatively to this question were asked Question 16, "are you one of the people who decides where you or members of your family go fishing?"
- 23859 With this question the survey identified whether or not the respondent is a fishing decision maker.
- 23860 Those answering negatively to this question were asked Question 17, "do you know where members of your household go to fish?"
- 23861 With this question the survey identified whether the non-decision makers in the sample claimed to have knowledge about their households' fishing habits.
- 23862 According to Appendix B to Attachment VII.DRA7-0300 to Plaintiff's RFAs, of the 85 respondents who answered Question 16, 34 (40 percent) indicated that they were not one of the people who decides where they or other family members go fishing.
- 23863 In response to Question 17, 29 of the 34 respondents who do not make their families' fishing location decisions claimed to know where household members fish.

- 23864 The non-decision makers claiming knowledge of their households' fishing locations (henceforth, non-decision makers) includes individuals who do not fish.
- 23865 Professor McConnell has no information regarding what percentage of the non-decision makers surveyed about household fishing habits are themselves fisher-persons.
- 23866 Non-decision makers tend to have less knowledge of where household members go to fish than do decision makers.
- 23867 Professor McConnell has no knowledge about how well non-decision makers understand household fishing decisions.
- 23868 Professor McConnell has no knowledge about how well non-decision makers understand household fishing habits.
- 23869 The 29 non-decision makers who claimed to have knowledge of household fishing location were asked the same series of questions about their households' fishing habits as were the respondents who identified themselves as decision makers.
- 23870 Non-decision makers and decision makers alike were asked Question 19 "has the presence of PCBs in the area north of Ricketson's and Wilbur Points changed the fishing habits of you or anyone in your household?"
- 23871 Most non-decision makers do not know accurately whether the presence of PCBs in this area changed the fishing habits of household members.
- 23872 Many non-decision makers do not know accurately whether the presence of PCBs in this area changed the fishing habits of household members.
- 23873 Some non-decision makers do not know accurately whether the presence of PCBs in this area changed the fishing habits of household members.
- 23874 Professor McConnell has no proof that all non-decision makers have as precise and accurate an understanding of whether the presence of PCBs in this area changed the fishing habits of household members as do decision-makers.
- 23875 Non-decision makers and decision makers alike were asked Question 20, "specifically, has the presence of PCBs made you or anyone in your household
- Avoid certain areas
  - Fish less often
  - Throw fish back
  - Stop fishing altogether
  - Cook and eat less fish"

- 23876 Most non-decision makers do not know accurately whether the presence of PCBs in this area made household members change their fishing habits in these ways.
- 23877 Many non-decision makers do not know accurately whether the presence of PCBs in this area made household members change their fishing habits in these ways.
- 23878 Some non-decision makers do not know accurately whether the presence of PCBs in this area made household members change their fishing habits in these ways.
- 23879 Professor McConnell has no proof that all non-decision makers have as precise and accurate an understanding of whether the presence of PCBs in this area made household members change their fishing habits in these ways as do decision-makers.
- 23880 Non-decision makers and decision makers alike were asked Question 21, "If PCBs had been cleaned up from New Bedford Harbor as of January 1st of this year, how often would you or others in your household go fishing in the area north of Ricketson's and Wilbur Points during 1986?"
- 23881 Most non-decision makers can not accurately predict how often household members would go fishing in the area north of Ricketson's and Wilbur Points during 1986 if PCBs had been cleaned up from New Bedford Harbor as of January 1, 1986.
- 23882 Many non-decision makers can not accurately predict how often household members would go fishing in the area north of Ricketson's and Wilbur Points during 1986 if PCBs had been cleaned up from New Bedford Harbor as of January 1, 1986.
- 23883 Some non-decision makers can not accurately predict how often household members would go fishing in the area north of Ricketson's and Wilbur Points during 1986 if PCBs had been cleaned up from New Bedford Harbor as of January 1, 1986.
- 23884 Professor McConnell has no proof that all non-decision makers have as precise and accurate an understanding of how often household members would go fishing in the area north of Ricketson's and Wilbur Points during 1986 if PCBs had been cleaned up from New Bedford Harbor as of January 1, 1986 as do decision-makers.
- 23885 Non-decision makers who were asked about household fishing habits may include people who make only some of the household's fishing trips.
- 23886 Non-decision makers who were asked about household fishing habits may include people who never go on the household's fishing trips.

- 23887 Professor McConnell has not verified that non-decision makers who know where the household fishes understand the household's fishing habits.
- 23888 Professor McConnell has not verified that non-decision makers who know where the household fishes understand how the household's fishing habits have been affected by the presence of PCBs.
- 23889 Professor McConnell has not verified that non-decision makers who know where the household fishes understand how the household's fishing habits would change in the absence of PCBs.
- 23890 Professor McConnell has no knowledge of how well the non-decision makers understand the household's fishing habits.
- 23891 Professor McConnell has no idea of how accurate were the responses by non-decision makers to questions regarding the households' fishing habits.
- 23892 Seventy-eight respondents to the McConnell survey indicated that someone in their household goes fishing in New Bedford Harbor.
- 23893 Seventy-eight respondents were asked questions about their households' fishing habits.
- 23894 Given the sample size, the presence of responses from people who do not make any of the households' decisions regarding fishing renders the sample unreliable.
- 23895 Given the sample size, including estimates of households' fishing response to a hypothetical cleanup of New Bedford Harbor made by family members who do not themselves fish renders the results statistically unreliable.
- 23896 In the May 1987 Defendant survey, most respondents reported that they would not use the area beaches more if only PCBs were cleaned up.
- 23897 In the May 1987 Defendant survey, many respondents reported that they would not use the area beaches more if only PCBs were cleaned up.
- 23898 In the May 1987 Defendant survey, some respondents reported that they would not use the area beaches more if only PCBs were cleaned up.
- 23899 There is good reason to believe that respondents' fishing habits would not change much if PCBs were cleaned up but all other contaminants remained in the harbor.
- 23900 Professor McConnell estimates the number of household fishing trips displaced by PCBs in Areas I and II.
- 23901 In estimating the number of displaced fishing trips, McConnell uses data on the number of trips that would be taken in 1986 if the PCBs were removed and number of trips actually taken in 1985.

- 23902 The number of trips that would be taken absent PCBs involves hypothetical future plans.
- 23903 Therefore, in estimating the number of displaced fishing trips, Professor McConnell should have used data on the number of trips that would be taken in 1986 if the PCBs were removed and the number of planned trips in 1986.
- 23904 Professor McConnell's estimate of the number of displaced fishing trips is incorrect because he substitutes actual trips for planned trips.
- 23905 Professor McConnell overstates the number of displaced fishing trips because planned trips exceed actual trips.
- 23906 Professor McConnell substantially overstates the number of displaced fishing trips because planned trips substantially exceed actual trips.
- 23907 In the May 1987 Defendant survey, respondents were asked how many trips they planned to take to each beach between Memorial Day and Labor Day.
- 23908 In the September 1987 Defendant survey, the same respondents were asked how many trips they actually took between Memorial Day and Labor Day.
- 23909 The differences between planned and actual number of trips are statistically significant.
- 23910 The differences between planned and actual number of trips are substantial.
- 23911 Respondents planned an average of 9.0 trips to East and West Beaches but took an average of 3.7 trips to these beaches.
- 23912 Respondents planned an average of 2.43 times as many trips to East and West Beaches as they actually took.
- 23913 Respondents planned an average of 6.2 trips to Fort Phoenix Beach but took an average of 2.4 trips to this beach.
- 23914 Respondents planned an average of 2.58 times as many trips to Fort Phoenix Beach as they actually took.
- 23915 There is no good reason to believe that households planned fishing trips did not overstate the number of trips actually taken by a similar amount.
- 23916 The number of fishing trips planned by a household overstates the number of trips actually taken by a factor of 2.5.
- 23917 The number of fishing trips planned by a household overstates the number of trips actually taken by a factor of 2.0.

- 23918 The number of fishing trips planned by a household overstates the number of trips actually taken by a factor of 1.5.
- 23919 The number of fishing trips planned by a household overstates the number of trips actually taken.
- 23920 On average, the number of fishing trips planned by households in 1986 exceeds the number of actual fishing trips taken in 1985.
- 23921 Professor McConnell has no information regarding whether the displaced trips were made.
- 23922 Professor McConnell's estimate of displaced fishing trips includes all displaced recreational fishing trips in Areas I and II.
- 23923 Professor McConnell's estimate of displaced fishing trips covers all households that might potentially fish in Areas I and II.
- 23924 Professor McConnell's estimate of displaced fishing trips includes all types of fish and crustaceans.
- 23925 There were no fishing trips displaced from areas other than Area I and Area II.