Modeling Schedules on Future Fleet

2006 Cruises on 2017 Fleet

Assumptions

- All scheduled cruises from a previous year will be available for scheduling.

- Pick a fleet composition for a specific time in the future such as 2017 using FIC projections.

- Cruises should be scheduled on type of vessel requested except where a compromise was accepted in the original schedule.

- Additional cruises for OOI will be based on the most recent conservative estimates.

Process

- Use the 2006 Spreadsheet of final schedules as starting point.
- Import to Fasttrack to graphically show schedules.
- Save a copy of the 2006 Fasttrack file.
- Start by keeping cruises on the same ship and time frame as much as possible.
- Un-assign cruises originally scheduled on ships that are "retired."
- Make changes to fit in cruises left orphaned on remaining ships, using STR as a guide when moving dates or ships.
- Save and duplicate the file.
- Create OOI cruises and fit them in as possible.
- Make notes on Spreadsheet about cruises that can or cannot be scheduled to quantify the impact.
- Export from Fasttrack to Excel with "modeled" schedules to create graphics about utilization and number of cruises/days left unscheduled (if any).

Outcomes

- Revised schedule with as many of original cruises scheduled as possible on fewer ships.
- Identify cruises that cannot be scheduled with reduced fleet.
- Identify to what extent additional work for OOI can be accommodated.
- Identify where the shortfalls are geographically or seasonally.
- Show Cost differential.

2006 Fleet

23 Active Ships

- Atlantis
- Revelle
- Thompson
- Melville
- Knorr
- Kilo Moana
- Wecoma
- New Horizon
- Endeavor
- Oceanus
- Seward Johnson
- Atlantic Explorer

- R.G. Sproul
- Point Sur
- Cape Hatteras
- H.R. Sharp
- Walton Smith
- Pelican
- Longhorn
- Blue Heron
- Clifford Barnes
- Savannah
- Urraca
- M.G. Langseth (not scheduled)

2017 Fleet

19 Active Ships (4)

- Atlantis
- Revelle
- Thompson
- Kilo Moana
- ARRV
- Ocean Class Pacific
- Ocean Class Atlantic
- Regional Class Pacific
- Regional Class Atlantic
- Regional Class Gulf

- Atlantic Explorer
- R.G. Sproul (1)
- H.R. Sharp
- Walton Smith
- Pelican (2)
- Blue Heron
- Clifford Barnes
- Savannah
- Urraca
- M.G. Langseth (3)

(1) Retired 2015 - assumed a replacement or extension.
(2) Retired 2013 - assumed a replacement or extension.
(3) Not scheduled to maintain comparison with 2006.
(4) Actual number including Langseth and not including Sproul or Pelican would be 17, Need to create version with Langseth schedule/costs added and perhaps without Sproul and Pelican.

2006 Totals

Ship	Total
Atlantis	264
Kilo_Moana	203
Melville	275
Roger_Revelle	301
Thomas_G._Thompson	267
Point_Sur	162
Robert_Gordon_Sproul	93.5
New_Horizon	151
Wecoma	121
Knorr	269
Endeavor	197
Oceanus	169
Seward_Johnson	225
Atlantic_Explorer	136
Cape_Hatteras	109
Hugh_R._Sharp	183
Walton_Smith	164
Longhorn	63
Pelican	260
Savannah	150
Clifford_A._Barnes	92
Blue_Heron	73
Urraca	71
Grand Total	3998.5

2006 Final Schedules
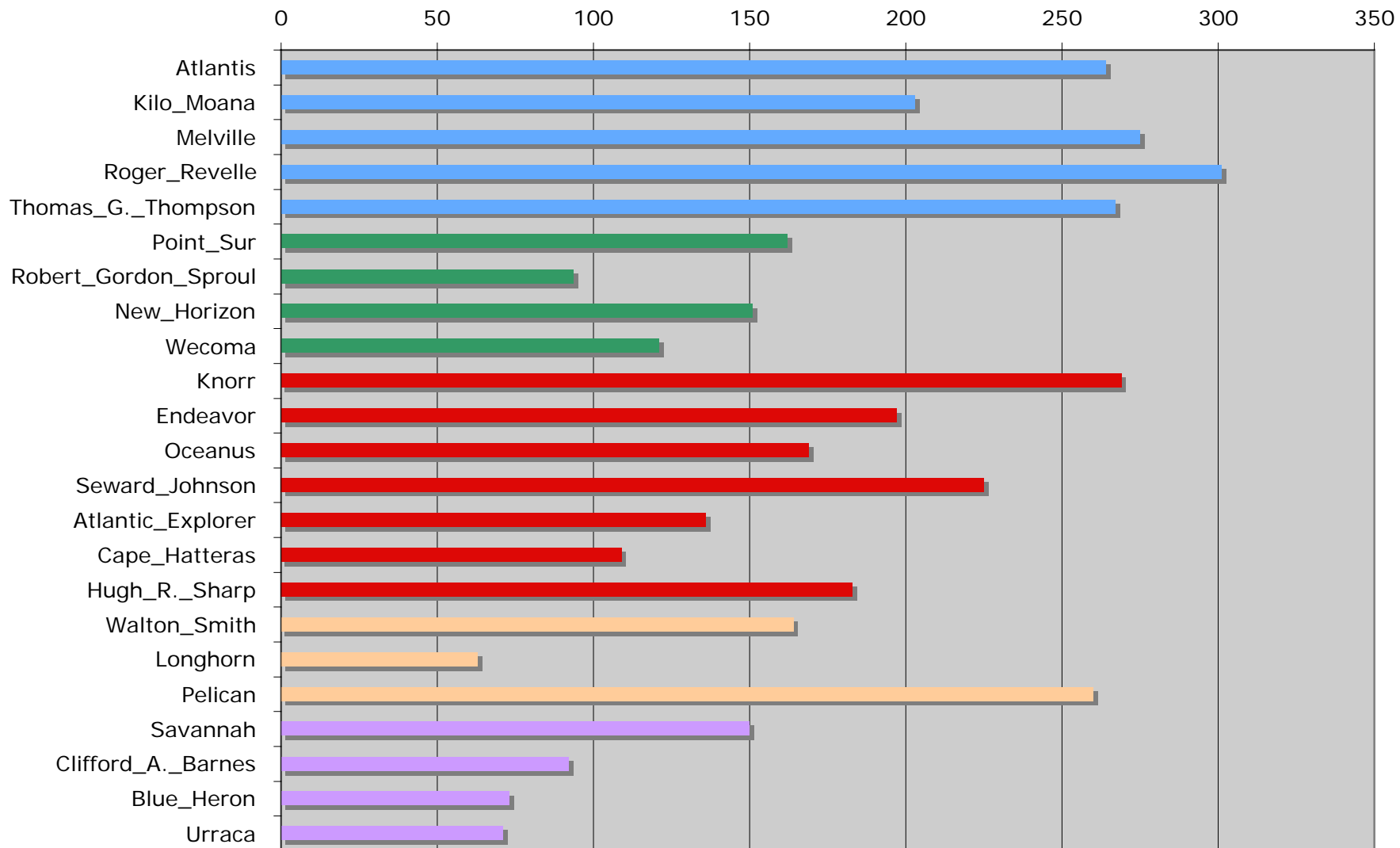
2006 on 2017 Totals

Ship	Total
Atlantis	338
ARRV	201
Kilo_Moana	245
Ocean_Class_Pacific	237
Thomas_G._Thompson	358
Roger_Revelle	331
Regional_Class_Pacific	216
Robert_Gordon_Sproul	151
Atlantic_Explorer	151
Hugh_R._Sharp	200
Regional_Class_Atlantic	226
Ocean_Class_Atlantic	220
Unsched_Atlantic	195
Pelican	162
Regional_Class_Gulf	180
Walton_Smith	172
Blue_Heron	84
Clifford_A._Barnes	115
Urraca	71
Savannah	171
Grand Total	4024

2017 FLeet with 2006 Cruises
Version One
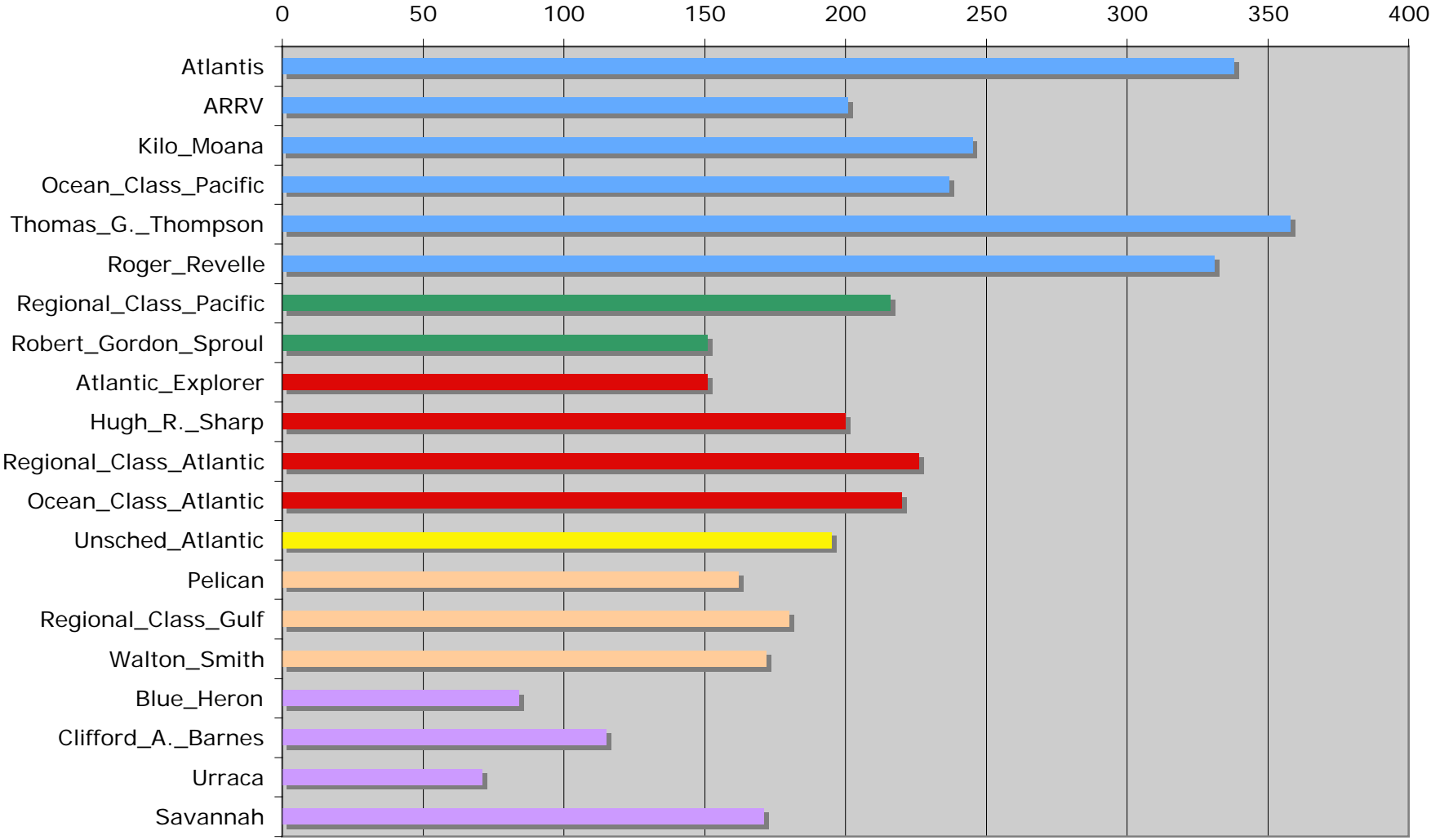
Next Steps

- Refine first cut model to more accurately match project fleet composition for 2017.

- Add in Langseth cruises, OOI cruises and Alaska Region cruises to see how they could be scheduled.

- Create cost models for each variant.

- Duplicate for a year in the middle of the fleet renewal period such as 2012 or 2013 (need feedback on this).

- Do cost models and analysis for this additional period.

First conclusions

- Some work could not be schedule due to fewer ships in the area (multi-ship ops) and remote locations (med work).
- Some work not scheduled due to specialized equipment (HBOI Submersible)
- Work to be scheduled reflected fleet of 2006 and did not take into account requests that would exist for ARRV, LANGSETH and OCEAN CLASS vessels.
- Generally larger ships were used without taking into account the possibility of combining projects on the larger ship. The larger more capable ships would be used this way to take advantage of their larger bunk space and lab space.
- Costs are slightly more if you consider the cost of unscheduled work, but slightly less if you don't, however the costs would be considerably more if the new ships were fully utilized.
    - 2006 cost estimate: $69,473,473
    - 2017 cost estimate with unscheduled: 70,320,481
    - 2017 cost estimate with out unscheduled: 68,348,836