Evolving Incident Management (EIM)
IMT Governance And Mobilization Work Unit

Incident Management Team Distribution Analysis

Background & Purpose

In January 2012, NWCG accepted the Incident Management Organization Succession Planning (IMOSP) Project's new Incident Management Organizational Model with the goal of implementation by 2016. Recommendation #1 is to have a target number of 40 nationally sponsored interagency Incident Management Teams (IMT) nationwide. NWCG created and tasked the IMT Governance and Mobilization Work Unit to recommend actions to accomplish the following IMOSP recommendation:

Recommendation #4 - ***Excerpt from EIM Strategic Implementation Plan (SIP)*:**

Re-distribution of IMTs throughout the Geographic Areas

Task: 4. 1 Develop national guidelines for how the 40 federally sponsored IMTs will be distributed throughout the Geographic Areas (GA).

- Develop a national template for an IMT Needs Analysis to help determine the appropriate number of IMTs per GA based on historical usage.
- Establish an implementation deadline for all GAs to reduce or increase the number of federally sponsored IMTs in their GA to meet the national distribution guidelines.[1]

This Task Team is part of the implementation phase of Evolving Incident Management (EIM). The complete documentation for this project can be found at the NWCG website for EIM http://www.nwcg.gov/imosp/index.htm. Membership of this work unit is intended to cut across agencies and management tiers. Currently membership represents national and geographic area mobilization and operations; local level fire management; and geographic area coordinating groups.

Task Team Members

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Work Unit Lead: Kim Christensen, Deputy Director Operations, USFS
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[1]Evolving Incident Management - Phase 2: Strategic Implementation Plan (http://www.nwcg.gov/imosp/phase2/sip_narrative.pdf)

The Team discussed the following guiding principles concerning the future nationally sponsored IMTs:

- The target for number of IMT assignments would be a minimum of two assignments per year per team. This concept was vetted through the Geographic Area Training Representatives and supported by previous analysis.
- There is an investment and commitment of team members, mentees, and trainees on IMTs to maintain at minimum two assignments per year per team.
- All nationally sponsored interagency IMTs will be qualified at the Type 1/Complex Incident level
- Assignments would be balanced across all 40 IMTs to insure equitable experience and proficiency through a National IMT Rotation
- Total mobility of IMTs
- The NICC, in coordination with the GACCs, will manage the National IMT Rotation and assignments of the 40 IMTs
- The recommended distribution of IMTs is based on 1) the geographic area's fire occurrence where either a Type 1 and 2 IMT was assigned; and 2) the geographic area's capacity to host a given number of IMTs
- Each geographic area would host a minimum of one IMT to maintain qualifications, currency, and support career paths.
- Prepositioning of IMTs will be key in the success of this model.

The Analysis

Description of the Data

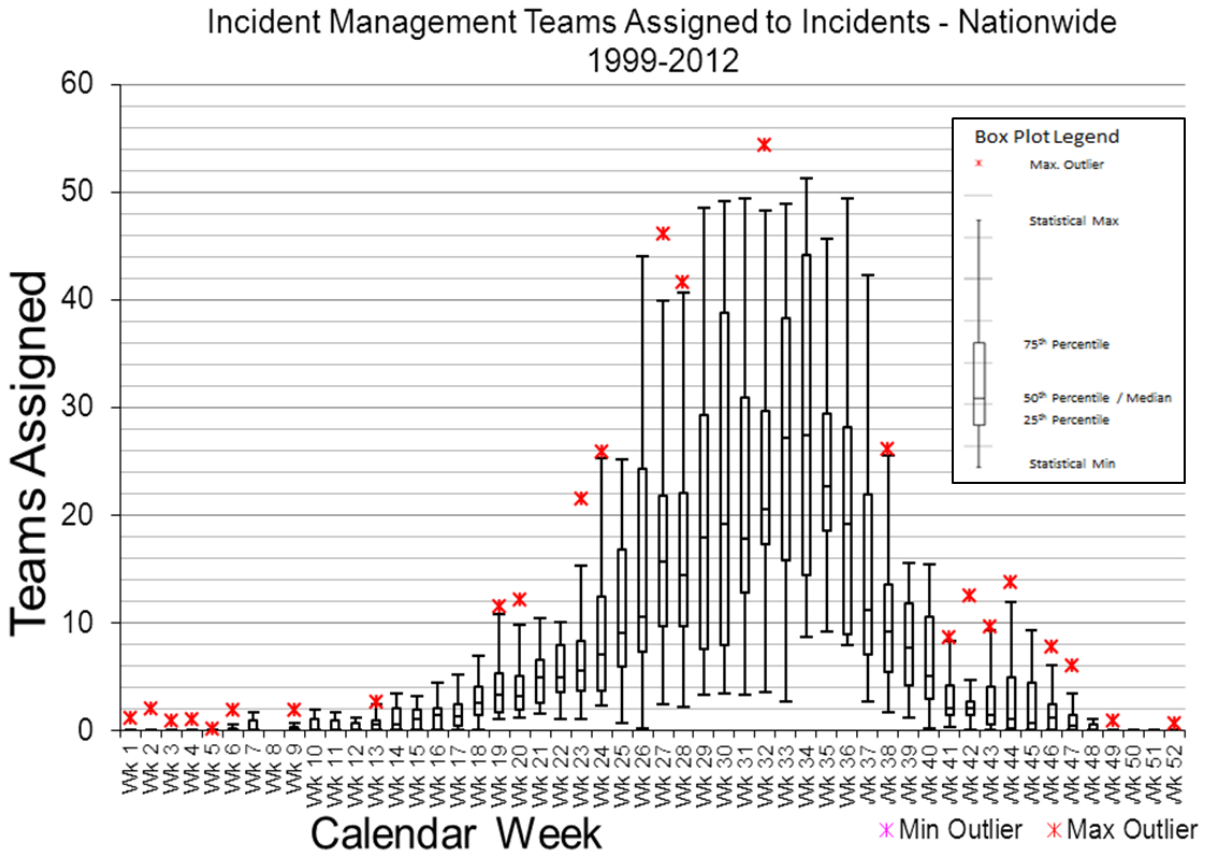
Wildland Fire Incident Management Team (IMT) assignments were assessed for the 14 year period from 1999 through 2012.

- Records from the national Sit-209 databases for those years were analyzed to determine the Year, IMT type, Mobilization Date, Demobilization Date, 209 Incident Number (or 209_Event_ID), 209 Incident Name, and IMT Name.
- The Incident Management Situation Report (IMSR) was also utilized as a reference to find, verify, or cross reference IMT assignments in order to help determine mobilization and demobilization dates.

The IMT Types assessed included Type 1 IMTs, Type 2 IMTs, Fire Use Management Teams (FUMTs), and National Incident Management Organization Teams (NIMO). Data on Area Command assignments was also collected but later discarded since many (most) of these assignments were to support Geographic Areas having multiple large fire events and could not be linked to individual wildland fire events.

National Analysis

The mobilization and demobilization data was collected in order to determine IMT peak use. This data enabled the analyses team to determine the number, likelihood, and average number of IMTs active during any given week. The data includes state IMTs assigned to state incidents as reported on the IMSR.



- All-Hazard response plays into the equation to meet needs as hurricane season typically runs June through November, where the Southern and Eastern Area wildfire and state IMTs could be assigned during July through August, the peak of wildland fire IMT use.

Teams assigned per week from 1999 to 2012 give a clear picture, nationally and geographically, of IMTs assigned linearly over time throughout the fire season. For example: Week 25 is the third week in June, Week 27 is the first of July, Week 34 is the fourth week in August, and Week 37 is the second week in September. (The weeks can be confusing but you can determine what week corresponds to what month by looking at the following table.)

Month	January				February				March					April				May				June				
Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

Month	July				August					September				October				November					December			
Week	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52

Figure 1: Julian Week Calendar, with January 1 beginning on Week 1

Two specific data sets were analyzed; IMTs mobilized and IMTs assigned. It was determined the data set of IMTs assigned to wildland fires provided the most accurate depiction of workload and avoids anomalies of 1) assignment duration from transitions and 2) change of incident commanders. All hazard data was excluded due to the sporadic nature of activity; the increasing capability of local government and FEMA to manage incidents; and the agencies primary mission in support of wildland fire.

The data was evaluated from a national perspective in order to determine peak periods of IMT assignments (reference graph on page 3). For the purpose of this project, the peak IMT use was determined to be Week 25 through Week 37. Two distinct peaks occur; the fourth week of July and the fourth week of August. Find the Week 34 (the fourth week of August) and you will find that the 50th percentile is 28 IMTs assigned and the 75th percentile is 44 IMTs assigned.

Analyzing each year of the data set, 50 percent of the time (7 out the 14 years) the national system exceeded 40 IMTs assigned for one week up to a maximum of eight weeks. These peak assignment periods are not consistent across the years, beginning as early as Week 23 or as late as Week 32.

Geographic Area Analysis

Each geographic area was analyzed independently to determine the weeks defining significant fires requiring assignment of IMTs and the number of simultaneous IMT assignments. The analysis used that period when one or more IMTs were assigned 50% of the time for a given week and last more than three weeks as being part of the season of significant fires. The analysis was done on a daily basis and summarized to the week. The Great Basin geographic areas (East and West) and California geographic areas (North and South) were combined based on IMT operations and management.

We assessed averages by geographic area based on seasonality of their activity in order to determine degrees of overlap between the geographic areas. We looked at each geographic area assigned IMTs for each year of the data set taking into account:

- The week of the year to determine the need for internal versus external needs and capability.

- What percentage of years did the geographic area have enough incidents to support currency, two assignments per year, for their *current* number of IMTs;
- What percentage of years did the geographic area have enough incidents to support currency, two assignments per year, for the *proposed* number of IMTs?

The average number of IMTs assignments per year was derived by looking at number of incidents requiring an incident management team by duration of 14 day increments. This method negated the transitions from Type 2 to Type 1 IMTs and other anomalies.

Observations

- 208 IMTS assignments nationally per year was the average.
- The average length of IMT assignment was 8 days.
- 50 teams would have approximately 4.2 assignments per year on average (34 days).
- 40 teams would have approximately 5.2 assignments per year on average (42 days).
- There is a likely probability that most of the assignments would occur during the 13 week period from third week of June to the second week of September (91 days.)
- There were not enough assignments to meet two assignments per team for 40 teams 1 of 14 years.
- State IMTs that have been identified as surge capacity could potentially be committed to their own incidents and/or all hazard incidents.
- State IMTs in the west have high probability of being assigned to state fires during the western fire season at the same time nationally sponsored IMTs are in high demand.

Geographic Area Feedback

In April 2013, NWCG asked the Geographic Areas for feedback on current standard operating procedures and guidelines at the Geographic Area level by responding to a questionnaire. The geographic areas reported back that only 50 teams were available nationally (without restriction). Currently, there is an estimated 52 IMTs available for national assignment (Type 1 and 2). The proposed 40 IMTs represent approximately 80 percent of current capacity. The questionnaire included the following questions:

- What is the optimal number of Type 1 and Type 2 IMTs for your GA?
- Given current IMT membership, how many Type 1 and Type 2 IMTs can your GA field with full time agency, state, local government, and cooperators for the 27 long team members identified in the National Mobilization Guide (without dependence on ADs or Supplemental Fire Department Resources*)?

  *Note: EIM would like to identify the contribution supplemental local government employees provide to the composition of IMTs for the purpose of future succession planning. "Supplemental Fire Department Resources" are defined as less than full time

employees and/or volunteers who are employed by local fire departments on a part time basis for fire department duties such as training, or solely for the purpose of supporting IMTs. An NWCG memo about supplemental local fire department resources is available at http://www.nwcg.gov/general/memos/nwcg-004-2009.html.

- Is IMT membership prioritized among regular agency employees (federal, state, and local government)?

Geographic Area	Optimal number of IMTS *Type 1+ Type 2*	IMTs without ADs or Supplemental hiring	Is IMT membership prioritized?
Alaska	1+2 = 3	0+0 = 0	Yes
California	4+7 = 11	0+0 = 0	Yes
Eastern	2+1 = 3	0+1 = 1	Yes
Great Basin	3+4 = 7	1.5+2 = 3.5	Yes
Northern Rockies	2+7 = 9	0+0 = 0	No
Northwest	2+9 = 11	1+7 = 8	Yes
Rocky Mountain	1+3 = 4	0+0 = 0	No
Southern	2+9 = 11	1+10 = 11	No
Southwest	2+4 = 6	1+2 = 3	Yes
Total	**65**	**26.5**	

Table 1: Geographic Area Feedback

Only three Geographic Areas reported having a formal analysis for their current number of IMTs. When asked what the optimal number of teams would be for their geographic area, most geographic areas reported their current numbers were optimal and some increased their numbers. Four Geographic Areas reported that they could not host any teams without ADs and supplemental hires. ***Current IMT capability would be halved without ADs and supplemental members***.

Preliminary Recommendations:

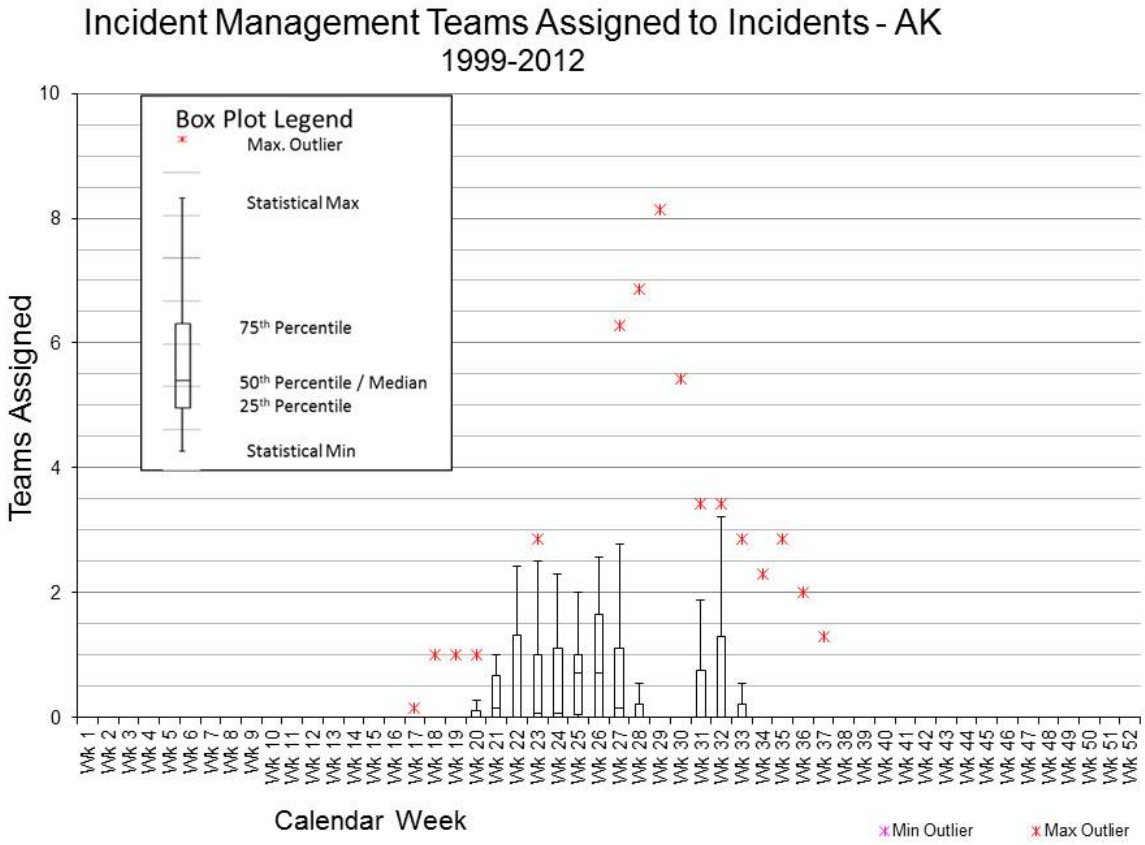
When reviewing the data, it was determined that the 75th percentile was the closest value to use for the distribution of the target number of IMTs across GAs (reference graph on page 3). This value was validated reviewing the number of IMTs simultaneously assigned each year for a geographic area while being able to maintain currency of the teams. Feedback from the GAs will play a role in determining final numbers.

Geographic Area	**IMTs from IMOSP** ***Type 1+ Type 2+WFMT***	**IMTs from EIM Questionnaire[2]** ***Type 1+ Type 2***	**Geographic Area IMT Recommendation based on Data Analysis**	**Recommended Change in IMTs**
Alaska	1+2 = 3	1+1 = 2	1	-1
California	4+7 = 11	4+6 = 10	9	-1
Eastern	0+0 = 0	0+1 = 1	1	0
Great Basin	2+6 = 8	2+5 = 7	6	-1
Northern Rockies	2+5+1.5 = 8.5	2+7 = 9	6	-3
Northwest	2+6 = 8	2+6 = 8	7	-1
Rocky Mountain	1+2 = 3	1+3 = 4	3	-1
Southern	2+1 = 3	2+1 = 3	2	-1
Southwest	2+4+0.5 = 6.5	2+4 = 6	5	-1
Total	**52**	**50**	**40**	**-10**

Table 2: Recommended IMT Numbers by GA

[2] Federal IMTs available nationally without restriction

Preliminary Recommendations for Alaska:



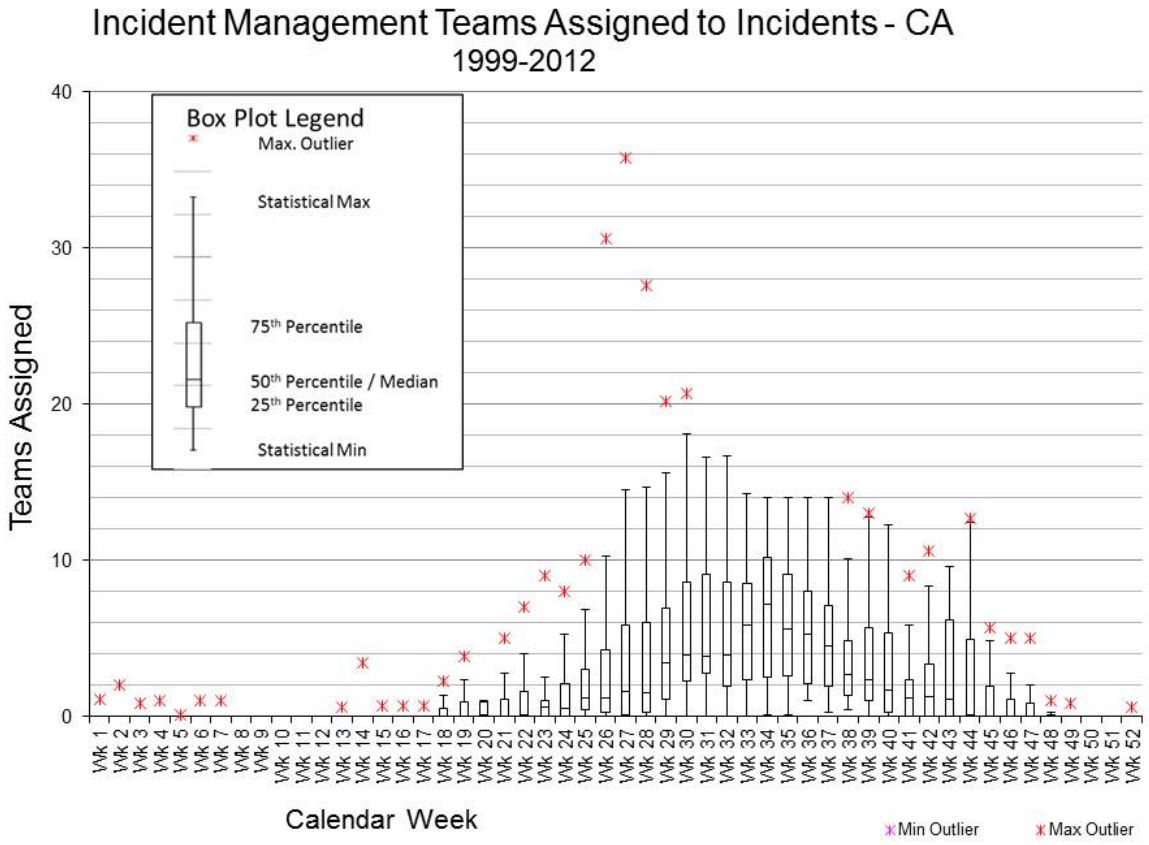
For Alaska, the season of significant fires is from mid-June (week 25) to the beginning of July (week 27).

With the exception of 2004, Alaska has not exceeded 3 IMTs assigned for a given week in any year. Of the 14 years in the analysis eight (8) of those could be accommodated with two (2) or less IMTs. In the remaining four years, needs for five (5) years would have been met with a third team.

The challenge for Alaska will be team currency, where teams should be able to see two assignments internal to their geographic area, as there are two (2) years out of 14 where having one (1) IMT they would not meet currency unless assigned out of area.

Recommendation: 1 IMT

Preliminary Recommendations for California (North & South Zone):



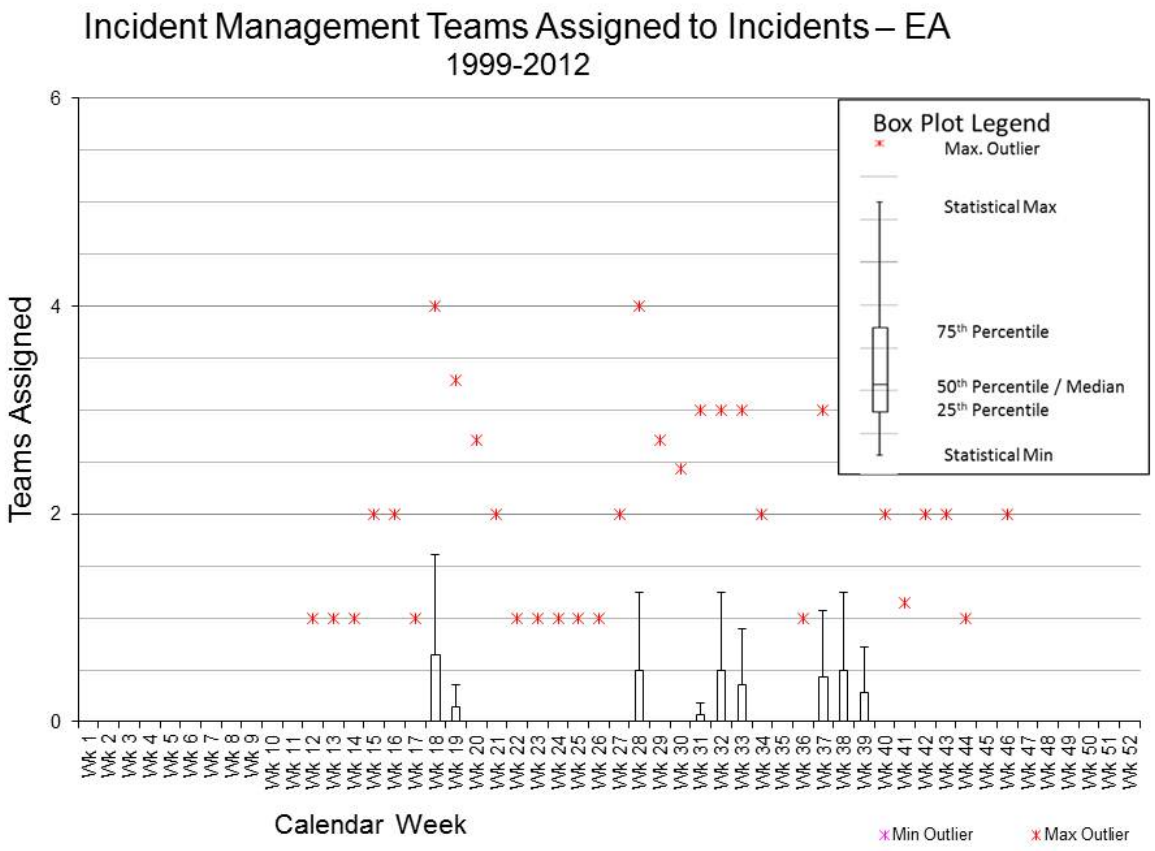
For California, the season of significant fires is from late-May/early-June (week 22) thru early-November (week 44).

With the exception of 2008, California has not exceeded 15 IMTs assigned for a given week in any year. Of the 14 years in the analysis ten (10) of those could be accommodated with eleven (11) or less IMTs. In the remaining four years, needs for three (3) years would have been met with 15 teams.

The challenge for California will be team currency with 11 teams, where teams should be able to see two assignments internal to their geographic area, as there are three (3) years out of 14 where having eleven (11) IMTs they would not meet currency unless assigned out of area. With nine (9) IMTs currency would be covered except for one year.

Recommendation: 9 IMTs

Preliminary Recommendations for Eastern Area:



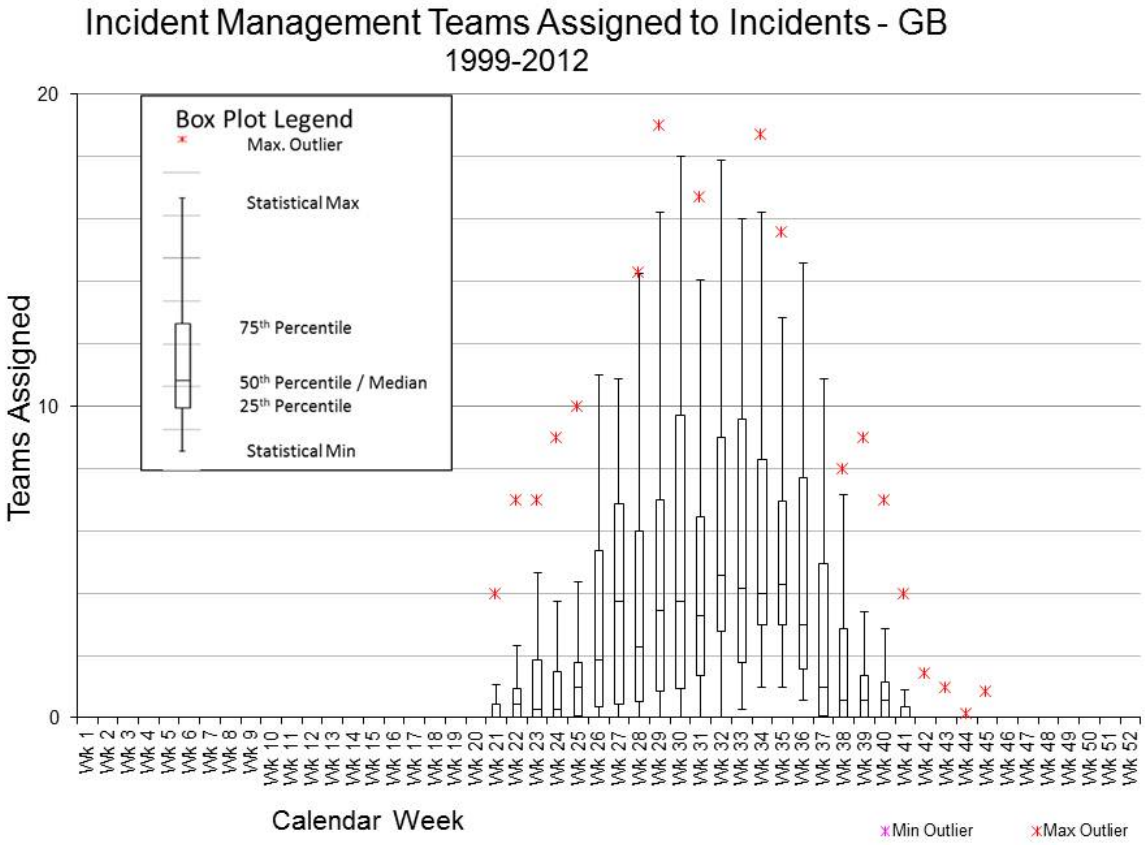
For Eastern Area, the season of significant fires is never attained. Fires have occurred from late-March (week 12) thru late-November (week 47).

With the exception of 2006 and 2007 Eastern Area has not exceeded 2 IMTs assigned for a given week in any year. Of the 14 years in the analysis ten (10) of those could be accommodated with one (1) IMT. In the remaining four years, needs for two (2) years would have been met with 2 teams.

The challenge for Eastern Area will be team currency with 1 team, where teams should be able to see two assignments internal to their geographic area, as there are two (2) years out of 14 where having one (1) IMT they would not meet currency unless assigned out of area.

Recommendation: 1 IMT

Preliminary Recommendations for Great Basin (East and West):



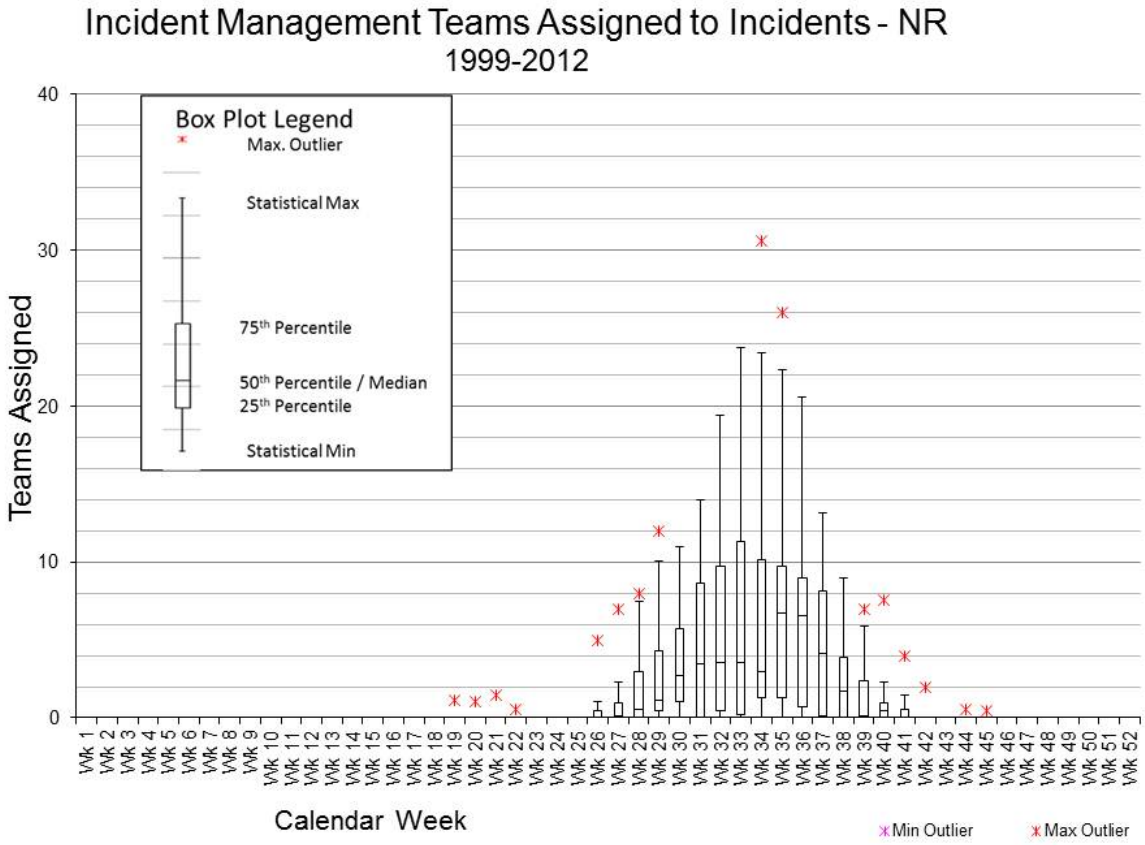
For Great Basin (combined Western and Eastern Great Basin), the season of significant fires is from late-May/early-June (week 22) thru early-October (week 40).

With the exception of 2000, 2006 and 2007 the Great Basin has not exceeded 12 IMTs assigned for a given week in any year. In those years 18, 19 and 19 IMTs respectively was the maximum. Of the 14 years in the analysis ten (10) of those could be accommodated with eight (8) or less IMTs. In the remaining four years, needs for three (3) years would have been met with 12 teams.

The challenge for Great Basin will be team currency with 8 teams, where teams should be able to see two assignments internal to their geographic area, as there are five (5) years out of 14 where having eight (8) IMTs they would not meet currency unless assigned out of area. With six (6) IMTs currency would be covered except of three (3) years.

Recommendation: 6 IMTs

Preliminary Recommendations for Northern Rockies



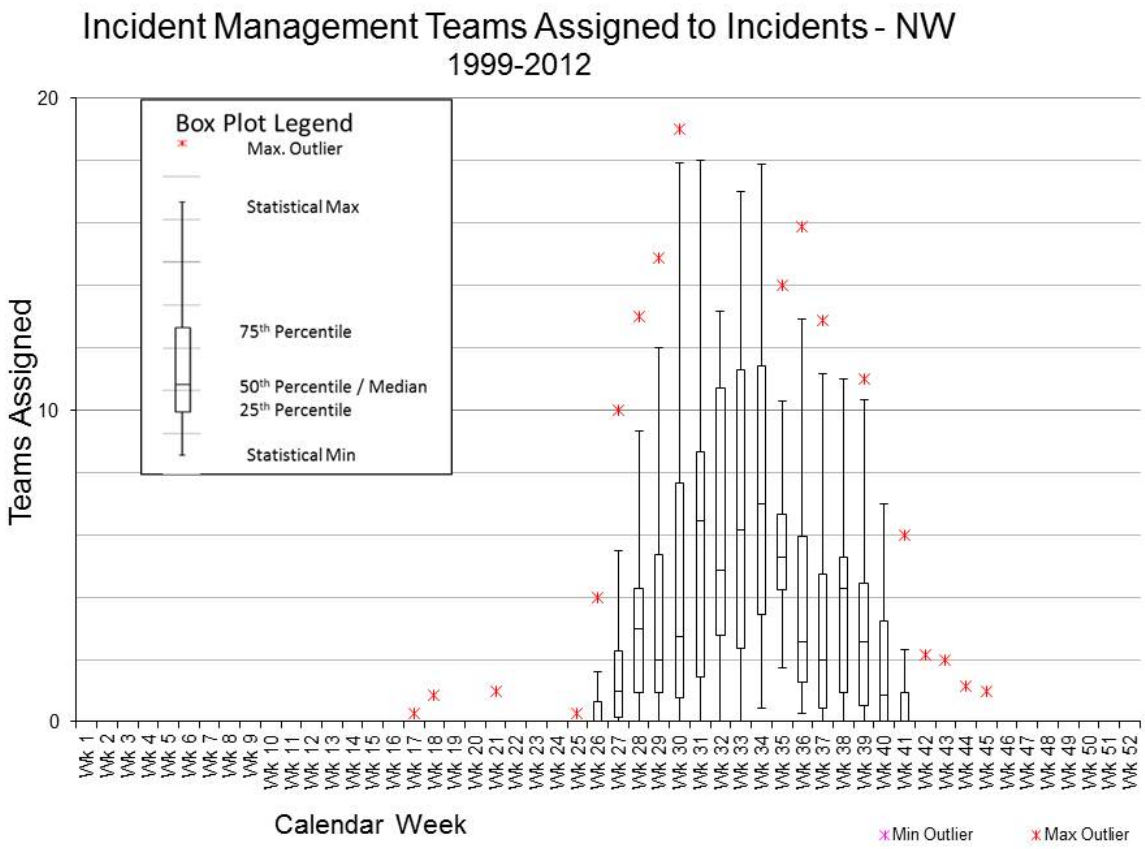
For Northern Rockies, the season of significant fires is from early-July (week 27) thru early-October (week 40).

With the exception of 2000, 2003, and 2007 the Northern Rockies has not exceeded 12 IMTs assigned for a given week in any year. In those years 30, 31 and 19 IMTs respectively was the maximum. Of the 14 years in the analysis ten (10) of those could be accommodated with ten (10) or less IMTs. In the remaining four years, needs for three (3) years would have been met with 12 teams.

The challenge for Northern Rockies will be team currency with 8 teams, where teams should be able to see two assignments internal to their geographic area, as there are six (6) years out of 14 where having eight (8) IMTs they would not meet currency unless assigned out of area. With six (6) IMTs currency would have been covered except for three (3) years.

Recommendation: 6 IMTs

Preliminary Recommendations for Northwest



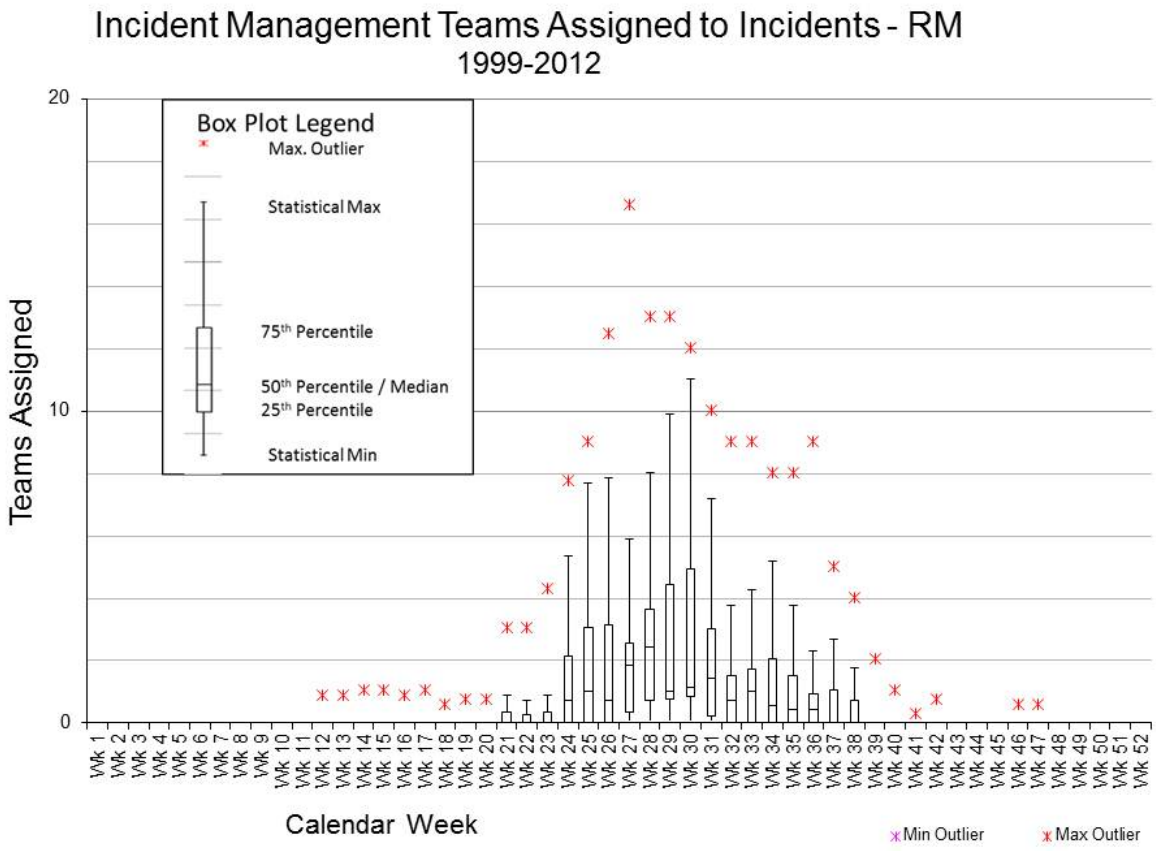
For Northwest Area, the season of significant fires is from early-July (week 27) thru early-October (week 40).

The Northwest Area has seen four exception fire load year capture in the data, 2001, 2002, 2006 and 2007 when IMTs assigned reached a maximum for a given week of 18,19, 16 and 14, respectively. Of the 14 years in the analysis ten (10) of those could be accommodated with twelve (12) or less IMTs. In the remaining four years, needs for three (3) years would have been met with 13 teams.

The challenge for Northwest Area will be team currency with 12 teams, where teams should be able to see two assignments internal to their geographic area, as there are seven (7) years out of 14 where having twelve (12) IMTs they would not meet currency unless assigned out of area. With seven (7) IMTs currency would be covered except for two (2) years.

Recommendation: 7 IMTs

Preliminary Recommendations for Rocky Mountain



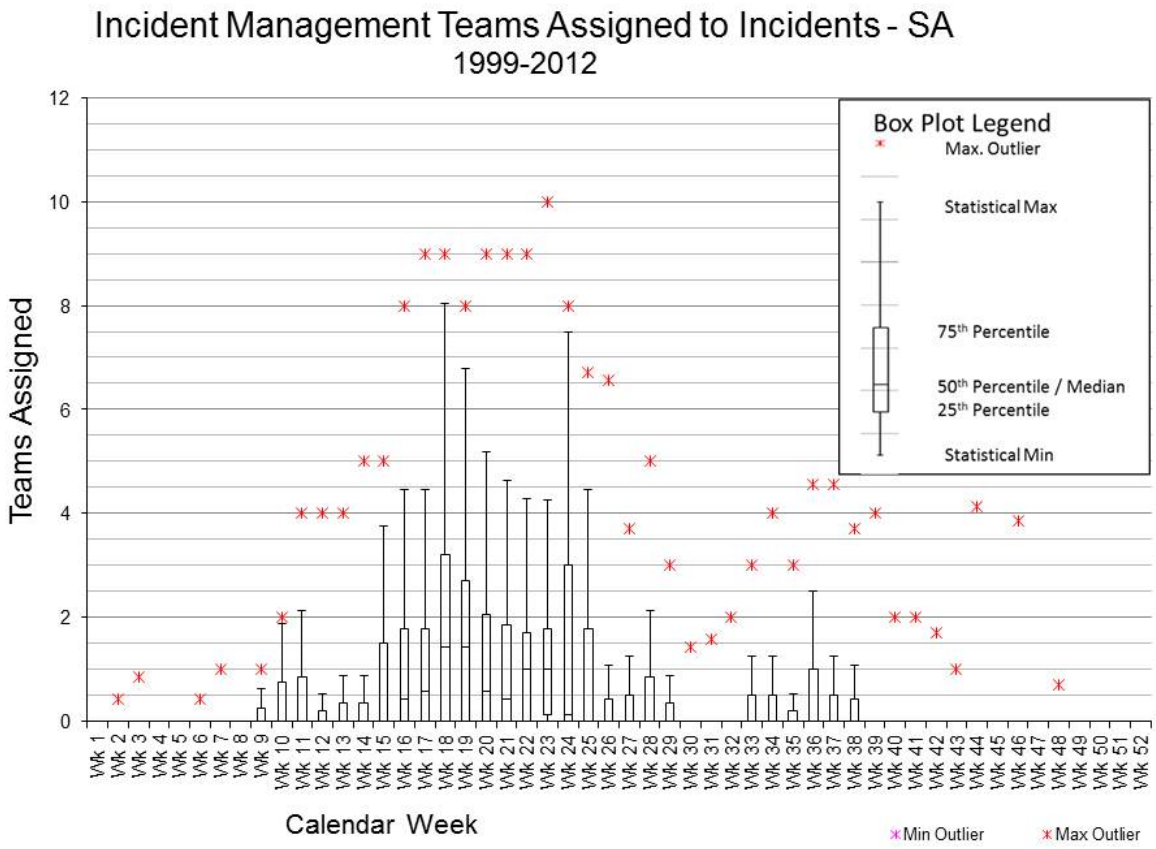
For Rocky Mountain Area, the season of significant fires is from mid-June (week 24) thru early-September (week 36).

With the exception of 2002 and 2012 the Rocky Mountain Area has not exceeded 6 IMTs assigned for a given week in any year. In those years 17 and 10 IMTs respectively was the maximum. Of the 14 years in the analysis eleven (11) of those could be accommodated with five (5) or less IMTs. In the remaining three years, and one (1) year there was a need for 6 teams, while the other two are the peak years of 2002 and 2012.

The challenge for Rocky Mountain Area will be team currency with 5 teams, where teams should be able to see two assignments internal to their geographic area, as there are nine (9) years out of 14 where having five (5) IMTs they would not meet currency unless assigned out of area. With three (3) IMTs currency would be covered except for one year.

Recommendation: 3 IMTs

Preliminary Recommendations for Southern Area



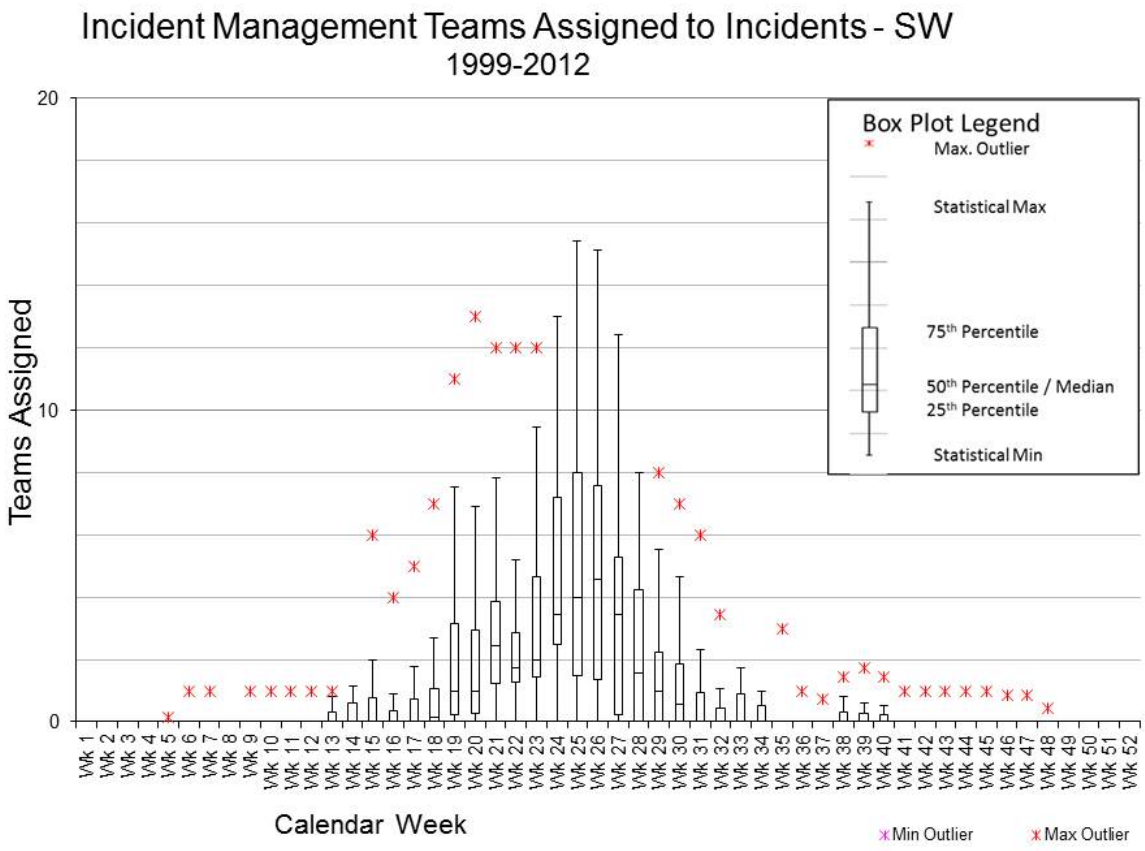
For Southern Area, the season of significant fires is from mid-April (week 16) thru early-June (week 24).

With the exception of 2007 and 2011 the Southern Area has not exceeded 6 IMTs assigned for a given week in any year. In those years 8 and 7 IMTs respectively was the maximum. Of the 14 years in the analysis ten (10) of those could be accommodated with five (5) or less IMTs. In the remaining four years, needs for two (2) years would have been met with 6 teams.

The challenge for Southern Area will be team currency with 5 teams, where teams should be able to see two assignments internal to their geographic area, as there are seven (7) years out of 14 where having five (5) IMTs they would not meet currency unless assigned out of area. With two (2) IMTs currency would be covered except for three (3) years.

Recommendation: 2 IMTs

Preliminary Recommendations for Southwest



For Southwest Area, the season of significant fires is from early-May (week 18) thru late-July (week 30).

With the exception of 2000, 2006 and 2011 the Southwest Area has not exceeded eight (8) IMTs assigned for a given week in any year. In those years 11, 11 and 15 IMTs respectively was the maximum. Of the 14 years in the analysis eleven (11) of those could be accommodated with eight (8) or less IMTs.

The challenge for Southwest Area will be team currency with 8 teams, where teams should be able to see two assignments internal to their geographic area, as there are five (5) years out of 14 where having eight (8) IMTs they would not meet currency unless assigned out of area. With five (5) IMTs currency would be except for two (2) years.

Recommendation: 5 IMTs