

2021

YEAR END REPORT



ASSOCIATION

OF OLD CROWS

Submitted by:

Shelley Frost

Executive Director

Association of Old Crows (AOC)

The Association of Old Crows (AOC) is an organization for individuals who have common interests in Electronic Warfare (EW), Electromagnetic Spectrum Operations (EMSO), Cyber Electromagnetic Activities (CEMA), Information Operations (IO), and other information related capabilities. The Association of Old Crows provides a means of connecting members and organizations nationally and internationally across government, defense, industry, and academia to promote the exchange of ideas and information and provides a platform to recognize advances and contributions in these fields.

Advancing Electromagnetic Warfare TOGETHER

INTRODUCTION



ASSOCIATION
OF OLD CROWS

Over the past year, AOC has continued to prosper during the continued global pandemic. We adjusted and expanded in-person and virtual programs to support our members' dynamic and changing needs during these unprecedented times. In the spring, we held our first in-person conference in more than 18 months, CEMA 2021, and executed a virtual EMS summit. In the Fall, we conducted a virtual AOC Asia summit, an in-person AOC Europe, and a much-anticipated, highly attended return to our in-person Annual Symposium & Convention. In addition, we launched two podcast series, *From the Crows' Nest* and the *History of Crows*.

We saw a decrease in virtual course participation compared to 2020, which can be attributed to many factors, including a return to work, increased travel, and virtual attendance fatigue.

We developed a product showcase for industry partners to promote products and created the Crow Career Builder, a mentorship program to expand our young crow initiative. Individual membership numbers remained constant, while industry memberships saw some growth. The board passed an aggressive five-year strategy with the vision to be the premier global professional association advocating across defense, industry, government, military, and academia for achieving and sustaining a military advantage in the EMS by 2026. This report is a quick glimpse at the achievements of AOC for 2021. They are numerous and indicative of an active and financially solid program and way forward for AOC.

BOARD ACTIVITIES

2021 AOC Board of Directors

President	Glenn "Powder" Carlson
Vice-President	Brian Hinkley
Secretary	Mark Schallheim
Treasurer	Greg Patschke
International Rep.	Bob Andrews
At Large Directors	Bob Andrews, Rich Wittstruck, Haruko Kawahigashi, Brian Hinkley, Greg Patschke, and Mike Ryan
Regional Directors	Central Director – Keith Everly Mid-Atlantic Director – Jim Pryor Northwestern Director – Mark Schallheim Pacific Director – Rick Lu International I Director – Sue Robertson International II Director – Jurgen Opfer Southern Director – Karen Brigance Mountain-Western Director – Sam Roberts Northeast Director – Myles Murphy
Past President	Muddy Watters
Appointed Directors	Judge Bourque, Tuhin Das

Annual Election

The annual election was conducted October 1-31, 2021, for the 2022 Board of Directors. Results of the election were:

President-Elect: Brian Hinkley

Two (2) At-Large Directors: Nino Amoroso and Steve Oatman

Mountain Western Director: Wayne Shaw

Mid-Atlantic Director: Dennis Monahan

Central Director: Jim Utt

Outgoing Board members: Bob Andrews, Keith Everly, Jim Pryor, Sam Roberts and Rich Wittstruck

Meetings

The Board of Directors kept busy in 2021, holding 6 virtual board meetings and one in-person board meeting.

Date	Description
January 14, 2021	Virtual
March 11, 2021	Virtual
May 13, 2021	Virtual
July 8, 2021	Virtual
September 9, 2021	Virtual
November 11, 2021	Virtual
December 3, 2021	In-Person

Strategic Planning

Brian Hinkley led the strategic planning committee. The Board approved a Five-Year Strategy

The Board approved the 2022 Operating Plan (OpMan 14 Appendix A) in October 2020. This operating plan enables Board members, committee leads, Executive Director, and staff to have a common understanding of the overall objectives for the coming year.

A summary of the priorities and look ahead can be found at the end of this document. The specific details can be found in OpMan 14 Appendix A online at [crows.org](https://www.crows.org).
<https://www.crows.org/page/governingdocuments>

AOC Governing Documents

Many OpMans (AOC's Governing Documents) were revised during 2021; the effective dates are shown in the table below. OpMans can be found on the top menu bar (under About) of the AOC home page ([crows.org](https://www.crows.org)) after you have logged in. <https://www.crows.org/page/governingdocuments>

OPMAN	EFFECTIVE DATE
11 – Purposes and Responsibilities	February 2, 2021
13 – Bylaws of the Association of Old Crows	March 11, 2021
14 – AOC Strategic Positioning	July 25, 2018
15 – Code of Ethics	March 11, 2021
16 – Meeting Minutes	April 26, 2019
17 – Board/Chapter Operations	February 8, 2021
18 – Non-Discrimination Policy	February 16, 2021
21 – Financial Management	February 12, 2020
22 – Reserve Fund Policy	July 17, 2019
23 – Travel and Expense Reimbursement	March 11, 2021
24 – Records Retention	February 2, 2021
25 – Anti-Trust Compliance Policy	March 19, 2017
31 – Awards Program	March 11, 2021
32 – Nominations and Election Committee	March 11, 2021
41 – Conference Planning, Operations, and Reporting	April 26, 2019
42 – Certification Program	November 11, 2021
51 – Conducting Classified Events	February 19, 2021
72 – Annual Chapter Recognition Program	October 31, 2019
73 – Publishing Chapter Events in the JED/eCrow	October 31, 2019
74 – Establishing, Maintaining, and Closing AOC Chapters	April 26, 2019
92 – Human Resource Management	March 11, 2021

2022 AOC Board of Directors

President	Glenn "Powder" Carlson
President-Elect	Brian Hinkley
Secretary	Mark Schallheim
Treasurer	Greg Patschke
International Executive	Sue Robertson
At Large Directors	Haruko Kawahigashi, Brian Hinkley, Greg Patschke, Mike Ryan, Nino Amoroso, and Steve Oatman
Regional Directors	Central Director – Jim Utt Mid-Atlantic Director – Dennis Monahan Northeast Director – Myles Murphy Northwestern Director – Mark Schallheim Pacific Director – Rick Lu International I Director – Sue Robertson International II Director – Jurgen Opfer Southern Director – Karen Brigance Mountain-Western Director – Wayne Shaw
Past President	Muddy Watters
Appointed Directors	Tuhin Das, Jesse "Judge" Bourque

Annual Assembly of Delegates

The meeting of AOC Delegates (chapter representatives) was held in person on December 1, 2021 in conjunction with the Annual Symposium. The meeting provided recap of the year by the president and the swearing in of the 2022 Board of Directors.



FINANCIAL

The Finance Committee held several meetings throughout the year to closely monitor the finances with a top priority of keeping the AOC relevant during the continuing pandemic. Fortunately, with the return of in-person events and a launch of an extremely successful podcast series, we are ending the year on a very strong foundation. We exceeded expectations by ending the year with a projected net operating surplus of \$434,634 helping to offset the loss from 2020.

AOC Reserve Fund Allocation - \$2,116,000

OPMAN 22 mandated contingency (50% of internal operating budget plus anticipated capital expenses for the next 10 years)

AOC Current Obligations - \$394,750

Chapter Sustainment, 3 Year/Life Membership, Accrued Time Off

AOC Account Balances - \$4,912,621

Schwab (Fixed Income & Equities) - \$4,655,414; Checking - \$257,207

Available "Extra Funding" - \$2,836,506

Account Balances – (Reserve Fund + Operating Obligations) + Net Operating Income

AOC is financially solvent coming out of 2021 and has a stable foundation to start FY 2022.

2020 Financial Audit

The 2020 independent audit report's release showed a loss of \$488,745 (income from operation expenses) and that current financial operations reflect sound practices.

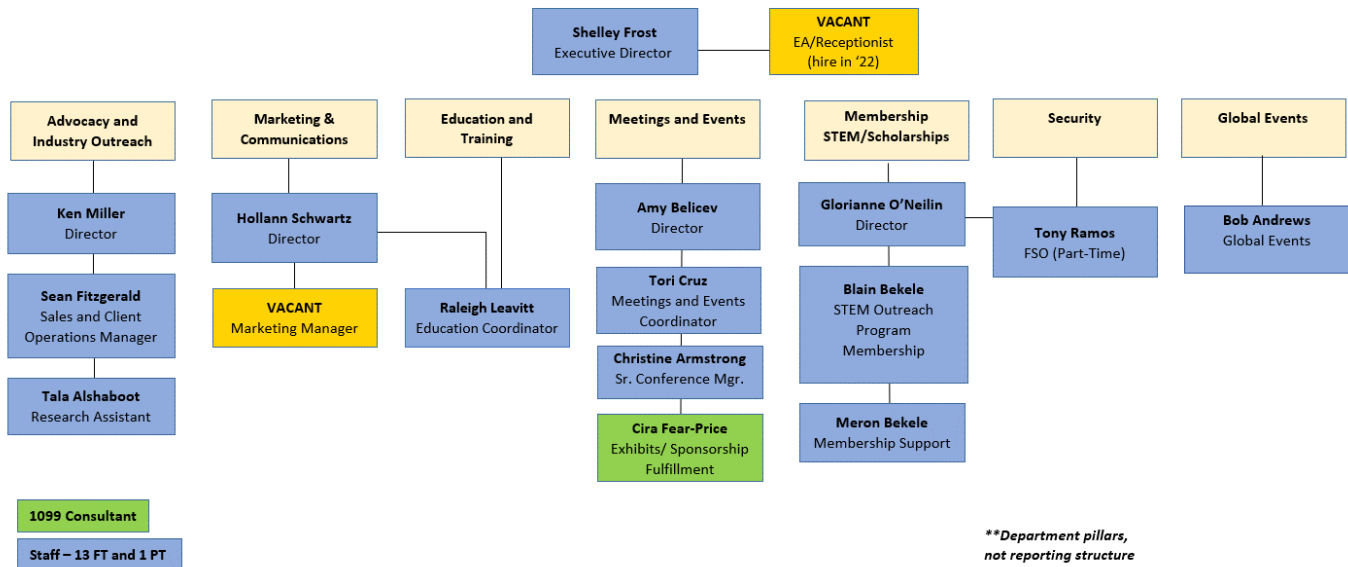
The table below shows audit report income (loss) from operations for years 2015 through 2020. The 2021 audit is scheduled for April 2022.

	2021 projected	2020	2019	2018	2017	2016	2015
Revenue	~\$3,534,518	\$2,009,909	\$4,375,436	\$3,389,992	\$3,440,150	\$3,102,935	\$3,055,950
Expenses	~\$3,113,628	\$2,498,654	\$3,700,666	\$3,498,698	\$2,975,067	\$2,831,748	\$2,715,962
Income (loss) from operations	~\$ 420,890	\$488,745 *COVID	\$674,770	\$108,706 *market correction	\$465,083	\$271,187	\$339,988

OPERATIONS

HQ Staff

As of December 2021, the staff is composed of fifteen (15) AOC people (12 full-time, two part-time and one consultant). An organization chart is provided below:



2021 Staff Changes

- Bob Andrews, hired in December, Director of Global Events
- Raleigh Leavitt, hired in October, Education Coordinator
- Tala Alshaboot, hired in Jan 2021, Research Assistant
- Departing employees: Caleb Herr, Marketing Associate (resignation)

Contractor Services

Outside contractor services will continue in 2022 with information technology services by TSI and bookkeeping & accounting by Consultance Accounting Services.

Naylor Agreement

AOC has contracts with Naylor Association Solutions to produce the weekly electronic newsletter eCrow and the monthly publication *Journal of Electromagnetic Dominance (JED)* on our behalf. The contract for e-Crow expires in 2023 and the contract for the JED expires 2024.

MEMBERSHIP

Despite chapters being unable to hold in-person meetings, overall individual memberships show a slight increase in individual membership and a slight decrease in industry membership compared to 2020 (see chart below). AOC continues to offer special membership dues incentives such as student memberships, active-duty military, and one-year memberships tied to certain AOC events/activities.

The Membership Committee consisted of chairman Tuhin Das and Regional Directors Keith Everly, Jim Pryor, Mark Schallheim, Rick Lu, Sue Robertson, Jurgen Opfer, Karen Brigrance, Sam Roberts, and Myles Murphy.

Membership	Dec 2021	Dec 2020	Dec 2019	Dec 2018	Dec 2017	Dec 2016	Dec 2015
US	11,391	11,306	10,849	10,419	10,078	10,340	10,519
International	2,938	2,948	2,901	2,643	2,722	2,493	2,416
Total	14,329	14,254	13,750	13,062	12,800	12,833	12,935
Industry	216	226	217	230	221	211	205

AOC Membership continues to provide potential crows with insight into “Why be a Crow?” and implement changes to increase both industry and individual member benefits.

Young Crow Membership

In 2017 AOC launched the “New Crow” initiative awarding free membership to individuals 25 years and younger for three years. 2020 was the first year for converting these individuals to paid members and 2021 saw a decline in renewals for this membership type. This initiative will be conducted over a 5-year initial trial period (ending in 2022). HQ will keep metrics and track these individuals’ renewals but will need the chapters to take on the responsibility of engaging and retaining these young members.

24 and Younger Members	Dec 2021	Dec 2020	Dec 2019	Dec 2018	Dec 2017
Total	1,016	1,058	1,014	565	331

AOC HQ always provides support for chapter membership drives upon request.

Chapter Sustainment Initiative Program – Assistance Fund

A chapter assistance fund was initiated in 2015 with the funds from a defunct Chapter. Monies may be disbursed to chapters with funding and/or financial needs based on stipulations contained in OpMan 74, Section II, Paragraph H. The current balance is \$50,728. A history of disbursements is provided below:

Month/Year	Balance	Note
June 2015	\$79,791	Initial Funding
2015	\$78,291	\$1,500 total disbursements
2016	\$76,291	\$2,000 total disbursements
2017	\$72,041	\$4,250 total disbursements
2017	\$86,729	\$14,688 funding from closing of two chapters
2018	\$76,634	\$10,095 total disbursements
2019	\$53,036	\$23,599 total disbursements
2019	\$53,378	\$341 funding from closing of one chapter
2020	\$53,946	\$568 funding from closing of one chapter
2020	\$50,728	\$3,218 total disbursements
2021	\$49,728	\$1,000 total disbursements
2021	\$49,452	\$276 Audit adjustment

Chapters

Northwest Region (5 chapters) – Frozen Crows Chapter, Joint Base Lewis McChord Chapter, Mile High Country Crows Chapter, Pikes Peak Roost Chapter, Whidbey Roost Chapter

Pacific (6 chapters) – Cabrillo Crows Chapter, Diamond Head Chapter, Golden Gate Chapter, Greater LA Chapter, Mugu Crows Chapter, Santa Barbara Chapter

Mountain West (9 chapters) – Cochise Roost Chapter, Billy Mitchell Chapter, Dallas Chapter, Desert Sun Roost Chapter, Fort Worth Chapter, Querque Chapter, Southwestern Chapter, Golden Spike Chapter, Capital of Texas Crows Chapter

Central Region (6 chapters) – Crane Roost Chapter, Gateway Chapter, KittyHawk Chapter, Windy City Chapter, Air Capital Roost Chapter, Ravens Roost Chapter

Northeast (7 chapters) – Empire Chapter, Garden State Chapter, Granite State Chapter, Maple Leaf Chapter, Metropolitan Chapter, Niagara Frontier Chapter, Patriots' Roost Chapter

Mid-Atlantic (8 chapters) – APG Susquehanna Chapter, Capital Club Chapter, Chesapeake Bay Roost Chapter, Dahlgren Chapter, Independence Chapter, Pax River Chapter, Charlie Yankee Roost Chapter

Southern (9 chapters) – Dixie Crow Chapter, Emerald Coast Chapter, Green Jacket Roost Chapter, Gulf Crow's Nest Chapter, Palmetto Roost Chapter, Peachtree Roost Chapter, Barksdale Command Chapter, Redstone Rebel Chapter, Citrus Roost Chapter

International I (12 chapters) – Aardvark's Roost Chapter (South Africa), Arctic Roost Chapter (Norway), De Ooievaar Chapter (Netherlands), India Chapter (India), Israeli Chapter (Israel), Roma Chapter (Italy), La Fayette Chapter (France), Red Baron Roost Chapter (Germany), Saudi Arabia Chapter (Saudi Arabia), Swiss Crows Chapter (Switzerland), UK Chapter, (United Kingdom), Viking Roost Chapter (Sweden)

International II (8 chapters) – AOC Japan Chapter (Japan), Australian Chapter (Australia), Kiwi Chapter (New Zealand), ROK Roost Chapter (South Korea), Singapore Chapter (Singapore), Taipei Chapter (Taiwan, R.O.C.), Wild Parrots Roost Chapter (Brazil) and Condor Chapter (Chile)

Membership committee is working on creating a chapter in the Czech Republic and developing university clubs.

Changes in 2021

New: Citrus Roost Chapter

2021 Chapter of the Year Winners

Large Category

Chapter of the Year: Dixie Crow Chapter

Distinguished Chapter Award: UK Chapter

Excellent Chapter Award: Capitol Club Chapter

Medium Category

Chapter of the Year: Garden State Chapter

Distinguished Chapter Awards: APG Susquehanna Chapter, Patriots Roost Chapter, Palmetto Roost Chapter

Outstanding Chapter Awards: Mugu Chapter, Granite State Chapter, Billy Mitchell Chapter, Windy City Roost Chapter

Small Category

Chapter of the Year: Diamond Head Chapter

Excellent Chapter Awards: Pikes Peak Roost Chapter, Whidbey Roost Chapter

Regional Chapter Greatest Increase Award

Central Region: Kittyhawk Chapter

Mid-Atlantic Region: Independence Roost Chapter

Mountain-Western Region: Billy Mitchell Chapter

Northeastern Region: Garden State Chapter

Northwestern Region: Frozen Crows Chapter

Pacific Region: Greater LA Chapter

Southern Region: Peachtree Roost Chapter

International Region I: Arctic Roost Chapter

International Region II: Australian Chapter

Overall Greatest Increase Winner: Australian Chapter

EVENTS

Conferences

One in-person conference and two virtual events were held in 2021. It is anticipated that AOC will host 5 conferences in 2022.

Conference	2021	2020 (Cancelled COVID-19)	2019	2018	2017	2016
Modern Threats: SAMs Huntsville, AL	-	-	Feb 5 321 attendees	-	-	-
Collaborative EW Symposium Pt Mugu, CA	-	-	Mar 2-4 620 attendees	Mar 13-15 564 attendees	April 25-27 589 attendees	April 5-7 556 attendees
Security Cooperation: EW & FMS GTRI Atlanta, GA	-	-	Apr 29-May 1 234 attendees	n/a	May 15-19 265 attendees	n/a
Capability Gaps and Enabling Technologies Crane, IN	-	-	May 14-16 313 attendees	May 8-10 264 attendees	May 9-11 242 attendees	May 10 -12 243 attendees
EW/Cyber Convergence Charleston, SC	-	-	June 4-6 157 attendees	June 5-7 169 attendees	June 6-8 186 attendees	June 7 – 9 172 attendees
EMS Engineering and Acquisition Dahlgren, VA	-	-	Sept 10-11 138 attendees	-	Sept 26-28 132 attendees	Sept 20 -22 216 attendees
CEMA, APG, MD	May 25-26 Virtual = 263 In-Person = 223	-	Oct 8-10 804 attendees	Oct 23-25 761 attendees	Oct 17-19 776 attendees	Oct 18-20 770 attendees

Due to the continued restrictions on gatherings as related to the COVID-19 pandemic AOC was only able to host CEMA 2021 in person (modified to an unclassified, restricted audience, with a virtual stream of the sessions).

AOC Discussions

To meet the needs of our community and continue providing a forum for critical conversations AOC created a virtual program called AOC Discussions. The program brought together thought-leaders and change-makers within electromagnetic spectrum operations across military, government, and industry. These in-depth talks provided insight into how U.S. and coalition forces address challenges in the EMS across air, land, sea, space, and cyber. Speakers were General John E. Hyten, Vice Chairman of the Joint Chiefs of Staff; General David "DT" Thompson, Vice Chief of Space Operations, United States Space Force; General Charles Q. Brown, Jr., Chief of Staff, Air Force; Honorable Dr. Bruce D. Jette, Former Assistant Secretary of the Army for Acquisition, Logistics & Technology (ASA(ALT)) & Army Acquisition Executive (AAE); Vice Admiral Jeffrey Trussler, Deputy Chief of Naval Operations for Information Warfare, N2/N6, Office of the Chief of Naval Operations/Director of Naval Intelligence; and Air Chief Marshal Sir Stuart Peach, Chairman of the NATO Military Committee, NATO Headquarters. Total registrations: 563

2021 EMS Virtual Summit

Building upon the success of the 2020 EMS Virtual Summit, AOC hosted a 2021 EMS Virtual Summit. The one-day virtual summit featured sessions and discussions on Collaborative Electromagnetic Warfare, Force Level Electromagnetic Warfare, and other EW-related topics. Total registrations: 701

Annual Symposium

AOC 2021 | November 30 – December 2, 2021 | Washington, D.C. Convention Center

Theme: All-Domain Operations - Integrating Effects Across the Spectrum

AOC was excited to return in person for AOC 2021, the 58th Annual AOC International Symposium & Convention, after missing the 2020 event due to the COVID-19 pandemic. While we planned for a conservative event, we ended up with one of the most financially successful events in AOC's history. The overall takeaway from the event was "the right people were there, and the right conversations were brought to the table". The Convention Committee was chaired by Jim "Hook" Pryor and was comprised of Scott Cooper, Bill Conley, Jeff "Squeal" Kawada, Ken Miller, and Amy Belicev.

	2021 D.C. Conv. Center	2020 Cancelled	2019 D.C. Conv. Center	2018 D.C. Conv. Center	2017 D.C. Conv. Center	2016 D.C. Conv. Center
10x10 Booths	171	-	178	163	169	153
Companies	109	-	120	103	107	98
Paid Registrants	246	-	261	301	294	281
Full Attendance	1,703	-	1,978	1,870	1,633	1,550

AOC 2021 estimated revenue and expenses are shown in the table below.

	2021 Estimates	2020 (Cancelled COVID-19)	2019 Actual	2018 Actual	2017 Actual	2016 Actual
Paid Registrations	~\$209,420	-	\$230,885	\$259,958	\$263,300	\$235,541
Exhibitors (includes room rentals)	~\$1,028,920	-	\$1,051,117	\$981,643	\$972,272	\$868,455
Sponsors	~\$342,000	-	\$325,450	\$281,381	\$177,300	\$192,345
Show Daily	n/a	-	\$3,000	\$9,750	\$17,325	\$14,575
Total Revenue	~\$1,580,340	-	\$1,610,712	\$1,532,732	\$1,430,197	\$1,310,916
Expenses	~\$693,084	-	\$709,271	\$811,428	\$699,021	\$714,856
Net Revenue/Surplus	~\$887,255	-	\$903,153	\$721,304	\$731,176	\$596,060

International attendance was down to approximately 11% (15-20% historically), which was anticipated with the travel restrictions and mandates varying from country to country.

AOC's *From the Crows' Nest* podcast recorded and released 15 episodes live from the show floor featuring interviews with speakers, exhibitors, and convention planning committee members. Adoption rates were through the roof. Releasing episodes during the event allowed for those unable to attend in person to be part of the conversation. The podcast also filled the need for deeper analysis on topics our community is craving.

Another new effort introduced this year was scheduling "Meet & Greets" in the Crows' Nest. These informal gatherings successfully created small group discussions on AOC programs giving members the chance to ask questions, learn how to get involved, and maximize their AOC memberships to the fullest potential.

Other notable activities hosted at AOC 2021 were:

1. **AOC's Global Security Forum** was a closed panel discussion with Ambassador Douglas Lute, former U.S. Permanent Representative to the North Atlantic Council, NATO's standing political body; Mr. Mark Kimmitt, former Assistant Secretary for Political-Military Affairs under President George W. Bush; and Mr. Peter Bergen, journalist, documentary producer, Vice President for Global Studies & Fellow at New America, and CNN national security analyst; and was moderated by Mr. Douglas Ollivant, Senior Fellow at New America. This session was open to diplomatic staff and AOC leadership.

2. The **Program Manager Briefing Series** continued in its third iteration. (note: the second offering of this program was conducted virtually December 2020-April 2021). This program continues to be rated highly by all attendees as extremely valuable and helpful to gain insight on program priorities, background info.
3. The **Small Business Showcase** continued with 9 participating companies. AOC must continue growing this component and making it attractive enough for small businesses to invest in having a presence at AOC.

A notable subtraction to the program was the Annual Banquet at AOC 2021. This decision to remove the event was made in consideration of health and safety recommendations as well as financial considerations. It did not seem to have a negative impact on the event, and worth considering if it needs to take place in the future or not.

AOC 2022 | October 25-27, 2022 | Washington, D.C. Convention Center

Host sponsor: L3Harris

Global Conferences

Global Conferences were overseen by the International Advisory Committee, chaired by Sue Robertson, members Jurgen, Opfer, Haruko Kawahigashi, Greg Patschke, Rich Wittstruck, Lisa Fruge-Cirilli, Craig Harm, and Darin Nielsen supported by our conference partner Clarion. Due to the pandemic, AOC Europe was rescheduled from the Spring to October.

Conference	2021	2020	2019	2018	2017	2016
AOC Europe (Clarion)	Oct 11-13 Liverpool, UK AOC Share \$256,670	Cancelled (COVID-19)	May 13-15, Stockholm, Sweden AOC Share \$315,118	June 6-8, Lausanne, Switzerland AOC Share \$305,465	June 6-8, London, UK AOC Share \$254,747	May 10-12, Rotterdam, Netherlands AOC Share \$173,437
AOC Asia (Clarion)	Cancelled (COVID-19)	Feb. 4-5, Singapore AOC Share \$25,063	Jan. 29-30, Singapore AOC Share \$18,929	June 6-8, Singapore AOC Share \$28,684	June 6-8, Singapore AOC Share \$13,935	
AOC EW Asia (Tangent Link)						Sept. 20-23, Kuala Lumpur AOC Share \$3,899

AOC Asia Virtual Summit

On September 28, AOC hosted a virtual 4-hour event geared toward members in the Pacific Rim. This event brought in approximately \$6,500 in sponsorship and more than 350 people either watched the live production (in Japan time) or watched the recording.

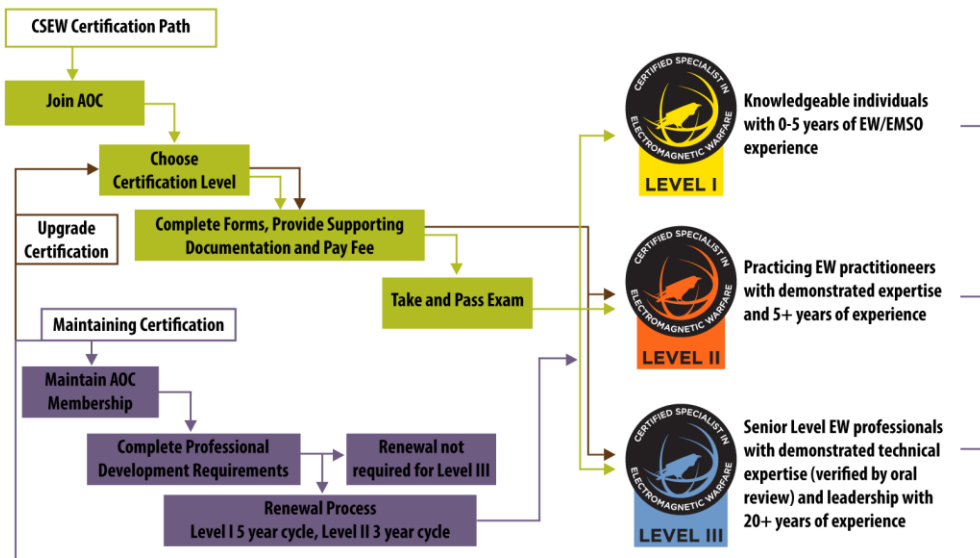
2022 Global Conference Schedule

- AOC Asia (Clarion) – Not holding in 2022
- AOC Europe (Clarion) – May 10-12, 2022 – Montpellier, France
- EW GCC (Abu Dhabi) - December 2022

PROFESSIONAL DEVELOPMENT

The 2021 Professional Development program had a total revenue of \$626,715 and expenses of \$125,340. Net Surplus from PDCs was \$501,375. The top achievement in 2021 for the Professional Development Program was the launch of the much anticipated “Certified Specialist in Electromagnetic Warfare” (CSEW) certification program.

All applicants are required to achieve 100 Professional Development Hours (PDHs) and 4 continuing education unites (CEUs) from AOC courses and webinars to apply for the CSEW.



Dave Adamy and Dr. Phillip Pace were given honorary CSEW Level III and Kyle Davidson was given honorary CSEW Level II based on their merit and experience.

The primary source of professional development AOC strives to offer its members is instructor-led professional development courses, hosted, and administered by AOC. These exist in the form of:

- In-person (AOC facility) – *on hold due to COVID*
- In-person (customer’s facility)
- Virtual (Live)
- Virtual (Recorded)

AOC’s education program was overseen this year by the Education and Training Committee, chaired by Chuck Quintero. By the end of the year, a subcommittee of the Education and Training Committee was established to focus solely on the certification program.

Course History

In-Person	2021	2020	2019	2018	2017	2016	2015	2014
# of Courses	6	6	11	3	5	7	8	14
# of Students	125	267	183	85	51	111	152	227

Webinars	2021	2020	2019	2018	2017	2016	2015	2014
# of Courses	25	21	19	12	16	17	18	20
Attendees	4,575	7,627	3,336	3,173	2,389	2,183	2,811	2,992
Sponsorship	\$271,175	\$231,500	\$147,374	\$118,982	\$90,625	\$84,750	\$135,375	\$113,425

Courses in 2021

Course Name	Location	Instructor	# of Students Live	# of Students On-Demand
RF Theory for ES Operations	Virtual (Adobe Connect)	Pat Ford	22	0
Advanced Principles of Electronic Warfare	Virtual (Adobe Connect)	Dave Adamy	20	0
Fundamental Principles of Electronic Warfare	Virtual (Adobe Connect)	Dave Adamy	31	19
Advanced Principles of Electronic Warfare	Virtual (Adobe Connect)	Dave Adamy	16	12
C4ISR Requirements, Principles, and Systems	Virtual (Adobe Connect)	Clayton Stewart	13	4
Directed Energy Weapons	Virtual (Adobe Connect)	Kyle Davidson	9	0
Introduction to Satellite Communications (Satcom)	Virtual (Adobe Connect)	Pat Ford	14	0

Virtual Series Webinars

The number of webinars offered in 2021 increased to 25 with an increased revenue due to sponsorships. The 2022 webinar calendar currently has 21 webinars scheduled with five more webinars in the final planning stages.

Date	Title	Speaker(s)	Registered	Attended
1/14/2021	An Overview of IADS (Integrated Air Defense Systems)	Dr. Clayton Stewart	830	482
1/28/2021	When Crows Break Codes	John Kolm	502	301
2/11/2021	From Stone Age to Cyber Warfare	Peter Pry	390	224
2/25/2021	HF meets Big Data – Intercept in an era of HF Renaissance	Dr Ronald Meixner (Plath)	603	335
3/11/2021	Cyber Electromagnetic Activities and Signals Intelligence: A Command and Control framework	Claudio Santo Malavenda (Fei-Elcom)	417	202
3/18/2021	Reducing SWaP for Embedded Military Systems	Mark Walker (CAES)	242	28
3/25/2021	The Year in Review - GPS/PNT Disruptions and Improvements	Dana Goward	304	159
4/8/2021	Fast Switching Synthesizers for Emerging EW Systems	Uri Yaniv (FEI - Elcom)	252	128
4/22/2021	All in a Spin about Reticle-Based Seekers	Warren Du Plessis	319	171
5/6/2021	AI Guided Spectrum Operations	Nick Ortyl (QRCTech)	456	206
5/20/2021	5G for Non-Terrestrial Networks	Reiner Stuhlfauth (R&S)	308	145
5/27/2021	Technology Advancements Enabling Test & Evaluation Capabilities	Philip Gresock (Keysight)	305	232
6/17/2021	Aircraft Combat Survivability and Radar Cross Section (RCS)	Renan Richter	380	181
6/24/2021	Introduction to Direct Energy Weapons	Kyle Davidson	564	204
7/15/2021	Introduction to Satellite Communications (SATCOM)	Patrick Ford	644	303
7/29/2021	Electromagnetic Pulse (EMP): Science, Strategy, Politics	Peter Pry	467	232
8/5/2021	Quick Searches for Emitters in an RWR	Art Schwartz	322	152
8/26/2021	Introduction to Digital Signal Processing for Electronic Warfare	Dr. Clayton Stewart	445	203
9/9/2021	Radar Ambiguities - Knowing if a Target Is Coming or Going	Warren Du Plessis	289	146
9/16/2021	United States Loses First Global Space War to Russians	Paul Szymanski	249	118
9/23/2021	Bandits at Three O'clock! The RAF's Chain Home Radar and British Strategic Success	Dr. Thomas Withington	214	102
10/7/2021	5G for Critical Communications	Andreas Roessler (R&S)	336	136
10/14/2021	What SOSA™ Means to the Warfighter	Panel of Speakers	285	132
10/21/2021	Eliminating the Pain of Transitioning EW Systems from Lab Tests to Field Tests	David Murray (D-TA)	236	85
11/4/2021	Cognitive EW Systems: Addressing Mode-Agile Threat Emitters	Tim Fountain	402	172

Career Center

The sales for the Career Center are outsourced and still serves to further position the AOC as the best place to come for EMSO, CEMA, & IO talent.

	2021	2020	2019	2018 (March-EOY)
Job Views	65,836	111,166	925,159	23,344
Job Postings	91	81	156	89
Gross Sales (includes pre-orders of posting packages)	\$60,924.40	\$65,205.50	\$87,193.75	\$65,658.15
Net Revenue to AOC	\$25,528.28	\$16,095.48	\$26,347.58	\$17,499.11

ADVOCACY AND OUTREACH

The mission of the Advocacy and Outreach (A/O) program is to direct, facilitate and integrate stakeholder outreach across the Department of Defense, military, the global defense industrial base, and all of government, including Congress. The program is also charged with building relationships internationally with stakeholders from international AOC chapters. Additionally, the A/O program is charged with integrating its value objectives across all other AOC programs and initiatives.

Advocacy and Outreach was overseen by the Government and Industry Relations Committee, which includes Chairman, Rick Lu, and members, Sue Robertson, and Jim Gigrich.

Value Objectives for Advocacy and Outreach

Value Objectives for Industry

- Provide data, analysis, and context of defense budget
- Influence policy development in Congress and DoD
- Educate and network Members of Congress and staff
- Provide business intelligence/market analysis for better business

Value Objectives for Congress

- Educate Members of Congress and staff
- Provide legislative/budget analysis and policy development
- Improve influence via congressional processes (committee and legislative)
- Strengthen grassroots so Congress knows what's happening on the ground

Value Objectives for DoD/Military

- Provide analysis and context on defense budget
- Collaborate with industry and academia
- Advocate for stronger leadership to provide authority and resources throughout DoD and the Services

2021 Accomplishments/Activities

Due to COVID, Advocacy and Outreach continued to reorient deliverables relevant to a changing market and apply across Congress, military, and industry. The main accomplishment was the development of two new podcasts – *From the Crows' Nest* (FTCN) and the *History of Crows* (HOC). Podcasts provided more than \$120,000 in revenue, and both shows performed very well compared to other association podcasts. They proved to be a versatile product that helps AOC connect with its diverse membership worldwide.

From the Crows' Nest Podcast (FTCN)

FTCN is a regularly scheduled podcast featuring interviews, analysis, and discussions covering leading issues of the day related to EW and EMSO. We produced 32 episodes of FTCN in 2021, including episodes recorded live at AOC CEMA 2021 and the 58th Annual International Symposium and Convention. FTCN received more than 20,000 downloads in its first 9 months. The top 10 episodes of 2021 include:

Episode	Air Date	Downloads	Consumption Rate
The Invisible Battlefield	April 28	914	99.01%
Microelectronics Supply	September 29	895	97.79%
A Perspective on JADC2 from The Joint Staff, J6	July 7	855	97.51%
Joint All-Domain Command and Control (JADC2)	May 12	836	99.43%
Electronic Warfare Challenges and Opportunities	September 8	836	99.31%
Introducing From the Crows' Nest	April 23	829	90.38%
DEF: Moving Beyond Lightning Bolts on PowerPoint	August 4	827	99.19%
Accelerating Open Systems Architecture	October 20	819	78.58%
Optimized for Possibilities: How AI/ML are Changing How We Think About Everything.	September 15	797	86.45%

History of Crows Podcast

HOC takes you on a journey throughout time and around the world to meet the inventors, the battles, and the technology that has not only shaped military operations - how we fight - but also how we live. HOC covers some of the most important discoveries, battles, and events that shaped what we know today as EMSO. In 2021, AOC released the first five episodes with nearly 4,000 downloads to frame early EW history from James Clerk Maxwell through World War II in Europe.

Episode	Air Date	Downloads	Consumption Rate
A New Epoch	June 2	908	99.46%
Sparks Across the Atlantic	Jun 16	748	99.44%
The Echo	Jul 28	742	98.02%
Beam Wars	Aug 11	754	98.94%
Codebreakers	Sept 22	732	99.39%

AOC History Initiative

The AOC Podcast created an opportunity to initiate a related new program – the AOC History Initiative – to begin to capture, preserve and share the unique history of EW and EMSO to audiences around the world. The History Initiative will combine the HOC podcast, exhibits, museum partnerships, and other deliverables to better tell our story to future generations. Early steps will include identifying History Ambassadors and reestablishing the AOC History Committee.

AOC Discussions and Program Manager Briefing Series Reports

To frame and advance discussion of current developments in our community, the Advocacy and Outreach Committee published a series of post-event issue briefs to accompany AOC Discussions and select PMBS presentations. Reports covered presentations including General John Hyten, General Charles Q Brown, Jr., Vice Admiral Jeffery Trussler, and Air Chief Marshal Sir Stuart Peach.

Other Activity Highlights

In addition to the above deliverables, the Advocacy and Outreach department continued select initiatives from prior years, including:

- Conducted targeted virtual outreach to Congressional Electronic Warfare Working Group staff, Professional Committee Staff, and related legislative agencies, including the Congressional Research Service and the Government Accountability Office.
- Published Advocacy Newsletters periodically covering current events in government and Congress.
- Maintained a defense budget database of EW-related programs and activities in the national defense budget.
- Monitored Mark-ups and Hearings in the House/Senate Armed Services Committees and provided analysis of FY 2021 National Defense Authorization Act and FY 2021 Defense Appropriations legislation.
- Conducted regular outreach to AOC Industry Members, including technical subject matter expertise, business development, and sales.

2021 AWARDS

PRESTIGE AWARDS	
AOC Gold Medal Recipient	Mr. Stephen D. Kreider
Hal Gershanoff Silver Medal Award Recipient	Mr. Steve "Tango" Tourangeau
Col Anton D. Brees Lifetime Service Award Recipients	Mrs. Irene Biddy and Mrs. Lisa Frugé-Cirilli
Joseph W. Kearney Pioneer Award Recipient	MSgt Seth M. Anderson, USAF
AOC Technology Hall of Fame Recipients	Mr. Duane Beaulieu
John Clifford Award for the Advancement of the Electromagnetic Domain Award	Mrs. Melinda Tourangeau
COMMUNITY AWARDS	
Jeffrey B. Jones Cyber Operations Award	Mr. Raul Blanche
Spec 4 James Davis Maintenance Award	SRA Carlos E. Sacarello Rivera, USAF
CTTCM Clay A Conner Training Award	Capt Trisdon Stephen Miller USAF
Stanley B. Hall Executive Management Award	COL Kevin Finch, USA
Clark G. Fiester Program Management Award	Mr. Bobby Holiday
Integrated Product Team Award	Special Projects Trinity (TNT) Team
Test & Evaluation Award	Mr. Jason Lee
International Achievement	CDR Damian A. Dodge, USN
Military Service Award – Air Force	MSgt Thongchai Hauchaipetch, USAF
Military Service Award – Army	CW4 Michael Ebinal, USA
Military Service Award – Navy	CPO Nicholas Davis, USN
Military Service Award – International	Unit 513 of the IDF
Outstanding Unit – NATO	NATO Electronic Warfare Doctrine and Policy Panel (EWPDP)
Outstanding Unit – Navy – Shore	Naval Special Warfare Mission Support Center
Outstanding Unit – Navy – Air	USS NIMITZ
Outstanding Unit Navy – Surface	Naval Special Warfare Development Group

LOOK AHEAD

The five-year strategy and 2022 Operating Plan were approved by the Board of Directors in December. For the detailed report visit <https://www.crows.org/page/governingdocuments> Appendix A and B.

5-YEAR GOALS

It is our mission to educate, connect, and advocate on behalf of members and stakeholders in the global electromagnetic warfare community. With that in mind, these are five strategic goals to become the AOC that we want to become in 2026 and beyond.

1. Grow our global membership commensurate with our market to reach at least 20,000 individual members and 350 industry members by 2026.
2. Build an advocacy and communications enterprise to deliver timely and professional resources and support to stakeholders.
3. Diversify streams of revenue to strengthen our ability to adapt to changing business environment.
4. Strengthen international programs to reflect our global presence by increasing international membership, enhancing membership experience, and developing a plan to improve member engagement.
5. Grow professional development certification and STEM programs in accordance with recently established roadmaps.

2022 GOALS

- MEMBERSHIP EXPANSION
 - Focus on member retention/renewals. 2022 goal to increase individual membership by 4% and set up future year growth plan
 - Develop and carry out campaign to update contact and demographic data. Goal - 50 percent membership data accuracy
 - Evaluate current membership models/structures
 - Develop guidelines for university and other post-secondary education clubs
 - Evaluate Chapter Programs
 - Evaluate the structure of the AOC Educational Foundation and the Board of Governors
- ADVOCACY AND COMMUNICATIONS ENTERPRISE
 - Determine the way-ahead for JED and other Naylor products
 - Rebuild organic congressional outreach and education program
 - Establish Technical Writing Committee to produce regular technical and policy deliverables for distribution to AOC members and global stakeholders
- DIVERSIFY STREAMS OF REVENUE
 - Build on the success of AOC Podcasts *From the Crows Nest* and *History of Crows*
 - Build on success of existing conferences and annual convention
 - Available funds to test activities and programs to diversify our streams of revenue
 - Invest in additional staff to allow time for reflection and brainstorming
- INTERNATIONAL EXPANSION
 - increase AOC stakeholder outreach to international chapters and events.
- EDUCATE
 - Grow Professional Development Certification
 - Expand STEM and Mentor program
 - Grow Scholarship program
 - Develop marketing approach of tying all education offerings together – from cradle to grave – STEM and mentor programs, professional development, career center, certification, etc.

AOC FOUNDATION



AOC EDUCATION FOUNDATION

2021 AOC Education Foundation Board of Governors

President-Elect	Glenn "Powder" Carlson
Vice-President	Brian Hinkley
Secretary	Mark Schallheim
Treasurer	Greg Patschke
International Exec	Bob Andrews
Regional Directors	Keith Everly, Jim Pryor, Mark Schallheim, Rick Lu, Sue Robertson, Jeff Walsh, Karen Brigance, Sam Roberts, Myles Murphy
Past President	Muddy Watters
Appointed Directors	Gary Lyke, Chuck Quintero

Meetings

There were five (5) Board of Governors meetings held in 2021.

Date	Description
February 11, 2021	Virtual
June 10, 2021	Virtual
August 19, 2021	Virtual
October 21, 2021	Virtual
December 2, 2021	In-Person

Foundation Governing Documents

The Education Foundation Governing Documents can be found on the AOC website after you login under the Foundation tab on the top bar.

Scholarships

In 2021, the AOC, made possible by a \$25,000 donation from Raytheon, awarded two \$12,500 scholarships; we partnered with an independent group to review the applications and select two winners:

- Nathan Stofik – University of South Carolina
- Veronica Vegara – Rutgers University, New Jersey

AOC also awarded the Warrant Officer Scholarship with the generous help and donation of \$20,000 from the Laurie Buckhout Foundation. AOC partnered with the US Army Cyber School in Fort Gordan, GA to review the applications and select the winner.

- WO1 Mykel S. Perry, USA

AOC Chapters gave out approximately \$150,000 in scholarship money in 2021. Between HQ and Chapters, approximately 110 individuals received some form of a scholarship from the AOC.

Financial Status

The AOC Foundation balance as of December 2021 is \$207,984 which includes the following donations:

- \$25,000 – 2021 Raytheon Scholarships – Raytheon Missiles & Defense
- \$20,000 – 2021 Warrant Officer Scholarship – Laurie Buckhout Foundation
- \$10,431 – individual contributions in 2021

STEM Program

Vision

Investment and development of our "young" crows through EMS STEM education programs, mentorships, and AOC events encouraging collaboration while ensuring successful growth of our "EMS Leaders of Tomorrow".

Mission

The Association of Old Crows Education Foundation 501 (c)(3) organization provides a dedicated venue for AOC Chapters to post EMS STEM events fostering open communication and the sharing of ideas through our AOC website, Subject Matter Experts (SMEs) and by hosting global STEM events to include the Annual Convention to promote our chapters, academia, industry and government.

Program Highlights

- Developed seven educational videos for students
- Posted more than 70 EMS technology blogs on AOC STEM group page
- Implemented the mentor program, called AOC Crow Career Builder program, to connect our network of professionals with the next generation of crows. Over 30 mentors and mentees signed up, 18 successfully connected.
- Received 6 entries for the AOC STEM Challenge
 - First Place - Oakton High School - Vienna, Virginia
 - Second place - Hertz Power Group, Civil Air Patrol - New Jersey
 - Second Place - NJ102 Group, Civil Air Patrol - New Jersey
 - Third Place - Montgomery Blair High School - Silver Spring, Maryland

2022 AOC Education Foundation Board of Governors

President	Glenn "Powder" Carlson
President-Elect	Brian Hinkley
Secretary	Mark Schallheim
Treasurer	Greg Patschke
International Executive	Sue Robertson
Regional Directors	Mark Schallheim, Rick Lu, Sue Robertson, Jurgen Opfer, Karen Brigance, Myles Murphy Nino Amoroso, Steve Oatman, Wayne Shaw
Past President	Muddy Watters
Appointed Directors	Gary Lyke, Chuck Quintero